

**GUNKUL**  
*not only the energy, we care*

# ANNUAL REPORT 2018

บริษัท กันกุลเอ็นจิเนียริง จำกัด (มหาชน)  
GUNKUL ENGINEERING PUBLIC COMPANY LIMITED

[WWW.GUNKUL.COM](http://WWW.GUNKUL.COM)



**GUNKUL**  
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## VISION

Be a leader in the integrated renewable energy and electrical systems business, implementing state of the art technology for sustainable infrastructure development.

## MISSIONS

1. Renewable Energy : To operate the business of the renewable energy power plants under the highest efficiency standards with the emphasis on the society and environment.
2. Sales : To procure the equipment for power systems, energy saving products distribution channels and render the service which fulfills the customers' demand.
3. Technology : To develop the IT system and adopt the new technology to improve management and productivity, increase work efficiency and reduce the production costs.
4. Returns : To maximize the shareholders' and stakeholders' returns.
5. Personal : To increase the employees' capability to enhance the Company's competitiveness on the global scale.
6. Management : To create a strong management structure based on the principle of good governance.

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Age (years)	Percentage (%)
18	10
20	15
25	25
30	35
35	45
40	55
45	65
50	75
55	80
60	82
65	85

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## MESSAGE FROM **CHAIRMAN**

A handwritten signature in dark blue ink, consisting of stylized Thai characters.

Gunkul Dhumrongpiyawut  
Chairman

## Dear Shareholders,

In 2018, the overall Thailand economy has slightly increased from the previous year resulted from government stimulus measures, such as the stimulation of domestic consumption, investment in public transport infrastructure and continued growth in tourism sector, despite to confront the risk factors from slow and fluctuated global economic recovery.

From the above circumstances, this is another company's challenging year which faces managing risk from unavoidable external factors, such as, impact of oil price fluctuation, impact of global economic slowdown, world politics transformation, disruptive technology that may affect the overall business of the company. The Company has changed its management strategies, training and human resource development to match in a fast changing world and current circumstances. In addition, to maintain our existing business by expanding energy business both domestic and abroad, the Company also invest in Solar Rooftop Project under the brand (GRooF) for sustainable grown with value added to the organization and prepare for Thailand economic growth in the future. The Company believes that energy business are key business in Thailand economic development as well as our opportunity to grow and generate more revenue in the future.

Gunkul is now a business leader in energy sector. We have never stopped improving our company and products for a sustainable growth and competing in world market. Especially in 2018, Thailand has been gearing towards "Thailand 4.0". Innovation and creativity will be key factors to drive Thai's economy; therefore, marketing strategy turns to employ the new principles and the partners take important roles in the market. Marketing plans should be adaptive and modern.

However, the Company still recognizes the importance of conducting business according to good governance principles and management system based on sustainable development with responsibility to all stakeholders in economy, society and environment. In 2018, the Company focused on the establishment of measures against corruption and expressed our intention by participating the Private Sector Collective Action Coalition Against Corruption or CAC to provide management and employees with clear guidelines in line with anti-corruption policy including communicating the policy to customers, partners and related parties. The Company is also developing organizational efficiency in corporate business strategy, compliance, human resources, information technology and service standard to create corporate culture with most efficient usage of resources to lead the Company business through the obstacles and grow continuously.

On behalf of the Board of Directors, I would like to convey my sincere appreciation to all shareholders and supporters as well as the Company Management and all employees who have contributed your full support to the Company. Board of Directors shall accordingly perform duties with full responsibility for all stakeholders' interest to grow the business sustainably.

Yours sincerely,

A handwritten signature in black ink, consisting of stylized, overlapping loops and a final downward stroke.

Gunkul Dhumrongpiyawut  
Chairman

20 February, 2019



Part I

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Annual Report

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2018



## **Report of** the Audit Committee

Dear Shareholders of Gunkul Engineering Public Company Limited,

The Audit Committee of Gunkul Engineering Public Company Limited consists of three independent directors who are Dr. Djitt Laowattana as Chairman of the Audit Committee, Pol. Maj. Gen. Visit Sukarasep and Dr. Chongrak Rarueysong as Members of the Audit Committee. All members of the Audit Committee have experience in law, accounting and finance, management and also knowledge of energy business. Their qualification was compiled both with the Securities and Exchange Commission, Thailand and the Stock Exchange of Thailand.

In May 2018, there was a change in the Audit Committee because Pol. Maj. Gen. Visit Sukarasep was appointed as a Director for 9 years. At the Annual General Meeting of Shareholders that held on 20th April 2018, shareholders approved by appointing Assoc. Prof. Dr. Panarat Panmanee to be an independent director and the Board of Directors' Meeting No. 3/2561 that held on 14th May 2018, resolved to appoint Assoc. Prof. Dr. Phanarat Panmanee as a member of the Audit Committee.

The Audit Committee acts as assigned from the Board of Directors to monitor and review the Company's financial reporting to be accurate and reliable, proper system of internal control and internal audit, as well as to review for compliance with policies against corrupt efficiently. The Committee has performed in accordance with duties and responsibilities as defined in "Audit Committee Charter" which complies with guidelines and best practices for Audit Committee of the Stock Exchange of Thailand.

In fiscal year 2018, the Audit Committee arranged 6 meetings and arranged a meeting between the Audit Committee and the Auditor without management in attendance 1 meeting. The meetings were attended by all members of the Audit Committee, the management as well as the company's Internal Auditor Department and External Auditor, in order to share information, comments and give suggestions which were benefit to administration proposes. The results of each meeting were presented to the Board of

Directors of the Company. During past year, the Audit Committee had carried out important activities, which could be summarized as follows.

1. **In reviewing the financial statements**, the Audit Committee reviewed the Quarterly Financial Statements, Annual Financial Statements and related financial reports and significant accounting policy changes by discussing with the auditor and the management of the Company in order to ensure that the Company's financial reports have been prepared correctly in accordance with generally accepted accounting standards with sufficient, complete and reliable information disclosure in comply with laws and announcements associated before presenting the financial statements to the Board of Directors for an approval.
2. **In reviewing the internal control system**, the Audit Committee reviewed the adequacy, appropriateness and effectiveness of the internal control system by considering the internal audit report of the Company together with the external auditor's report every quarter with an agreement that the Company has adequate internal control systems with an ability that can create reasonable confidence that the Company has an effective internal control system.
3. **In supervision of internal audit**, the Audit Committee has asked and considered the internal auditing plans to ensure that the internal auditing plans have efficiency and effectiveness by approving the internal auditing plans which was created by using Risk – based Audit Plan, acknowledging the results and giving suggestions of suitable internal controls which can prevent and reduce the risks that may occur. Including reviewed the annual internal auditing plans to ensure that the internal auditing plans have been adjusted and been consistent with current situation for more effective work.
4. **In reviewing the risk management**, the Audit Committee reviewed the risk management system in order to ensure that the Company has an appropriate and effective risk management system to reduce the risk to an acceptable level, which the Company has given importance and developed the risk management system. The Board of Directors has appointed the Risk Management Committee to set the framework for risk management and supervision policies throughout the Company and affiliated companies to be effective in accordance with the organization's goals.

The Audit Committee had an opinion that the Company has adequate and effective risk management.

5. **In reviewing the related party and conflicts of interest transactions**, the Audit Committee has considered and asked for the transactions that may have conflicts of related party or conflicts of interest are prepared in accordance with the legal requirement and complied with the Stock Exchange of Thailand Act every quarter and assigning an internal audit team to review a basic accuracy, including asked by the auditors every year. As the result of reviewing, the majority of the transactions between the Company and subsidiaries were normal commercial transaction in accordance with good corporate governance, eliminate conflicts of interest thoroughly, realistic and independent.
6. **Compliance with the Securities and Exchange Commission Law and Regulations**, the Audit Committee has expressed the opinion that the Company is conducting business in compliance with the law on securities and exchange, announcements and regulations of the Stock Exchange of Thailand; as well as, other specific laws that relating to the business of the Company.
7. **In supporting good corporate governance and considering complaints about fraud or corruption functions such as channels for employees**, shareholders and stakeholders to contact the Committee to be able to inform various information to the Audit Committee regarding complaints Illegal matters or business ethics or questions in financial reports or internal control systems with convenient by email, mail and via the clues and complaints box including providing a system for receiving complaints. As well as, having protection measures without disclosing the informant and also holding confidential information.
8. **In consideration, selection, appointment and proposal of remuneration of the auditor of the Company**, the Audit Committee has considered the selection of auditors by considering the independence of the operation, business skills including audit fees. The Audit Committee gave an opinions to the Board of Directors for considering and proposing to the Annual General Meeting of Shareholders for the year 2019 to consider appointing an auditor from KPMG Phoomchai Audit Ltd. to be the auditor of the Company and the subsidiary

company for the year 2019 by appointing Mr. Waiyawut Kosamarnchaiyakij, Certified Public Accountant No. 6333 and/or Mr. Natthaphong Tantichattanont, Certified Public Accountant No. 8829 and/or Ms. Sophit Prompol, Certified Public Accountant No. 10042. The said auditor is an auditor that approved by the Securities and Exchange Commission.

In conclusion, the Audit Committee has opinion that the financial statements of the Company and its subsidiaries have been prepared in accordance with generally accepted accounting principles and have sufficient information disclosure with accuracy, completeness and reliability. The internal control system is efficient and effective enough to prevent fraud and improper personal exploitation. There is a clear separation of authority. Also the business operations of the Company and its subsidiaries are in accordance with the law on securities and exchange, announcements and regulations of the Stock Exchange of Thailand or other related laws.



(Dr. Djitt Laowattana)

Chairman of the Audit Committee

20<sup>th</sup> February 2019





## Report of the Risk Management Committee

Risk management in business operations is an important and necessary activity to be undertaken. The Company recognizes the importance of risk management that affects business operations. Therefore the Company has set a policy for the Company and its subsidiaries to have an assessment of the risks that affect business operations by appointing the Risk Management Committee which contain with independent directors and management totaling 4 persons, namely Air Vice Marshal Dr. Pian Totarong as a Chairman, Mr. Somchai Trairatanirom, Miss Sopacha Dhumrongpiyawut and Mr. Thitipong Techaratanayuenyong are Members of the Risk Management Committee. The Committee's duties are to review and approve risk management plan, monitor business risk assessment of the Company and its subsidiaries and formulate risk mitigation plan including the preparation of measures to prevent and solve such risks.

The Committee arranged 4 meetings in 2018 to review important issues pertaining to risk management. Key duties are summarized as follows:

### **1. Risk Management Plan for 2018**

The Committee has assigned the secretary to the Risk Management Committee to be the coordinator in organizing the risk management meeting for the management of all relevant departments to present the risk management plan for consideration and approval. The risk management plan covers all dimensions of business operations, including business strategy determination risk, operational risk financial risk, exchange rate fluctuations and interest rates risk, procurement of partners and personnel with expertise and knowledge to support future business growth of the Company risk, information technology risk and relationship management with partners and stakeholders risk. Also, a risk that may affect the community and the environment and legal compliance risks as well as corruption risk.

### **2. Risk assessment and preventive or corrective measures**

The Risk Management Committee has considered the factors and results of the risk assessment according to the established risk management plan that covering

the entire organization including risks from uncontrollable external factors, such as political impacts, fluctuations in both domestic and international economic conditions impact as well as natural disasters impact, etc. which may have an impact on the achievement of business goals of the Group by setting the risk level from high to low. The Committee has used the risk management methods that defined in ISO / IEC 17025 version 2017 for additional guidelines for risk management by assigning the responsible person to find the ways to prevent and mitigate the effects of potential risks to an acceptable level in order to achieve business goals in accordance with the specified strategy.

### **3. Monitoring the implementing preventive and risk management measures**

The Risk Management Committee closely monitors risk management by arranging meetings with relevant agencies every quarter to acknowledge the risk management results including reviewing the risks of the Company and the Group regularly. Moreover, the Risk Management Committee provided more various suggestions in order to ensure effective and efficient risk management by continuously developing to have a risk culture management in the future.

From the above operations, the Risk Management Committee has considered that the Company and the Group have established a risk management plan and implemented the risk management plan continuously and efficiently. Including internal control that is sufficient and suitable for the business which is in accordance with good corporate governance policy and also compliance with relevant laws and regulations accurately and completely.



(Air Vice Marshal Dr. Pian Totarong)

Chairman of the Risk Management Committee

7<sup>th</sup> February 2019



## Report of the Nomination and Remuneration Committee

The company recognizes the importance of nominating Committee and Chief Executive including the remuneration such as persons. The Board of Directors has appointed the Nomination and Remuneration Committee which consists of independent directors 3 in 4 of all directors, by searching for a person with talent and qualified to serves in the position of the Committee and Chief Executive. Including the proposing of remuneration policy, guidelines for remuneration, other benefits for the Board of Directors and all Committees; as well as, Chief Executive which suitable with responsibilities in accordance with the results of the company's operations and market condition as always. In order to motivate and maintain the committee and the executive who has high potentiality and qualification that meets the Company's needs.

In 2018, the Nomination and Remuneration Committee convened 3 meetings for consider matters. The Nomination and Remuneration Committee reported the results of the meeting, comments and recommendations to the Board of Directors for consideration and continuously. The important considerations are summarized as following;

- **To consider the nomination and selection of qualified persons to be directors of the Company**

The Nomination and Remuneration Committee has considered the recruitment and selection of persons to be appointed as the Company's directors and independent directors including the sub-committee that has completed the term. The nomination will be considered by the person with appropriate qualifications complete in accordance with the requirements of the Securities and Exchange Commission and the Stock Exchange of Thailand by considering the qualifications, experience and useful knowledge including supporting the growth of the Company. As well as proposing to the Board of Directors' meeting and Shareholders' meeting.

- **To impose and review Policies and Guidelines**

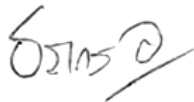
The Nomination and Remuneration Committee has considered and review policies

and guidelines which relate to the implementation of the nomination and remuneration. To ensure that the operation was proceeded with efficient which comply with Good Corporate Governance's regulations and policies. As well as, the current international situation and the guidelines as details below;

- The Nomination and Remuneration Committee Charter.
  - The Policy on the Recruitment and Appointment of the Directors and Senior Management (Chief Executive)
  - The Policy on the Remuneration of the Board's Directors and Sub-Committee
  - The Policy on Succession Plan and Talent Management
  - Self- Assessment of the Nomination and Remuneration Committee, by Committee, for 2018
- **To determine the bonus payment rate and annual salary adjustment**

To create a motivation and maintain good and competent employees, the Nomination and Remuneration Committee has considered the criteria for determining the bonus payment and annual salary adjustment for 2018 together with the Executive Committee to be at an appropriate rate and in line with the operating results of the Company and the Group and also in the level of comparable to general practices in the industry.

The Nomination and Remuneration Committee reported the results of every meeting to the Board of Directors continuously. In 2018, the Nomination and Remuneration Committee has fulfilled the tasks assigned in an entirety with duly care and full capacity with a very straightforward for the best interests of shareholders and stakeholders on all sides and a commitment to abide by the principles of equality, fairness and transparency to ensuring compliance with the principles of good corporate governance as prescribed by the Securities and Exchange Commission and the Stock Exchange of Thailand and to be accepted internationally.



( Mr. Tarakorn Angpubate )

Chairman of the Nomination and Remuneration Committee

8<sup>th</sup> February 2019





## Report of the Good Corporate Governance Committee

In 2018, the Good Corporate Governance Committee convened 4 meetings to determine/ review the policy and guidelines for good corporate governance, to determine the anti-corruption plan including any other operations related to corporate governance and follow up the operation of the Company's good corporate governance according to the principles of good corporate governance for listed companies of the Stock Exchange of Thailand and according to the regulations of the Securities and Exchange Commission which focused on the implementation of the policies and practice of good corporate governance in 5 categories, Rights of Shareholders, Equitable Treatment of Shareholders, Role of Stakeholders, Disclosure and Transparency and Responsibilities of the Board, details as following;

- Supervising, reviewing, revising and improving policies and practices of good corporate governance for comply with the rules related implementation within 5 categories, including anti-corruption measures and practices corruption with international guidelines.
- Reviewing the anti-corruption policy and report clues or complaints including coordinating for managing plan to educate those who involved, and having the assessment of the corruption risk for personnel in the Company.
- Supervising the directors and management to prepare and to submit the report for holding the possession as per as the implementation requires. Also reporting to the Good Corporate Governance Committee regularly on a quarterly basis.
- Considering the report on compliance with good corporate governance in the Annual Report 2018 (Form 56-2) and the Annual Information Form 2018 (Form 56-1) in order to ensure the disclosure of information is complete in accordance with the supervision guidelines of good corporate governance.
- Considering and review of good corporate governance charter and review the Board of Directors Charter, also follow up to review the other committees charter.

- Considering and improving the process and criteria for self-assessment of the Good Corporate Governance Committee for the year 2018 to be up-to-date and consistent with the current situation in accordance with international guidelines. Also, providing the recommendations for improvement of the process and criteria in the self-assessment form of the Board of Directors and the Executive Committee including the evaluation form of the Chief Executive Officer.
- Considering the report evaluates from operation performance and supervisory of the Good Corporate Governance Committee to the Board of Directors.
- Considering the plan to prepare the Annual General Meeting of Shareholders for the year 2019 by giving suggestions for the meeting to be transparent and effective.

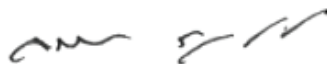
The Good Corporate Governance Committee recognizes that the good corporate governance is important and beneficial to the Company's business operation until the shareholders and stakeholders and all of the parties. The Good Corporate Governance Committee therefore has a commitment to perform duties to propose guidelines and provide good corporate governance advice to the Board of Directors and management, to be a guideline for the operation of the Company and the Group which is effective, efficient management, transparent and can be verified for the purpose of providing the Company with sustainable progress.

The Company is committed to bring good corporate governance principles to concrete operations throughout the organization. In 2018, the Company received a Corporate Good Governance (CGR) rating of 91.5 points (excellent level), compared to the results obtained in 2017, the score was 91 points (excellent level).

In 2018, the Company received the result of Annual General Shareholders' Meeting Assessment for 2018 with the excellent score of 96 points, compared to the results obtained in 2017 with the excellent score of 97.5 points. Also since 2017, the Private Sector Collective Action Coalition Against Corruption Council has evaluated and approved the Company to become a member of the Private Sector Collective Action Against Corruption (CAC). The Company has established guidelines on such principles throughout the organization which reflects to the overall development of good corporate governance of the Company continuously.

In addition, in 2018, the Company has prepared a plan to be in accordance with the Good Corporate Code for Listed Companies (CG Code) according to the guidelines recommended

by the Securities and Exchange Commission and brought to the Board of Directors to formulate a concrete practice in order to continue development.



(Dr. Chongrak Rarueysong)  
Chairman of the Good Corporate Governance Committee  
15<sup>th</sup> January 2019



## Report of the Executive Committee

Dear Shareholders of Gunkul Engineering Public Company Limited,

For the year 2018 is the year that the country's economy has grown more than in 2017. The main driving force is from the export sector that benefits from the global economy that can grow again. In addition, the Thai economy has also been driven by domestic demand, especially in the private sector, which has continued to expand. The Company is able to operate the business with strong and continuous growth, with a revenues of 6,460 million baht and a net profit of 1,178.41 million baht. The significant increase in revenue is due to the sale of electricity from Wind turbine Power Plant, with a total capacity of 170 megawatts. The total revenue from the sale of electricity in 2018 from both the solar and wind power projects of the Company amounted to 2,929.75 million baht, compared with the year 2017, at the amount of 1,535.56 million baht, equivalent to an increase of 1,394.19 million baht or representing an increase of 90.79 percent.

In the year 2018, the Board of Directors held 32 meetings to consider important matters of the Company, which were carried out as assigned by the Board of Directors and report the meeting results along with guidelines for solving problems and suggestions to the Board of Directors for accurate and appropriate consideration on a regular basis. It can be summarized as follows;

- Determining business plans and strategies to be in accordance with the vision and mission of the organization for the year 2018

The Executive Committee had established strategies and operational plans of the Company, subsidiaries and associates in each business line annually and had monitored the results every quarter. In addition, the plan had been transferred to executives and employees at all levels in the organization for acknowledgment and implementation in accordance with the stated goals.

- Checking and monitoring the performance of the Company, subsidiaries and associates

The Executive Committee had reviewed and monitored the performance of all business lines on a monthly basis in order to comply with the plan and as assigned by the Board of Directors.

- Approving connected transactions or transactions that might have conflicts of interest or items that have interests according to the Company's regulations or related laws

The Executive Committee had considered and approved such transactions as specified in the Company's Articles of Association, policies, regulations, and announcements of the Capital Market Supervisory Board. The approval of such transactions must be submitted to the Board of Directors and / or the shareholders' meeting for consideration and approval according to the Company's regulations or related laws.

- Considering and approving the investment and participation in bidding for projects

The Executive Committee had scrutinized or approved the investment and / or participated in the bidding of new projects, as well as undertaking various projects as it deems appropriate by taking into account the benefits of the Company, shareholders and all stakeholders equally before submitting to the Board of Directors for further consideration.

- Considering the restructuring of the Board of Directors

The Executive Committee had considered the restructuring of the Board of Directors from 9 to 10 people in order for the Board to have a greater variety of professional skills and specialized expertise. Then, proposed to the Board of Directors 'meeting and shareholders' meeting for further approval.

- Determining the remuneration policy and salary structure of employees

The Executive Committee had considered and approved the position structure, salary structure and other benefits of employees to propose to the Nomination and Remuneration Committee for consideration before presenting to the Board of Directors for approval.

The Executive Committee is confident that in the year 2562 will be the year that the Company has more business opportunities because the Company is well equipped in terms of qualifications, capabilities and experience of executives and employees. Together with the Company being a leader in renewable energy business and the power system business, with leading technology that can be used to develop sustainable infrastructure according to government policies. In addition, the Company has implemented the policy under the consid-

eration of the best interests of the Company, shareholders and all stakeholders. As well as, ensuring that the Company has a system that operates in a manner that is lawful and ethical in accordance with the principles of good corporate governance in order to bring the organization to a stable and sustainable progress.



(Ms. Sopacha Dhumrongpiyawut)  
Chief Executive Officer  
20<sup>th</sup> February 2019

# 7. Board of Directors



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Name list	Position
1. Mr. Gunkul Dhumrongpiyawut	Chairman of the Board of Directors (Non-Executive Director)
2. Dr. Djitt Laowattana	Independent Director / Chairman of the Audit Committee
3. Dr. Chongrak Rarueysong	Independent Director / Member of the Audit Committee / Chairman of the Good Corporate Governance Committee
4. Assoc.Prof. Dr. Panarat Panmanee	Independent Director / Member of the Audit Committee
5. Mr. Tarakorn Angpubate	Independent Director / Chairman of the Nomination and Remuneration Committee
6. Miss Sopacha Dhumrongpiyawut	Director / Chairman of the Executive Committee / CEO / Member of the Risk Management Committee
7. Dr. Somboon Aueatchasai	Director and Secretary / Executive Director / Managing Director
8. Miss Naruechon Dhumrongpiyawut	Director / Executive Director
9. Mr. Chaloepon Sricharoen	Director / Executive Director
10. Mrs. Areewan Chaloepondan	Director / Executive Director
11. Miss Chantira Jongjamareeseethong	Company Secretary



## 8. Audit Committee



Name list	Position
1. Dr. Djitt Laowattana	Chairman of the Audit Committee (Independent Director)
2. Dr. Chongrak Rarueysong	Member of the Audit Committee (Independent Director)
3. Assoc.Prof. Dr. Panarat Panmanee	Member of the Audit Committee (Independent Director)
4. Mr. Tanetsiri Farkmitr	Secretary of the Audit Committee

## 9. Risk Management Committee



Name list	Position
1. AVM.Dr.Pian Totarong	Chairman of the Risk Management Committee (Independent Director)
2. Mr. Somchai Trairatanapirom	Member of the Risk Management Committee (Independent Director)
3. Miss Sopacha Dhumrongpiyawut	Member of the Risk Management Committee
4. Mr. Thitipong Techaratanayuenyong	Member of the Risk Management Committee and Secretary of the Committee

# 10. Nomination and Remuneration Committee



Name list	Position
1. Mr. Tarakorn Angpubate	Chairman of the Nomination and Remuneration Committee (Independent Director)
2. Mr. Decha Chooligorn	Member of the Nomination and Remuneration Committee (Independent Director)
3. Mr. Hathai Uthai	Member of the Nomination and Remuneration Committee (Independent Director)
4. Mrs. Somluk Kanuenghet	Member of the Nomination and Remuneration Committee and Secretary of the Committee

# 11.

## Good Corporate Governance Committee



Name list	Position
1. Dr. Chongrak Rarueysong	Chairman of the Good Corporate Governance Committee (Independent Director)
2. Mr. Phongthep Thitapan	Member of the Good Corporate Governance Committee (Independent Director)
3. Mr. Somchai Trairatanapirom	Member of the Good Corporate Governance Committee (Independent Director)
4. Miss Chantra Jongjamareeseethong	Secretary of the Good Corporate Governance Committee

## 12. Executive Committee



Name list	Position
1. Miss Sopacha Dhumrongpiyawut	Chief Executive Officer
2. Dr. Somboon Aueatchasai	Executive Director
3. Miss Naruechon Dhumrongpiyawut	Executive Director
4. Mr. Chaloepon Sricharoen	Executive Director
5. Mrs. Areewan Chaloezman	Executive Director



## 13. Management Team



1. Miss Sopacha Dhumrongpiyawut  
*Chief Executive Officer*



2. Dr. Somboon Aueatchasai  
*Managing Director*



3. Dr. Phongsakorn Damnoen  
*Deputy Managing Director,  
Business Development and Strategic Planning*



4. Miss Naruechon Dhumrongpiyawut  
*Assistant Managing Director,  
Strategic Planning and Investment  
Senior Vice President, Logistics*



5. Mr. Chaisiri Wattanachannarong  
*Assistant Managing Director,  
Project Construction Management*



6. Mrs. Areewan Chaloemdan  
*Acting Assistant Managing Director, Factory*



7. Mr. Thitipong Techaratanayuenyong  
*Chief Financial Officer*



8. Mrs. Somluk Kanuenghet  
*Senior Vice President, Executive Office*



9. Mr. Thamrong Chankraithong  
*Senior Vice President, Sales & Marketing*



**10. Dr. Phairot Phanukan**  
*Senior Vice President,  
 Project Construction Management &  
 Operating Maintenance*



**11. Mrs. Nattawan Wongchan**  
*Senior Vice President, Business Support*



**12. Mr. Janpon Ngamaroonchote**  
*Senior Vice President, Strategic Planning &  
 Investment and Sales & Marketing-Energy  
 Solution, Lighting and GRoof*



**13. Miss Chantra Jongjamareeseethong**  
*Senior Vice President,  
 Office of Managing Director  
 & Investor Relations*



**14. Ms. Suttirat Tangnorakul**  
*Vice President, Business Support (Accounting)*



**15. Mr. Tanetsiri Farkmitr**  
*Assistant Vice President, Internal Audit  
 Secretary of the Audit Committee*

**GUNKUL**  
*not only the energy, we care*

# 14. Financial Highlights

## 14.1 Financial Highlights for the past 5 years

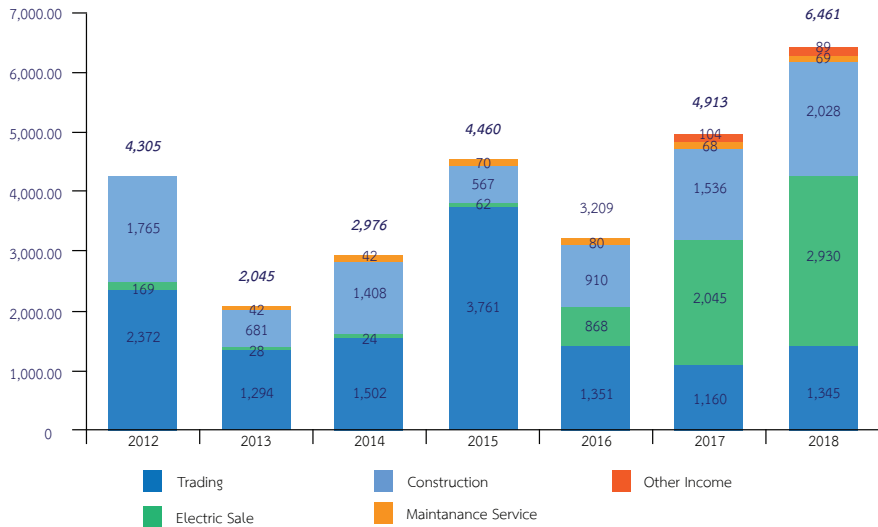
(Unit : Baht)

	31 Dec 2018 *	31 Dec 2017 * (Restated)	31 Dec 2016 * (Restated)	31 Dec 2015 *	31 Dec 2014 *
Total Assets	35,624,749,771	30,726,454,730	25,998,105,347	18,815,257,874	7,238,664,344
Total Liabilities	26,124,701,888	20,542,595,532	15,870,131,366	10,225,033,199	3,878,965,047
Total Equity	9,500,047,883	10,183,859,198	10,127,973,981	8,590,224,675	3,359,699,297
Issued and Paid-Up Share Capital	1,854,655,373	1,854,655,373	1,589,693,963	1,283,245,216	879,990,265
	31 Dec 2018 *	31 Dec 2017 * (Restated)	31 Dec 2016 *	31 Dec 2015 *	31 Dec 2014 *
Total Revenues	6,460,886,678	4,913,484,308	3,366,833,901	4,590,691,752	3,061,552,738
Net Profit (Loss)	1,178,410,096	714,788,237	615,370,138	673,567,733.00	545,270,215
Return of Assets (%)	3.31	2.33	2.37	3.58	7.53
Return of Equity (%)	12.40	7.02	6.08	7.84	16.23
Net Profit Margin (%)	18.91	14.86	19.18	14.67	17.81

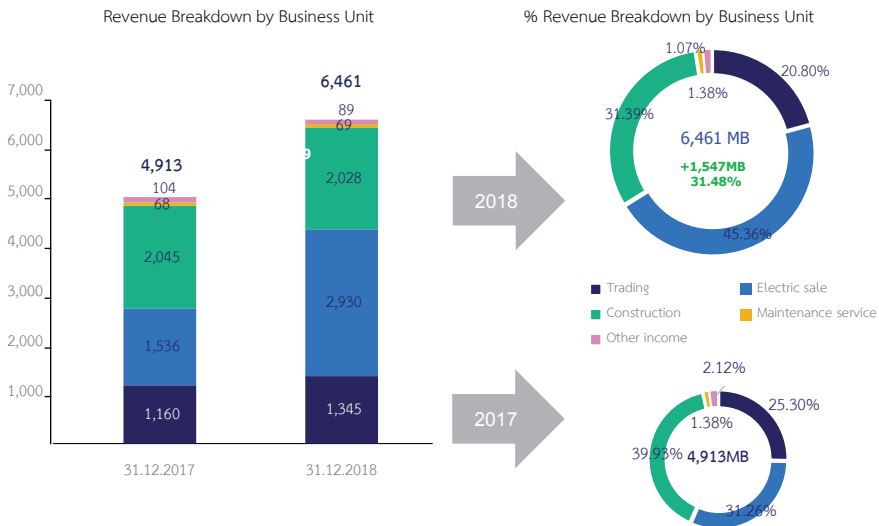
Remark : \* Consolidated Financial Statements



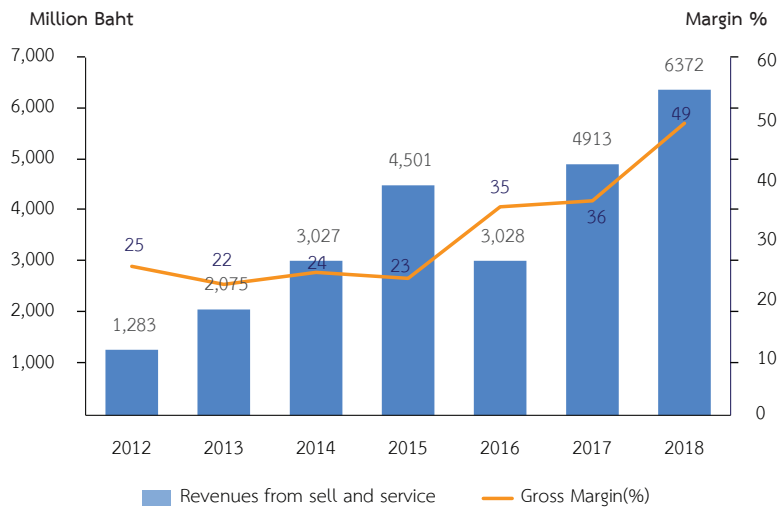
## 14.2 Revenue Breakdown by Business as of 31 Dec 2018



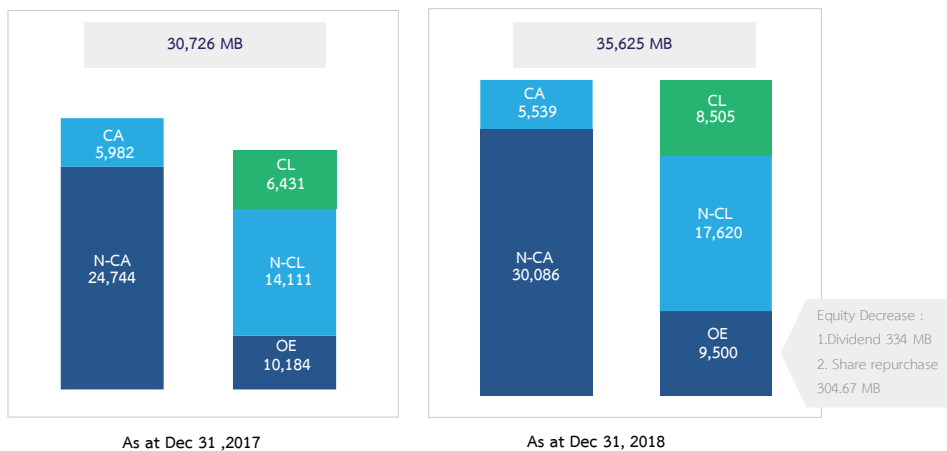
## 14.3 Revenue Breakdown by Business Unit (For Year ended)



## 14.4 Revenue vs Overall Gross Margin



## 14.5 Growth of Financial Statement



# 15. General Information and Reference Person

## 15.1 General Information

Company's Name	: Gunkul Engineering Public Company Limited
Symbol	: GUNKUL
Company Registration Number	: 0107552000146
Head Office Address	: 1177 PEARL BANGKOK BUILDING FL.8 Phahonyothin Rd, Phayathai, Phayathai, Bangkok 10400
Telephone Number	: 0-2242-5800
Website	: <a href="http://www.gunkul.com">www.gunkul.com</a>
Email	: <a href="mailto:ir@gunkul.com">ir@gunkul.com</a>
Type of Business	: <ul style="list-style-type: none"> <li>- Business to produce, procure and supply equipment for electrical system in domestic and international.</li> <li>- Business to produce, procure and supply energy-saving products including appropriate alternatives energy</li> <li>- Business to produce and distribute electricity from renewable energy resources in domestic and international.</li> <li>- Business to construct alternative energy power plant</li> <li>- Business to provide a power plant maintenance service</li> </ul>
Industry	: Resources
Sector	: Energy & Utilities
Type of Issued Shares	: Common shares
Registered Capital	: THB 1,854,655,373.25
Paid-up Capital	: THB 1,854,655,373.25
Number of Shares	: 7,418,621,493 Shares
Par Value	: THB 0.25
Annual Report Organizer	: Miss Chantira Jongamareeseethong Miss Tanawan Patana-anek Tel. 0-2242-5867,0-2242-5868

## 15.2 Subsidiaries

Company Name	Symbol	Type of Business	Registered Capital (THB)	Total Amount of Shares (Shares)	Par Value (THB)	Amount of Shares holding by GUNKUL (Shares)	% of Holding
1. G.K. Assembly Co., Ltd.	GKA	Production of street lighting equipment and accessories such as handling transmission lines (Preformed), cable spacers, and hardware Including production of Mounting Structure for the solar plant under the different brands of the Group, GUNKUL, GK, ZIMLUG, PIGMAN, TOPWELD and ZIMTAP. To distribute to Gunkul Engineering Public Company Limited and K.N.P. Supply Co., Ltd.	200,000,000.00	2,000,000	100.00	1,999,998	99.99
2. G.K. Power Products Co., Ltd.	GKP	Production of equipment and control systems for power transmission and distribution lines under the Group's brands "GUNKUL" and "GK". By focusing on the safety equipment and joining systems such as electrical wiring, fuses and switches to distribute to Gunkul Engineering Public Company Limited and K.N.P. Supply Co., Ltd.	100,000,000.00	100,000	1,000.00	99,998	99.99
3. K.N.P. Supply Co., Ltd.	KNP	Distribution of electrical system equipment and other systems related to public sector customers directly. Acting as a contactor and participating in the bidding for the procurement of the various customer segments. The main customers being Electricity Generating Authority of Thailand (EGAT), the Metropolitan Electricity Authority (MEA) and the Provincial Electricity Authority (PEA).	50,000,000.00	500,000	100.00	499,998	99.99
4. Wind Energy Development Co., Ltd.	WED	Production and distribution of electricity from renewable energy using renewable solar energy amount 60 MW by generating to the EGAT and PEA.	1,575,000,000.00	157,500,000	10.00	157,499,987	99.99

Company Name	Symbol	Type of Business	Registered Capital (THB)	Total Amount of Shares (Shares)	Par Value (THB)	Amount of Shares holding by GUNKUL (Shares)	% of Holding
5. Greenovation Power Co., Ltd.	GNP	Production and distribution of electricity from renewable energy using renewable solar energy amount 60 MW by generating to the EGAT.	1,485,000,000.00	148,500,000	10.00	148,499,998	99.99
6. Korat Wind Energy Co., Ltd.	KWE	Production and distribution of electricity from renewable energy using renewable solar energy amount 50 MW by generating to the EGAT	1,107,000,000	11,070,000	100.00	11,069,998	99.99
7. NK Power Solar Co., Ltd. <sup>1)</sup>	NKP	Production and distribution of electricity from renewable energy in the capacity of 1 MW by generating to the PEA.	2,600,000.00	Common Shares 23,060 Preferred Shares 2,940	100.00	Common Shares 23,058 Preferred Shares 2,940	99.99
8. Gunkul Solar Power 1 Co., Ltd.	GSP-1	Produces and sells electricity from renewable energy to sell to government agencies.	100,000,000.00	1,000,000	100.00	999,997	Shares holding by GSP 99.99
9. Gunkul Solar Power 2 Co., Ltd.	GSP-2	Produces and sells electricity from renewable energy to sell to government agencies.	100,000,000.00	1,000,000	100.00	999,997	Shares holding by GSP 99.99
10. Gunkul Solar Power 3 Co., Ltd. 1. Registration of dissolution on 9 April 2018 2. Registration of liquidation 18 July 2018	GSP-3	Produces and sells electricity from renewable energy to sell to government agencies.	100,000,000.00	1,000,000	100.00	999,998	Shares holding by GSP 99.99
11. Gunkul Solar Power 4 Co., Ltd. 1. Registration of dissolution on 9 April 2018 2. Registration of liquidation 18 July 2018	GSP-4	Produces and sells electricity from renewable energy to sell to government agencies.	100,000,000.00	1,000,000	100.00	999,998	Shares holding by GSP 99.99
12. Gunkul Solar Power 5 Co., Ltd. 1. Registration of dissolution on 9 April 2018 2. Registration of liquidation 18 July 2018	GSP-5	Produces and sells electricity from renewable energy to sell to government agencies.	100,000,000.00	1,000,000	100.00	999,998	Shares holding by GSP 99.99
13. Bright Green Power Co., Ltd.	BGP	Production and distribution of electricity from Renewable Energy by generating to the government entities and investing on the business related to renewable energy.	120,000,000.00	1,200,000	100.00	1,199,997	99.99

Company Name	Symbol	Type of Business	Registered Capital (THB)	Total Amount of Shares (Shares)	Par Value (THB)	Amount of Shares holding by GUNKUL (Shares)	% of Holding
14. Siam Gunkul Solar Energy Co., Ltd.	SGSE	Produces and sells electricity from renewable energy to sell to government agencies.	500,000,000.00	5,000,000	100.00	4,999,997	99.99
15. Solar Energy Society Co., Ltd.	SES	Produces and sells electricity from renewable energy to sell to government agencies.	20,400,000.00	204,000	100.00	203,997	99.99
16. Gunkul Solar Roof 1 Co., Ltd.	GSR-1	Produces and sells electricity from renewable energy to sell to government agencies.	21,000,000.00	210,000	100.00	209,997	99.99
17. Gunkul Training Center Co., Ltd. (Formerly: Gunkul Solar Roof 2 Co., Ltd.) (Registered name change: on March 16, 2017)	GTRC	Education services, Management of seminars, training management and other related to education.	1,000,000.00	10,000	100.00	9,997	99.97
18. Gunkul Solar Community Co., Ltd.	GSC	Produces and sells electricity from renewable energy to sell to government agencies.	10,000,000.00	100,000	100.00	99,997	99.99
19. Gunkul Power Development Co., Ltd.	GPD	Power plants construction and distribution systems for electrical equipment and other systems related to the construction of power plants.	300,000,000.00	3,000,000	100.00	2,999,997	99.99
20. Gunkul Energy Solutions & Lighting Co., Ltd. (As before: Gunkul LED Lighting Co., Ltd.) (Registered name change on February 21, 2018)	GES	Production and distribution of Lighting Bulb Type LED (In 2018, the Company expanded its business to provide integrated electrical system services.)	100,000,000.00	1,000,000	100.00	999,998	99.99
21. Infinite Alternative Energy Co., Ltd. <sup>2)</sup>	IAE	Shareholding in Rang Ngern Solution Co., Ltd. 99.99% which the company produces and distributes electricity from renewable energy in the capacity of 87 MW to the PEA.	1,564,000,000.00	15,640,000	100.00	10,478,799	67.00
22. Rang Ngern Solution Co., Ltd. <sup>2)</sup>	RNS	Production and distribution of electricity from renewable energy in the capacity of 87 MW by generating to the PEA.	1,355,000,000.00	13,550,000	100.00	13,549,997	Shares holding by IAE 99.99
23. GO Bioenergy Co., Ltd.	GOB	Investment in domestic companies on renewable energy and biomass business by generating to government entities.	34,300,000.00	343,000	100.00	256,906	74.90

Company Name	Symbol	Type of Business	Registered Capital (THB)	Total Amount of Shares (Shares)	Par Value (THB)	Amount of Shares holding by GUNKUL (Shares)	% of Holding
24. Outgrow A Co., Ltd. 1. Registration of dissolution on 26 June 2018 2. Waiting for registration of liquidation	OGA	Production and distribution of electricity from biomass by generating to government entities.	8,000,000.00	80,000	100.00	79,998	Shares holding by GOB 99.99
25. Outgrow B Co., Ltd. 1. Registration of dissolution on 26 June 2018 2. Registration of liquidation 12 DEC 2018	OGB	Production and distribution of electricity from biomass by generating to the PEA.	8,000,000.00	80,000	100.00	79,998	Shares holding by GOB 99.99
26. Outgrow D Co., Ltd.	OGD	Production and distribution of electricity from biomass by generating to the PEA.	40,000,000.00	400,000	100.00	399,998	Shares holding by GOB 99.99
27. Outgrow E Co., Ltd. 1. Registration of dissolution on 26 June 2018 2. Waiting for registration of liquidation	OGE	Production and distribution of electricity from biomass by generating to the PEA.	8,000,000.00	80,000	100.00	79,998	Shares holding by GOB 99.99
28. Outgrow Wood Supply A Co., Ltd. 1. Registration of dissolution on 9 April 2018 2. Registration of liquidation 26 July 2018	OGW-A	Distributor wood as raw material	1,000,000.00	10,000	100.00	9,998	Shares holding by GOB 99.98
29. Outgrow Wood Supply B Co., Ltd. 1. Registration of dissolution on 9 April 2018 2. Registration of liquidation 18 July 2018	OGW-B	Distributor wood as raw material	1,000,000.00	10,000	100.00	9,998	Shares holding by GOB 99.98
30. Eco Thai Energy Co., Ltd.	ECO	Production and distribution of electricity from renewable energy by generating to the PEA.	76,500,000.00	765,000	100.00	390,150	51.00
31. Gunkul Bio Energy Co., Ltd.	GBE	Production and distribution of electricity from alternative energy power plant by generating to the government entities.	500,000.00	5,000	100.00	4,997	99.94
32. Gunkul Solar Power Co., Ltd.	GSP	Produces and sells electricity from renewable energy to sell to government agencies.	599,998,800.00	5,999,988	100.00	5,999,985	99.99
33. Gunkul Solar Power 6 Co., Ltd. 1. Registration of dissolution on 9 April 2018 2. Registration of liquidation 6 June 2018	GSP-6	Produces and sells electricity from renewable energy to sell to government agencies.	100,000,000.00	1,000,000	100.00	999,997	Shares holding by GSP 99.99

Company Name	Symbol	Type of Business	Registered Capital (THB)	Total Amount of Shares (Shares)	Par Value (THB)	Amount of Shares holding by GUNKUL (Shares)	% of Holding
34. BMP Solar Co., Ltd.	BMPS	Produces and sells electricity from solar panels installed on the ground of 8.0 MW for distribution to the PEA.	980,100.00	98,010	10	(Preferred shares) 48,010	48.98
35. Future Electrical Control Co., Ltd. <sup>8)</sup>	FEC	Construction	100,000,000.00	10,000,000	10	9,999,998	Shares holding by GPD 99.99
36. Gunkul International (Mauritius) <sup>3)</sup>	GIM	Oversea Investment	USD 134,825,624.00	134,825,624	USD 1.00	134,825,624	100.00
37. Gunkul Investment (Singapore) Pte. Ltd. <sup>3)</sup>	GIS	Oversea Investment	SGD 511,645.00	511,645	SGD 1.00	511,645	Invested by GIM 100.00
38. Gunkul Myanmar Power (Hlawga) Pte. Ltd. <sup>3)</sup>	GMP	Oversea Investment	SGD 284,829.00	284,829	SGD 1.00	284,829	Invested by GIM 100.00
39. Gunkul Myanmar Central Power 1 Co., Ltd. <sup>4)</sup>	GKMCP-1	Production and distribution of electricity from Gas Engine by generating to the government in Myanmar.	USD 100,000.00	100,000	USD 1.00	51,000	51.00
40. Sendai Okura GD Daiichi Godo Kaisha <sup>5)</sup>	GK Sendai	Production and distribution of electricity from solar panels installed on the ground of 31.75 by generating to the Tohoku Electric Power Co., Inc. in Japan.	Investment in GK Sendai in the total amount of JPY 3,375,030,000.00				
41. Kimitsu Mega Solar Godo Kaisha <sup>5)</sup>	GK Kimitsu	Production and distribution of electricity from solar panels installed on the ground of 33.50 by generating to the Tokyo Electric Power Company (TEPCO) in Japan.	Investment in GK Kimitsu in the total amount of JPY 4,656,368,970.00				
42. GD Solar Utsunomiya Godo Kaisha <sup>6)</sup>	GD Utsunomiya	Production and distribution of electricity from solar panels installed on the ground of 66.78 by generating to the Tokyo Electric Power Company (TEPCO) in Japan.	Investment in GK Utsunomiya in the total amount of JPY 3,210,080,000.00				
43. East Japan Solar 13 Godo Kaisha <sup>7)</sup>	GK Solar 13	Production and distribution of electricity from renewable energy in the capacity of 75 MW by generating to Chogoku Electric Power Company Inc. in Japan.	Investment in GK Iwakuni in the total amount of JPY 2,220,056,495.00				
44. Future Asset Management Kabushiki Kaisha	FAM	Investment in renewable energy business	JPY 377,710,000.00	37,771	JPY 10,000	37,771	100



#### Remark

- (1) GUNKUL is one of shareholder of N.K. Power Solar Co., Ltd. by holding 23,058 common shares and 2,940 preferred shares. The right of voting for common share is one share per one vote and preferred share is one share per 20 votes.
- (2) On 19th August 2015, the Extra-Ordinary General Meeting of Shareholders No. 1/2558 passed the approval resolution to acquire IAE's common shares in proportion of 67 percent which IAE is a majority shareholder in RNS in the proportion of 99.99 percent.
- (3) GUNKUL is shareholder of GIM by holding 100.00 percent of shares and GIM holds in GIS at 100.00 percent of shares and GIS hold in GMP at 100.00 percent of shares.
- (4) GMP is shareholder of GKMCP-1 by holding 51 percent.
- (5) On 19th August 2015, the Extra-Ordinary General Meeting of Shareholders No. 1/2558 passed the approval resolution to invest in GK Sendai and GK Kimitsu through GIM at the ratio of 100 percent.
- (6) On 19th August 2015, the Extra-Ordinary General Meeting of Shareholders No. 1/2558 passed the approval resolution to invest in GK Utsunomiya through GIM at the ratio of 100 percent (Signed on 25th August 2016).
- (7) On 19th August 2015, the Extra-Ordinary General Meeting of Shareholders No. 1/2558 passed the approval resolution to invest in East Japan Solar 13 Godo Kaisha through GIM at the ratio of 100 percent (Signed on 29th November 2016).
- (8) On 28th June 2018, the Extra-Ordinary General Meeting of Shareholders No. 1/2561 passed the approval resolution to purchase ordinary share of FEC at the ratio of 99.99 percent. Therefore, the Company indirectly holds 99.99 percent in FEC.

### 15.3 Affiliates / Joint Ventures

Company Name	Symbol	Type of Business	Registered Capital (THB)	Total Amount of Shares (Shares)	Par Value (THB)	Amount of Shares holding by GUNKUL (Shares)	Joint Venture	% of Holding
1. G – Power Source Co., Ltd.	GPS	Production and distribution of electricity from renewable energy in the capacity of 26 MW by generating to the PEA.	930,000,000.00	9,300,000	100.00	3,719,998	Electricity Generating Public Co., Ltd.	40.00
2. Gunkul Chubu Powergen Co., Ltd. <sup>1)</sup>	GCPG	Production and distribution of electricity from renewable energy in the capacity of 30.9 MW by generating to the PEA.	992,000,000.00	9,920,000	100.00	5,059,195	Chubu Electric Power Gem B.V.	51.00

Company Name	Symbol	Type of Business	Registered Capital (THB)	Total Amount of Shares (Shares)	Par Value (THB)	Amount of Shares holding by GUNKUL (Shares)	Joint Venture	% of Holding
3. Siam Wind Energy Co., Ltd. - Registration of dissolution: On June 19, 2017 - Registration of liquidation: On August 2, 2017	SWE	To carry out the production and distribution of electricity from renewable energy for sale to government entities.	1,000,000.00	10,000	100.00	4,000	Person	40.00
4. Kenyir Gunkul Solar Snd. Bhd. <sup>2)</sup>	Kenyir	Produces and sells electricity from solar panels installed on the ground of 29.99 MW in Malaysia	9,999,999.28	10,092,757	1.00  1.440000	(Ordinary shares) 245,000 (Preferred shares) 4,690,972	Company in Malaysia	49.00  70.00
5. WHA Gunkul Green Solar Roof 1 Co., Ltd.	WHA_GSR-1	Production and distribution of electricity from Solar PV Rooftop by generating to the PEA and MEA.	11,500,000.00	1,150,000	10.00	287,615	WHA Corporation Public Co., Ltd.	25.01
6. WHA Gunkul Green Solar Roof 2 Co., Ltd. - Registration of dissolution: On June 19, 2017 - Registration of liquidation: On August 2, 2017	WHA_GSR-2	Production and distribution of electricity from Solar PV Rooftop by generating to the PEA and MEA.	1,000,000.00	100,000	10.00	25,010	WHA Corporation Public Co., Ltd.	25.01
7. WHA Gunkul Green Solar Roof 3 Co., Ltd.	WHA_GSR-3	Production and distribution of electricity from Solar PV Rooftop by generating to the PEA and MEA.	14,500,000.00	1,450,000	10.00	362,645	WHA Corporation Public Co., Ltd.	25.01
8. WHA Gunkul Green Solar Roof 4 Co., Ltd. - Registration of dissolution: On 12 SEP 2017 - Registration of liquidation: On 12 OCT 2017	WHA_GSR-4	Production and distribution of electricity from Solar PV Rooftop by generating to the PEA and MEA.	1,000,000.00	100,000	10.00	25,010	WHA Corporation Public Co., Ltd.	25.01
9. WHA Gunkul Green Solar Roof 5 Co., Ltd. - Registration of dissolution: On 12 SEP 2017 - Registration of liquidation: On 12 OCT 2017	WHA_GSR-5	Production and distribution of electricity from Solar PV Rooftop by generating to the PEA and MEA.	1,000,000.00	100,000	10.00	25,010	WHA Corporation Public Co., Ltd.	25.01

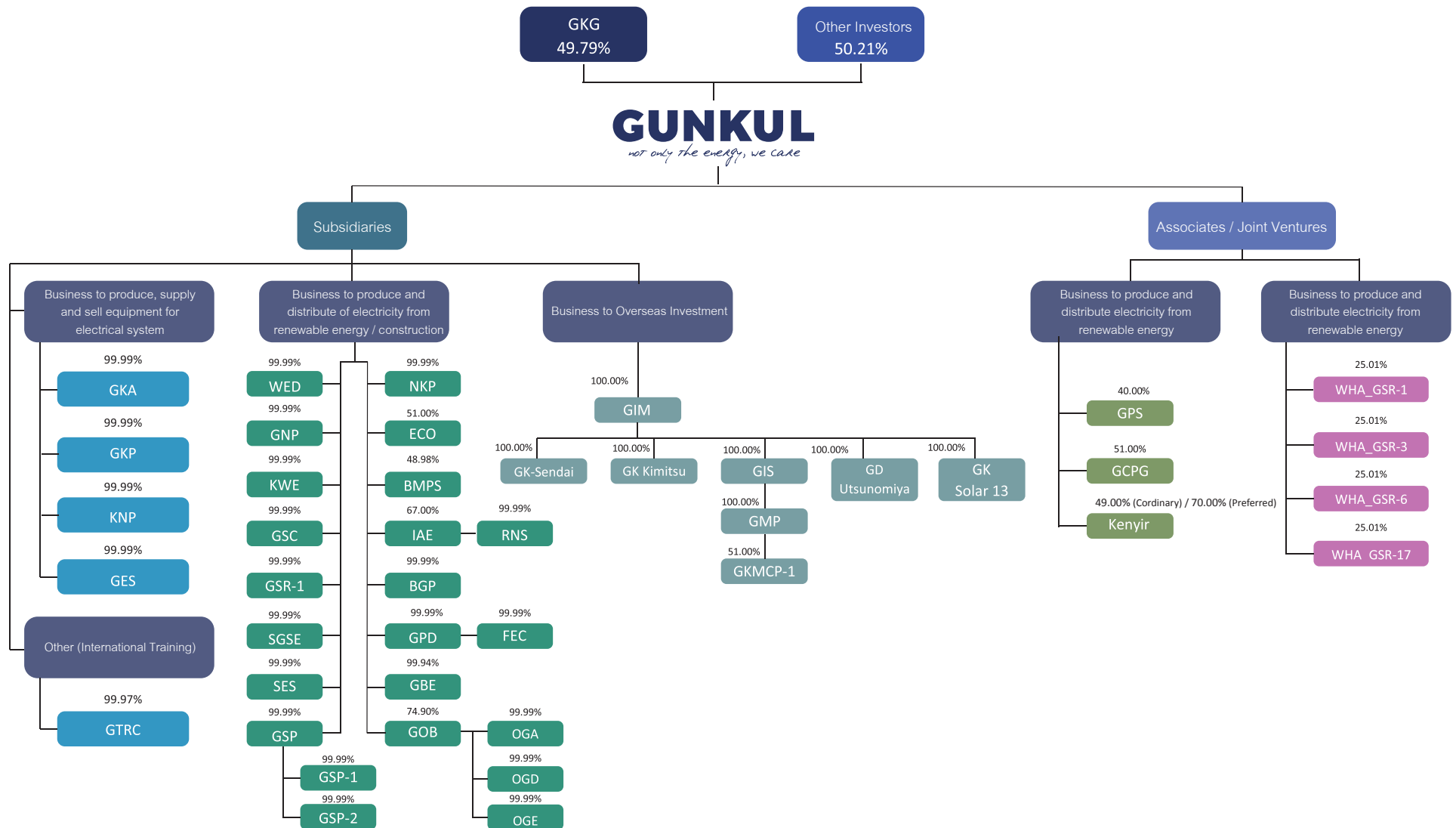
Company Name	Symbol	Type of Business	Registered Capital (THB)	Total Amount of Shares (Shares)	Par Value (THB)	Amount of Shares holding by GUNKUL (Shares)	Joint Venture	% of Holding
10. WHA Gunkul Green Solar Roof 6 Co., Ltd.	WHA_GSR-6	Production and distribution of electricity from Solar PV Rooftop by generating to the PEA and MEA.	14,500,000.00	1,450,000	10.00	362,645	WHA Corporation Public Co., Ltd.	25.01
11. WHA Gunkul Green Solar Roof 8 Co., Ltd. - Registration of dissolution: On 12 SEP 2017 - Registration of liquidation: On 12 OCT 2017	WHA_GSR-8	Production and distribution of electricity from Solar PV Rooftop by generating to the PEA and MEA.	100,000.00	10,000	10.00	2,501	WHA Corporation Public Co., Ltd.	25.01
12. WHA Gunkul Green Solar Roof 9 Co., Ltd. - Registration of dissolution: On 12 SEP 2017 - Registration of liquidation: On 12 OCT 2017	WHA_GSR-9	Production and distribution of electricity from Solar PV Rooftop by generating to the PEA and MEA.	100,000.00	10,000	10.00	2,501	WHA Corporation Public Co., Ltd.	25.01
13. WHA Gunkul Green Solar Roof 10 Co., Ltd. - Registration of dissolution: On 12 SEP 2017 - Registration of liquidation: On 12 OCT 2017	WHA_GSR-10	Production and distribution of electricity from Solar PV Rooftop by generating to the PEA and MEA.	15,500,000.00	1,550,000	10.00	387,655	WHA Corporation Public Co., Ltd.	25.01
14. WHA Gunkul Green Solar Roof 16 Co., Ltd. - Registration of dissolution: On 12 SEP 2017 - Registration of liquidation: On 12 OCT 2017	WHA_GSR-16	Production and distribution of electricity from Solar PV Rooftop by generating to the PEA and MEA.	100,000.00	10,000	10.00	2,501	WHA Corporation Public Co., Ltd.	25.01
15. WHA Gunkul Green Solar Roof 17 Co., Ltd.	WHA_GSR-17	Production and distribution of electricity from Solar PV Rooftop by generating to the PEA and MEA.	16,000,000.00	1,600,000	10.00	400,160	WHA Corporation Public Co., Ltd.	25.01

Remark 1) Gunkul Chubu Powergen Co., Ltd. is a joint venture. The Board authorized the signing of joint control.

2) On 21th February 2018, the Board of Directors Meeting No. 1/2561 passed the approval resolution to purchase share of Kenyir Gunkul Solar Snd Bhd., by holding 49.00 percent of the ordinary shares and holding 70.00 percent of the preferred shares.

## 15.4 Group Structure

As of December 31, 2018



## 15.5 Other References

Regulator	: <b>The Securities and Exchange Commission, Thailand (SEC)</b> 333/3 Vibhavadi-Rangsit Road, Chomphon, Chatuchak Bangkok 10900, Thailand Tel. +66 2033 9999 Fax. +66 2033 9660
Regulator	: <b>The Stock Exchange of Thailand (SET)</b> 93 Ratchadaphisek Road, Dindaeng, Dindaeng, Bangkok 10400 Tel. +66 2009 9999 Fax. +66 2009 9991
Share Registrar	: <b>Thailand Securities Depository Company Limited (TSD)</b> 93 Ratchadaphisek Road, Dindaeng, Dindaeng, Bangkok 10400 Tel. +66 2009 9999 Fax. +66 2009 9991
Auditor	: <b>KPMG Phoomchai Audit Ltd.</b> Fl. 50-51 Empire Tower No.1 South Sathorn Rd, Yannawa, Sathorn Bangkok 10120 Tel. +66 2677 2000 Fax. +66 2677 2222
Legal Advisor	: <b>Kudun and Partners Co., Ltd.</b> 973 President Tower, 14 Floor, Ploenchit Road, Lumpini, Pathumwan, Bangkok 10330 Tel. +66 2656 0813 Fax. +66 2656 0814
Financial institution	: <b>Siam Commercial Bank PLC.</b> 9 Ratchadaphisek Road, Jatujak, Bangkok 10900 Tel. +66 2544-1000 Fax. +66 2544-4948

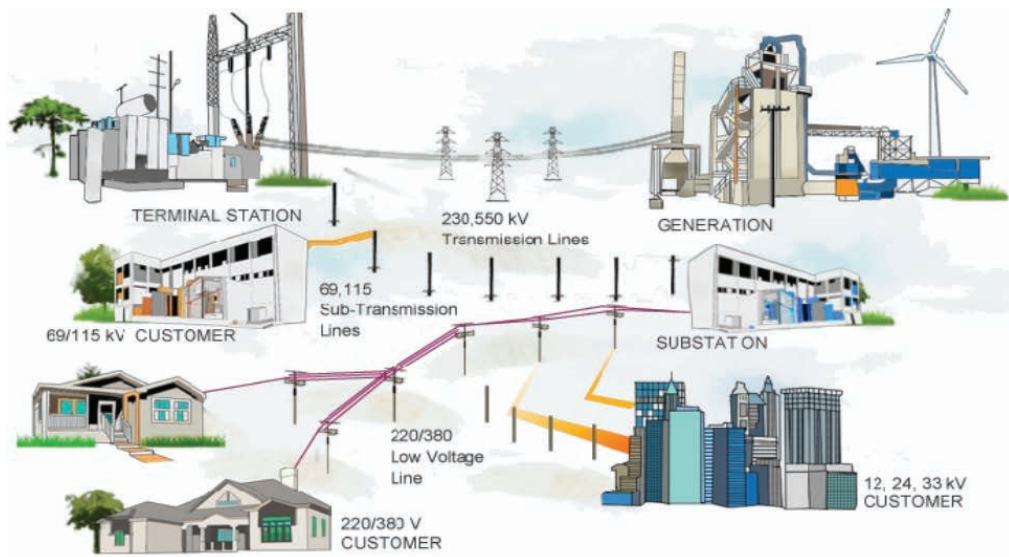
### 16.1 Perspective of the group business structures

The power system of Thailand consists of two main components:

1. Electricity Production
2. Transmission and distribution

The transmission of electricity from power plants to consumers must go through the various sub-systems including the high voltage grid, power station system, the distribution system, and underground cables, shown in the diagram below.

Diagram of electric transmission and distribution system of Thailand



Business of the Company's group could be classified as follows:

1. Business of manufacture, supply and distribution of equipment for electrical system in domestically and internationally.
2. Business of manufacture, supply and distribution of energy-saving products including appropriate alternative energy.
  - 2.1 To produce and supply "Lighting Lamp" LED type, BIPV Glass, Flexible Solar PV including appropriate alternative energy.
  - 2.2 To produce and supply solar cell module including equipment supply which related to the solar power system.
3. Business to produce and distribute electricity from renewable energy resources in domestically and internationally.
  - 3.1 Solar Farm
  - 3.2 Solar PV Rooftop
  - 3.3 Wind Farm
  - 3.4 Biomass Energy
4. Business to construct the renewable power plants.
5. Business of Power Plant Maintenance Services.

## 16.2 Business Goals.

In 2018, the Company has a business goal defined as follows;

1. Maintain the customer base of the organization, including the Provincial Electricity Authority (PEA), Metropolitan Electricity Authority, the Electricity Generating Authority of Thailand, private sector both domestically and internationally, and the Electricity Authority of the Republic of the Union of Myanmar, Lao People's Democratic Republic, Japan and Malaysia etc.
2. Expand both domestic and international customer base to increase the market share.
3. Provide new products to meet customer needs.
4. Study an investment and expand a renewable energy business both in domestically and internationally.

- Electricity generating business by applying to a government agencies for direct electricity purchase agreement including joint ventures with other operators which have power purchase agreements.
  - Distribution of renewable energy equipment.
  - Power plant maintenance business.
  - Consulting business related to renewable energy.
  - Any other business related
5. Complete the construction of the renewable energy power plant as specified in the power purchase agreement with the counterparties.
  6. Study in construction of biomass power plants, both in domestically and internationally.
  7. Increase business partnerships to increase business security.
  8. Enhance the efficiency of operations to support the expansion of business by adopting advanced technologies, such as information network in the enterprise, video conferencing.
  9. Develop staff ability to keep pace with the growth of the Company.
  10. Support the Corporate Social Responsibility (CSR) of the Company.
  11. Control the Company's performance and the Group to comply with the rules of the corporate governance and with an effective internal control.
  12. Encourage the organization to comply with anti-corruption measures.

### ***3 – 5 years Business Plans***

Gunkul Engineering Public Company Limited is committed to be the leading provider of renewable energy. The business model of generating electricity from renewable energy which the Company takes an interest in the following businesses:

- Solar Cell Power Plant
- Wine Turbine Power Plant
- Natural Gas Vehicles Power Plant
- Biomass Power Plant (Wood and Energy Crops)
- Biomass Power Plant (Waste)



The Company's targets within year 2021, the Company will have renewable power plants in the domestically and internationally, with a total capacity of 1,000 Megawatts (MW). The Company aims to invest a power plant in Asian, such as Thailand, Japan, Vietnam, Malaysia, Indonesia, Philippines, the Republic of the Union of Myanmar, Taiwan and South Korea as respectively.

The investment in power plants in Thailand, the Company has prepared to develop and invest in Solar power plants, Other alternative power plants, Smart grid network system, Submarine cable project to various islands, Power station construction project and the construction project of high-voltage transmission lines according to the power development plan and the National Energy Policy Council. In addition to this, the Company is also interested in the installation of solar roof power plants to sell electricity to industrial plants and department stores including projects that provide solar roof installation services for interested homes. In 2018, the Company expanded the business of installing solar power generation systems to support the growth of renewable energy in the household sector by launching the brand "GRoof" to focus on meeting the requirement of customers in this group.

For the power plant investment in abroad, the Company focused on investing in the countries with high political stability, such as Japan, Vietnam and Malaysia, which the Company have begun to invest and study the possibility of investing in renewable power plant especially in Japan. At present, the Company has invested more than 255 MW of solar power plants in Japan and sold more than 38 MW of commercial power and invested more than 37 MW of solar power plants in Malaysia.

In addition, from the policy of being a leader in the production of electricity from renewable energy, the Company continues to develop new products and original products by focusing on research and development to get competitive advantage by emphasizing engineering value and also promotes continuous product quality development to deliver satisfaction to our customers. This will lead to the acceptance of the "GUNKUL" brand and build loyalty to the Company's brand and products. The products which developed by the Company are support the growth of the Company and increase the chances of a new products, sales channels and the market value which will rise for the next two to three years such as;

- Products for construction and building projects, such as grounding system and lightning protection devices.
- LED Lamp product in brand “GLO” and “GUNKUL”
- Lighting equipment which have LED as a component.
- Electronic meter (AMI) and Mechanical watt-hour meter.
- Solar Panel brand “GUNKUL”.

The Company expects to develop new products based on above which will increase the market value and growth rate of the Company’s high-voltage equipment manufacturing and distribution business. To maintain annual growth rate, not to be less than 15%, and to maintain the leading position in Thailand’s high-voltage equipment manufacturer and distributor market and can create mutual pride with the Company in the future.

### 16.3 Change and Development of the Company and its subsidiaries are as follows:

Year	Event
Year 1982	<ul style="list-style-type: none"> <li>Establishment of Gunkul Engineering Co., Ltd. with registered capital of 1,000,000 baht. (At present, the registered capital is 1,854,655,373.25 bath and paid-up capital is 1,854,655,373.25 bath)</li> </ul>
Year 1992	<ul style="list-style-type: none"> <li>Establishment of G.K. Assembly Co. ,Ltd with registered capital of 2,000,000 baht (Current registered capital: 200,000,000 baht and the Company holding shares in the ratio of 99.99%)</li> <li>Establishment of G.K. Power Product Co., Ltd. (Formerly known as Kerney (Thailand) Co., Ltd.), with registered capital of 2,600,000 baht. (Current registered capital: 100,000,000 baht and the Company holding shares in the ratio of 99.99%)</li> </ul>
Year 1993	<ul style="list-style-type: none"> <li>Establishment of K.N.P. Supply Co., Ltd. with registered capital of 1,000,000 baht. (Current registered capital: 50,000,000 baht and the Company holding shares in the ratio of 99.99%)</li> </ul>
Year 2009	<ul style="list-style-type: none"> <li>Gunkul Engineering Co., Ltd. increased its registered capital from 300,000,000 baht to 400,000,000 baht and changed the par value of ordinary shares from 100 baht to 1 baht per share.</li> </ul>

Year	Event
	<ul style="list-style-type: none"> <li>The Company is transformed into a public limited company and changed its name to "Gunkul Engineering Public Company Limited".</li> <li>On December 11, 2009, Establishment of Gunkul Powergen Co., Ltd. with registered capital of 100,000,000 baht to produce and sell electricity from renewable energy.</li> </ul> <p>(Current registered capital: 992,000,000 baht and the Company holding shares in the ratio of 51%)</p>
Year 2010	<ul style="list-style-type: none"> <li>On October 11-13, 2010, the Company has made an initial public offering of 100,000,000 shares, representing 25% of the total number of 400,000,000 ordinary shares with a par value of 1.00 baht each, at a price of 5.40 baht.</li> <li>On October 15, 2010, the Stock Exchange of Thailand added GUNKUL securities as new securities on the Stock Exchange of Thailand.</li> <li>On October 19, 2010. GUNKUL securities traded on the Stock Exchange of Thailand for the first day (First Day Trade).</li> <li>On November 19, 2010, the Company acquired the common stock of G-Power Source Co., Ltd. which operates in the production and distribution of electricity from solar energy and being a party with the Provincial Electricity Authority (PEA) which has 4 contracts of power purchase agreements in a total of 26 Megawatts (MW) with a period of 25 years and is supported by an additional electricity charge of 8.00 baht per unit for a period of 10 years. This project also receives promotional privileges from the Board of Investment (BOI). The Company has purchased 9,898 ordinary shares at a price of 6,500 baht per share, total amount 64,337,000 baht. The Company holds 98.98% of the registered capital of 1,000,000 baht</li> </ul> <p>(Current registered capitals: 930,000,000 baht and the Company holding shares in the ratio of 40%)</p> <ul style="list-style-type: none"> <li>Gunkul Powergen Co., Ltd. signed a power purchase agreement with the Provincial Electricity Authority to produce and sell electricity from solar energy, with a total of 5 contracts for a total of 30.9 megawatts of solar power for a period of 25 years. The price for the electricity purchase (Adder) from the Provincial Electricity Authority at the price</li> </ul>

Year	Event
	<p>of 8.00 baht per unit for a period of 10 years, including the project is also received a benefit of investment support from the Board of Investment (BOI).</p>
Year 2012	<ul style="list-style-type: none"> <li>On March 30, 2012, the Company sold shares of G-Power Source Co., Ltd. which operates production and distribution of electricity from solar energy and has an agreement with the Provincial Electricity Authority of 4 contracts, total 26 Megawatts (MW) and has been supporting the electric margin (Adder) 8.00 baht per unit. The Company sold shares to The Electricity Generating Public Company Limited of 4,500,000 shares, for a total of 629,920,000 baht, representing a total stake of 60% of the registered capital 750,000,000 baht. (Currently registered 930,000,000 baht and the Company holding shares in the ratio of 40%)</li> <li>On May 15, 2012, the Company acquired the shares of Wind Energy Development Company Limited from Impact Energy Asia Limited, which operates production and distribution of electricity from wind energy. The Power Purchase Agreement with the Electricity Generating Authority of Thailand and the Provincial Electricity Authority with the contracts total 3 contracts and totaling 60 Megawatts (MW), and has been supporting the electric margin (Adder) 3.50 baht per unit, the Company acquired the common stock of 5,460,000 shares at a price of 95.60 baht for a total amount of 522,000,000 baht, representing a stake of 70% of the registered capital 78,000,000,000 baht. (Current registered capital 1,575,000,000 baht and the Company holding shares in the ratio of 99.99%)</li> <li>On January 31, 2013, the Company acquired a stake in NK Power Sola Co., Ltd. which operates and distributes electricity from solar power by having a contracting party to the Electricity Generating Authority of Thailand, with 1 MW power purchase agreement, representing as 49.00% shareholding. The Company holding shares as 9,799 ordinary shares and 2,940 preferred shares. The voting right for 1 ordinary share is 1 vote and 1 preferred stock is 20 shares. (Currently registered capital 2,600,000 baht However, In 2016, the Company received transfer ordinary shares from the ordinary shareholders for 13,259 shares. The total number of ordinary shares is 23,058 shares and 2,940 preferred shares, representing as holding shares in the ratio of 99.99%)</li> </ul>

Year	Event
Year 2013	<ul style="list-style-type: none"> <li>On February 25, 2013, the Company disposed of common shares in Gunkul Powergen Co., Ltd. which operates Solar Power generation and distribution business and is a contractual party of 5 electricity sale agreements with the Provincial Electricity Authority, a total capacity of 30.9 Megawatts (MW) and adder rate of 8.00 baht per unit. In this regards 4,860,800 common shares, equivalent to 49% of the 992,000,000 baht registered capital, were sold to Chubu Electric Power Gem B.V., Japan. (Currently registered capital of 992,000,000 baht and the Company holding shares in the ratio of 51%)</li> <li>On June 13, 2013, Establishment of Siam Wind Energy Co., Ltd., which operates production and distribution of electricity from renewable energy by emphasized on wind energy. The company holding shares at the ratio of 40% of the registered capital 1,000,000 baht. (Currently registered capital of 1,000,000 baht. However, the company liquidated the Company on June 19, 2017 and completed liquidation on August 2, 2017)</li> <li>The Company registered the Establishment of Gunkul International (Mauritius) (“GIM”) in the Republic of Mauritius. The Company held a stake of 100% of the 12,000 USD registered capital in GIM (the current capital is 134,825,624 U.S. dollar) and establish Gunkul International (Singapore) Pte. Ltd. (“GIS”) and Gunkul Myanmar Power (Hlawga) Pte. Ltd. (“GMP”) in Singapore. GIM held a stake of 100% of the 28,000-SGD registered capital in GIS (the current capital is 511,645 Singapore dollar), and GIS held a stake of 100% of the 14,000-SGD registered capital in GMP (Currently registered capital of 284,829 Singapore dollar). The purpose is to expand the investment in foreign companies.</li> <li>On July 1, 2013, Gunkul Powergen Co., Ltd., changed name into Gunkul Chubu Powergen Co., Ltd.</li> <li>On August 29, 2013, The Company has established a subsidiary company, Siam Gunkul Solar Energy Co., Ltd. to operate the business of producing and distributing electricity from power plants installed on the roof for selling to Provincial Electricity Authority and Metropolitan Electricity Authority, registered capital 1,000,000 baht, with a par value of 100 baht. (Current registered capital, 500,000,000 baht and the Company holding shares in the ratio of 99.99%)</li> </ul>

Year	Event
	<ul style="list-style-type: none"> <li>• In August 2013, the Company established Gunkul Solar Roof 1 Co., Ltd. (GSR-1), Gunkul Solar Roof 2 Co., Ltd. (GSR-2), Gunkul Solar Power 1 Co., Ltd. (GSP-1), Gunkul Solar Power 2 Co., Ltd. (GSP-2), Bright Green Power Co., Ltd. (BGP) and Solar Energy Society Co., Ltd. (SES) to operate solar rooftop power generation and distribution business for supplying to the Provincial Electricity Authority and the Metropolitan Electricity Authority. The Company held stakes of 99.97% of their respective 1,000,000 baht registered capitals (the current registered capitals of GSR-1 are 21,000,000 baht, GSR-2 is 1,000,000 baht, GSP-1 is 100,000,000 baht, GSP-2 is 100,000,000 baht, BGP is 120,000,000 baht and SES is 20,400,000 baht. The Company held stakes in GSR-1, GSP-1, GSP-2, BGP, SES as 99.99% and in GSR-2 as 99.97%).</li> <li>• On March 16, 2017, Gunkul Solar Roof 2 Co., Ltd. changed name into Gunkul Training Center Co., Ltd. with the purpose of education services, management of seminars, training management and other related to education.</li> <li>• In August 2013, the Company established Gunkul Power Development Co., Ltd. to operate the solar rooftop power generation and distribution for supplying to the Provincial Electricity Authority and the Metropolitan Electricity Authority, as well as to operate businesses of constructing power plant and distributing equipment for electrical and other systems related to power plant construction. The Company held a stake of 99.99% of the 1,000,000 baht registered capital (The current capital is 50,000,000 baht and the Company holding shares in the ratio of 99.99%).</li> <li>• In August 2013, WHA Corporation PCL, established WHA Gunkul Green Solar Roof 1 Co., Ltd. (WHA_GSR-1), WHA Gunkul Green Solar Roof 2 Co., Ltd. (WHA_GSR-2), WHA Gunkul Green Solar Roof 3 Co., Ltd. (WHA_GSR-3), WHA Gunkul Green Solar Roof 4 Co., Ltd. (WHA_GSR-4), WHA Gunkul Green Solar Roof 5 Co., Ltd. (WHA_GSR-5), and WHA Gunkul Green Solar Roof 6 Co., Ltd. (WHA_GSR-6), in which the Company held stakes of 25.01% of their respective 1,000,000 baht registered capitals, to operate solar rooftop power generation and distribution business for supplying to the Provincial Electricity Authority and the Metropolitan Electricity Authority. (Currently registered capital of WHA_GSR-1 is 11,500,000 baht, WHA_GSR-3 is 14,500,000 baht,</li> </ul>

Year	Event
	<p>WHA_GSR-6 is 14,500,000 baht and the Company still holding shares in the ratio of 25.01%). For WHA_GSR-2, WHA_GSR-4 and WHA_GSR-5 completed liquidated the companies.</p> <ul style="list-style-type: none"> <li>• In September 2013, WHA Corporation PCL established WHA Gunkul Green Solar Roof 8 Co., Ltd., WHA Gunkul Green Solar Roof 9 Co., Ltd., WHA Gunkul Green Solar Roof 10 Co., Ltd., WHA Gunkul Green Solar Roof 16 Co., Ltd., and WHA Gunkul Green Solar Roof 17 Co., Ltd., which the Company held stakes of 25.01% of their respective 100,000 baht registered capitals, to operate solar rooftop power generation and distribution business for supplying to the Provincial Electricity Authority and the Metropolitan Electricity Authority. (Currently registered capital of WHA_GSR-17 is 16,000,000 baht and the Company still holding shares in the ratio of 25.01%) for WHA_GSR-8, WHA_GSR-9, WHA_GSR-10 and WHA_GSR-11 completed liquidated the companies.</li> </ul>
Year 2014	<ul style="list-style-type: none"> <li>• On February 13, 2014, the Company had acquired 199,998 Common Shares in Greenovation Power Co., Ltd. (“GNP”) from Impact Energy Asia Limited (“IEA”) which represents 99.99% of GNP’s registered shares of 200,000 shares at the total selling price of 432,000,000 baht. GNP do business as a Power Producer from wind energy resource and being a contract partner with Electricity Generating Authority of Thailand and has a Power Purchase Agreement (PPA) in capacity of 60 Megawatts (MW), the registered capital of 2,000,000 baht. (Currently registered capital is 1,485,000,000 baht and the Company still holding shares in the ratio of 99.99%).</li> <li>• On April 17, 2014, the Company had established a new subsidiary to carry out the manufacturing and distributing of Lighting Bulb, type LED named is GUNKUL-LED, the Company held stakes of 74.79% of their respective 10,000,000 baht, registered capitals (Current registered capital is 100,000,000 baht and the Company holding shares in the ratio of 99.99%).</li> <li>• On June 2, 2014, the Company had acquired of 31,563,000 Common Shares in Wind Energy Development Co., Ltd. (“WED”) from Impact Energy Asia Limited Co., Ltd. (“IEA”) which represents 30% of WED’s registered shares of 1,052,100,000 shares at the total selling price of 373,211,000 that, totally holding 99.99% of registered capital of 1,052,000,000 baht (current capital: 1,575,000,000 baht and the Company holding shares</li> </ul>

Year	Event
	<p>in the ratio of 99.99%). WED do business as a Power Producer from wind energy resource which electricity generated will be sold to the Electricity Generating Authority of Thailand (“EGAT”) and the Province Electricity Authority (“PEA”) in accordance to 3 agreements in capacity of 60 Megawatts (MW) supporting (Adder) THB 3.50 per unit (Current registered capital is 1,575,000,000 baht and the Company holding shares in the ratio of 99.99%).</p> <ul style="list-style-type: none"> <li>• On June 16, 2014., the Company had established a new subsidiary to carry out the Generating Electrical Power and Engineering Procurement and Construction named Gunkul Solar Community Co., Ltd., in which the registered capital of 1,000,000 at par value of 100 baht (Current registered capital 10,000,000 baht and the Company holding shares in the ratio of 99.99%).</li> <li>• On September 18, 2014, the Company had signed Memorandum of Understanding (MOU) to corporate Solar Roof business with East Coast Furnitech Public Company Limited (ECF).</li> <li>• On December 17, 2014, Gunkul International (Mauritius) (GIM), which is a subsidiary of the Company to purchase shares of Sendai Okura Mega Solar Godo Kaisha (“GK Sendai”), which is incorporated in Japan by operating the solar power plant business with 31.75 Megawatts (MW) contract capacity (38.10 Megawatts installed capacity) located in Miyaki, Japan. GK Sendai produces electricity from solar energy and sells the electricity to Tohoku Electric Power Co., Inc. (“Tohoku Electric”) in Japan, the local utility, at JPY 36 per unit in feed in tariff scheme of a period 20 years concession in the ratio of 100% shareholders in the amount of JPY1.80 billion or approximately 504,000,000 baht. (Changed name: “Sendai Okura GD Daiichi Godo Kaisha”)</li> </ul>
Year 2015	<ul style="list-style-type: none"> <li>• On February 23, 2015, the Company has purchased the ordinary shares of Korat Wind Energy Company Limited (“KWE”) from Quantitus Engineering Company Limited (“QE”) which engaged in the business of generating electricity from wind energy for distribution to the EGAT of 50 megawatts, at 9,998 shares or equivalent to 99.98% of total registered shares of 10,000 shares. Total amount of the shares purchased was 432,000,000 baht, while the estimated construction and development budget was 4,249,000,000 baht and the total project value was 4,681,000,000 baht. (Current registered capital 1,107,000,000 baht and the Company holding shares in the ratio of 99.99%).</li> </ul>



Year	Event
	<ul style="list-style-type: none"> <li>On March 9, 2015, Wind Energy Development Company Limited (“WED”), which is the one of the Company’s subsidiaries, has invested in the wind turbine power plant project with the total project value at approximately 6,145,721,100 baht. WED has signed the contract in PPA in the capacity of 50 Megawatts (MW) wind turbine power plant from Electricity Generating Authority of Thailand (“EGAT”) as well as the capacity of 8+2 Megawatts (MW) with 3.50 baht, adder from Provincial Electricity Authority (“PEA”) for the period of 10 years.</li> <li>On April 8, 2015, GUNKUL has signed the Memorandum of Understanding (“MOU”) in jointly generating of solar cell on rooftop system with Chai Watana Tannery Group Public Company Limited (“CWT”) whereas GWT and GUNKUL shall jointly establish a company in developing this project. GUNKUL shall have the shareholding in this new company at 25.01%</li> <li>On June 23, 2015, the Company has informed the information technology of investment in the wind turbine power plant of Greenovation Power Company Limited (“GNP”) in approximated amount of 6,325,000,000 baht. GNP operates its business in developing and constructing for Electricity Generating Authority of Thailand (“EGAT”) under the capacity of 60 Megawatts (MW) electrical one agreement with 3.50 baht, adder for the period of 10 years. This power plant is situated in Huay Bong Sub-district, Dan Koon Tod District, Nakorn Ratchasima Province with the expected complete construction and commercially distribution within the first quarter of 2017.</li> <li>On August 19, 2015, the Extraordinary General Meeting of Shareholders No. 1/2015 passed the following resolutions: <ul style="list-style-type: none"> <li>Ratified the Company in investing in the capacity of 60 Megawatts (MW) wind turbine power plant with Greenovation Power Company Limited with the total project value of 6,325,000,000 baht.</li> <li>Ratified the Company in investing in the capacity of 31.75 MW solar cell power plant; Sendai Okura Mega Godo Kaisha (“GK Sendai”) (Changed name: “Sendai Okura GD Daiichi Godo Kaisha”) in Japan with the total project value of 12,599,100,000 Yen or approximately 3,527,800,000 baht.</li> </ul> </li> </ul>

Year	Event
	<ul style="list-style-type: none"> <li>• Approved the Company in purchasing 67% of ordinary shares of Infinite Alternative Energy Company Limited (“IAE”) which is a shareholder of Rang Ngern Solution Company Limited (“RNS”). RNS is the counterparty in the power transaction of the solar cell power plant and the capacity of 87 Megawatts (MW) project’s total value is approximately 5,487,500,000 baht. (Current registered capital of IAE is 1,590,000,000 baht and RNS is 1,355,000,000 baht)</li> <li>• Approved the Company in investing in the capacity of 33.50 Megawatts (MW) solar cell power plant; Kimitsu Okura Mega Solar Godo Kaishi (“GK Kimitsu”) (Changed name: “Kimitsu Mega Solar Godo Kaisha”) in Japan with the total project value of 13,057,800,000 Yen or approximate 3,656,200,000 baht by production and distribution of electricity from solar power to the Tokyo Electric Power Company (TEPCO) in Japan.</li> <li>• Approved the Company in acquiring source of investment fund as the capital increase by issuing the newly ordinary share to the Company’s existing shareholders in proportion to their respective shareholding (Right Offering) and issue the warrant certificate to the Company’s existing shareholders who wish to exercise their right in purchasing the ordinary shares of the Company. These newly ordinary shares issuance for Right Offering shall be not more than 274,981,118 shares at the par value of Baht 1 per share. Details are as follows: <ol style="list-style-type: none"> <li>1. Issuing not more than 183,320,745 newly ordinary shares at the par value of 1 baht per share to the existing shareholders of the Company in proportion to their respective shareholding (Right Offering) of 6 existing shares to 1 unit of warrants (disregarding the fraction). The offering price is 22 baht per share.</li> </ol> <p>In the event, that there are remaining amount of the newly issued ordinary shares after the issuance to the existing shareholders of the company, the company shall allocate such amount to the shareholders who express their intention in purchasing the newly issued ordinary shares apart from the proportion to their respective shareholding until the full amount is completely allocated, unless the remaining is the fraction which cannot be allocated or no more shareholder expresses personal intention in purchasing the newly issued ordinary shares.</p> </li> </ul>

Year	Event
	<p>2. Issuing not more than 91,660,373 newly ordinary shares at the par value of 1 baht per share to the existing shareholders of the Company in proportion to their respective shareholding (Rights Offering) of 2 existing shares to 1 unit of warrants for the exercise of right of GUNKUL-W.</p> <ul style="list-style-type: none"> <li>On November 4, 2015, the Company announced the establishment of GO Bioenergy Co., Ltd. to operate the electric energy from biomass. The Company's shareholding in this company is 74.90%, a while Outgrow Energy Consult Company Limited's shareholding is 25.10%. The registered capital is 34,300,000 baht. (Current registered capital is 34,300,000 baht)</li> <li>The Company acquired the shares of Outgrow A Co., Ltd., Outgrow B Co., Ltd., Outgrow D Co., Ltd., Outgrow E Co., Ltd., Outgrow Wood Supply A Co., Ltd. and Outgrow Wood Supply B Co., Ltd. which are all doing a business about electricity from biomass power.</li> <li>On November 12, 2015, the Company has purchased the ordinary shares of Gunkul LED Lighting Company Limited from the existing shareholders at 150,000 shares or equivalent to 15% of the current registered capital of 6,090,000 baht. Gunkul's total shareholding in this company is 899,999 shares or equivalent to 90% of total ordinary shares (current registered capital is 100,000,000 baht and the Company holding shares in the ratio of 99.99%).</li> </ul>
Year 2016	<ul style="list-style-type: none"> <li>On January 21, 2016, the Extraordinary General Meeting Shareholders No.1/2016 passed a resolution to increase the authorized capital of the Company up to 41,500,000 shares valued at par value 1 baht to the Siam Commercial Bank, which is offering a private placement. The price per share was 22.84 baht per share.</li> <li>On April 26, 2016, Annual General Meeting of Shareholders for 2016, resolved to change the par value per share of the Company from 1.00 baht per share to be 0.25 baht per share and an increase in the registered capital of the Company. To be support the stock dividend and to accommodate the exercise of the Warrants. The warrants to purchase the common shares of the Company 1 (GUNKUL-W). After the revaluation of capital stock shares. The new capital total 1,416,405,589 baht changed to 1,699,686,359 baht. Issuing</li> </ul>

Year	Event
	<p>new ordinary shares amount 1,133,123,080 shares at par value of 0.25 baht per share. Including the adjustment of the warrants to purchase common shares of the Company No. 1 (GUNKUL-W). As per the exercise Ratio 1 warrant : 1 common share to 1 unit : 4.8 common share, and the exercise price of 27.00 baht per share to 5.625 baht per share, and resolved to raise the issue and offering of debentures in the amount of 2,000 million baht. Therefore, the amount of 1,000 million baht, fine not exceeding the new limit is 3,000 million baht and not over 7 years.</p> <ul style="list-style-type: none"> <li>• On April 27, 2016, the Company filed a registration with the Department of Business Development, Ministry of Commerce to change the par value of one baht to be 0.25 baht.</li> <li>• On August 10, 2016, the Company announced the establishment, Gunkul Bio Energy Co., Ltd., to produce raw material for the biomass power plant, the Company held 99.94% of the registered capital of 500,000 baht (Current registered capital of 500,000 baht)</li> <li>• On August 25, 2016, the board of Directors Meeting No. 6/2016 approved the Gunkul International (Mauritius) ("GIM"), a subsidiary of the Company. Transaction investment in the solar power plant located GD Utsunomiya (Changed name: "GD Solar Utsunomiya Godo Kaisha" "GK Utsunomiya"), Utsunomiya City, Tochigi Province, Japan. The capacity under power purchase of 66.78 Megawatts (MW), Installed of 72.80 Megawatts (MW), The manufacturer and distributor of solar power to the Tokyo Electric Power Company ("TEPCO") in Japan was awarded the concession to sold electricity to TEPCO in Japan, period 20 years. The rate of purchase power feed-in tariff (FIT) Yen 36 per unit, the total value of the project is approximately 24,017 million yen or approximate of 8,391 million baht.</li> <li>• On October 12, 2016, the Board of Directors Meeting No. 7/2016, approval for the Company to buying preferred stock in the BMP Solar Company Limited ("BMP Solar"), which operates the solar power plants. A capacity of 8.00 Megawatts (MW) of 48,000 or 48.98% of the paid-up capital totaling registered of 98,000 shares (including ordinary shares total 50,000 shares and preferred shares of 48,000 shares), the Company will be entitled to dividend from operations and the rights to vote at 99.99%, which a turnover of 670 million baht, by the power plants of the Company are located at Tha Carter, Watthana Nakhon district, Srakaew Province. In order to gain power. Feed-in Tariff (FIT)</li> </ul>

Year	Event
	<p>5.66 baht per unit, for a period of 5 years. (Current registered capital is 980,100 baht and the Company holding shares in the ratio of 48.98%).</p> <ul style="list-style-type: none"> <li>On November 29, 2016, the Extraordinary General Meeting of Shareholders No. 2/2016 passed a resolution as details: <ul style="list-style-type: none"> <li>Approved to Gunkul International (Mauritius) ("GIM"), a subsidiary entered into an investment in solar power plant projects in East Japan Solar 13 Godo Kaisha ("GK Iwakuni") Iwakuni City, Yamanguchi Province, Japan. Capacity of the project of 75.0 Megawatts (MW), (Size of capacity that, installed 90.0 Megawatts (MW) was awarded the concession to distribute electricity to Chungoku Electric Power for a period of 20 years at a rate of the power purchase and Feed in Tariff (FIT) Yen 32 per unit. The totally value of approximate 31,327.80 million yen or approximately 10,776.76 million baht</li> <li>Approved to raise the issuing of debentures amount 3,000 million baht; therefore, the amount changing not more than 3,000 million baht, a new limit not over 6,000 million baht, the period within 7 years.</li> </ul> </li> </ul>
Year 2017	<ul style="list-style-type: none"> <li>On April 21, 2017, the Annual General Meeting of Shareholders passed a resolution of shareholders to approve details as follows; <ul style="list-style-type: none"> <li>Approving the second adjustment of purchasing right for the exercise of warrant No.1 (GUNKUL-W) by adjusting an Exercise Ratio from 1 Unit: 4.8 Ordinary Share to 1 Unit: 5.6 Ordinary Share and adjusting an Exercise Price from 5.625 baht per share to 4.821 baht per share.</li> <li>Approving the capital increment for supporting the dividend payment and second adjusting right of purchasing for the exercise of warrant No.1 (GUNKUL-W) from THB 1,699,685,996.75 to be the new registered capital THB 1,982,967,060.25 at the par value of THB 0.25.</li> <li>Approving the issuance and offering of debentures in amount of 3,000,000,000 baht from the original amount not exceeding 6,000,000,000 baht, inclusive of new credit limited to 9,000,000,000 baht with age not over 7 years.</li> </ul> </li> </ul>

Year	Event
	<ul style="list-style-type: none"> <li>On May 4, 2017, the Company established a subsidiary company, Gunkul Solar Power 6 Co., Ltd. ("GSP-6") in order to produce and sell electricity from renewable energy to sell to government agencies. The Company held 99.99% of the registered capital of 100,000,000 baht (Current registered capital of 100,000,000 baht and the Company holding shares in the ratio of 99.99%).</li> <li>On May 9, 2017, the Company established a subsidiary company, Gunkul Solar Power Co., Ltd. ("GSP") in order to produce and sell electricity from renewable energy to sell to government agencies. The Company held 99.99% of the registered capital of 560,999,100 baht (Current registered capital of 599,998,800 baht and the Company holding shares in the ratio of 99.99%).</li> <li>On May 30, 2017, the Company acquired 48,000 shares in BMP Solar Co., Ltd. ("BMP Solar"). The Company will be entitled to receive dividends from its operations and rights for voting in proportion to 99.99%. This power plant is located at Tha Kwian, Watthana Nakhon District, Sa Kaeo Province. The capacity is 8.0 megawatts with Feed-in-Tariff (FiT) 5.66 baht per unit for a period of 25 years. The Commercial Operation Date starts from April 29, 2016. (Current registered capital of 980,100 baht and the Company holding 48,010 shares in the ratio of 48.98%).</li> <li>On June 7, 2017, the Company signed a Memorandum of Understanding between BG Energy Solution Co., Ltd. and Gunkul Power Development Co., Ltd. to launch the Solar Rooftop project for its own use with the capacity of 4.84 MW at Ayudhya Glass Industries Limited.</li> <li>On August 16, 2017, the Company acquired 99,999 common shares in Gunkul LED Lighting Co., Ltd. from the existing shareholders or equivalent to 9.99% of the current registered capital in the amount of 4,095,000 baht. Gunkul's total shareholding in this company is 999,998 shares or equivalent to 99.99% of total ordinary shares (current registered capital is 100,000,000 baht).</li> </ul> <p>(On February 21, 2018, Gunkul LED Lighting Co., Ltd. changed name into "Gunkul Energy Solutions &amp; Lighting Co., Ltd." with a purpose to expand its business to provide integrated electrical system services)</p>

Year	Event
	<ul style="list-style-type: none"> <li>On August 23, 2016, the Company was employed by the Provincial Electricity Authority (“PEA”) for the construction of 33 KV submarine cable to Koh Pra Thong, Phang Nga Province. The construction period is starting from the signing date of the contract 450 days.</li> <li>On September 30, 2017 is the date on which the remaining warrants to purchase the Company's ordinary shares No.1 (GUNKUL-W) have been set as listing status termination.</li> </ul>
Year 2018	<ul style="list-style-type: none"> <li>On January 12, 2018, the Company became a shareholder in Kenyir Gunkul Solar Sdn Bhd, Malaysia holding 49% of the ordinary shares and subsequently holding the proportion of investment in preferred shares to receive dividends in the form of dividend at 70%.</li> <li>On March 27, 2018, Greenovation Power Co., Ltd. (“GNP”), a subsidiary of the Company which operates wind power plant business, which the Company holding 99.99% of registered and paid-up capital, GNP has operated commercial electricity (“COD”) of the Saranlom Wind Farm Project which is located in Tumbon Huay Bong, Amphur Dan Khuntod, Nakhonrachasima province, with total capacity of 60 MW. These projects are supported by the government through adder at 3.50 baht per KW for 10 years started from the commercial operation date.</li> <li>On April 10, 2018, the Board of Directors of Gunkul Engineering Public Company Limited No. 2/2561 on Tuesday, April 10, 2018 resolved to approve the treasury stock program to maximize benefit from the excess liquidity management of the Company and to signal to investors on the strong financial position of the Company, with the maximum amount that used to repurchase shares not exceeding 1,000 million baht, the maximum amount of repurchased shares not exceeding 300,000,000 shares at a par value of 0.25 baht per share. The number of shares to be repurchased is equal to 4.04% of the total issued shares by specifying the period for the repurchase of shares from April 25, 2018 to October 24, 2018. The totaling repurchased shares in the above program are 93,475,100 shares or 1.26% of the total issued shares of the Company. The total value of all repurchased shares equal to 287,745,712.00 baht.</li> <li>On April 20, 2018, the Annual General Meeting of Shareholders for the year 2018 resolved to approve as follows:</li> </ul>

Year	Event
	<ul style="list-style-type: none"> <li>• Approval of the decrease of the registered capital of the Company totaling 513,246,748 shares, or 128,311,687 baht, which were not able to be allocated for dividend payment according to the resolutions of the Annual General Meeting of Shareholders for the year 2017 of 6,421 shares or 1,605.25 baht. The remaining portion of the warrants for the Company's ordinary shares is 513,240,327 shares or 128,310,081.75 baht from the current listed share of 7,931,868,241 shares at the par value of 0.25 baht (current registered capital is equal to 1,982,967,060.25 baht) to be new registered shares of 7,418,621,493 shares at the par value of 0.25 baht (new registered capital is equal to 1,854,655,373.25baht)</li> <li>• Approval of the reorganization of the Board of Directors from 9 to 10 persons so that the Board of Directors has more variety of professional skills and expertise including for more balance of power in the Board of Directors.</li> <li>• Approval of the amendment of the Company's Articles of Association Chapter 4 'Shareholders' Meeting' Article 24.</li> <li>• On June 20, 2018, Korat Wind Energy Co., Ltd. ("KWE"), a subsidiary of the Company operates wind power plant business. The Company holds 99.99% of the registered and paid-up capital. KWE has operated commercial electricity ("COD") of the Mittraphap Wind Farm Project which is located in Nong Nam Sai Sub-district, Sikhiu District, Nakhon Ratchasima province, with total capacity of 50 MW. These projects are supported by the government through adder at THB3.50 per KW for 10 years started from the commercial operation date.</li> <li>• On June 28, 2018, the Extraordinary General Meeting of Shareholders No.1/2561 resolved to approve as follows:</li> </ul>



Year	Event
	<ul style="list-style-type: none"> <li>• Approving the Gunkul Power Development Co., Ltd. ("GPD"), a subsidiary of the Company which the Company holds 99.99% of the issued and paid-up shares, to enter into the purchase of 10,000,000 ordinary shares of Future Electrical Control Co., Ltd. ("FEC"), representing 100.00% of total issued shares with the par value of Baht 10.00 per share and with the paid-up capital of Baht 47,500,000.00 from existing shareholders of FEC in total not exceeding 650,000,000.00 Baht.</li> <li>• Approving the Amendment of the Articles of Association of the Company, Article 45. "The Company's Seal" Approval of the amendment of the Company's Articles of Association Chapter 4 'Shareholders' Meeting' Article 24.</li> <li>• On July 3, 2018, the Company received the installation work of Solar Roof for Charoen Pokphand Foods Public Company Limited or CPF in the form of a power purchase agreement with a project value of approximately 1,400 million baht. The Company will be the investor and the system administrator throughout the contract period of 15 years which will install 120,000 solar panels on the roof of the CPF factories in 34 locations, with a total area of approximately 230,000 square meters or comparable to a 40 MW power plant.</li> <li>• On November 1, 2018, Sendai Okura Power Plant project which is located in Sendai Miyagi, Japan with total capacity of 31.75 MW. (38.10 MW: Installed Capacity). This is a project that produces and sells solar power to Tohoku Electric Power Co., Inc. ("Tohoku Electric") at JPY 36 per unit in feed-in tariff scheme, with 20-year concession period starts from the commercial operation date.</li> </ul>

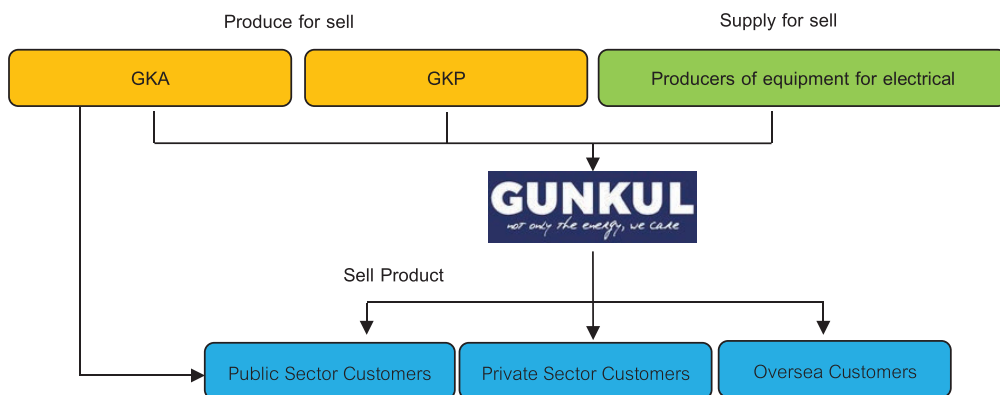
## 17.1 Nature of Product and Service

Details of the business operations of the Company and its subsidiaries as follows:

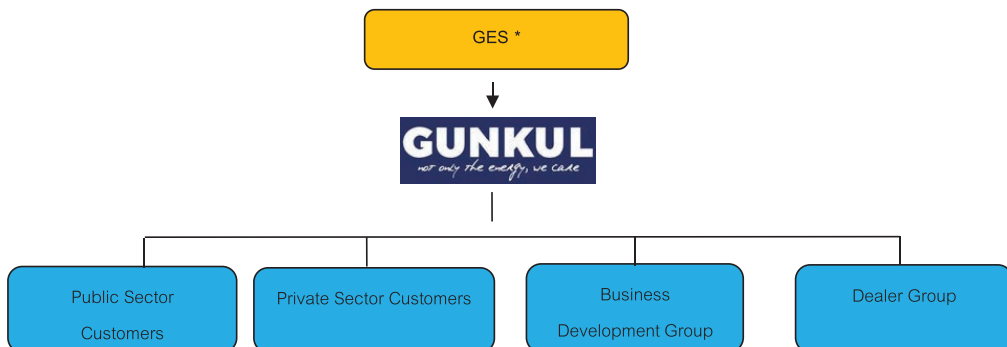
1. Business to produce, procure and supply equipment for electrical system in domestic and international
2. Business to produce, procure and supply energy-saving products including appropriate alternative energy:
  - 2.1 To product and supply lighting lamp type LED, BIPV Glass, Flexible Solar PV including appropriate alternative energy
  - 2.2 To product and supply solar cell module including supplying equipment related to the electricity production system of solar energy.
3. Business to produce and distribute electricity from renewable energy resources in local and international
  - 3.1 Solar Farm or Solar Ground
  - 3.2 Solar PV Rooftop
    - 3.2.1 Manufacture and distribute to Provincial Electricity Authority (PEA) and Metropolitan Electricity Authority (MEA)
    - 3.2.2 Manufacture and distribute to Private Power Purchase Agreement (Private PPA)
    - 3.2.3 For Residential and Small Scale Business
  - 3.3 Floating Solar Farm
  - 3.4 Wind Farm
  - 3.5 Biomass Energy and Supply of raw materials for biomass power plants
4. Business to construct alternative energy power plant (Engineering Procurement and Construction)
5. Business to operation and maintenance

*Diagram shows business conduct structure of the group of companies*

- 1) Business to produce, procure and supply equipment for electrical system in domestic and international

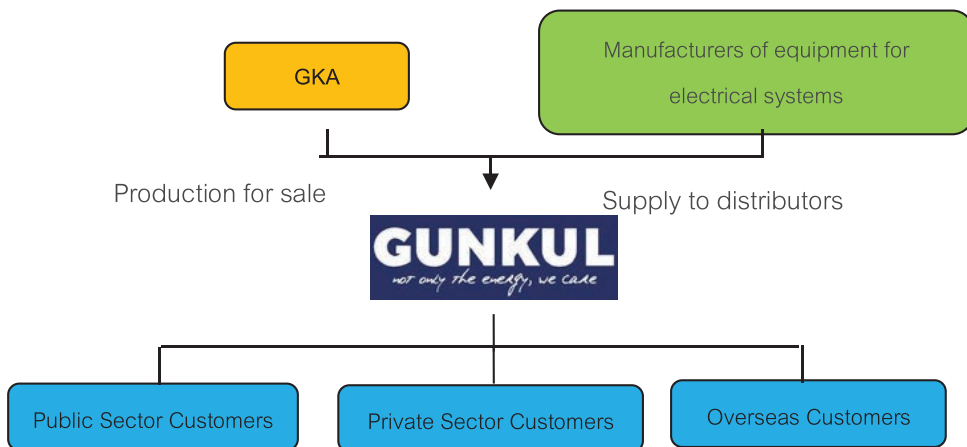


- 2) Business to produce, procure and supply energy-saving products including appropriate alternative energy
  - To product and supply lighting lamp type LED, BIPV Glass, Flexible Solar PV including appropriate alternative energy It is suitable for architectural or landscape improvement, electronic system renovation in the office or factory and consultation on supplying alternative energy systems to customers such as Solar Rooftop, Solar Floating, Solar Water Pump and Solar Air Conditioner system or Organic Rankine Cycle (ORC) system for Waste Heat Recovery etc.



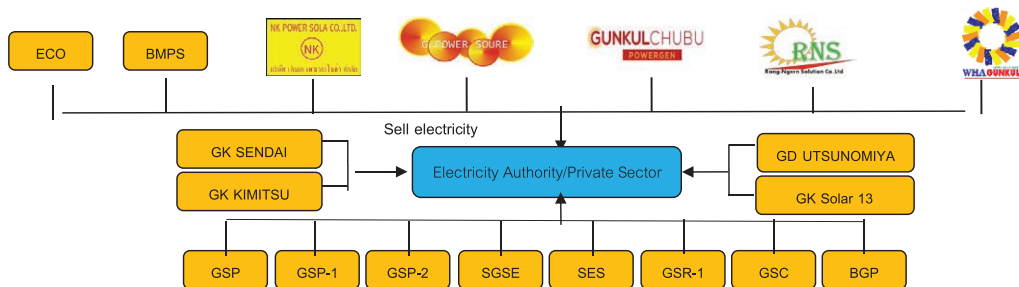
*\*In 2018, Gunkul Lighting LED Co., Ltd. changed its name to “Gunkul Energy Solutions and Lighting Co., Ltd.” to expand its business of integrated power system services.*

- To product and supply solar cell module including supplying equipment related to the electricity production system of solar energy



- 3) Business to produce and distribute electricity from renewable energy resources in local and international

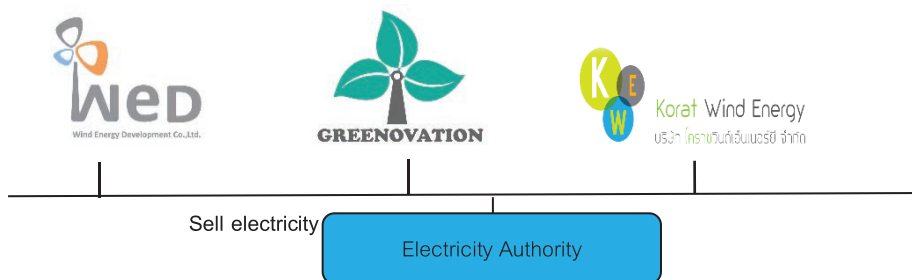
- Solar Farm & Solar PV Rooftop



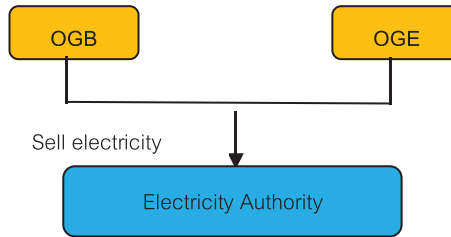
- Solar for Residential and Small Scale Business 200 kilowatt



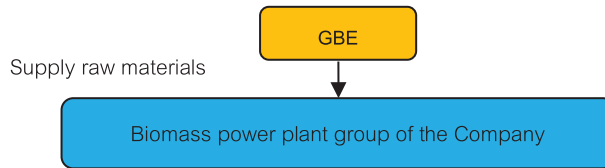
- Wind Farm



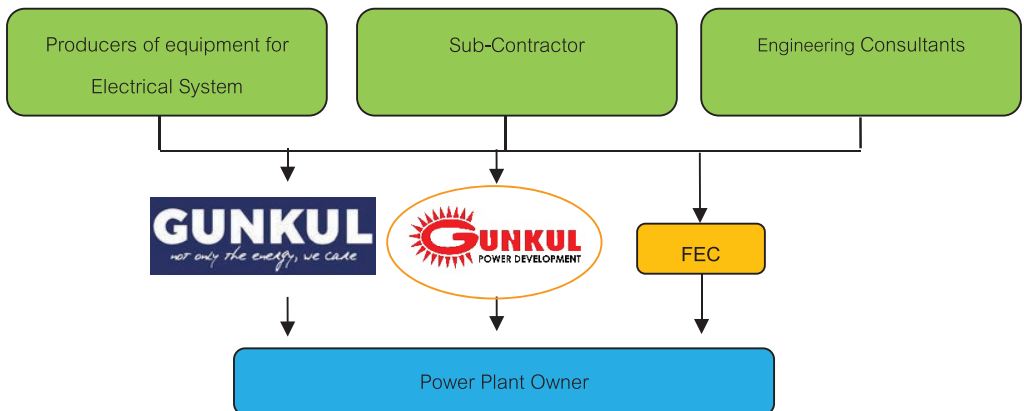
- Biomass Energy and Supply of raw materials for biomass power plants
  - Biomass Power Plant



- Supply of raw materials for biomass power plants

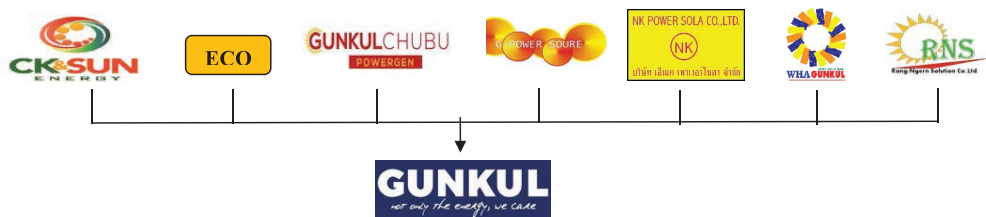


- 4) Business to construct alternative energy power plant (Engineering Procurement and Construction)



## 5) Business to operation and maintenance

Solar Power Plant Owner



### 1. ธุรกิจผลิต จัดหา และจำหน่ายอุปกรณ์สำหรับระบบไฟฟ้าทั้งในประเทศและต่างประเทศ



Gunkul Engineering Co., Ltd Group (PCL), the leading supplier of equipment for power systems and renewable energy systems, covering in all stages of transmission and distribution of electricity from power plants to consumers with goods more than 5,000 items to meet the needs and characteristics of the different customer groups and both the household level to the macro level of government, the Group has expanded its business into the manufacture and sale of electricity from renewable energy as well. (See the diagram of the power transmission line and distribution system in the topic of Policy and business overview) All kind of goods which are produced from the subsidiaries and/or supplying by producers in Thailand and overseas who are acceptable on goods' quality and standard such as USA, Germany, Sweden, Japan, China and etc.

The company's products can be classified into five categories based on the usage as follows:

- 1) Protection and transmission system control equipment and distribution lines including power cut switch (Disconnecting Switch), load break switches, gas switches (SF6 Gas Load Break Switch), and air brake switch, transformer fuse cut-out, Surge Arrester, Live part cover and Grounding system.
- 2) Transmission and distribution lines equipment including cables (Cable), to hold the line pieces (Preformed) cable spacers (Cable Spacer), connector device (Connector), device on the cable (Cable Termination), a cable connection (Cable Splicing), electrical insulators (Insulator).
- 3) Tools and equipment including safety belts, electrical rubber gloves, industrial gloves, helmets, instrumentation and testing equipment.
- 4) Street lighting equipment, including street lamps, control switches (Photo Control Switch) and a street light control relays (Street Lighting Control Relay).
- 5) Group of equipment for the system of renewable energy, including wind turbines, solar energy equipment and solar cells, hydro turbine, generator, transformer, control equipment etc.

## **2. Business to produce, supply and sell equipment for energy saving including appropriate alternative energy**

### **2.1 Produce and sell LED lighting products**

Gunkul LED Lighting Co., Ltd. renamed to GUNKUL ENERGY SOLUTION & LIGHTING (GES) in 2018 in order to create a clear image and to support market expanding business. The customer base is a group of consumers who need to save energy or improve electrical system performance of the business in broader and deeper.

The customers are divided into 4 groups.

- Private Sector Customers
- Public Sector Customers
- Business Development Group
- Dealer Group or End User Level that supply Lamp and LED Lamp

Under the trademark "GLO"



The Company manufacture, supplies and distributes light bulbs and LED lamp both indoor and outdoor lighting including street lighting, flood light installation type by using solar cell power. And Batteries, BIPV Glass, Flexible Solar PV and batteries, BIPV Glass, Flexible Solar which is ideal for architectural or landscaping work, electrical system renovation in an office building or factory, consultancy on the management of alternative energy systems that suitable for customers including Engineering, Procurement and Commissioning and electric system or power plant such as, Solar Rooftop, Solar Floating, Solar Water Pump, Solar Air Conditioner or Organic Rankine Cycle (ORC) for Waste Heat Recovery etc.



#### ❖ Gunkul LED product (High Power Product)



#### ❖ Gunkul LED Lighting Product (Low Power Product)

##### LED BULB (E27)

Size: 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, 260, 270, 280, 290, 300, 310, 320, 330, 340, 350, 360, 370, 380, 390, 400, 410, 420, 430, 440, 450, 460, 470, 480, 490, 500, 510, 520, 530, 540, 550, 560, 570, 580, 590, 600, 610, 620, 630, 640, 650, 660, 670, 680, 690, 700, 710, 720, 730, 740, 750, 760, 770, 780, 790, 800, 810, 820, 830, 840, 850, 860, 870, 880, 890, 900, 910, 920, 930, 940, 950, 960, 970, 980, 990, 1000, 1010, 1020, 1030, 1040, 1050, 1060, 1070, 1080, 1090, 1100, 1110, 1120, 1130, 1140, 1150, 1160, 1170, 1180, 1190, 1200, 1210, 1220, 1230, 1240, 1250, 1260, 1270, 1280, 1290, 1300, 1310, 1320, 1330, 1340, 1350, 1360, 1370, 1380, 1390, 1400, 1410, 1420, 1430, 1440, 1450, 1460, 1470, 1480, 1490, 1500, 1510, 1520, 1530, 1540, 1550, 1560, 1570, 1580, 1590, 1600, 1610, 1620, 1630, 1640, 1650, 1660, 1670, 1680, 1690, 1700, 1710, 1720, 1730, 1740, 1750, 1760, 1770, 1780, 1790, 1800, 1810, 1820, 1830, 1840, 1850, 1860, 1870, 1880, 1890, 1900, 1910, 1920, 1930, 1940, 1950, 1960, 1970, 1980, 1990, 2000, 2010, 2020, 2030, 2040, 2050, 2060, 2070, 2080, 2090, 2100, 2110, 2120, 2130, 2140, 2150, 2160, 2170, 2180, 2190, 2200, 2210, 2220, 2230, 2240, 2250, 2260, 2270, 2280, 2290, 2300, 2310, 2320, 2330, 2340, 2350, 2360, 2370, 2380, 2390, 2400, 2410, 2420, 2430, 2440, 2450, 2460, 2470, 2480, 2490, 2500, 2510, 2520, 2530, 2540, 2550, 2560, 2570, 2580, 2590, 2600, 2610, 2620, 2630, 2640, 2650, 2660, 2670, 2680, 2690, 2700, 2710, 2720, 2730, 2740, 2750, 2760, 2770, 2780, 2790, 2800, 2810, 2820, 2830, 2840, 2850, 2860, 2870, 2880, 2890, 2900, 2910, 2920, 2930, 2940, 2950, 2960, 2970, 2980, 2990, 3000, 3010, 3020, 3030, 3040, 3050, 3060, 3070, 3080, 3090, 3100, 3110, 3120, 3130, 3140, 3150, 3160, 3170, 3180, 3190, 3200, 3210, 3220, 3230, 3240, 3250, 3260, 3270, 3280, 3290, 3300, 3310, 3320, 3330, 3340, 3350, 3360, 3370, 3380, 3390, 3400, 3410, 3420, 3430, 3440, 3450, 3460, 3470, 3480, 3490, 3500, 3510, 3520, 3530, 3540, 3550, 3560, 3570, 3580, 3590, 3600, 3610, 3620, 3630, 3640, 3650, 3660, 3670, 3680, 3690, 3700, 3710, 3720, 3730, 3740, 3750, 3760, 3770, 3780, 3790, 3800, 3810, 3820, 3830, 3840, 3850, 3860, 3870, 3880, 3890, 3900, 3910, 3920, 3930, 3940, 3950, 3960, 3970, 3980, 3990, 4000, 4010, 4020, 4030, 4040, 4050, 4060, 4070, 4080, 4090, 4100, 4110, 4120, 4130, 4140, 4150, 4160, 4170, 4180, 4190, 4200, 4210, 4220, 4230, 4240, 4250, 4260, 4270, 4280, 4290, 4300, 4310, 4320, 4330, 4340, 4350, 4360, 4370, 4380, 4390, 4400, 4410, 4420, 4430, 4440, 4450, 4460, 4470, 4480, 4490, 4500, 4510, 4520, 4530, 4540, 4550, 4560, 4570, 4580, 4590, 4600, 4610, 4620, 4630, 4640, 4650, 4660, 4670, 4680, 4690, 4700, 4710, 4720, 4730, 4740, 4750, 4760, 4770, 4780, 4790, 4800, 4810, 4820, 4830, 4840, 4850, 4860, 4870, 4880, 4890, 4900, 4910, 4920, 4930, 4940, 4950, 4960, 4970, 4980, 4990, 5000, 5010, 5020, 5030, 5040, 5050, 5060, 5070, 5080, 5090, 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The Company aims to develop and maximize its potential, increase competitiveness by focusing on serving customers with full range by focusing on energy saving with quality control by a team of experienced engineers and technicians for ensuring the customers that the Company can deliver reliable products and services with international standard and high quality to the customer.

## ***2.2 Produce and sell solar cell panels including the supply of equipment related to the solar power system***

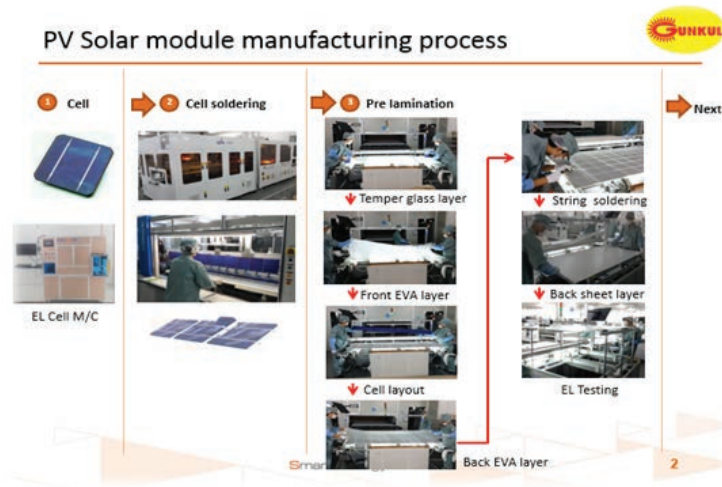
GK Assemblies Co., Ltd. and GK Power Products Co., Ltd. are the subsidiary of the Company which manufacture and sell electrical equipment related to all types of electrical systems. In 2017, these companies have enhanced its product innovation and production as detail follow;

## 1. Registration of factory testing department with Provincial Electricity Authority



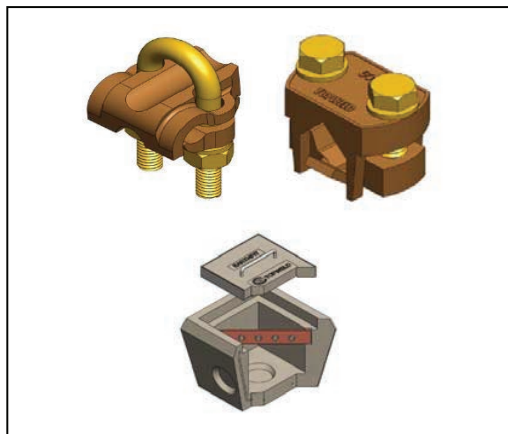
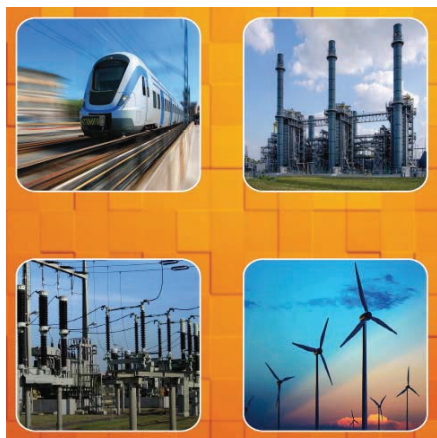
The companies have filed for standard certification of testing room within the company to the standard control of PEA for being a part of the guideline to control the factory standard that is acceptable to customer of PEA. The company is one of only three approved manufacturers with a testing rooms certify standard for ensuring that the electricity purchased from the company will receive quality products and comply with international standards and PEA's standards.

## 2. The Solar panel production according to TIS 1843 and TIS 2580



The company has increased the efficiency and technology of solar panel production by starting from the assembly of the factory in the production of mechanical machines with the use of advanced technology including verify the quality of the cell from the start in order to control the quality of work. It can also reduce waste during production process. The use of mechanical manufacturing technology is also consistent with the government's policy to drive Thailand towards Thailand 4.0. Moreover, the production of solar panels is also a good way to reduce the cost of solar panels in the country as well.

### *3. Development of Lightning Protection System (LPS)*



For supporting the construction of a double track railway project and the city's rapid transit system, this type of product must have a good quality control and accepted by an international standard; IEC Standard and UL Standard. The Company has designed and controlled the production and passed the test. It is a product that the Grounding system user accept and favour to use it in order to create a public transport system for people in Thailand for having a better mobility journey.

#### 4. Continuous improvement of production processes



In order to reduce costs in production within the Company by using the technology and machinery capital in production, it can reduce the cost more than 6 million baht and also care for employees not to be fatigue in work too. Overall, this improvement resulted in better efficiency production.

### 3. Business of Generating and Distributing Power from Renewable Energy Sources

#### 3.1 Solar Farm or Solar Ground

The Group operates a business of generating and distributing power from renewable energy sources (RES) for supplying to government sector in response to the state policies to promote renewable energy power generation and consumption.

Foreseeing that the business related to renewable energy carries a good opportunity for development and investment for reasons of high growth potential, low risk as well as steady and sustainable profitability, the Group has expanded its scope of business from the supply and distribution of renewable energy equipment to the generation and distribution of RES power, Solar Farm or Solar Ground. The new business is undertaken by Gunkul Chubu

Powergen Co., Ltd., G-Power Source Co., Ltd., Rang Ngern Solution Co., Ltd. and Eco Thai Energy Co., Ltd. which are subsidiary of the Company including investments in solar power projects in Japan, such as GK Sendai project, GK Kimitsu project, GK Utsunomiya project and GK Iwakuni project. In addition, the Company has a target on investment in other countries with investing potential in order to increase business opportunities and in 2018, the Company aims to invest in solar power plants in neighboring countries, which the company is investing in Malaysia and Vietnam. However, the Company is currently investing in Malaysia and Vietnam.

The Group entered the RES power generation and distribution business by investing in solar farms and applying for sale of electricity output to the Provincial Electricity Authority (PEA) under the PEA projects to purchase electricity from producers with a maximum capacity of 10 MW, very small power plants (VSPP). The Power Purchase Agreement (PPA) was signed with the PEA and adder subsidy rate for VSPP of RES production of 8 baht per kWh for a term of 10 years since the commencement of sale. From 2010 to 2014, the Group have then signed power purchase agreements (PPA) with the PEA for 10 projects with a combined capacity of 57.9 MW.

In 2015, the Company acquired shares in Rang Ngern Solution Co., Ltd., which received the power purchase agreement with the Provincial Electricity Authority in accordance with the project of purchasing electricity from solar power plant producer, Solar Farm, total amount 11 projects. The project, with a total capacity of 87 MW., in Feed-in-Tariff form (FIT) is priced at 5.66 baht per kilowatt for 25 years. In 2016, the Company also acquired shares in Eco Thai Energy Co., Ltd. which was trusted by the Samutsakhon Organic Fertilizer Cooperative Ltd., which selected as a project sponsor. It was also selected by a lottery as one of the projects that received 5 MW. power purchase agreement for 25 years in the form of a FIT fee of Baht 5.66 per unit. It also received a resolution from the Board of Directors of the Company to approve the acquisition of shares in BMP Solar Co., Ltd., which will be assigned the rights of the power purchase contract for solar power plant from BMP Energy Co., Ltd., in total 1 contract with a capacity of 8 MW. in the Feed-in Tariff form (FIT) rate of 5.66 Baht for 25 years contract. Therefore, the capacity that offered for sale to the Provincial Electricity Authority from solar power plants, Solar Farm or Solar Ground until now with the total amount 157.90 MW.



Details of the Group's solar farm projects offered to the PEA could be summarized as follows:

Project	Capacity (MW)	Project Site (according to application)	Commencement of Output Sale
<i>Gunkul Chubu Powergen Co., Ltd. "GCPG" (The company is a joint venture owned 51% of the share capital)</i>			
1	3	Tambon Bannklui, Amphoe Chondaen, Phetchabun	January 2011
	4.4	Tambon Bannklui, Amphoe Chondaen, Phetchabun	October 2011
2	8	Tambon Srichula Amphoe Sichula, Nakhon Nayok	June 2013
3	8	Tambon Samyaek, Amphoe Wichianburi, Phetchabun	March 2013
4	4.5	Tambon Noenpor, Amphoe Sam-ngam, Phichit	March 2013
5	3	Tambon Subsamortod, Amphoe Buengsamphan, Phetchabun	May 2013
	<b>30.9</b>	<b>The proportion of GUNKUL is 51% = 15.759 MW.</b>	
<i>G-Power Source Co., Ltd. "GPS" (The company is a joint venture owned 40% of the share capital)</i>			
6	6.5	Tambon Takeed, Amphoe Banphotphisai, Nakhon Sawan	March 2012
7	6.5	Tambon Tasang, Amphoe Banphotphisai, Nakhon Sawan	March 2012
8	6.5	Tambon Dongkorn, Amphoe Sankhaburi, Chainat	March 2012
9	6.5	Tambon Subsamortod, Amphoe Buengsamphan, Phetchabun	February 2013
	<b>26</b>	<b>The proportion of GUNKUL is 40% = 10.4 MW.</b>	
<i>NK Powersola Co., Ltd. "NKP" (A subsidiary, the Company holds 99.99% of the registered capital.)</i>			
10	1	Tambon Nongkum, Amphoe Bo-phloi, Kanchanaburi	November 2013
	<b>1</b>	<b>The proportion of GUNKUL is 99.99% = 1.0 MW.</b>	
<i>Rang Ngern Solution Co.,Ltd. "RNS" (The company is a joint venture owned 67% of the share capital).</i>			
11	8	Tambon Donsalam, Amphoe Huaykrajao, Kanchanaburi	December 2015

Project	Capacity (MW)	Project Site (according to application)	Commencement of Output Sale
12	8	Tambon Lumrang, Amphoe Bo-phloi, Kanchanaburi	December 2015
13	8	Tambon Pangtru, Amphoe Tamuang, Kanchanaburi	November 2015
14	8	Tambon Yangnamklad, Amphoe Nongyaplong, Phetchaburi	December 2015
15	8	Tambon Nongchumpon, Amphoe Kaoyoi, Phetchaburi	April 2016
16	8	Tambon Kludluang, Amphoe Tayang, Phetchaburi	December 2015
17	8	Tambon Angthong, Amphoe Tubsakae, Prachuapkhirikhan	December 2015
18	8	Tambon Angthong, Amphoe Tubsakae, Prachuapkhirikhan	December 2015
19	8	Tambon Agnthong, Amphoe Tubsakae, Prachuapkhirikhan	December 2015
20	7	Tambon Tungkwang, Amphoe Muangpan, Lampang province	December 2015
21	8	Tambon Taopoon, Amphoe Song, Phrae province	April 2016
	<b>87</b>	<b>The proportion of GUNKUL is 67% = 58.29 MW.</b>	
<b>BMP Solar Co., Ltd. “BMP” (1 (A subsidiary, the Company holds 49.98% of the registered capital)</b>			
22	8	Tambon Takwien, Amphoe Watthana Nakhon, Srakaew	April 2016
	<b>8</b>	<b>The proportion of GUNKUL is 49.98% = 3.918 MW.</b>	
<b>Eco Thai Energy Co., Ltd. “ECO” (The company is a joint venture owned 51% of the share capital)</b>			
23	5	Tambon Bangkrachua, Amphoe Mueang Samut Sakhon, Samut Sakhon	December 2016
	<b>5</b>	<b>The proportion of GUNKUL is 51% = 2.55 MW.</b>	
<b>Total</b>	<b>157.9</b>	<b>The total proportion of GUNKUL is = 91.917 MW.</b>	

<sup>(1)</sup> The Company hold 48,000 shares in BMP Solar Co., Ltd., representing 48.98% of the paid-up capital of 98,000 shares, with the right to receive dividends from the operation and the right to vote 99.99%. Also, to hold increased ordinary shares after the company has already sold commercial electricity for 3 years. The shareholding ratio will increase from 48.98% to 99.99%. It is expected that it will enter into acquisition in April 2019.



The above projects, GCPG, GPS NK, ECO and RNS Tao Poon Project have obtained investment promotion certificates from the Board of Investment, in the form of an exemption of corporate income tax on net operating profit for 8 years since the date of sale income recorded. After the expiry date of the aforesaid corporate income tax exemption, the Company is still granted an allowance of 50% of the normal rate of corporate income tax for 5 years. The tax rates could be summarized as follows:

Year	Tax Rate	
	Tax Exemption	Corporate Income Tax Payment
1st – 8th years	100%	0%
9th – 13th years	50%	10%
13th year onward	0%	20%

For BMP projects and other projects of RNS, BOI has been granted a BOI privilege, in the form of an exemption of corporate income tax on net operating profit for 8 years since the date of sale income recorded. The tax rates could be summarized as follows:

Year	Tax Rate	
	Tax Exemption	Corporate Income Tax Payment
1st – 8th years	100%	0%
8th year onward	0%	20%



In addition, the company also operates for the solar power plant projects in Japan which applied the electricity generating to Tohoku Electric Power Co., Inc. or Provincial Electricity Authority of Tohoku and Tokyo Electric Power Co., Inc. or Provincial Electricity Authority of Tokyo at the rate of 36.00 Yen per Kilowatt per hour (Feed-in-Tariff “FIT”), TEPCO Energy Partner or “TEPCO EP” at the rate of 36.00 Yen per Kilowatt per hour (Feed-in-Tariff “FIT”) and Chugoku Electric Power Co., Inc or “Chugoku Electric” at the rate of 32.00 Yen and 32.00 Yen per Kilowatt per hour (Feed-in-Tariff “FIT”) by summarized as follows:

Project	Capacity (MW)	Project Site (according to application)	Feed-in-Tariff (FIT)	Commercial Operation Date Expectation
<i>GK Sendai Okura Mega Solar Co., .Ltd. ("GK Sendai Okura Mega Solar") (Investment proportion 100.00%)</i>				
1	31.75	Sendai, Miyaki	36.00 Yen per Kilowatt per hour	Q4/2018
<i>Kimitsu Mega Solar Godo Kaisha Co., .Ltd ("Kimitsu Mega Solar Godo Kaisha") (Investment proportion 100.00%)</i>				
2	33.50	Kimitsu, Chiba	36.00 Yen per Kilowatt per hour	Q1/2019
<i>GK Solar Utsunomiya Co., .Ltd ("GK Solar Utsunomiya Godo Kaisha") (Investment proportion 100.00%)</i>				
3	66.78	Utsunomiya, Toshiaki	36.00 Yen per Kilowatt per hour	Q1/2023
<i>East Japan Solar 13 Co., .Ltd ("Godo Kaisha East Japan Solar 13") (Investment proportion 100.00%)</i>				
4	75.00	Iwakuni, Yamakuji	32.00 Yen per Kilowatt per hour	Q3/2023
<b>Total</b>	<b>207.03</b>			

### 3.2 Solar PV Rooftop to sell electricity to the system

At the meeting on 13 August 2013, the cabinet acknowledged the National Energy Policy Council's resolution dated 16 July 2013 approving the program on power purchase from rooftop PV system at a quantity generated at the overall installed capacity of photovoltaic panels of 200 MWp, 100 MWp of which for resident-type buildings and another 100 MWp for industrial and factory buildings. The commercial sale to the power network connection system is scheduled to commence within 2013, under a Feed-in Tariff allowance for a term of 25 years.

Joining the program, Gunkul Engineering PCL has invested in projects in various provinces across the country. Gunkul Power Development Co., Ltd. was then established to support the construction of solar PV rooftop. Details of investments and projects by area of state responsibility are as follows:

### Solar PV Rooftop Projects with the Provincial Electricity Authority

No.	Applicant	Installed Capacity (kWp)	Type of Business
1	Gunkul Solar Power 2 Co., Ltd.	538.56	99.99% owned by the Company
2	WHA Gunkul Green Solar Roof 17 Co., Ltd.	997.56	25.01% owned by the Company
3	Green Line Energy Co., Ltd.	997.56	Power plant construction
Total		<u>2,533.68</u>	

### Solar PV Rooftop Projects with the Metropolitan Electricity Authority

No.	Applicant	Installed Capacity (kWp)	Type of Business
4	WHA Gunkul Green Solar Roof 1 Co., Ltd.	636.48	25.01% owned by the Company
5	WHA Gunkul Green Solar Roof 3 Co., Ltd.	832.32	25.01% owned by the Company
6	WHA Gunkul Green Solar Roof 6 Co., Ltd.	832.32	25.01% owned by the Company
7	Solar Energy Society Co., Ltd. (Phranakhon Nuea 1)	499.20	99.99% owned by the Company
8	Siam Gunkul Solar Energy Co., Ltd. (Donmueang)	873.60	99.99% owned by the Company
9	T S Power Energy Co., Ltd.	416.16	Power plant construction
10	T S Power Energy Co., Ltd.	997.56	Power plant construction
11	Gunkul Solar Roof 1 Co., Ltd.	241.92	99.99% owned by the Company

No.	Applicant	Installed Capacity (kWp)	Type of Business
12	Gunkul Solar Roof 1 Co., Ltd.	22.40	99.99% owned by the Company
13	Mon RM Co., Ltd.	948.48	Power plant construction
	Total	<u>6,300.44</u>	

### 3.3 Solar PV Rooftop for Self-Consumption



In 2017, BOI has issued the Announcement of the Board of Investment No. 9/2017 on Investment Promotion Measures to improve production efficiency. The purpose is to change the machinery for energy saving and alternative energy use in order to reduce the impact on the environment. The promoted person is exempted from corporate income tax for a period of 3 years accounting for 50% of the investment including duty exemption for machinery. As a result, the industrial sector has become more active and enrolled in this project. Moreover, commercial building and other business groups with mass usage of

electricity without support, also interested in installing solar panels as well by producing the renewable energy to use for self-employment within organizations or self-organizations. The Company is aware of the investment direction in the business group with a lot of potential and is not obliged to have a power purchase agreement with government agencies. It has decided to penetrate the solar installation business on the roof of the factory including commercial buildings, residential group, organizations and government agencies and other business groups that need to use large quantities of electricity. In addition, some customers have utilized land which they can use the land to make electricity projects on the ground for their own use within the organization as well. Currently, the Company has been trusted by many customers by selecting the Company as a project operator. The project has been completed and also has projects under construction with a detail as follows:

Solar PV Rooftop and Grounding for Self-Consumption

No.	Participating Business Groups	Capacity (kWp)	Type of business	COD
1	Metropolitan Electricity Authority (Phrase #1 and Phrase #2)	668.00	Power Plant Construction	June 2015
2	Robinson Department Store, Phetchaburi Branch	999.58	Electric Power Distribution	June 2017
3	The factory building of Ayutthaya Glass Industry	4,840.00	Power Plant Construction	March 2017
4	Tesco Lotus Department Store, Phayakkhaphum Phisai, Mahasarakham	409.60	Power Plant Construction	July 2017
5	Central Department Store, Phitsanulok Branch	907.06	Power Plant Construction	March 2018
6	Central Department Store, Chiang Rai Branch	948.29	Power Plant Construction	May 2018
7	Chanwanich Security Printing Company Limited	1,302.00	Power Plant Construction	October 2018
8	Surint Omya Chemicals (Thailand) Co., Ltd.	999.60	Power Plant Construction	December 2018
9	BDMS Hospital and subsidiaries	480	Electric Power Distribution	April 2019
10	KCG Corporation Co., Ltd.	1,107.48	Electric Power Distribution	April 2019
11	Prachinburi Glass Industry Co., Ltd. (Industry)	998.3	Power Plant Construction	April 2019
12	Bangkok Hospital Chanthaburi	482.4	Power Plant Construction	April 2019
13	Charoen Pokphand Foods PCL. (Industry Sector)	21,279.60	Electric Power Distribution	In 2019-2020
14	Unicord PCL	1,926.23	Power Plant Construction	October 2019
15	Krok Somboon Agriculture Company Limited (Industry)	120.96	Power Plant Construction	May 2019
16	Golder Farm Holding Ltd. (Industry)	362.88	Power Plant Construction	May 2019
17	Toyota Motor Thailand (Industry)	3,398.00	Power Plant Construction	April 2019
18	Murata Electronics (Thailand), Ltd. (Industry)	466.2	Power Plant Construction	September 2019
19	Z.Kuroda (Thailand) Co.,Ltd. (Industry)	594	Power Plant Construction	September 2019
20	Pacific Containerbag Co.,Ltd (Industry)	890.6	Power Plant Construction	July 2019
	<b>Total</b>	<b>43,180.78</b>		



Tesco Lotus Department Store, Mahasarakham



Robinson Department Store, Phetchaburi



Ayutthaya Glass Industry Co. Ltd, Ayutthaya



Central Department Store, Chiang Rai

### 3.4 Solar Floating

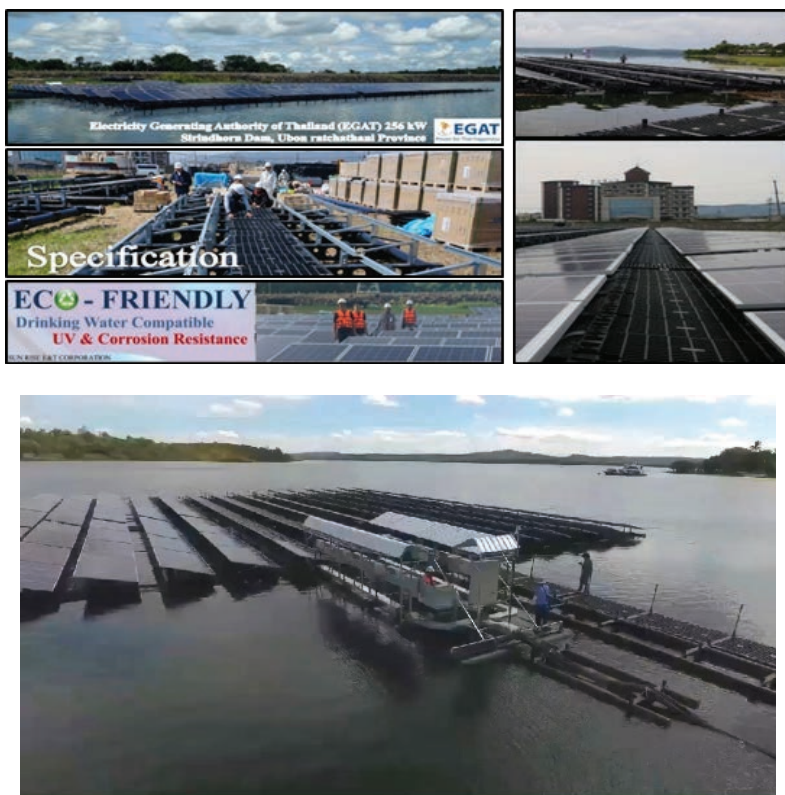
The Company has studied the possibility of installing solar panels on the water in order to produce electricity and connect with the transmission line system to be used. There are many technologies that can bring solar panels and power systems to float on the water without impact on the electricity generation system. The suitable water sources should be reservoirs, dams or general reservoirs without waves or only little waves including can also maintain a water level without sudden change or rapid change. The benefits of electricity generation on water can also help reduce evaporation. It is suitable for storage ponds that require water for all year round and the evaporation of water also lowers the temperature under the solar panel which brings about the efficiency of solar power generating. This is a benefit to use the land over water resources and reduce the use of land can be developed in another way.



At present, the Company has implemented 2 Solar Floating power plant project.

#### Solar Floating Project

No.	Participating Business Groups	Capacity (kWp)	Type of business
1	Electricity Generating Authority, Sirindhorn Dam	256.00	Power Plant Construction
2	Prachinburi Glass Industry Co., Ltd.	696.80	Power Plant Construction
	Total	952.80	



Solar Floating Power Plant Project at Sirindhorn dam with a size of 256 KW.





Solar Floating at Prachinburi Glass Industry Co., Ltd., 696.80 KW.

### 3.5 Wind Farm

Although Thailand near the equator make to wind speeds average level low to moderate but since it is a natural source of energy, no energy cost. Thailand is continuing to focus on the development of wind energy by exploring the potential for wind energy sources. The research and development of wind speed to suit the wind potential of the country and promote the use of high efficiency wind turbine in either Domestic or overseas. The renewable energy plan for 20 years targeted supporting wind energy amount 1,485 MW in Year 2018-2037.



Recognizing the government policy to strengthen the national energy security alongside the green growth strategy, the Company sees itself as being a supportive part in the development of alternative energy power generation and thus contributing to Thailand's electricity security. It is therefore committed to develop wind-based power generation projects. Details of the wind farm projects and supply of power output applied for sale to the Provincial Electricity Authority (PEA) and the Metropolitan Electricity (MEA) could be summarized as follows:

Project	Capacity (MW)	Project Site (according to application)	Scheduled Date of Commercial Sale under the PPA
<i>Wind Energy Development Co., Ltd. "WED" (A subsidiary of the Company holds 99.99% of the share capital)</i>			
1	2	Tambon Huabong, Amphoe Dankhunthot Nakhon Ratchasima	March 2016
	8	Tambon Huabong, Amphoe Dankhunthot Nakhon Ratchasima	March 2016
2	50	Tambon Huabong, Amphoe Dankhunthot Nakhon Ratchasima	December 2016
	<u>60</u>		
<i>Greenovation Power Co., Ltd. "GNP" (A subsidiary of the Company holds 99.99% of the share capital)</i>			
3	60	Tambon Huabong, Amphoe Dankhunthot Nakhon Ratchasima	March 2018
	<u>60</u>		
<i>Korat Wind Energy Co. Ltd. "KWE" (A subsidiary of the Company holds 99.99% of the share capital)</i>			
4	50	Tambon Nongnamsai, Amphoe Sikhio Ratchasima province	June 2018
	<u>50</u>		
<b>Total</b>	<b><u>170</u></b>		

The above projects have obtained investment promotion certificates from the Board of Investment, in the form of an exemption of corporate income tax on net operating profit for 8 years since the date of sale income recorded. After the expiry date of the aforesaid corporate income tax exemption, the Company is still granted an allowance of 50% of the normal rate of corporate income tax for 5 years. The tax rates could be summarized as follows:

Year	Tax Rate	
	Tax Exemption	Remaining Tax Payment
1 <sup>st</sup> – 8 <sup>th</sup> years	100%	0%
9 <sup>th</sup> – 13 <sup>th</sup> years	50%	10%
13 <sup>th</sup> year onward	0%	20%

### ***3.6 Biomass power plant including the supply of raw materials for biomass power plants***

Thailand is an important agricultural country in the world. The majority of the country is an agricultural population with an agricultural diversity. They also have the right climate including fertility of the land. For example, the central part of the country has farming more than 50% of the total area etc. The by-product of agriculture is an unused material, so the return of the agricultural materials to bring benefits and generate income for farmers. They can be used as fuel in biomass power plants. In addition, the government now has a policy to increase green space for the country by 20%, so it is planned to promote economic afforestation. The Company also sees the business of biomass power plants. This requires a reliable supply of raw materials throughout the life of the project, thus promoting the rapid growing of trees for fuel in biomass power plants, which will be in the form of encouraging farmers to cultivate and harvest for selling to the Company. This can generate income for farmers to earn more stable. It also adds another green space according to government policy.

The Company has signed a memorandum of cooperation with the Faculty of Forestry, Kasetsart University to study the feasibility of sustainable tree planting in low fertility soils. In order to develop low fertility land that can't grow crops. To turn to grow fast growing trees instead that has the ability to grow in the soil with low fertility. Including fast growing trees also have the qualities to improve soil fertility.

The target of purchasing electricity from the biomass power plant project under the PDP2015 plan (2015-2036) with electricity demand from biomass power plants is equal to 5,570 MW. However, there are 2,690 MW. of installed and operated capacity for biomass power plants which distributed around 1,515 MW. of installed capacity. Therefore, the Company has considered the business opportunity can be expanded for the future company business.

#### 4. Renewable Power Plant Construction Business



The government policy to promote power generation from alternative energy together with the Company's capabilities in the production of alternative energy power, the distribution of products related to power plant operations and the engineering services provide the Company a firm step into the business of constructing alternative energy power plants.

Due to active promotion of alternative energy utilization by government agencies in effort to reduce global warming, the Group views that businesses related to alternative energy are of great potential for development and investment. Furthermore, generation of power based on alternative energy, though being a fresh idea, has shown a promising start and strong growth in the future. The Company has provided construction services for power plant projects of its affiliates, subsidiaries and other companies as follows

Project Owner	No. of Projects	Size (MW)	Status
1) G-Power Source Co., Ltd.	4	26	Completed
2) Gunkul Chubu Powergen Co., Ltd.	5	30.9	Completed
3) NK Powersola Co., Ltd.	1	1	Completed
4) C.K. and Son Energy (Thailand) Co., Ltd.	1	8	Completed
5) Solarta Co., Ltd.	1	8	Completed

Project Owner	No. of Projects	Size (MW)	Status
6) Bangchak Solar Energy (Nakhon Ratchasima) Co., Ltd.	1	12.5	Completed
7) Bangchak Solar Energy (Chaiyaphum 1) Co., Ltd.	1	12.5	Completed
8) Solar PV Rooftop Power Plant Project to sell electricity	13	8.8	Completed
9) Wind Energy Development Co., Ltd.	3	60	Completed
10) Eco Thai Energy Co., Ltd.	1	5	Completed
11) BMP Solar Co., Ltd.	1	8	Completed
12) Greenovation Power Co., Ltd.	1	60	Completed
13) Korat Wind Energy Co. Ltd.	1	50	Completed
14) Solar PV Rooftop Power Plant for Self-Consumption Projects	8	11.07	Completed
15) Solar PV Rooftop Power Plant for Self-Consumption Project	12	32.11	Under Construction
16) Solar Power Plant Project for Self-Consumption Project	1	0.99	Completed
17) Solar Floating	2	0.95	Completed
<b>Total</b>		<b><u>335.82</u></b>	

## 5.Power Plant Maintenance Services



The Company has earned the trust of its business alliance as well as other operators to be the provider of post-construction maintenance services for their solar farms. The services under operation and maintenance agreements with these clients include controlling and monitoring the efficiency of operations and sale of the solar farms. At present, the Company renders maintenance services for 16 companies 37 power plant projects of a total capacity of 179.48 MW, as follows

### Solar Farm

Project Owner		Capacity (MW)
1.	C.K. and Son Energy (Thailand) Co., Ltd.	8.0
2.	G-Power Source Co., Ltd.	26.0
3.	Gunkul Chubu Powergen Co., Ltd.	30.9
4.	NK Powersola Co., Ltd.	1.0
5.	Rang Ngern Solution Co.,Ltd.	87.0
6.	Eco Thai Energy Co., Ltd.	5.0
7.	BMP Solar Co., Ltd.	8.0
8.	Surint Omya Chemicals (Thailand) Co., Ltd.	0.99
Total		<u>166.89</u>

## Solar PV Rooftop

Project Owner	Capacity (MW)
1. WHA Gunkul Green Solar Roof 1 Co., Ltd.	636.48
2. WHA Gunkul Green Solar Roof 3 Co., Ltd.	832.32
3. WHA Gunkul Green Solar Roof 6 Co., Ltd.	832.32
4. WHA Gunkul Green Solar Roof 17 Co., Ltd.	997.56
5. Gunkul Solar Power 2 Co., Ltd.	538.56
6. Solar Energy Society Co., Ltd. (CPAC Roof)	499.20
7. Siam Gunkul Solar Energy Co., Ltd.	873.60
8. Gunkul Solar Roof 1 Co., Ltd.	241.92
9. Gunkul Solar Roof 1 Co., Ltd.	22.40
10. Solar Energy Society Co., Ltd. (Robinson Phetchaburi )	999.58
11. Prosper Engineering Co., Ltd. (TESCO LOTUS Maha Sarakham)	409.60
12. Ayutthaya Glass Industry Co.,Ltd. (Industry)	4,840.00
13. Prachinburi Glass Industry Co., Ltd. (Industry)	998.30
14. Bangkok Hopital Chanthaburi (Industry)	482.40
15. KCG Industrial	1,107.48
16. Central Department Store, Chiangrai Branch	948.91
17. Central Department Store, Phitsanulok	908.30
Total	<u>16,651.33</u>

### 17.2 The Company's revenue structure is divided into business structure

The company's customers are divided into 3 groups: Public Sector Clients. The Private Clients and Internationally Clients, each group has a structure as follows

### The Revenue of the Company by Products

Revenue Type	2016		2017		2018	
	THB mln	%	THB mln	%	THB mln	%
1. Revenue from the manufacturing, supply and distribution of equipment business for electrical systems and renewable energy systems						
1.1 Sourcing for Distribution	791.97	24.68	480.68	10.00	573.03	9.20
1.2 Production for Distribution	559.42	17.43	679.30	14.13	771.93	12.39
2. Revenue from electricity generation and distribuion business from renewable energy						
- Produce and sell electricity from solar energy	867.93	27.05	1,535.56	31.93	2,929.75	47.02
3. Revenue from construction of renewable energy power plants	909.50	28.34	2,045.04	42.53	1,887.24	30.29
4 Service Revenue	80.07	2.50	68.09	1.42	68.54	1.10
Total Revenue	3,208.89	100.00	4,808.67	100.00	6,230.49	100.00

### The Revenue of the Company by Customers

Revenue	2016		2017		2018	
	THB mln	%	THB mln	%	THB mln	%
Public Sector Customer						
- Revenue from the sale of equipment for electrical and renewable energy systems	504.89	15.73	683.81	14.22	768.44	12.33
- Revenue from electricity distribution	867.93	27.05	1,535.56	31.93	2,929.75	47.02
Private Sector Customer						



Revenue	2016		2017		2018	
	THB mln	%	THB mln	%	THB mln	%
- Revenue from the sale of equipment for electrical and renewable energy systems	894.33	27.87	507.11	10.55	620.46	9.96
- Revenue from construction of power plants	909.50	28.34	2,045.04	42.53	1,887.24	30.29
Foreign customers	32.24	1.00	37.15	0.77	24.60	0.39
Total Revenue	3,208.89	100.00	4,808.67	100.00	6,230.49	100.00

### 17.3 Industry Overview and Competition

For 2017, more infrastructure investment was made from the government sector. Moreover, Eastern Economic Corridor announcement will be more construction project in the future such as high speed railway construction, motorway construction, connecting to the industrial areas and transportation routes, etc. This will be expanded all growth progress along those paths. There are strategic industrial areas which are appropriate for transportation. Therefore, the country needs more electricity. The net peak of demand for electricity in the system of Electricity Generating Authority of Thailand (Net Peak Generation Requirement) in 2018 as of 24 April, 2018 at 29,969 Megawatts (MW) reduced from last year around 1.11% equal to 335 Megawatts (as shown table below). As a result of the government energy conservative policies and support of renewable energy. However, Thailand GDP growth expected to increase. As well as the projects construction completion will be increased in electricity consumption. The government needs to added more energy efficiency policies and resource management to match with the economic growth. By expecting the electricity demands will be increased around 4.7% in 2019. The imbalance of natural gas use in power generation is as high as 70% and the policy to promote the construction of coal power plants in the southern region in order to meet the demand for electricity at the peak demand level. With the environmental factors of the population in the area which caused the construction was delayed. It focuses on the construction of power transmission system and power station. To carry the electricity from excess supply sources such as in the Northeast to distribute in the South. In the policy of

promoting tourism and improving the scenery of large tourist cities in the four provinces, the policy framework for the Provincial Electricity Authority is responsible for the development of a power transmission system. In 2017 and 2019, the budget for the construction of power transmission lines and power substations to support government policies was in excess of Baht 30,000 million, which affected the situation and competition in the high voltage equipment market, construction of high-voltage transmission lines and power stations. Therefore, the demand for budget is higher than the number of competitors in the supply side. It is considered that in the period of 2017 – 2019, the business sector gained more benefited if compared with the past.

Year	Maximum power			Electrical Energy			Load factor
	Megawatts	Add		Megawatts	Add		
		Megawatts	%		Million units	%	%
True Value							
2015	28,082	449	1.62	189,521	6,643	3.63	77.04
2016	30,973	2,890	10.92	196,868	7,347	3.88	72.36
2017	30,303	-669	-2.16	198,442	1,575	0.8	74.75
Forecast Value							
2018	29,969	-335	-1.11	203,203	4,761	2.4	77.4
2019	31,377	1,408	4.7	211,664	8,461	4.16	77.01
2020	32,732	1,355	4.32	219,946	8,282	3.91	76.71
2021	34,006	1,274	3.89	228,131	8,184	3.72	76.58
2022	35,213	1,207	3.55	236,488	8,357	3.66	76.77

Peak Demand Calculated and Peak Electricity

However, the industry situation and competition in the renewable energy sector in the country for the year 2018, from the policy of limiting the amount of promotion of all types of renewable energy power plants which have accelerated or reduced the use of renewable energy in the past year. However, the latest PDP 2018 plan (January 24, 2019) of the Ministry of Energy's Policy and Planning Bureau focuses on promoting the use of renewable energy in the public solar rooftop group to replace But under the reliance on obtaining a license to sell electricity (PPA) that is reduced due to the above reasons but under the reliance on obtaining a license to sell electricity (PPA) that is reduced due to the above reasons. It turns out that the cost of installing solar power plants on the roof and on the ground has a lower value, resulting in the cost of electricity production per unit compared to the purchase of electricity from the Provincial Electricity Authority and the Metropolitan Electricity Authority at an economical level in case of installed for self-use, it can reduce or save by approximately 12 - 30%. Resulting in greater demand from the private sector who wish to improve the energy use structure of the business by aiming to offer services in many forms such as:

1. Determine the Company to be the investor in the installation and act as the electricity supplier produced from the installation of the solar system on the roof of the customer by determining the discount rate for the distribution of electricity and the return period of the project for the target purpose from the transfer of such assets to the customer at the end of the project
2. Determine the company to be a service provider for the installation of electricity generation systems from solar panels on the roof. The client is the issuer of this investment.

From the above cases, the demand for solar roof installation on the roof has increased since 2017 onwards and if it is the case that customers want to invest themselves, it will appear more than 5 major competitors in the market. However, the Company is a manufacturer and distributor of solar system equipment and is a full service provider of installation and maintenance with the cost efficiency including quality. As a result, the Company having high competitiveness compared to competitors in the same market and for the same reason, if the customer wishes the Company to invest in the construction and distribution of electricity with a discount, the Company will consider the suitability from the risk of compliance with the power purchase agreement. Including the impact on the industry in which the customers

operate the business as a basis for consideration in order to source long-term funding to support the offering of such services.

Industry conditions and competition in the renewable energy industry in foreign countries for the year 2018, which the Company is interested in investing in ASEAN countries and Japan with the future potential of ASEAN, etc.

### *Japan*

The company plans to invest in a 200 MW (4 plants of solar-power plant in 2017. The company has been signed contract at 36 yen for 3 projects and 32 yen for 1 project. In the past few years, the price of electricity purchased in the power purchase agreement in Japan decreased at the price of 24 yen, but the cost of construction of the power plant has declined in a smaller proportion. As a result, the rate of return on equity (EIRR) decreased. The investment in the construction of power plants in Japan is improved. The companies expect to sell electricity at a lower rate and distribute 2 projects in 2018 with a total of 80 MW. The results of a large solar power plant construction in Japan take 2 - 3 years. It may affect return on assets at discounted rates. This may have a negative impact on the return on assets, due to the investment in the shareholders' equity required to complete the project and take more than 2 years to await the commercial operation. The company has set up a commercial electricity distribution frame. The company has set a policy of investment in Japan by accelerating the construction and focus on investing in new projects that have already sold commercial electricity. To reduce the impact of time frame and gain more positive investment assets.

### *Malaysia*

In 2017, Malaysia has promoted the policy to use of renewable energy, especially the type of solar power plant. Previously, Malaysia has supported by create a Power Purchase Agreement (PPA) of lower than 5 MW. There is an investor of power plants in Malaysia around 100 MW. However, the Malaysian government recognizes the potential of the country and the cost of construction of power plants dropping dramatically. The cost of solar energy per unit is reduced to a competitive level compared to other types of electricity. As a result, the Malaysian government aims to promote more electricity from solar power by increasing the size of the power plant and the number permission to apply for a power purchase agreement.

The company has joined with local partners in the development countries. By submitting the Power Purchase Agreement at 30 MW in Terengganu, Malaysia. The completion and approval of the Board of Directors' meeting on February 21, 2018 is the first step for Gunkul Engineering Public Company Limited to invest in the solar power plant project. According to the information provided to all shareholders.

Source: [www.bot.or.th](http://www.bot.or.th), [www.eppo.go.th](http://www.eppo.go.th), [www.egat.com](http://www.egat.com), <http://www.drborworn.com/>

### ***17.3.1 Industry conditions***

#### ***Overview of the Electricity System in Thailand***

The industry of electrical power and system production in Thailand can be divided into 3 main groups, details as follows;

##### ***1) Power producers***

Manufacturers of electrical systems in Thailand can be divided into 6 groups, i.e. the Electricity Generating Authority of Thailand, major independent power producers (IPP), small power producers (SPP), very small power producers (VSPP), other producers including government agencies such as the Department of Energy and Energy Conservation that produce electrical power from small hydropower dams and the import of power from Internationally.

The Electricity Generating Authority of Thailand (“EGAT”) serves as the country’s largest power producer, the largest purchaser of electrical power produced by other manufacturers, as well as the importer of electricity from neighbouring countries, namely Laos and Malaysia. EGAT determines the amount of power, each power plant has to supply to national transmission system to meet the electricity demand in each period.

##### ***2) Power suppliers***

The Electricity Generating Authority of Thailand is the supplier of electrical power to 2 state enterprises, i.e. the Metropolitan Electricity Authority (“MEA”) and the Provincial Electricity Authority (“PEA”) that are responsible for distribution of electricity to industrial sector, business sector and household sector around the country. EGAT supplies electrical power directly to some customers as well.

In electricity transmission from power plants to MEA and PEA requires, the voltage must be regulated to reduce any power loss during long-distance transmission of electricity. Then

MEA and PEA transmit electricity to users through the voltage transmission system in Bangkok, Nonthaburi and Samutprakan.

For PEA is responsible for electricity transmission to areas other, except the 3 provinces on above. In electricity transmission to end users, the voltage must be reduced to level suitable for using.

### *3) Consumers*

Consumers consist of industrial sector, business sector and residential users, etc.

The electrical systems associated with the Group's private sector clients, generally diversified various in the construction of high power, public transport and the electrical power industry. However, when considering only large projects from an overview of the private sector. That will be seen that, large private sector investment projects are involved or supported by the public sector. Especially in relation to investment in public utilities, the government initiated the investment. The government plans to stimulate the economy.

The emphasis is on investment in public infrastructure such as investment in mass transit systems.

By the electric train project. Both Metro and Underground. With a total investment of over 800,000 million baht within 20 years, has resulted in the private sector. Related to such investments. More investment for the group. These investment projects look at the opportunity to distribute electrical equipment related to the transmission of electricity to rail systems such as lightning protection devices. Cable Termination Device and wiring harness, grounding equipment. Also other equipment that, related to the transmission of electricity to the electric rail system of the project.

### ***Overview of the Electricity Industry in the Republic of the Union of Myanmar***

Electricity demand of the Republic of the Union of Myanmar (Myanmar) is increasing. Currently, Myanmar has a total capacity of approximately 5,390 megawatts, comprising 3,255 megawatts of electricity, 120 megawatts of coal, 1,920 megawatts of power, and 95 megawatts of diesel.

Installed Capacity of Power Plants (2016-2017)					
Type of Plant	Coal	Hydro	Gas	Diesel	Total
Capacity (MW)	120	3,255.18	1,919.9	94.30	5389.37
Energy Mix by Capacity	2.23 %	60.4 %	35.6 %	1.75 %	100%

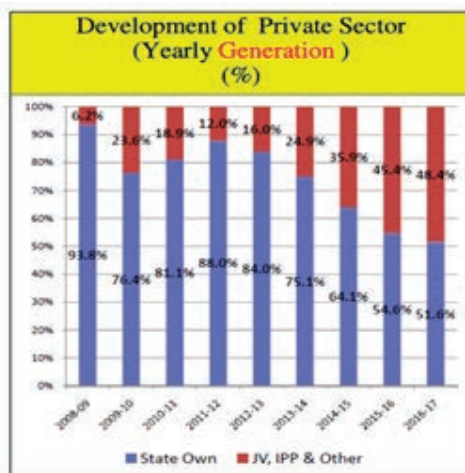
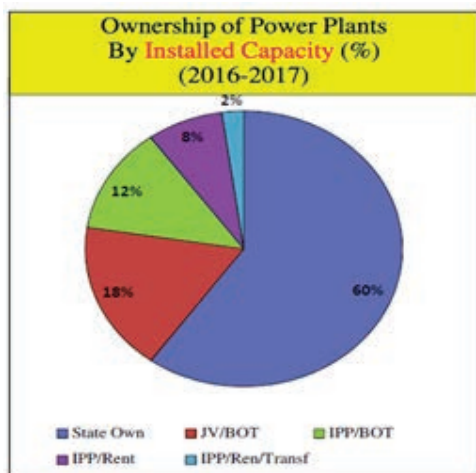
Power Generation (2016-2017)					
Type of Plant	Coal	Hydro	Gas	Diesel	Total
Generation (GWh)	9.59	9,743.85	8,052.43	61.12	17,866.99
Energy Mix by Generation	0.05 %	54.54 %	45.07 %	0.34 %	100 %

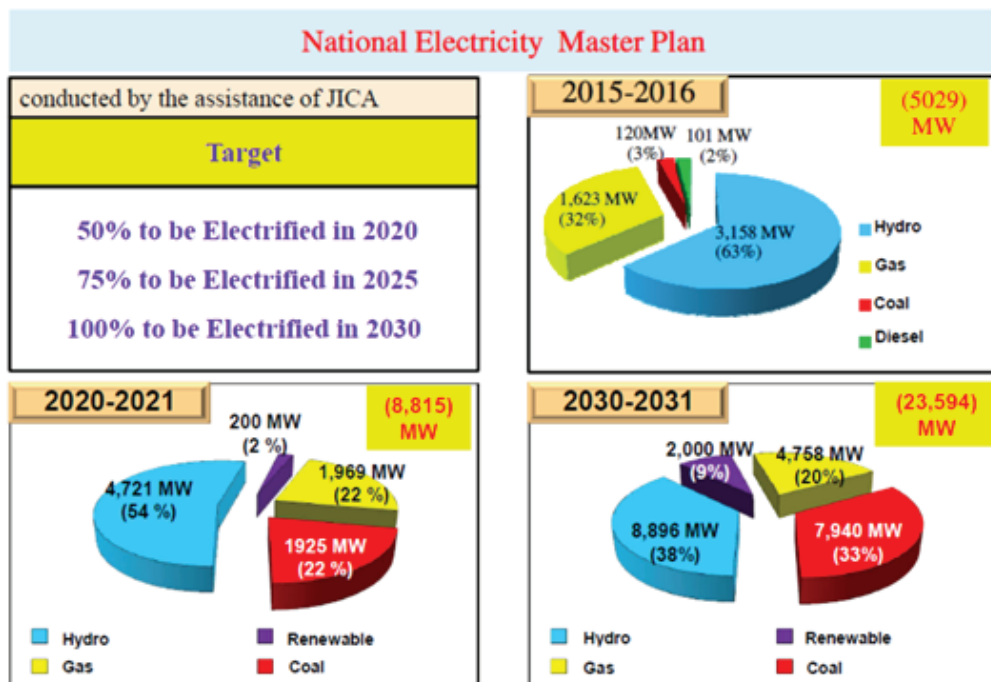
Transmission Lines and Substations ( 2016-2017)				
Voltage (kV)	Transmission Line		Substation	
	Nos. of Line	Line Length (mile)	Nos.	MVA
230	63	2,777.860	37	5,120.00
132	41	1,361.648	23	1,592.50
66	117	2,923.514	217	3,595.55
<b>Total</b>	<b>221</b>	<b>7,063.022</b>	<b>277</b>	<b>10,308.05</b>

Source : <http://www.myanmarinvestmentforum2017.com>

The case of incremental is the policy of the Ministry of Electricity and Energy to encourage private and foreign investors to invest in power plants. At present, 48 percent of the electricity produced in Myanmar comes from private power plants.



The Myanmar's government is not only interested in the development of thermal power plants and hydro power plants, but also interested in the development of solar and winds power plants. In 2030, the government purpose to have wind power and solar power with a capacity of 9% of the total capacity of 23,594 Megawatts (MW).



Source : <http://www.myanmarinvestmentforum2017.com>

### Gas power plant

Gunkul Engineering Public Company Limited, has entered into a gas-fired power plant project 25 Megawatts (MW) in the Republic of Myanmar since 2013, with the investment from local partners.

Gunkul held 51% of the shares of the power plant at Hlawga District, Yangon City. That is long distance from Yangon International Airport around 20 Km.

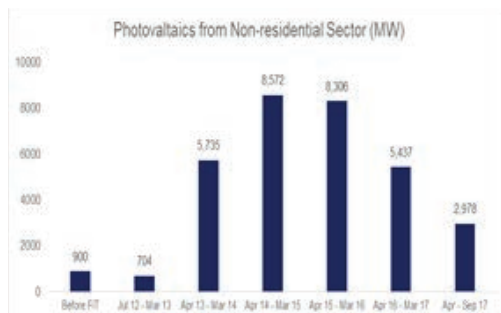


The Gas-fired power plant. There is a power purchase agreement with Ministry of Electricity and Energy of Myanmar. This is a power purchase type “Take or Pay” Duration 30 years. Currently, Gunkul is in the process of requesting the Myanmar Investment Committee (MIC) to transfer the power purchase agreement and other related contracts to the joint venture. Gunkul has been granted the privilege of becoming a foreign company investing in Myanmar.

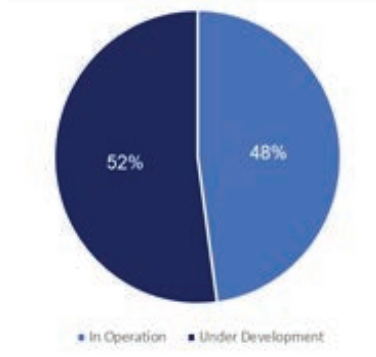
### ***Overview of the electrical system of Japan***

From one of the energy goals within the year 2030, there will be an increase in the rate of self-reliance on energy to 20% from the reduction to only 6.7% in 2012 in Japan. After the reduction of nuclear power plant operations due to the Fukushima nuclear power plant event in 2011, the Japanese government has turned to support the production of electricity from renewable energy, with the goal of providing electricity produced from renewable energy with a proportion of 22-24 percent by 2030 which will come from 7.0% of solar energy or 68,656 Million kilowatts per hour. At the same time, in order to support the production of electricity from renewable energy, the Japanese government has announced a change in the method of supporting the purchase of electricity from the Renewables Portfolio Standard (“RPS”) to Feed in Tariff (“FIT”) which became effective from July 1, 2012. From this change, the number of electricity produced from solar energy in non-production parts from residential areas, increased from 900 megawatts as before the announcement of the policy to 31,732 megawatts within 5 years and 3 months

Graph 1 Generating Capacity in Operation by Fiscal Year



Graph 2 Generating Capacity in Operation



## ***Electricity Generating Industry Trends and electrical systems in Japan***

The company believes that investment in the electricity generation industry in Japan, especially electricity from solar energy, will be even more challenging due to 2 main factors: 1) FIT prices have been reduced and 2) efforts from the government to eliminate projects that have been licensed but have not yet proceeded to sell electricity.

For the reduced FiT price, the Japanese government has reduced FiT prices continuously since the fiscal year 2012 according to Table 1 below. Since the government considers that the production cost in each year is lower, it should reduce the purchase price to be consistent, especially since the fiscal year 2017, the government has changed the method of determining the purchase price from before that the government determining the price for the auctioneer to submits the bid. This is causing the Company to see that there will be more price competition from operators and causing the new project to not get the appropriate purchase price according to the investment policy of the Company

Table 1 Purchase Price for Licensed Power Plant in each fiscal year

FIT (JPY/kWh)	FY12	FY13	FY14	FY15	FY16	FY17 *
Solar Energy						
(Bigger than 10 KW)	40	36	32	28	24	17.2-21.0

*\* FIT pricing method changed from State pricing to the price that is in accordance with the auction of the operator*

In addition, there are more than 48% of all authorized solar power projects that have not paid electricity into the system. This is causing the Japanese government to issue various measures to reduce the number of projects that have not yet been paid to the system, especially projects that have been licensed before the fiscal year 2015. As a result, the Company must make more careful decisions in investing in solar power plants in Japan in the future.

However, from the overall picture, the Japanese government still supports electricity production from renewable energy. The Company is still looking for investment opportunities in Japan. Since the Company has expertise in the business environment, the Company has started to consider alternative investment options in other areas, based on government policies, as well as considering investment in other countries.

### ***Outlook for power generation industry and electrical system in Thailand***

The Ministry of Energy together with the Electricity Generating Authority of Thailand has developed a Power Development Plan of Thailand, Revised Edition B.E. 2561 (PDP2018) which is the main plan for power development of the country from the original PDP2015, the 3rd edition of the plan, to be more consistent with the current situation. The plan was approved by the National Energy Policy Council on January 24, 2019.

The preparation of the power development plan of Thailand in the past only considered the importance of the specific supply of electricity to meet the overall electricity demand in the whole country without considering the distribution conditions of the electricity generation system or the management of fuel sources that are detailed by region, including the determination of power plants for security in each area. In addition, the recent electricity consumption situation has changed from the forecast value of the original electricity demand for the preparation of the power development plan of Thailand, B.E.2558-2579 (PDP2015). Moreover, the PDP2015 plan has been implemented for a period of time, thus the Ministry of Energy introduced the PDP2015 plan to review and improve. In order to make the country's power development planning consistent with the changing electricity demand as a result of economic growth and changes in power generation technologies that are expected to occur in the future. Including reflecting the government's policy and the national strategic plan for 20 years with consideration of the development of power generation to suit the electricity demand and production potential in each region. In addition, it also considers the link between investment in electricity production, the stability of the power transmission system for the management of the electrical system to achieve maximum value and the promotion of electric business to increase competition under supervision for maximum efficiency and maintain stability.

### ***The difference between the current electricity demand forecast and PDP2015***

The preparation of current electricity demand forecasting values is the preparation of the normal demand for electricity (Business as Usual: BAU), both the power requirements of the Thai power system and the 3 Electricity Authority systems, consisting of the Electricity Generating Authority of Thailand (EGAT), Metropolitan Electricity Authority (MEA) and Provincial Electricity Authority (PEA). In terms of the electricity demand of the Thai power system, the

working group has prepared the electricity demand forecasting, with an opinion that it should be considered that the power requirements of the power plants that produce electricity for their own use and / or direct sales are connected to the 3 Electricity Authority systems (Independent Power Supply : IPS). Due to the current electricity usage of IPS has grown significantly. Therefore, considering the use of IPS electricity will result in more accurate forecasting of the electricity demand of Thai power systems.

The preparation of the forecast for electricity demand in the country, the NESDB has prepared an estimate of long-term economic growth (GDP) for the year 2017 - 2037 with an average of 3.8 percent, using an average population growth rate of -0.02 percent per year. For the forecasting of the net electricity demand of the Thai power system in 2018, the value is 238,482 million units, which is higher than 2017 with a value of 225,114 million units, increased by 13,368 million units or equivalent to 5.94 percent, while the net electricity demand forecast of the 3 Electricity Authority system in 2018 is equal to 203,203 million units which is higher than 2017, with a value of 198,442 million units, an increase of 4,761 million units or equivalent to 2.40 percent.

Year	PDP 2015		PDP 2018		Changed	
	Maximum power (MW)	Electric power (million units)	Maximum power (MW)	Electric power (million units)	Maximum power (MW)	Electric power (million units)
2561	32,429	212,515	29,969	203,203	-2,460	-9,312
2565	36,776	241,273	35,213	236,488	-1,563	-4,785
2570	41,693	273,440	41,079	277,302	-614	3,862
2575	46,296	303,856	47,303	320,761	1,007	16,905
2580	-	-	53,997	367,458	-	-

Source: Energy Policy and Planning Office, Ministry of Energy

The Power Development Plan of Thailand, B.E. 2561 - 2580 (PDP2018) will have a power generation capacity the 3 Electricity Authority systems at the end of the year 2037, a

total of 77,211 MW, which consists of current electricity generating capacity at the end of 2017, equal to 46,090 MW, which is the production capacity of the new power plant totaling 56,431 MW. Also, the discharge of the old power plant that expired during the year 2018 - 2037 in the amount of 25,310 MW.

#### Power generation during 2018 - 2037

- Power generation as of December 2017	46,090	megawatts
- New power generation capacity during 2018 - 2037	56,431	megawatts
- Power generation that was discharged from the system during 2018 - 2037	(25,310)	megawatts
- Total electricity production at the end of 2037	77,211	megawatts

New power generation capacity during 2018 - 2037 equals to 56,431 megawatts, separated by type of power plants as follows:

Renewable energy power plant	20,766 megawatts
Hydroelectric Power Plant	500 megawatts
Cogeneration power plant	2,112 megawatts
Combined heat power plant	13,156 megawatts
Thermal power plant	12,113 megawatts
Coal / lignite power plant	1,740 megawatts
Purchase foreign electricity	5,857 megawatts
New / replacement power plant	8,300 megawatts
Energy Conservation Measures	4,000 megawatts
<b>Total</b>	<b>56,431 megawatts</b>

*Source: PDP2018, Energy Policy and Planning Office, Ministry of Energy*

The PDP2018 plan consists of 4 main parts:

1. Power plants in accordance with the government's promotion policy: Promote electricity production from renewable energy, such as community waste and civil state biomass power plant at 3 southern border provinces, etc.
2. Fossil fuel power plants, consisting of EGAT power plants, large private power producers (IPP), small private power producers (SPP), and purchasing power from abroad, by (1) allocating the main power plant for regional security, divided into 7 regions, namely, North, Northeast, East, West, Central, Southern and Metropolitan (2) allocate the main power plant as necessary and sufficient to maintain the stability of the regional power system. However, EGAT is also responsible for maintaining the stability of the electrical system.
3. Renewable power plants under the Alternative Energy Development Plan (AEDP), consisting of biomass, biogas, solar energy, solar energy floating with hydroelectric power plants and other renewable energy, with an annual purchase target according to the electricity production policy from renewable energy and purchase at a price not exceeding Grid Parity in order to maintain the retail price of electricity not to rise.
4. Energy conservation policy under the energy conservation plan that can prove confidence with quality and can compete with prices not exceeding Grid Parity.

## **Renewable energy policy according to the Alternative Energy Development Plan (AEDP)**

### ***1) Power plants under the government's promotion policy***

The promoting the production of electricity from renewable energy of the government sector focuses on solving social problems, including community garbage problems. Also, the promotion of electricity production from biomass and biogas in the special 3 southern border provinces, etc. This is the integration of collaboration between government, community and private sectors for responding to the goal of creating local growth, which affects stability, income distribution and job creation in the area and the use of local resources for maximum benefit. The operation has the following objectives:

- Create an integrated system and participation, covering both the government, community and private sectors, resulting in stability, distribution of income and employment to communities in the area
- Create economic growth and create wealth for the community
- Strengthen the country's energy security
- Promote the use of local resources to the fullest benefit
- Decentralization from central to local / regional
- Create a community in the area to have ownership and maintain the power-transmission system.

By setting the target to promote renewable energy according to the potential of the area, which considers data from the Department of Alternative Energy Development and Energy Conservation, with a total target of 520 MW, consisting of

- Waste power plant with a capacity 400 MW
- Public state biomass power plant in the 3 southern border provinces area, totaling 120 MW

## ***2) New renewable power plants and energy conservation measures***

Renewable power plants will consider procurement of electricity from renewable energy to be in line with the remaining renewable energy potential of the country and to support the changing behavior of electricity users, including the change of disruptive technology in electrical energy that will occur. Also, still comply with the COP21 agreement, consisting of biomass, biogas, solar energy, solar energy floating together with hydroelectric power plants and other renewable energy, with the goal of purchasing to maintain the retail price of electricity not to rise. Moreover, there is also consideration of energy conservation measures in the future that will be reliable and has a cost that can compete with renewable energy power plants as well.

Renewable Energy / Energy Conservation	Contract Manufacturing Capacity (MW)	Reliable Manufacturing Capacity (MW)
Solar Energy *	10,000	4,250
Biomass	3,376	2,296
Biogas,	546	325
Solar energy floating together with hydroelectric power plants	2,725	1,158
Wind power	1,485	189
Industrial waste	44	26
Electrical energy conservation measures	-	4,000
<b>Total as of 2037</b>	<b>18,176</b>	<b>12,244</b>

Remark: \* 1. There will be a 100 megawatt solar project per (Public sector solar) year for 10 years.

2. Should supply renewable energy on the basis of competition that does not exceed the wholesale rate (Grid Parity).

### ***Energy conservation policy according to the Energy Conservation Plan (EEP)***

Implementing the energy conservation plan to consider the allocation of power in the PDP plan, by considering as one type of electricity production and consider only the conservation of electrical energy that can prove confidence and can compete on price not more than Grid Parity only. There are about 4,000 megawatts of energy conservation potential, divided into 3 strategies, consisting of compulsory, support and promotion. This can be summarized as follows;

Measures/ Project	Saving (MW)
<b>(1) Compulsory strategy</b>	3.745
- Improve or adjust machines / equipment	2,746
- Project to study energy efficiency standards of factories (Factory Energy Code: FEC)	44



- Measures to enforce energy standards for buildings (Building Energy Code: BEC)	800
- Expansion project for measures to reduce electricity consumption and energy efficiency	425
<b>(2) Support strategy</b>	256
- Combined heat energy (Combined Heat and Power)	226
- Financial measures	30
<b>(3) Promotion strategy</b>	-
- Energy Management	-
- Study project to prove the effect of measures to reduce electricity consumption and energy efficiency	-
- Pilot project for proving results of measures to reduce electricity consumption and energy efficiency	-
- Database system development and management with Big Data	-
- Energy Awareness	-
- Energy personnel development potential	-
<b>Total</b>	<b>4,001</b>

Source: PDP2018, Energy Policy and Planning Office, Ministry of Energy

## Overview of the business

### • Manufacturing, supplying and selling of electrical equipment

The growth trend of the company's business. That is directly related to the expansion of the country's power transmission and distribution system, which depends on the amount of electricity demand and the amount of electricity produced in Thailand. Including government policies for the development and expansion of the country of electricity system. The various agencies associated, such as the Electricity Generating Authority of Thailand and the Office of Energy Policy and Planning. Ministry of Energy, will forecast future demand for electricity in Thailand. And the framework of the power development plan. For information on investment planning, development projects. To support the growing demand for electricity in the future. Based on the plans to develop and expand electrical systems in the PDP 2018 (2017-2037), has

3 agencies include such as Electricity Generating Authority of Thailand, Metropolitan Electricity Authority and Provincial Electricity Authority with plans for investment, construction, development of transmission lines and the power stations. Plan to upgrade and expand the distribution system. Including the plan to change the electrical wiring of underground power lines in Bangkok area and in major cities in the provinces. In addition, there are plans to develop electrical systems to support the establishment of two special economic zones for 10 Thai border areas and plan to develop the submarine cable system to the area of Koh Samui, Surat Thani to enhance the stability of the electrical system and the power transmission system project to increase water cost for Bhumibol Dam, with a total investment of over billions bath. That demonstrates the continued importance of the government in investment in power transmission and distribution systems. As a result, the trend of electrical equipment business in Thailand is likely to continue for many years, according to such policies.

In addition to the development of transmission and distribution systems. Equipment business for power system also has the opportunity to grow from Transportation and Infrastructure Development Project. Public transport in the metropolitan area includes metro construction projects in Bangkok and vicinities.

The government has a plan underway No. 12 of National Economic and Social Development Plan (2017-2021).

• ***Manufacturing, supplying and distributing equipment for renewable energy systems***

The growth trend of the equipment business for the Company's renewable energy systems. There is a direct relationship with the promotion of renewable energy investment from the government sector. According to the Energy Regulatory Commission (ERC) by Mr. Verapol Jirapraditkun, spokesman for the ERC, disclosed information that the ERC will stop buying electricity from renewable energy for a period of 8 years from 2019 to 2026 according to the PDP2018 plan. Due to the need to consider the availability of the transmission line system of the Electricity Generating Authority of Thailand Including accelerating the operation of a power purchase license that is still in the system which has not yet been commercialized. However, according to the PDP2018 plan, the plan to buy electricity from the 400 MW of waste power plant group and 120 MW of civil state biomass power plants in the three southern border provinces group. In addition, in the PDP2018 plan, it is also possible to install solar roof systems

for the factory or the business itself or to invest in solar rooftop systems and freely sell electricity to the private sector. Also, a plan to purchase additional electricity from renewable energy in the future for power plants from biomass, biogas, solar energy, solar energy floating with hydroelectric power plants but accepting the purchase of electricity at a price not exceeding Grid Parity, which has not yet determined when to buy.

In addition, the Board of Investment (BOI) has announced policies to support investment in order to implement production to be more efficiency in 2017 according to the Board of Investment (BOI) announcement 9/2017. Renewable energy or reduce the impact on the environment. By offering tax incentives to eligible beneficiaries in accordance with regulations such as industrial groups, warehouses and large buildings. The roof of the factory can be equipped with solar panels. And the electricity produced is used in the plant itself, to reduce the electricity consumption from the electricity. At present, there are many industrial plants and warehouses that are interested to joining in the project.

From the said policy, the equipment business for renewable energy systems will be greatly expanded. Therefore, from the promotion and support of the government's renewable energy business will result in the tendency of the equipment business for renewable energy systems to continue to grow in the future, with the government being the leader and supporting investment.

#### • *Manufacturing and distribution of electricity from renewable energy*

##### *Trends in the production and distribution of electricity from renewable energy in Thailand*

The overview of the use of renewable energy for Thai electricity generation has a stable trend. Because the government has announced to stop buying electricity from renewable energy for 8 years due to the reason of the unavailability of the transmission line potential. In addition, there are still many projects that have not yet been commercialized; however, the government sector still supports the production of electricity from renewable energy according to the PDP 2018 plan, which still has to determine the proportion of electricity purchases by each type of technology. In the first period, it will be mainly purchased from the community power plant group, by encouraging the community to have income from electricity production and sell to Electricity Authority, such as community waste power plants and Civil state biomass

power plant in the 3 southern border provinces. However, the purchase price of the electricity must not be higher than the current average wholesale price in order not to affect the structure of the domestic electricity price. In addition, the government seeks to push and promote the use of renewable energy in more than one technology to combine in the production of electricity (Hybrid), such as the production of electricity from solar floating energy with combined with wind turbines, etc., including the use of energy storage technology in order to be able to use excess electricity for other periods.

Trends in the production and distribution of electricity from renewable energy in Thailand. There is a tendency in the same direction as the equipment business for renewable energy. That will rely heavily on government investment. As a rule, electricity from renewable energy. The cost of electricity generation is higher than that other types of power generation (except for nuclear power plants), causing the slow payback and low returns of the investment in the production and distribution of commercial electricity with renewable energy especially solar power. Therefore, the majority of the electricity generated from renewable energy in the past. That is characterized by the production of wastes such as waste husk or bagasse at a lower cost. And produced with very low power to be used within the relevant industry. That is not commercially available for sale at all. However, with the current government support, even with the change in the purchase rate of the Adder system, to the former Feed in Tarriff as well. The electricity generated by renewable energy continues to power generators and businesses. Interested in investing in renewable energy. The purpose is to invest in production for distribution to government entities, which are targeted to generate electricity from renewable energy.

For the business of producing and distributing solar electricity, Considering from Thailand Electricity Development Plan; PDP2018, it was found that Thailand's electricity production target will generate 55% of electricity from solar energy (Public Solar Energy Project, totaling 100 megawatts per year for a period of 10 years, totaling 10,000 megawatts from power generation from renewable energy and energy conservation measures, totalling 18,176 megawatts) Thailand is also a country with high potential for generating electricity from solar energy. Because Thailand is close with the center of formulas. Therefore, most areas in the country are continuously sunlight throughout the year. Based on such factors, the manufacturing business. And the distribution of electricity from solar power in Thailand is likely to continue to grow in the future.

According to the PDP2018 plan, the government sector has plans to be able to accept the purchase of electricity according to the government's policy, divided into 3 parts:

1. Purchase electricity from neighboring countries by purchasing 9,000 megawatts from the Lao People's Democratic Republic. Purchase from the Republic of the Union of Myanmar and Cambodia, without specifying the amount of purchase

2. Purchase electricity from renewable energy by purchasing electricity according to the government promotion policy, totaling 520 MW and purchase electricity according to the new renewable energy plan and energy conservation plan, totaling 18,176 MW

The energy conservation in electricity according to the Energy Conservation Plan (EEP) consists of compulsory, support and promotion sectors totaling 4,000 MW.

### ***Trends in the production and distribution of electricity from renewable energy in Vietnam.***

The company is also interested in renewable energy businesses in Vietnam, on focusing on solar energy and wind energy. This is a renewable power plant that, the Company expertise in development and construction. The currently, Vietnamese government estimates that the country's energy consumption will increase to 234.6 terawatts in 2020 and increase to 506 terawatts within 2030. That plans to have a capacity of 850 Megawatts of solar power plants in 2020 and 4,000 Megawatts and 12,000 Megawatts in 2030.

#### ***• Business of construction of renewable energy power plants***

The government encourages the generation of electricity from renewable energy. Including the potential of Thailand to generate electricity. There are both local and international companies who are interested in investing in renewable energy. The construction of a renewable power plant of the company, will grow up and increase the number of renewable power plants and as mentioned on above. The electricity production from renewable energy in Thailand is still able to grow a lot in the future.

### ***17.3.2 Competition***

***• Businesses of manufacturing, supplying and selling equipment for electrical system and renewable energy system***

The Company's main clients are government, state enterprises and private companies. In general, customers will set criteria for qualifications of the operators who attend project biddings as well as consider the potential and experience of each bidder in supplying equipment for projects. The Company's management estimates that there are 8-10 operators considered as bidding competitors, some of them have assorted product categories. However, no operators have competitively full-range products as the Company and its subsidiaries. Being supplier and distributor of a wide variety of products, the Company therefore has these operators as its business partners.

Furthermore, electrical system is one of the country's main infrastructures. The government thus recognizes the importance of continual investment every year. As a result, the total market value of the business has been growing steadily in line with the government's investment policy. In the meantime, there are a few new operators entering the business because they must rely on funding and the ability to supply products that meet customers' requirements both in terms of quality and quantity. The competition in this business is therefore not severe.

The Company's group is renowned for product quality and variety. Being in business for over 30 years has contributed to the Company's expertise in procuring quality products from various trade partners both locally and abroad. The Company's manufacturing plants enable it to provide quality products under better cost control and thus outperform other operators who do not own manufacturing plants with flexibility of stocks that can be readily supplied to customers. The Group also seeks to fulfil varying needs of customers by focusing on product quality and constant research and development. Products manufactured by the Group's plants are not only listed with the Ministry of Industry and certified for industrial standards, thereby making the Group to have good relationships and win the trust of customers who have given the Group all-time patronage.

#### • *Business of producing and selling electricity*

For the electricity production and distribution business from solar energy, at present, the investment in private commercial solar power projects will focus on electricity production for own use within the company or industry, due to the government sector still does not have a policy to buy electricity at this time. However, the PDP2018 plan allows for the investment

and installation of a solar power generation system for free use within the business itself, but controlled by government agencies. As a result, in the future, industrial groups and businesses that use a lot of electricity have invested more in installing solar roof top systems which is also received investment promotion from the Board of Investment (BOI), resulting in a payback of the project halfway faster than before. It is an incentive for entrepreneurs to invest more in such systems. The Department of Alternative Energy Development and Efficiency (DEDE) has assigned Silpakorn University to study the potential of Thai renewable energy. The evaluation of the potential of electricity from solar energy on the roof of a factory in Thailand has a total roof area of approximately 150 million square meters. It is found that in the case of using 100 watt solar panels per square meter, there will be 5,983 megawatts of electricity for the whole country, which still has a lot of potential.

At present, the Company has already distributed commercial electricity for the wind power plant project with a total capacity of 170 megawatts in the year 2018 by completing all projects, which results in higher revenue from the Company and plans to expand the investment in wind power plant projects abroad.

Currently, the company aims to expand its investment in other types of renewable energy plants. In addition, to electricity from solar and wind power. And with the potential of biomass in Thailand that, has the potential to generate electricity from biomass. The government plans to develop power generation (PDP 2018) with high demand for electricity from biomass. At present, the target of purchasing electricity from the biomass group to 3,376 megawatts, which is ranked second, followed by solar energy. Therefore, we focusing on a channel to expand the generation of renewable energy that, expected to grow higher. Currently, the purchase of electricity from biomass power plants has been modified from the existing form of Adder at 30 satang per unit to a form of Fit-in-Tariff and will have to bid for electricity discount price which the person who offers the cheapest discount will be considered as the winner of the auction. In the past, the auction of electricity price discounts was highly competitive. There are more than 80% of the discount price offered, resulting in the total FIT purchase price of less than 3 baht per unit. As a result, the payback of the biomass power plant will expand. However, the management of biomass power plants. That still depends on the raw materials entering the competing power plants in terms of price and quantity purchased in certain areas. Including transportation from raw materials to biomass power plants. So the company Therefore,

we have studied and researched suitable energy crops. To create a planted area itself. To reduce the risk of reliance on raw materials from other sources. This has the advantage over competitors.

In addition, the company. There is a clear policy to invest in alternative energy in the internationally. To gain more power purchase agreements. Taking into account the return on investment and the stability of long-term income such as, investment in solar power in Japan, Malaysia and Vietnam and the company is confident that, the investment in renewable energy abroad. That will increase significantly over the next 3 years to achieve the goal of owning offshore power plants of at least 400-500 Megawatts (MW) within 3 years. Presently, the company has invested in a total of 241.1 Megawatts of solar power plants in Japan under development. Expected to be commercially available in 2018 with 2 projects and also has 2 projects for 2021.

• ***Business of construction of renewable energy power plants***

Currently, several construction companies have entered the bidding. The Group has the first experience in constructing of solar power plants in Thailand. So the company has the power to negotiate with manufacturers of solar panels, wind turbines and other equipment used in power plants quite a lot. And the company also develops products and equipment used in renewable energy plants in the Group's own factories, thus giving the Company another competitive advantage in terms of cost of construction of renewable power plants. The problem of the contractor from abroad will have to hire the company. Subcontracting in Thailand has a higher cost. Endowed with the company can also provide various types of power plant construction services, such as BOI, Permit of Factory Operation (RorGor.4) , Coordination with Electricity Authorities and related government sectors, etc. to owners of renewable power plants. This makes the owner of the power plant more convenient when using the service of the company.

• ***Business of Private Power Purchase Agreement (Private PPA)***

At present, Industry, Department Store, Private Sector are more interesting to the purchase of solar panels installed on the roof. The company plans to expand its presence in the market. Moreover, with the experiences of solar panels installment on the roof. As well as



the products selection using the power plants construction is standard quality, performance guaranteed of standard power plants, so the company has more competitive advantage.

As can be seen from the fact that the company has signed a contract to sell electricity to the private sector in 2018, including 4 companies, representing 23,866.66 megawatts and in the year 2019, the Company aims to have more investment in the construction of power plants to sell to the private sector.

## 18. Risk Factors

### 18.1 Risks of dependence on government sector clients

Due to the government customers in particular, the government's electricity authority, such as the Provincial Electricity Authority (PEA), the Metropolitan Electricity Authority (MEA) and the Electricity Generating Authority of Thailand (EGAT), are the major customers of the Company and subsidiaries in the business of selling equipment for electrical systems and construction business that related to station work and high voltage transmission lines.

#### • *Business to selling equipment for electrical systems*

In the year 2018, the Company and its affiliated factories sold products to the electricity agencies as well as private agencies that located in Bangkok and in various areas throughout the country.

Revenue from the sale of products to this group of customers will depend on the budget for the development of production, capacity and supply of electricity from the government sector. If the government sector has changed the management team and changed the policy, the investment in the development of production capacity and supply of electricity or there is a delay in considering and approving the procurement of various projects may affect the revenue of the Company in the part that has to rely on this group of customers. In addition, the procurement processes of most government agencies will use the auction method, which will sometimes have many competitive bidders. Therefore, if the Company has not been selected in the bidding for the projects of such government agencies, this may cause the company to lose revenue from this customer group.

However, the major risks from the change of the investment policies in the development of power generation and transmission of government power still remain at a relatively low level. Due to the increasing demand for electric energy each year according to the expansion of the economy and domestic industry, the result is the government sector continues to provide

budget support for the procurement of materials for use in the development of capacity expansion and the electrical power distribution system of the Electricity Authority continuously. In terms of bidding for various government projects, there will be a separate auction as a product group. As the characteristics of products that are diverse in the Group of the Company. It is also recognized for quality in accordance with ISO 9001 standards. Also, many products of the Company have been registered with the Ministry of Industry and have passed the certification test from both domestic and international testing institutions and received the Industrial Product Standards (TIS) license. This is a competitive advantage in various procurement projects of government agencies and state enterprises that have a policy to promote and support the selection of products that have been certified for quality systems and have been certified by the Ministry of Industry. Thus, the opportunity for the Company to be selected as the winner of the auction remains at a high level. In addition, the Company has experience in selling products to various power agencies for over 30 years, by maintaining the quality, standard of products, and continuous good service of the Company. Therefore, the Company is confident that it will continue to gain more trust in purchasing products from this group of customers in accordance with the plan to procure more quantities each year.

However, the Company has a policy to reduce the risk of relying on one of the customers in each customer group by expanding new customer base and continuously providing new products. In order to create additional business opportunities as well as diversifying revenue from more diverse customer groups, such as the development of energy-saving lamps, LED bulbs to sell to customers in various departments, both government and private sectors, where such LED bulbs are in the Consumer Product category with a high market value. It is a lighting product that can be used in every dwelling as well as being a product that has been promoted by the government for purchasing, replacing the traditional lamp that uses more electricity.

• ***Business to procure and construct the power plant and transmission line***

Investment in electricity capacity development and supply is regarded as investment in basic public infrastructure that grows continually in the past few years and continually in the next 3 years. Due to the unbalance of electricity production and usage in each region of a country, for example in the southern region, the highest demand for electricity in the southern

region in 2018 is 2,767 MW and as of 2037 is 5,264 MW, with an average growth rate of 3.3 percent while electricity production in 2018 is 3,876 MW. and as of 2037 is 8,638 MW. The main power generation capacity of the southern region comes from Chana Combined Cycle Power Plant, Series 1-2, production capacity of 1,476 MW and Khanom Combined Cycle Power Plant, production capacity of 930 MW. According to the plan, Chana Combined Cycle Power Plant, Series 1 and Krabi Power Plant Will be discharged from the system in 2034, total production capacity of 1,025 MW. At present, the power capacity of the southern region cannot support the force majeure that the largest power plant has emerging stopped working (N1). They need to rely on power from the central region through the transmission line that linking between the sectors. Although, an obviously construction plan of transmission line in other regions and has started to open an auction already in the past year. Also, there have more budgets in the auction of transmission line in this year and next year as well. In this slow down economic condition that has not yet recovered from World economic condition, might result in a necessary of capacity reservation and rapidity in expand a large high voltage transmission line type 230 – 500 Kva. In terms of the Company's station and transmission line construction, it is considered as a risk to rely on a government customer; in case that, the projects are not completed by the due date of the plan.

## **18.2 Risk of exchange rate fluctuation**

As the nature of business of the group involves export and import from foreign countries, including invest in renewable energy in foreign countries. The Group might be affected by the fluctuation of exchange rates. It might have gains or losses on exchange rates. In order to reduce a fluctuation effect, the Company has the proceeding as follow:

- Make a balance between revenue and expense or debt which is a foreign currency to be natural hedge.
- Manage foreign currency deposit.
- Do the forward currency trading contract.
- Use financial derivatives in order to have a right to trade foreign currency with an appropriate exchange rate.

In addition, the company has implemented the exchange rate policy to serve as a guideline for foreign exchange management of the Group to be effective and perform in the same direction.

## **18.3 Possible risks to the power generation and supply business**

### ***18.3.1 Risk of power generation performance***

The ability to generate electricity of a solar power plant depends on two main parts, i.e. the quality of the solar panels and the amount of losses incurred in the electricity generation system. To prevent such risks, the Group uses solar panels from the top well-known companies which is regarded as one of the best manufacturers of quality solar panels recognized around the world.

Present, the Company has successfully realized its potential and proficiency in solar farm construction, developed the engineering team and subcontractors as well as meticulously selected key equipment related to solar farm construction from manufacturers who have delivery capability, proper after-sale services and warranty. As a result, the Company can reduce risks from dependence on large contractors in power plant construction, thus being a big step forward in the greater enhancement of managerial competitiveness, cost controlling and efficiency of power plant construction.

After the completion of solar farms, the Company's joint venture partners and other operators have placed trust in the Company with the signing of operation and maintenance agreements for power plants amount to 197.95 MW and making commercial sales. This enables the Company to comprehensively control and monitor the capacity of power supply and efficiency of solar farm operations, thereby mitigating risks from guarantee of minimum supply quantity of each project.

For wind power plant, the Company has chosen high potential technology from the top well-known and experienced companies. Moreover, the Company has recorded wind speed in continuous space for 4 years; in order to consider a possibility of electricity production from wind power before investing. In addition, the Company has a maintenance contract with the turbine manufacturer to provide power plant management services including spare part service to prevent risks for a period of 10 years.

For biomass power plant, the Company is in between development and promotion of energy crops plant from agricultural sector with the experienced adviser, in order to have fuel for continuously producing electricity and controlling cost. Also, in order to reduce a competition to fight over fuel with other traders.

### ***18.3.2 Risk of power supply***

The Group has signed a power purchase agreement with PEA for distribution of power at the amount specified in each contract. The contract is a Non-Firm type for reasons that in the generation of solar-base power, the amount of power generated each time cannot be specifically controlled. There are two groups of contracts: Adder and Feed-in-Tariff. According to the adder agreement, the PEA will purchase all electricity produced by quantities specified for each project. The contract is five years from the date of signing the contract and automatically continues for a period of five years. The PEA does not have the right to terminate the agreement. For FiT agreement, the contract term is 25 years at fixed price throughout the contract period. In case of the company comply with the conditions stated in the contract, it is considered that the Company has no risk from the inability to generate and supply electrical power. In addition of being a partner with government department, the company will certainly receive a quite high payment.

For the solar power plant project that is installed on the roof to produce and sell to private customers, the Company is the investor and giving a maintenance service for the life of the contract (Private PPA). The Company will prevent the risk of the project yielding lower than expected. This may be due to reasons of light intensity or may be caused by such private customers who are not able to pay for electricity or purchase electricity according to the Company's goals. The Company will review the financial statements of those private clients in order to assess the growth potential of the financial and business status, whether they are able to continue to operate the business according to the project contract period of the solar energy production system that jointly signed. In addition, the Company will check the consistency of electricity usage among private customers by analyzing to design the installed capacity of the solar power generation system to be suitable and be used efficiently, without waste electricity from the system. This can be seen that the Company has a screening of

customers and technical design before proceeding with the project. Therefore, the Company has a risk of loss in this type of project at a low level.

For biomass power plant, the duration of the contract is around 20 – 25 years and a Non-Firm type which has no penalty in case that unable to generate power. Also, with a Feed-in-Tariff purchase form (FiT) that has a stable purchase price throughout the life of the project which can plan a properly management. Moreover, a buyer is still Provincial Electricity Authority, so there has no risk from power generation as well.

#### **18.4 Risks of economic and political factors**

After the government of General Prayut Chan-o-cha started the administration in the year 2014, it can be seen that Thailand's overall economic situation was improved with high confidence from both domestic and international investors. The government has set various policies in stimulating the economy as the report of Office of the National Economic and Social Development Board (NESDB) indicated that the economy in the third quarter of 2018 expanded by 3.3 percent, slowing down from 4.6 percent growth in the previous quarter in line with the slowdown in external demand. While domestic demand continued to improve and when adjusting the results of the season, the economy in the third quarter of 2018 was stable compared to the second quarter of 2018 (QoQ\_SA). In the first 9 months of 2018, the economy grew 4.3 percent, especially the investment project of transportation infrastructure by rail, road and water that started operation in 2017, such as the double track railway project, Bang Yai Kanchanaburi Motorway. Moreover, the Company has a major customer, State enterprise that has a lot of budget support. Including, the equipment that the Company produce and distribute will be relevant to government infrastructure investment projects. Therefore, our business is likely to grow as a result of the increased public investment. In addition, the economic outlook for the year 2019 is expected to grow by 3.5 - 4.5 percent with support from (1) Household spending is still likely to expand at a good level and support economic growth continuously. (2) Improved adjustment of total investment, which the government investment is likely to accelerate and private investment continued to expand well. (3) Improving of the tourism sector (4) Economic growth and world trade volume that can support continuous export growth and (5) changes in the direction of trade, production and international investment. The product export value is expected to grow by 4.6 percent. Private consumption and total

investment expanded by 4.2 percent and 5.1 percent, respectively. The average headline inflation was in the range of 0.7 - 1.7 percent. Also, the current account has a surplus of 5.8 percent of GDP and in 2019 there will be a new government election. This is expected to return the credibility of Thailand back to confidence again and benefit the Thai economy.

In addition, the energy policy is one of the important policies that the government supports. In 2018, the National Energy Policy Council (NEPC) resolved to adjust the power development plan of Thailand, B.E. 2558 - 2579 (PDP2015) and announced the new power development plan of Thailand, PDP2018 that focuses on strengthening the power system by distributing power generation projects throughout the country, including the 3 southern border provinces and a plan to reduce natural gas dependability, adding the proportion of energy generation from clean coal technology, increasing foreign power supply, adding the proportion of energy generation from renewable energy, developing transmission and distribution system in order to support the development of renewable energy, arranging Energy Efficiency Development Plan (EEDP) and Alternative Energy Development Plan (AEDP). These plans shall greatly support the Company's business growth in manufacturing and distributing equipment for transmission and distribution system, manufacturing and distributing energy-saving equipment (LED) and developing renewable and alternative power plants.

*Source: [www.nesdb.go.th](http://www.nesdb.go.th)*

In 2018, the National Energy Policy Board (NEPC) had been opened to accept comments and submit approvals in early 2019, Thailand Power Development Plan, B.E. 2561 - 2580 (PDP2018). The Ministry of Energy had adopted the PDP2015 plan to review and improve the planning of the country's power generation development in line with the changing electricity demand, as a result of economic growth and changes in power generation technology that is expected to occur in the future. As well as reflecting the government's policy and the national strategic plan for 20 years with consideration of the development of electricity production to suit the electricity demand and production potential in each region. In addition, it also considers the link between investment in electricity production, the stability of the power transmission system for the management of the electrical system to achieve maximum value and the promotion of the electricity business in order to increase competition under the supervision for maximum efficiency and maintain stability.



Highlights of the Power Development Plan of Thailand, B.E. 2561 - 2580 (PDP2018) as details below;

- (1) Power generation systems, power transmission systems and power distribution systems have area stability, creating a balance of electrical systems by region.
- (2) Considering the power plant for stability at the appropriate level, in order to support the event of an energy crisis, including increasing the flexibility of the grid system (Grid Flexibility).
- (3) Promoting low-cost electricity production to reduce the burden of electricity users and not hinder the country's economic and social development in the long term.
- (4) Prepare the power system to generate electricity competition which will help increase the efficiency of electricity generation in the whole country. Electricity production reflects the true cost.
- (5) Must reduce the environmental impact.
- (6) Promote the production of electricity from renewable energy and increase efficiency in the power system, both in electricity generation and electricity use.
- (7) Develop smart grid network system to supports the trend of change of Prosumer power users.

## National Energy Policy

On September 12, 2014, the Prime Minister announced the government policy to the National Legislative Assembly with 11 different policies which the electric energy policy has stated in Article 6. "Policy to increase the economic potential of the country". In the long run, the power plant will be built by government and private agencies both from the use of fossil fuels and from all kinds of renewable energy, with a method that is open, transparent, fair and friendly to the environment. Also, being ready to cooperate with neighboring countries in energy development and Article 8. "Policy on development and promotion of utilization of science, technology, research and development and innovation", by encouraging large-scale investment projects such as clean energy, rail systems, motor vehicles, electricity, water management and waste management with important development plans as follows.

### ***1. Smart Grid network development plan (Smart Grid)***

Smart grid network development is defined as one of the country's electric power development policies. Because it is a technology that has played a role in promoting the overall development of the electrical industry, including the development of the power development plan of Thailand with efficiency, with the aim of enabling the electrical system to be able to perform more tasks with less resources (Doing More with Less). Therefore, the Ministry of Energy has developed a master plan for the development of smart grid systems in Thailand B.E.2558 – 2579, which was approved by the National Energy Policy Council and the Cabinet on February 16, 2015 and March 17, 2015 respectively. The Master Plan for Smart Grid Network Development System of Thailand, B.E.2558-2579, divided into 4 phases, namely: the preparation period (B.E.2558-2579), short-term period (B.E.2560-2564), Medium-term period (B.E.2565-2574) and long term period (B.E.2575-2579), to be an important mechanism to develop into a stable and sufficient electricity network system for production and being more environmentally friendly including effective management. The plan to drive the implementation of smart grid operations in Thailand in the short term in 2017-2021 is scheduled to be driven by divided into 3 pillars, which has a comprehensive mission that is the first priority for the country's energy, are called Energy Management System (EMS), Pricing and Incentive Design and Demand Response, Development of Microgrid Power Systems, Energy Storage System: ESS and Renewable Energy Forecast.

### ***2. Policy on purchasing electricity from neighboring countries***

The purchase of electricity from neighboring countries has been defined as another policy for the supply of electricity in the power development plan of Thailand, which is considered as an alternative way to supply electricity in the event that there is a limitation in the supply of electricity in the country. The purchase of electricity from neighboring countries can help reduce the burden on the construction of power plants in the country. Reducing the burden of supplying fuel in the country's electricity production and also enhancing good relations with neighboring countries through energy cooperation as well in purchasing electricity from neighboring countries. This is considered as reducing the burden of supplying fuel in the country's electricity production and also enhancing good relations with neighboring countries through energy cooperation as well in purchasing electricity from neighboring countries,

which will consider on the principle of bilateral cooperation between the governments of both parties. It has been agreed in detail together on the Memorandum of Understanding on Energy Cooperation (MOU) between Thailand and neighboring countries. At present, Thailand has a memorandum of understanding on the cooperation in electric power with neighboring countries that are officially in force in 3 countries, with the following details:

1. Lao People's Democratic Republic, totaling 9,000 megawatts and not specified expiry date MOU
2. Republic of the Union of Myanmar, not specified quantity, valid until December 31, 2020.
3. Cambodia, not specified quantity and not specified the expiration date of MOU.

### ***3. Renewable Power Plants under the Alternative Energy Development Plan (AEDP)***

Renewable power plants will consider procurement of electricity from renewable energy to be in line with the remaining renewable energy potential of the country and to support the changing behavior of electricity users, including the change of disruptive technology in electrical energy that will occur. Also, still comply with the COP21 agreement, consisting of biomass, biogas, solar energy, solar energy floating together with hydroelectric power plants and other renewable energy, with the goal of purchasing to maintain the retail price of electricity not to rise. Moreover, there is also consideration of energy conservation measures in the future that will be reliable and has a cost that can compete with renewable energy power plants as well.

The new power generation capacity during 2018-2037 is 56,431 MW, with renewable energy plants as follows:

(Unit: MW)

Renewable Energy / Energy Conservation	Contract Manufacturing Capacity	Reliable Manufacturing Capacity
Solar Energy <sup>1)</sup>	10,000	4,250
Biomass	3,376	2,296
Biogas,	546	325

Renewable Energy / Energy Conservation	Contract Manufacturing Capacity	Reliable Manufacturing Capacity
Solar energy floating together with hydroelectric power plants	2,725	1,158
Wind power	1,485	189
Industrial waste	44	26
Electrical energy conservation measures	-	4,000
<b>Total as of 2037</b>	<b>18,176</b>	<b>12,244</b>

Remark 1) There will be a 100 megawatt solar project per (Public sector solar) year for 10 years.

#### ***4. Energy conservation in electricity according to the Energy Conservation Plan (EEP)***

Implementing the energy conservation plan to consider the allocation of power in the PDP plan, by considering as one type of electricity production and consider only the conservation of electrical energy that can prove confidence and can compete on price not more than Grid Parity only. There are about 4,000 megawatts of energy conservation potential, divided into 3 strategies, consisting of compulsory, support and promotion.

#### ***5. Thailand Greenhouse Gas Reduction Policy (EEP)***

Thailand has realized the importance of collaborating to solve global climate change by joining the global community to try to resolve the situation seriously. Thailand ratified to join the State Party under the United Nations Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol (KP) in 1994 and 2002, respectively.

In addition, according to the announcement of the Energy Regulatory Commission (ERC), there is a plan to space the purchase of electricity from renewable energy for a period of 8 years. Such factors are considered to be a risk to the business of renewable energy. As a result, the expansion and investment in such businesses have slowed and have to wait for the announcement to buy electricity from renewable energy from the government. As well as the National Energy Policy Council announcing that in the future, the purchase price of electricity from renewable energy must not affect the average wholesale price, which can be expected that the purchase of electricity in the future will cause the purchase price to be lower than

before and may result in a slow return. However, the Company continuously monitors the government's policy, adjusts according to the economic direction and seeks new business models that consistently provide good returns.

All above is a main risk due to the economic and political factors that, led to the government's policy setting in the purchase of electricity from renewable energy. This is a major risk in the affected business sector, affecting and influencing are the company's strategy and policy. Next to the field of distribution and production of electrical equipment. The construction of power plants, transmission lines and power stations. Electricity production and distribution including the maintenance of power plants. Which needs to be adjusted, according to government's policies and measures of the Energy Regulatory Commission. At present, the Company has established a strategy in accordance with the government's policy and has continuously monitored the work to keep up with the changing situation at all times.

## **18.5 Risks of investing in solar power plant in Japan**

### ***18.5.1 Risks from the policy amendment***

From having a license to develop electricity from renewable energy but still unable to sell electricity, project licenses that have low commercial power supply capabilities, such as projects that have not yet signed a power connection agreement with Electricity Authority within the specified date and may issue other measures in the future.

In order to reduce the risk, the Company hired a legal consultant in Japan with high experience in renewable energy. The legal advisor will present the information in addition to following the news from the Company when there is a tendency for policy changes. In addition, since the Japanese government will have a period of time to listen to opinions from the public before announcing the new policy.

### ***18.5.2 Risks from natural disasters***

Due to, Japan is located on the boundary of the Ring of Fire, it causes frequent natural disasters such as earthquakes. An earthquake in the sea can also cause a tsunami. And there are also seasonal typhoons that, make it necessary for Japan to manage the potential impact of these natural disasters.

The Company manages the risk of natural disasters by do the insurances. The value of insurance, the company referring to a study conducted by Kyoritsu Insurance Brokers of

Japan Co., LTD, a specialist in insurance to ensure that coverage is reasonable with the damage that happen. The Company can proceed to reduce the impact of the new policy in a timely manner, including hiring executives as Japanese people with an industry experience for working with the public and community smoothly.

### ***18.5.3 Risks from the project opening is delayed than planned***

The opening of the solar power project depends on many factors, such as the implementation of the relevant licenses, the construction of the power plant, the provision of funding, the preparation of all relevant contracts in accordance with the standard of the total funding source, the results of the test of the power plant during the pre-sale of commercial electricity sales. If the project cannot be carried out according to the standards of the company and related parties, it will cause the commercial operation of the project to be delayed or resulting in the company having to use funds from the company to invest more from what had been expected.

Risk management for the project that has started construction, the Company has closely monitored the construction progress by receiving a report from the contractor every week and organizing a meeting at the construction area to see the actual situation of the project and listen to comments from the contractor every month. As a result, the Company can understand the problem and plan to solve it from the initial stage; however, in the event of force majeure, the Company will focus on the stability of operations throughout the 20 years of electricity distribution in the future.

For the project under development, the company has been monitoring the progress of the project development periodically. The contractor will consult with the bank as a source of funds to ensure that the company receives a loan from the bank.

In order to manage the risk and motivate the project developer to achieve their target, the company has signed to provide support until the electricity distribution. The profit of the developer of the power plant project will be based on the success of the project. The developers will overview the development of the project in four areas:

1. The procurement of a contract for the construction of a solar power plant with expertise and through the evaluation and selection process to meet the criteria that the Company and the bank has specified

2. The recruitment of the expertise of Japanese staff to control and maintenance of the power plant electricity distribution completely.
3. The management of the power plant construction project and requesting various permits to be completed in accordance with the schedule and in accordance with the period specified in the target of commercial electricity sales.
4. The overall project management and control in order to keep the cost according to the investment budget and finish in accordance with the specified time frame

Therefore, it can be said that the Company has implemented risk management in project management with closely monitoring progress and let the project developer be the follower of the details in another step so that the project can be done well.

#### ***18.5.4 Risks from Uncertain Power of Electricity Produced***

The company has divided the risk into 2 types:

##### ***1. Risks due to the intensity of the sunlight is less than expected***

Due to solar power plants use the solar energy as a main factor in generating of electricity. The lower the intensity of light affect to the lower the amount of electricity produced. The project has lower revenue from electricity sales estimated.

In order to manage this risk, the Company has placed an investment budget based on light intensity data from reliable technical consultants in the industry, in order for the company to be able to receive returns in accordance with the standards of the company. This return has been estimated on the light deviation that may occur.

##### ***2. Risk due to cell panel degeneration***

Since the cell panel is the main device for converting solar intensity into electricity, the degeneration of cell panel will reduce the ability to convert solar intensity into electricity, even in the same light intensity. As a result, the power plant has reduced electricity generation which will result in lower revenue from electricity sales.

In order to reduce this risk, the Company has entered into an agreement with the contractor by allowing the contractor to be responsible for maintaining the guarantee fees for the project at the initial stage and the Company is able to claim that the panel manufacturer can change throughout the project life when the panel is deteriorated more than guaranteed.

#### ***18.5.5 Risk of dependence on a complete contractor (EPC Contractor)***

Due to the construction of solar power plants, that requires expertise in technology. Experience in construction ability to supply materials and operational personnel all processes need to be coordinated, so the company hires a complete contractor to effectively control the work. And the contractors have the flexibility to accomplish their goals.

However, hiring a complete contractor risks of the project. If the contractor is unable to proceed. So, the company manages the risk from selecting a contractor that will be the company that, has been accepted by the bank in Japan. The one of the conditions is that the company has experience in construction for a long time, with a track record of the construction of a large power plant project according to the standards set by the bank. The contract that the Company is able to claim compensation in the value that covers damage. The conditions for claiming compensation are in accordance with industry standards, including the contractor having to introduce a new contractor and deliver the work smoothly in the event that the contractor is unable to complete the construction of the power plant until the commercial operation has been completed

#### ***18.5.6 Risk of Limited Power Purchase (Curtailment)***

Limiting the amount of electricity purchased causes the company to sell electricity at a reduced amount which affects the income that can be earned from the sale of electricity. The policy on limiting the amount of electricity purchased in Japan can be divided into 3 main policies, 1. Unlimited quantity of electricity purchase 2. Limit quantity of electricity purchased at 360 hours / year and 3. Limit quantity of electricity purchased at 30 days / year.

Due to the Company is unable to predict the time limit for purchasing power from the unlimited power purchase system. Thus, the Company manages risks by investing in projects that limit the amount of electricity purchased at 360 hours / year or 30 days / year only.

#### ***18.5.7 Risk from fluctuation of exchange rate***

The consideration of investing in a solar power plant project in Japan for the company is a power purchase agreement at a fixed rate throughout the project life which the Company considers that income recognition in the form of yen currency and the re-payment of a loan from a project loan in the same currency. It is considered as a protection of foreign exchange



risk at 85% of project investment from using the same currency. The risk for investments in shareholders' equity at the rate of 15% will be the conversion of the financial statements from Yen to Baht, which will affect to the accounting records only. But without any effect on operating profit or loss in anyway.

## **18.6 Risk Risk Factors for Solar Power Plant Investment in Malaysia**

### ***18.6.1 Risk from the delay in launching the project***

The launch of solar power projects process in Malaysia has similar development processes with Japan, which requires a process of license permission, power plant construction, sources of funds and all related contracts that meet the standards of funding. However, power purchase agreements with Malaysia government will have shortened duration of commercial electricity distribution (SCOD) from Japan and strict regulation, In the case of the electricity couldn't be delivered on time, there will be a risk of termination from power purchase agreement.

For risk management, the company is closely monitoring the progress of construction and arranges the construction updates meeting every month.

In order to manage the risk, the company has signed to provide support until the process of electricity distribution. The profit of the developer of the power plant project will be based on the success of the project. The developers will overview the development of the project in four areas:

1. To provide expertise of the solar power plants contractor, evaluate and considerate to meet the company goals.
2. To recruit the expertise of Malaysian staff to control and maintenance of the power plant electricity distribution completely. .
3. To manage the project of power plant construction and to be completed in accordance with the deadline and in accordance with the target period for commercial distribution.
4. To manage and control the operating costs in line with he investment budget and completed within the specified time frame

Therefore, the company has been monitored the progress of risk management and reviewed by the project developer the meet the project complement.

### ***18.6.2 Risk of lightning***

Malaysia has a record of frequent lightning in their country. This may affect the power system which is the risk of natural disasters that couldn't be controlled.

The company has been researched all the factors that could have affected the lightning, hiring the expertise to design a lightning protection system, including other protective equipment. To prevent lightning that will impact on the project.

In addition, the company manages the risk from natural disasters by covering all risk, which covers the damage from lightning as well as reasonable coverage with the the potential damage.

### ***18.6.3 Risk from fluctuation of exchange rate***

Investing Consideration in a solar power plant project in Malaysia, for the Company is a fixed-rate of power purchase agreement. The Company considers that, the recognition of income in the Yen currency and the re-payment of a loan from a project loan in the same currency. It is considered as a protection of foreign exchange risk at 85% of project investment from using the same currency. The risk for investments in shareholders' equity at the rate of 15% will be the conversion of the financial statements from Ringgit to Baht, which will affect to the accounting records only and without any effect on operating profit or loss.

### ***18.6.4 Risk in Engineering, Procurement and Construction Contractors***

According to the construction of solar power plants requires expertise in technology, construction, material procurement process and worker for business process management to all functions. The company therefore hires a comprehensive construction contractor to control the work efficiently and enable them to achieve their business goals.

For solar power plant project in Malaysia due to the project is quite new. Therefore, in hiring a EPC contractors can be complicated risks to the project. The company plans for risk management by considered to have project partner in Malaysia. To be the contractor for the project which will ensure that the contractor will process efficiently due to contractor is also our partner of the project. In addition to this, we are hiring consultant engineers who control the work according to international standards. Moreover, we make the contracts to request compensation for a covered of all loss according to the industrial standard policy.

### **18.6.5 Risk in Natural Disaster**

Due to the area of the project at Terengganu in Malaysia rain are quite common. There is a risk of flooding through the project which may affect the power generation system which are considered as a risk from natural disasters that unable to control.

The company has studied the location of the power plant to various factors that may affect by flooding. Design of flood protection system by the technical expertise including other protective equipment on flood defense.

In addition, the company has managed risks from natural disasters by conducting a comprehensive insurance for all risks. The insurance covers flood damage and full coverage of all reasonable damaged.

### **18.7 Risk in IT Security and Cyber Security Threats**

Information technology system is a part of business operation but the digital transformation affected the risk in security of the information technology system of the company and the increment of the company. Both by the complexity of the information technology system and employees abilities. That must be developed to keep up with the changes that occur as well as the shortcomings of information technology systems that may allow malicious users to access information in the system. From various technological threats Security and monitoring system, if there is not enough or incomplete May cause serious damage especially for important information or systems various cyber threats such as harassing or attacking the network Malicious program (Malware/Virus) causing business interruption, Lose of income, reputation, etc.

#### ***Risk management practices***

1. Comply with information technology policy and create information technology awareness (IT Awareness) for employees at all levels.
2. Providing and developing information security tools to cover information and work systems to all important parts of the company.
3. Maintain the security in the information technology system within the company and subsidiaries. To be in accordance with relevant laws and regulations as well

as providing regular backup, testing of backup data to support emergency situations.

4. Control access to information at each level.
5. Provide inspection and assessment of the adequacy of the policy and internal control systems by independent agencies at least once a year

## **19. Capital Structure** and Shareholders

### **19.1 Capital**

#### **1) Common Stock**

As of December 31, 2018, the Company had registered capital of THB 1,854,655,373.25 and had paid-up capital of THB 1,854,655,373.25 divided into 7,418,621,493 shares at par value of THB 0.25.

#### **2) Treasury shares**

At the Board of Directors' meeting of the Company held on 10 April 2018, the Board approved the Share Repurchase Program (Treasury stock) for financial management purpose. The maximum amount for the share repurchase is not exceeding Baht 1,000 million. Number of shares repurchase is not exceeding 300 million shares at the par value of Baht 0.25 per share which is equal to 4.04% of total paid-up capital. The repurchase period will be started from 24 April 2018 to 22 October 2018. The shares purchased may be resold after 6 months from the date of purchase but must not exceed 3 years from such completion.

As at 31 December 2018, the Company has repurchased the shares under the program totaling 99.04 million units at a total cost of Baht 304.67 million is presented as a separate category within equity and recognised as a deduction from equity in the consolidated financial statements with an equivalent amount had been appropriated from retained earnings to treasury shares reserve.

#### **3) Bill of Exchange**

As of December 31, 2018, the Group's outstanding debt from bill of exchange totaling THB 680 million with several financial institutions by a duration between 3-6 months.

#### **4) Bond**

As of December 31, 2018, the Company has outstanding balances from issuing senior bond with unsecured total THB 5,584.50 Million. The redemption schedules are in October 2019, in May 2020, and April 2021.

## 19.2 Shareholders

Top ten major shareholders of the Company as of February 28, 2019, the latest closing date of share registration book is as the following.

No.	Shareholder Name	Share (s)	Percentage (%)
1	Dhumrongpiyawut Family Group		
1.1	Gunkul Group Company Limited	3,693,859,400	49.792
1.2	Mr. Gunkul Dhumrongpiyawut	309,592,726	4.173
1.3	Miss Naruechon Dhumrongpiyawut	359,328	0.005
<b>Total Number of Shares Holding by Dhumrongpiyawut Family Group</b>		<b>4,003,811,454</b>	<b>53.970</b>
2.	Siam Commercial Bank Public Company Limited	232,400,000	3.133
3.	UOB KAY HIAN (HONG KONG) LIMITED - Client Account	203,355,253	2.741
4.	Thai NVDR Company Limited	177,540,600	2.393
5.	Bualuang Long-Term Equity Fund	152,331,800	2.053
6.	CPYI CLT	138,355,200	1.865
7.	South EastAsia UK (Type C) Nominees Limited	101,423,650	1.367
8.	Gunkul Engineering Public Company Limited	99,043,700	1.335
9.	LGT Bank (Singapore) Ltd	71,562,280	0.965
10.	Mr. Prakin Srirachoen	58,695,151	0.791
Total		5,238,519,088	70.613

Gunkul Group Company Limited is the holding company with paid-up capital of 110,000,000.00 baht as of February 28, 2019. Major shareholder is Dhumrongpiyawut family with 99.64% stake in Gunkul Group.

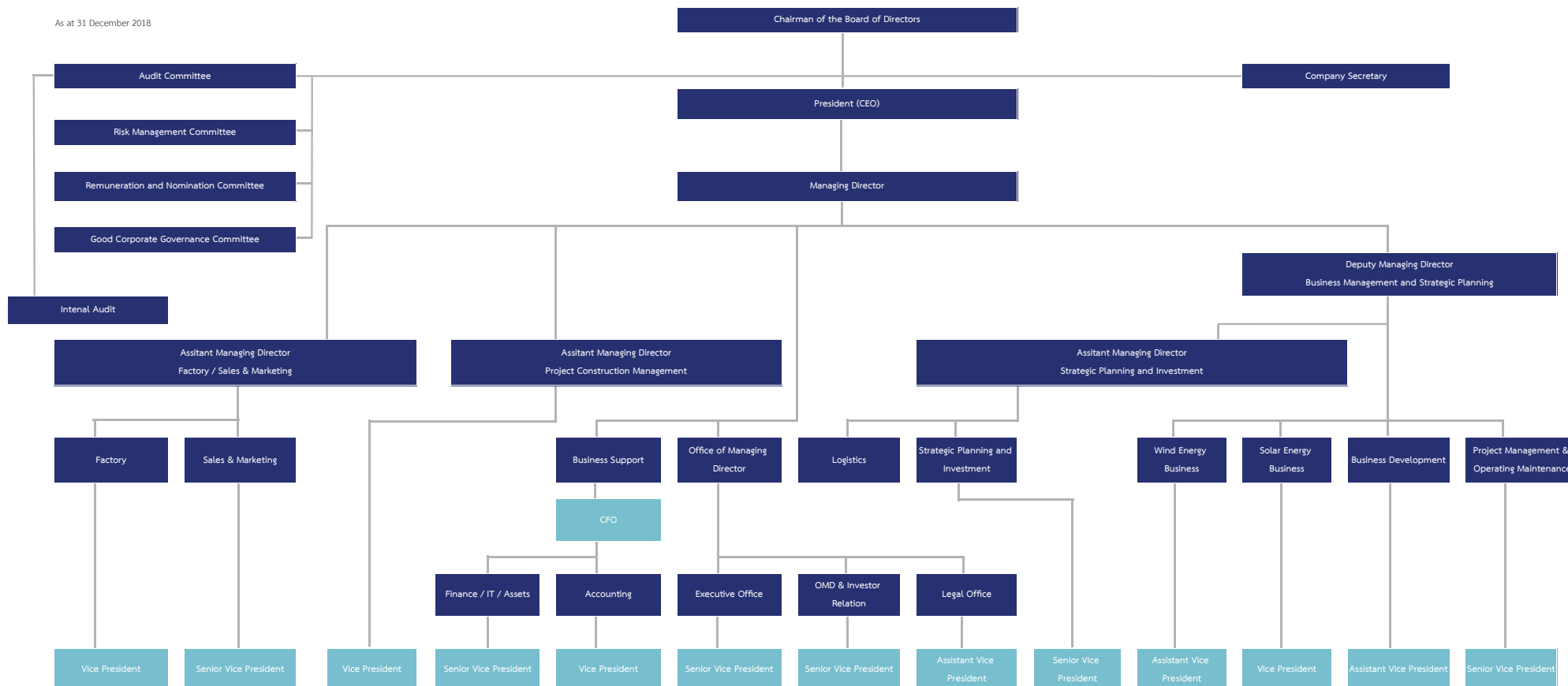
No.	Shareholder Name	Share (s)	Percentage (%)
1.	Dhumrongpiyawut Family Group		
1.1	Mr. Gunkul Dhumrongpiyawut	466,000	42.364
1.2	Miss Naruechon Dhumrongpiyawut	211,000	19.182
1.3	Miss Sopacha Dhumrongpiyawut	210,000	19.091
1.4	Master Arpakorn Dhumrongpiyawut	210,000	19.091
	Total Number of Shares Holding by Dhumrongpiyawut Family Group	1,097,000	99.727
2.	Mr. Chaloepon Sricharoen	3,000	0.273
	Total	1,100,000	100.000

### 19.3 Dividend Payment Policy

The Company has dividend payout ratio of at least 40% of net profit of the Company only (unconsolidated basis) in which net profit is after deducting corporate tax, legal reserve and other reserves. However, the Company may pay dividend less than mentioned above if necessity i.e. more working capital required, aggressive expansion plan, or else. The board resolution on dividend payment is needed to propose to shareholders' meeting for approval, except interim dividend in which board can go ahead and report to shareholders later.

The Company's subsidiaries also has dividend payout ratio of at least 40% of net profit after deducting corporate tax, legal reserve and other reserves. There are another four factors, cash flow analysis, financial status, liquidity and expansion plan, taking into account on how much dividend to pay.

As at 31 December 2018





The Company's management structure comprises of board of directors, subcommittees and executives in which board of directors comes from independent directors, non-executive directors and executive directors. Independent directors represent one third of board of directors.

## 20.1 Board of Directors

As of December 31, 2018, board of directors comprised of 10 persons as follows;

Name	Position
1. Mr. Gunkul Dhumrongpiyawut <sup>1)</sup>	Chairman of the Board of Directors (Non-Executive Director)
2. Dr. Djitt Laowattana <sup>1)</sup>	Independent Director Chairman of the Audit Committee
3. Dr. Chongrak Rarueysong	Independent Director Audit Committee Chairman of the Good Corporate Governance Committee
4. Assoc. Prof. Dr. Panarat Panmanee <sup>2)</sup>	Independent Director Audit Committee
5. Mr. Tarakorn Angpubate	Independent Director Chairman of the Nomination and Remuneration Committee
6. Miss Sopacha Dhumrongpiyawut	Director Chief Executive Officer Member of the Risk Management Committee

Name	Position
7. Dr. Somboon Aueatchasai	Director and Secretary of the Board of Directors Executive Director
	Managing Director
8. Miss Naruechon Dhumrongpiyawut	Director Executive Director
9. Mr. Chaloepon Sricharoen	Director Executive Director
10. Mrs. Areewan Chaloeendan	Director Executive Director
11. Miss Chantira Jongjamareeseethong	Company Secretary

<sup>1)</sup> Non-Executive Directors having experience in work related to the Company's business and the Subsidiary.

<sup>2)</sup> Independent Director who graduated in Accounting

### ***Authorized Directors***

Authorized director who can sign documents that will have impact to the Company is Mr. Gunkul Dhumrongpiyawut or Miss Sopacha Dhumrongpiyawut or Miss Naruechon Dhumrongpiyawut gives signature together with another signature from Mr. Somboon Aueatchasai or Mrs. Areewan Chaloeendan or Mr. Chaloepon Sricharoen and then gets the Company's stamp.

Or Mrs. Areewan Chaloeendan, Mr. Chaloepon Sricharoen and Mr. Somboon Aueatchasai all sign their names and get the Company's stamp.

### ***Scope of Authority and Responsibility of Board of Directors***

(Cited by "Board of Directors Charter": Revision Date on 19<sup>th</sup> November 2018)

The Board of Directors has the following authority and responsibility:

- 1) To perform the duty in accordance with the laws, objectives, regulations of the company and resolution of the board of directors as well as the resolution of the meeting of shareholders with responsibility, care and integrity as a prudent person who will undertake his business under the same conditions for the maximum benefits of the company.
- 2) To determine vision, mission, strategy, business direction, policy, target, direction of the operating plan and budget of the company, to supervise, oversee, monitor and examine compliance with the policy, plan and budget provided and to assess the performance of the management consistently.
- 3) To determine the charter and major policy of the company, such as Major business policy (business ethics and good corporate governance), Charter of the board of directors and charter of the subcommittee, Policy, authority, duty and responsibility of the chairman of the board of directors of the company and chairman of the executive board and managing director, Policy, measure on transaction made with unrelated company/person, measure on transaction made with related company/person and table of authority, Financial policy, Financing policy, Fund management policy, Risk management policy, Policy on examination and internal control of the company, Anti-corruption policy and related policy and Other policy related to corporate governance of the company.
- 4) Decision on the following investments, such as Approval/decision on the budget, Approval/decision on the investment project of the company and Supervision of the project in accordance with the plan arranged.
- 5) To supervise, oversee and monitor the operation of the company, To ensure that the target is achieved or exceeded in accordance with the strategy of the company provided, To determine the corrective measure if there is any problem or difficulty to accomplish or exceed the target provided, To determine measure and practice on good corporate governance to manage sustainability, social responsibility and anti-corruption, including other related measures and practices, To comply with anti-corruption measure and other related measure and to take

responsibility on implementation of anti-corruption measure and other related measures.

- 6) To prepare general information report and financial report of the company to report and disclose to shareholders and stakeholders or general investors correctly, completely, timely and fairly and in accordance with the laws provided.
- 7) To review whether the financial reporting system, internal control system and risk management system of the company is adequate and suitable or not to ensure confidence in correctness, completeness and reliability of information and to reduce risk of fraud and to prevent any illegal act.
- 8) To acknowledge the key audit report of the audit committee and the subcommittee, including the internal control division, the auditor and consultants of the company and to determine the improvement and corrective measure if the defect found is significant and to manage and handle the related transaction in accordance with the criteria provided under the laws
- 9) To appoint the person with qualifications and without possession of character forbidden by related laws to become the director of the company in case of vacancy of directorship by other reason except expiry of the term.
- 10) To appoint the subcommittee and its chairman such as the audit committee, the risk management committee, the recruitment and remuneration committee, the good corporate governance committee, the executive board or the other subcommittee and to appoint the secretary of the board of directors and the secretary of the company to support the duty performed by the board of directors.
- 11) To determine remuneration and to appoint the senior executive of the company and to arrange the process to develop the executive of the company through the succession plan.
- 12) To appoint any director or directors or any person to undertake any act for the board of directors of the company while such assignment shall not assign the assignee to approve the transaction the such person or the person with possible conflict of interest or possible conflict of business interest in any nature with the company or the subsidiary company.

However, for the transaction that the director or the person with possible conflict of interest or conflict of business interest in any nature with the company or the subsidiary company, the director of the company who has the conflict of interest in such matter is not allowed to vote on such matter unless such following matters have been approved by the meeting of shareholders.

1. The matter that the laws and the regulations of the company have required the resolution of the meeting of shareholders.
  2. The transaction that the director of the company has the conflict of interest and is indicated by the laws or the requirements of the Stock Exchange that it is required to be approved by the meeting of shareholders.
- 13) To arrange the annual performance of the board of directors, each individual director, every subcommittee and the chief executive officers of the organization. In addition, such assessment will be used to undertake the development and improvement and to be used as data for determination of the policy for continuous development of the organization.
- 14) To review the policy related to good corporate governance and charter of the board of directors, vision, mission or strategy of the company annually.
- 15) To prepare the activity report of the board of directors for disclosure in the annual report of the company while such report will be signed by the chairman of the board of directors of the company.
1. Overall opinion or comment that the board of directors has learned from the duty performed in accordance with the charter.
  2. Other transactions that the board of directors has agreed that the shareholders and the general investors should learn within the scope of authority, duty and responsibility assigned by the shareholders.
  3. Number of meetings of the board of directors and attendance to the meetings of the directors of each director, including remuneration received by each director.
- 16) To perform the duty of the board of directors, the independent opinion may be sought from the other independent professional consultant when it is necessary at the expenses of the company.

### ***Role, Authority, Duty and Responsibility of the Chairman***

(Cited by “Role, Authority, Duty and Responsibility of the Chairman, Chief Executive Officer and Managing Director”: Revision Date on 19<sup>th</sup> November 2018)

- 1) The Chairman of the board of directors and the Chief executive officer are required to the different person.
- 2) To call for a meeting of the board of directors of the company and the meeting of shareholders and to chair the meeting of the board of directors of the company and the meeting of shareholders in compliance with the regulations of the company.
- 3) To cast a decisive vote if the votes are on par in the meeting of the board of directors of the company.
- 4) To take a role to control the meeting efficiently in accordance with rules and regulations of the company and to support and provide an opportunity to the directors of the company to express their opinion independently.
- 5) To encourage and support the board of directors of the company to perform its duties at full capacity within the scope of authority, duty and responsibility and in accordance with the good corporate governance principles.
- 6) To take responsibility as a leader of the board of directors of the company to supervise, monitor and look after the management of the board of directors of the company and other sub-committee to achieve the objectives and plan provided.
- 7) To supervise the policy and guidelines on strategic work of the management and to provide recommendations and support to the business undertaken by the management.
- 8) To be a leader and role model on business conduct and ethics of the company and to promote, supervise and monitor the management with respect to sustainable principle, social responsibility and to comply with the anti-corruption measures and guidelines.

## **20.2 Executives**

As of 31<sup>st</sup> December 2018, there were 15 executives as follows:

Name list	Position
1. Miss Sopacha Dhumrongpiyawut	Chief Executive Officer
2. Dr. Somboon Aueatchasai	Managing Director
3. Dr. Phongsakorn Damnoen	Deputy Managing Director, Business Development and Strategic Planning
4. Miss Naruechon Dhumrongpiyawut	Assistant Managing Director, Business Development and Strategic Planning Senior Vice President, Logistics
5. Mr. Chaisiri Wattanachannarong	Assistant Managing Director, Project Construction Management
6. Mrs. Areewan Chaloemdan	Acting Assistant Managing Director, Factory
7. Mr. Thitipong Techaratanayuenyong	Chief Financial Officer
8. Mrs. Somluk Kanuenghet	Senior Vice President, Executive Office
9. Mr. Thamrong Chankraithong	Senior Vice President, Sales & Marketing
10. Dr. Phairot Phanukan	Senior Vice President, Project Construction Management & Operating Maintenance
11. Mrs. Nattawan Wongchan	Senior Vice President, Business Support
12. Mr. Janpon Ngamaroonchote	Senior Vice President, Strategic Planning & Investment and Sales & Marketing-Energy Solution, Lighting and GRoof
13. Miss Chantra Jongjamareeseethong	Senior Vice President, Office of Managing Director & Investor Relations Company Secretary
14. Ms. Suttirat Tangnorakul	Vice President, Business Support (Accounting)
15. Mr. Tanetsiri Farkmitr	Assistant Vice President, Internal Audit Secretary of the Audit Committee

### ***Role, Authority, Duty and Responsibility of the Chief Executive Officer***

(Cited by “Role, Authority, Duty and Responsibility of the Chairman, Chief Executive Officer and Managing Director”: Revision Date on 19<sup>th</sup> November 2018)

The board of directors of the company has assigned the chief of executive officer to be the leader in management and administration of the company within the scope and authority as follows;

- 1) To manage the business of the company, to supervise and control the overall operation in accordance with the objectives, rules, policies, regulations, requirements, orders, business strategies, targets and operating plans, financial targets, budgets and resolutions of the meeting of the board of directors of the company and/or resolutions of the meeting of shareholders.
- 2) To prepare and submit the business policy of the company, including plan and budget to the board of directors of the company for approval and to report the progress in accordance with the plan and budget approved by the board of directors of the company.
- 3) To undertake or determine the management authority to ensure that the operation is undertaken in accordance with the policies, plan and budget approved by the board of directors of the company efficiently and effectively based on the internal control concept systematically and consistent risk management.
- 4) To determine the organization structure, management method and to select, train employ and dismiss the employees and to determine the wage, salary, reward, bonus and welfare for the employees.
- 5) To direct, contact, command, undertake and sign in the juristic act, agreement, order, notice or any letter used to contact with other agencies or persons to ensure that the work of the company is accomplished efficiently and effectively.
- 6) To have authority to provide the authority to the substitute and/or assign the other person to undertake the specific work for him through substitution and/or assignment within the scope of authority in accordance with the power of attorney and/or in accordance with the regulations, requirements or orders made by the board of directors of the company or the company.



- 7) To be a leader and role model on business conduct and ethics of the company and to promote, supervise and monitor the management with respect to sustainable principle, social responsibility and to comply with the anti-corruption measures and guidelines.
- 8) To have the authority, duty and responsibility assigned or in accordance with the policy assigned by the board of directors of the company.

The assignment of authority, duty and responsibility to the chief executive officer is not the assignment or substitution to allow the chief executive officer or the assignee of the chief executive officer to approve any transaction that he or the person with the conflict of interest or with possible conflict of interest with the company or the subsidiary company (according to the definitions provided in the notification of the Securities and Exchange Commission) while the approval on such transaction is required to be proposed to the board of directors of the company and/or the meeting of shareholders (as applicable) to consider and make an approval on such transaction in accordance with the requirements of the company or related laws unless it is an approval on the transaction which is the regular business transaction of the company in accordance with the policies and criteria approved by the board of directors of the company.

### ***Role, Authority, Duty and Responsibility of the Managing Director***

(Cited by “Role, Authority, Duty and Responsibility of the Chairman, Chief Executive Officer and Managing Director”: Revision Date on 19<sup>th</sup> November 2018)

The board of directors of the company has assigned the Managing Director to manage the company within the scope and authority as follows;

- 1) To supervise, control and monitor the business undertaken and/or the general management of the company.
- 2) To undertake or perform the work in accordance with the policies, plans and budgets approved by the board of directors of the company, the executive board and the other sub-committee.
- 3) To be the assignee of the company to undertake the business management of the company in accordance with the objectives, regulations, policies, rules,

requirements, orders, resolutions of the meeting of shareholders and/or resolutions of the meeting of the board of directors of the company and/or the executive board and the other sub-committee for the interest of the company while such approval authority is the approval on regular business transaction within the amount not exceeding the amount specified by the board of directors of the company.

- 4) To monitor and assess the operating results of the company consistently to prevent risks from both internal and external factor.
- 5) To have authority to undertake any transaction and to represent the company before the other people in the business related and beneficial to the company.
- 6) To have authority to assign a substitute and/or assign any person or persons to undertake any act as deemed suitable while such substitution and/or assignment shall be within the scope of authority in accordance with the power of attorney made by the company and/or in accordance with regulations, requirements or orders of the director and/or the executive board while the company is able to change, cancel or amend such authority.
- 7) To have authority to issue orders, regulations, notifications, memorandum to ensure that the work is performed in accordance with the policies and interest of the company and to maintain discipline or order of work in the organization.
- 8) To approve the appointment of any advisor necessary for the operation of the company.
- 9) To undertake any work to support the operation of the company within the policies and authority provided by the board of directors of the company.
- 10) To be a leader and role model on business conduct and ethics of the company and to promote, supervise and monitor the management with respect to sustainable principle, social responsibility and to comply with the anti-corruption measures and guidelines.
- 11) To perform any other task assigned by the board of directors of the company and/or the sub-committee.

The assignment of authority, duty and responsibility to the managing director is not the assignment or substitution to allow the managing director or the assignee of the managing

director to approve any transaction that he or the person with the conflict of interest or with possible conflict of interest with the company or the subsidiary company (according to the definitions provided in the notification of the Securities and Exchange Commission) while the approval on such transaction is required to be proposed to the board of directors of the company and/or the meeting of shareholders (as applicable) to consider and make an approval on such transaction in accordance with the requirements of the company or related laws unless it is an approval on the transaction which is the regular business transaction of the company in accordance with the policies and criteria approved by the board of directors of the company.

In addition, in order for the company to receive maximum benefits in the event that the Chairman of the Executive Committee and the Managing Director is able to devote time for performing duties as the Chief Executive Officer and Managing Director effectively. Therefore, the Company has set a policy to prohibit the Chief Executive Office and the Managing Director to hold positions as Chief Executive Officer or Managing Director or hold any other positions with similar characteristics in other juristic persons with the same condition, except for participation in subsidiaries or associated company; as well as, being a member of the public and private sector organizations that are set up for mutual benefits.

### ***Succession Plan and Talent Management Policy***

(Cited by “Policy: Succession Plan and Talent Management”: Revision Date on 20<sup>th</sup> February 2019)

#### ***1. Regulations and criteria on succession plan***

The criteria and regulations of the company on recruitment of personnel are arranged to undertake the key executive management of the company appropriately and transparently to ensure that the executives of the company have qualifications, skills, experience and professional competence through the Recruitment and Remuneration Committee and/or the committee appointed to recruit/select and arrange the succession plan in accordance with the level of the employees as follows.

### *1.1 Managing director and Chairman of the executive board*

To recruit/select and arrange the succession plan while the Recruitment and Remuneration Committee will prepare the succession plan in the level of managing director and Chairman of the executive board for presentation to the board of directors of the company for consideration. To recruit and select the executives of the company, the Recruitment and Remuneration Committee will monitor the succession plan when the executive posts in the level of the Chairman of the executive board/managing director are vacant or the person in the such post is unable to perform his duty. The company will arrange the system that the similar executive or the deputy post will take care of such post until the recruitment and selection of person with qualifications in accordance with the criteria of the company has been completed and such person shall possess the vision, knowledge, competence, experience suitable to the organization culture and the Recruitment and Remuneration Committee will recruit the persons for submission to the board of directors of the company for approval and appointment such suitable person to take such post.

Primary qualifications of the managing director and the chairman of the executive board

1. Graduated with at least bachelor degree
2. Experience in the management in the level of the line director or upper
3. Leadership and long-term vision
4. Competence in strategic planning and organization management
5. Careful decision and problem solving with consideration of the maximum benefits of the organization

### *1.2 Executive level from the deputy line supervisor to the vice managing director*

If the executive level from the deputy line supervisor to the vice managing director is vacant or the person in such post is unable to perform the duty, the company will propose the person selected to be the successor to the executive board and/or the Human Resource Committee appointed. The succession plan of the executive level of the company is as follows.

- 1) To analyze the business operation of the company in terms of policy, investment plan and expansion plan.
- 2) To assess the human resource availability in congruent with the strategy of the company, both short-term and long-term.

- 3) To determine the human resource availability through development of human resource or recruitment of personnel to replace the leaving employees.
- 4) To arrange the recruitment plan and employee training and development plan in advance of retirement or early resignation of the employees.
- 5) To determine the qualifications and competencies including desirable knowledge, skill, personality and attitude of the employee in such post and to prepare the individual; development plan.
- 6) To select, assess performance and potential of the employees to ensure suitability.
- 7) To employ the test and assess the personnel to determine the potential of the employees.
- 8) To identify the successor through assessment and analysis of performance and potential of the employees with advance notice to the employees for acceptance and learning the job and to determine the spare successor.
- 9) To develop and assess the employees anticipated to be the successor to ensure development and performance as expected. If the anticipation has failed, follow the procedures.
  - To select and plan the new successor or
  - To develop the spare successor (if any) or
  - To recruit and select the persons outside the organization

When the successor has complete qualifications to assume the job with higher responsibility and there is vacancy or new post, he will obtain the promotion and acting post in accordance with the policy of the company on job structure, criteria on adjustment of daily worker to monthly worker, promotion, higher post or approval the chairman of the executive board and the managing director.

## *2. Regulations and criteria on talent management*

“Talent person” means the employee with special capability, performance, skill/capacity and outstanding qualification recruited and selected from employees in the organization and recruited from outside.

Criteria on selection of talent employees from employees in the organization is based on high performance – KPIs/PIs and high competency considered from performance in the past

three years while the assessment grade is required to be Good – Excellent and the core competency of the organization is required to be at least B only in accordance with the following core competency: Analysis/assessment of problem, Communication, Focus on customer services, Follow-up and Teamwork/cooperation provided.

In addition, the other qualifications required for the talent employees from recruitment and selection in the organization and new recruitment are Leadership, Responsibility, Creativity and Principle and transparent management.

### ***Development of talent persons***

When the talent employees have been recruited and selected in accordance with the qualifications jointly determined by each division/line, background, training and performance records shall be prepared to promote the talent persons for better talent, efficiency of such person and the organization based on the model and criteria on development of talent persons like development of general personnel in the organization as follows.

1. Training Need Survey to determine the need of each unit and the individual need suitable to each job.
2. On the Job Training to determine the need of the individual undertaking the duties of the unit and to determine the measurement process whether in terms of written test or practice.
3. Off the Job Training whether it is the special training or the simulated model and case study.

When the post is available and the qualifications have satisfied the post with greater responsibility, the promotion will be made to an acting post in accordance with the policy of the company on job/position structure, criteria on adjustment from daily worker to monthly worker, promotion, promotion to a new post or approval from the Chairman of the executive board and managing director.

In this regard, the Managing Director is responsible for reporting the operating results in accordance with the succession plan to the Board of Directors on a periodic basis at least once a year.

## 20.3 Authorization for Credit Limit

(Cited by “Policy: Transaction measures with the related and non-related persons and table of approval authority”: Revision Date on 19<sup>th</sup> November 2018)

The policy of “Transaction measures with the related and non-related persons and table of approval authority” is prepared to serve as an operational framework and guideline regarding the approval authority in the organization in order to manage fairly and transparently and prevent conflicts of interest. It indicates 2 types of the authority which are the transaction with the related and non-related persons, so that the internal management shall be transparent under the clear operational framework.

- (1) Transaction measures with the non-related persons
- (2) Transaction measures with the related persons

### *Transaction Measures with the Non-related Persons*

The Board of Directors indicates “The Table of Approval Authority of Transaction Measures with Non-related Persons” with regard to the asset purchasing/selling/transferring (gain or disposal), purchasing of product/material and service to conduct the regular business, making an agreement of trade obligation and making a loan/guarantee contract which causes the financial obligation with the non-related person, to use as a corporate framework.

### *Transaction measures with the related persons*

In case of a transaction with a person which may cause the conflict of interest, the Board of Directors has set up the policy to ensure the transparency and justice equally for all shareholders based on the following principles;

- The transaction shall gain the approval from the Directors and Executives with the careful, honest and transparent consideration, by which the interested person does not participate in the decision.
- The transaction is conducted with consideration of the Company’s benefits like the transaction with the outsider.
- The Company establishes the monitoring and following-up system to ensure that the transaction is in compliance with the process.
- The transaction information is disclosed completely and correctly in the proper time.

The Company's policy on the transaction categorizes the transactions as follows;

- The regular business and regular business promotion between the Company and its subsidiaries / affiliates and Directors, Executives or the related person which gains the approval in principles from the Board of Directors shall be conducted by the Management, if the transaction has the trade agreement in the manner that the respectable person would agree with his counterpart in the same situation with the trade bargain leverage not influenced by the fact that he is the Director, Executive or the related person. The Board of Directors indicates "The Table of Approval Authority of Transaction Measures with the related persons" to use as a corporate framework.

The Company shall make the transaction summary report to propose in the meeting of the Audit Committee and the meeting of the Board of Directors every quarter.

- Other transactions aside from the above-mentioned regular business and regular business promotion such as the short-term rent or lease of immovable property, transaction in relation to the asset or service (for example the investment or sale of the financial investment in the business) or the offer or reception of the financial assistance.

The Company's policy specifies the approval authority in compliance with the principle of Stock Exchange of Thailand. The Board of Directors indicates "The Table of Approval Authority of Transaction Measures with the related persons" to use as a corporate framework. As the major transaction between the parties, Board of Directors decides that the policy must be considered and approved by the Board of Directors prior to entering into the transaction.

The Company shall make the transaction summary report to propose in the meeting of the Audit Committee and the meeting of the Board of Directors every quarter.

The Board of Directors shall comply with the Securities and Exchange Act B.E. 2535, regulations, notifications, orders or requirements of Stock Exchange of Thailand. Additionally, it shall comply with regulations regarding the related transaction and the gain / disposal of the key assets of the Company or its subsidiaries / affiliates,



so that the transaction does not bring about the conflict of interest and cause the utmost benefits for all shareholders. In this regard, the Company shall disclose the details of transactions in the annual information declaration (Form 56-1), the Company's annual report and the notes to financial statement which shall be audited by the Company's auditors.

## 20.4 Company Secretary

Board of directors' meeting (13/2008) dated on October 27, 2008 approved appointment of Miss Chantira Jongjamreeseethong as Company Secretary, effective since October 27, 2008. Such person has education, knowledge including graduated accounting, experience and responsibility to do secretary job with aim to make things done in line with rules & regulations and corporate governance.

### *Scope of Authority of Company Secretary*

1. Being the secretary of the Board of Directors. To coordinate the meetings of the Board of Directors and the shareholders meeting of the company compliance with good corporate governance principles and regulatory compliance, company regulations, good practice and relevant laws such as the Securities and Exchange Act Public Limited Company Act, 1992.
2. To oversee the disclosure of information of the Company in compliance with the regulations of the Stock Exchange of Thailand, the Securities and Exchange Commission and other regulators associated.
3. Provide initial advice to the Board of Directors and corporate executives. To comply with the company regulations, Rules and Regulations of the Securities and Exchange Commission including the requirements of the Stock Exchange of Thailand. Including new regulatory compliance functions. Related to the company
4. Prepare and keep significant documents like director register, board of directors' meeting letter, board of directors' report, company's annual report, shareholders' meeting letter, shareholders' meeting report and conflict of interest report by directors and executives

5. Supervise board activities for the directors to perform their duties effectively and effectiveness also make the most benefit to the company.
6. Coordinate the compliance of the Board of Directors and shareholders meeting.
7. Perform other duties assigned by the Board of Directors.

In addition, with focus on corporate governance, the Company sent Miss Chantira Jongjamreeseethong to take Company Secretary Program (28/2008) and Effective Minute Taking-EMT Course (12/2008) held by Thai Institute of Directors (IOD) and other courses for supporting to the Board of Directors and also related courses to support good corporate governance continuously.

## **20.5 Remuneration of Committee and Directors**

### ***20.5.1 Cash Remuneration***

#### ***(1) Remuneration for Directors and Meeting***

The Company has clear and transparent policy on remuneration for directors. Remuneration committee will consider and propose directors' remuneration to board of directors and then to shareholders' meeting for approval. Remuneration paid here is competitive compared to that with other listed companies in energy sector.

#### ***Policy: Remuneration Determination for all Committees***

(Cited by "Policy: Determination on the Remuneration of All Committees": Revision Date on 20<sup>th</sup> February 2019)

"Remuneration determination policy for all committees" is prepared to serve as a framework and guideline in remuneration determination for each committee including senior executives. The remuneration determination criteria shall reflect the experience, duties and scope of role and responsibility of the committees. It shall be under the rate comparable to the prevailing practices of the same industry and/or the director remuneration survey, so that the rate and components of the remuneration can retain the required qualified committees.

## ***Principles, consideration criteria and components of remuneration***

### ***1. Principles and consideration criteria***

The Board of Directors assigns the Nomination and Remuneration Committee to propose the remuneration of all committees to the Board of Directors for their approval. Then, the proposal shall be considered in the shareholders' meeting for the approval under the following criteria;

- Role, scope, authority and responsibility of Board of Director and each committee.
- The collective and individual performance of the committees.
- The operational performance of the Company, based on the type and size of the Company's business.
- The remuneration survey, in comparison with other companies in the same industry.

### ***2. Components of remuneration***

To reflect the duties, responsibility and mission of the committees, the components of remuneration determination are composed of the followings;

- Meeting attendance fee
- Annual remuneration
- Bonus or other similar remunerations

### ***3. Remuneration Determination Process***

The Board of Directors sets up the remuneration determination process to comply with the principle of good governance based on transparency and accountability. The consideration process is as follows

- 1) The Nomination and Remuneration Committee considers and determine the remuneration in accordance with the principle.
- 2) The Nomination and Remuneration Committee proposes the remuneration rate to the Board of Directors for the approval.
- 3) The Board of Directors approves and proposes the remuneration rate to the shareholders' meeting for the approval.
- 4) The shareholders' meeting approves the remuneration rate.

Remuneration for the Board of Directors, sub-committee both the Executive Directors and Non-Executive Directors comprises of Remuneration Fee and Yearly Remuneration Fee which approved by the Board of Directors' Meeting No. 1/2561 held on 21<sup>th</sup> February 2018, and approved by the Annual General Meeting of Shareholders 2017 on 20<sup>th</sup> April 2018, details are as follows:

#### Remuneration

(Unit : THB)

Position	Board of Directors	Audit Committee	Good Corporate Governance Committee	Risk Management	Nomination and Remuneration Committee	Management Committee
1. Chairman	22,000	22,000	15,000	15,000	15,000	7,500
2. Member	18,000	18,000	12,000	12,000	12,000	5,000
3. Secretary of Committee	6,000	6,000	6,000	6,000	6,000	-

Remark : In case the independent directors have been appointed as Chairman of the Board, to be eligible for payment of meeting fee only one location in each of the top position.

#### Yearly Remuneration Fee

(Unit : THB)

Position	Board of Directors	Audit Committee	Good Corporate Governance Committee	Risk Management	Nomination and Remuneration Committee	Executive Committee
1. Chairman	750,000	240,000	100,000	100,000	100,000	500,000
2. Member	300,000	200,000	100,000	100,000	100,000	200,000
3. Secretary of Committee	50,000	50,000	25,000	25,000	25,000	-
4. Company Secretary	100,000	-	-	-	-	-

Remark : In case the independent directors have been appointed as Chairman of the Board, to be eligible for payment of annual compensation only one location in each of the top position.

Remark : the maximum of the all compensation payment is set as follows:

- |   |                 |     |           |
|---|-----------------|-----|-----------|
| 1. Chairman of the Board of Directors               | Maximum Payment | THB | 3,500,000 |
| 2. CEO  | Maximum Payment | THB | 2,500,000 |
| 3. Chairman of any committee                        | Maximum Payment | THB | 1,500,000 |
| (Except: Chairman of the Board of Director and CEO) |                 |     |           |
| 4. Managing Director                                | Maximum Payment | THB | 1,000,000 |
| 5. Executive Directors                              | Maximum Payment | THB | 800,000   |
| 6. Director of Any Committee                        | Maximum Payment | THB | 400,000   |
| (Except: Executives Director)                       |                 |     |           |

And if a director holds more than one position. To pay from the calculation of the sum of all types of compensation. Both meeting allowance the annual compensation and bonuses. That must not exceed the ceiling rate or the maximum amount of each of the highest positions for which the director is located. If the director has more than one position that pay only from the ceiling of the highest position.

The limit for all types of compensation and all positions, total amount shall not more than 18,000,000 baht

In 2018, The Board of Directors and sub-committees have scheduled meetings throughout the year, usually on a quarterly which an annual meeting schedules are announced to all directors in advance and might have a special meeting as necessary. The agenda setting clear and sent notice of the meeting and the agenda for the Board of Directors at least 7 days, and the meeting prior to the Board of Directors have the adequate information before the meeting. Chairman of the Board of Directors made responsible for allocating sufficient time to present the document and information management is an important issue for discussion by the quarterly meeting, almost directors attended the meeting, unless urgent business. Also in February, 2017, the Board of Directors held a meeting between non-executive directors by having a wide open agenda to provide feedback on control management issues, risk management and other matters related to corporate governance, both inside and outside the organization in order to make the process transparent and fair, aiming at international standards.

For the year 2017 and 2018, the total remuneration for directors is THB 8,599,500.00 and THB 8,857,700.00 respectively. Details of the remuneration and attendance of each director are summarized as follows:

***Summary of Compensation, Number of Meetings and the Number of Attendance of Each Board/Committee***

In 2017 and 2018, the compensation both monetary and not monetary are as details:

1. Monetary Compensation : Totally 8,599,500.00 in 2017 and 8,857,700.00 in 2018
2. Non-Monetary Compensation : In 2017 - None / In 2018 - None

Details of remuneration and attendance of each director, summarized as follows:

No.	Name List		Starting Date Position	Total number of years in current tenure (December 31, 2018)						Date Resignation / Termination
				Board of Directors	Audit Committee	Risk Management Committee	Nomination and Remuneration Committee	Good Corporate Governance Committee	Executive Committee	
Directors and sub-committees										
1	Mr. Gunkul	Dhumrongpiyawut	August 10, 2009 <sup>2)</sup>	9 years 5 months						
2	Dr. Djitt	Laowattana <sup>1)</sup>	August 18, 2014 <sup>3)</sup>	4 years 5 months	4 years 5 months					
3	Dr. Chongrak	Rarueysong <sup>1)</sup>	July 3, 2015 <sup>3)</sup>	3 years 6 months	3 years 6 months			3 years 6 months		
4	Assoc. Prof. Dr. Panarat	Panmanee <sup>1)</sup>	April 20, 2018	9 months			9 months			
5	Mr. Tarakorn	Angpubate <sup>1)</sup>	April 20, 2018	9 months	9 months					
6	Miss Sopacha	Dhumrongpiyawut	August 10, 2009 <sup>2)</sup>	9 years 5 months		9 years 5 months			9 years 5 months	
7	Dr. Somboon	Aueatchasai	June 9, 2010 <sup>3)</sup>	8 years 7 months					8 years 7 months	
8	Miss Naruechon	Dhumrongpiyawut	August 10, 2009 <sup>2)</sup>	9 years 5 months					9 years 5 months	
9	Mrs. Areewan	Chaloemdan	August 10, 2009 <sup>2)</sup>	9 years 5 months					9 years 5 months	
10	Mr. Chaloepon	Sricharoen	August 10, 2009 <sup>2)</sup>	9 years 5 months					9 years 5 months	
11	AVM.Dr.Pian	Totarong <sup>1)</sup>	November 9, 2012			6 years 2 months				
12	Mr. Somchai	Trairatanapirom <sup>1)</sup>	June 22, 2015/ February 25, 2013 <sup>6)</sup>			3 years 7 months		5 years 11 months		
13	Mr. Thitipong	Techaratanayuenyong	12 November 2014			4 years 2 months				
14	Mr. Decha	Chooligorn <sup>1)</sup>	November 9, 2012				6 years 2 months			
15	Mr. Hathai	Uthai <sup>1)</sup>	November 12, 2015				3 years 2 months			
16	Mrs. Somluk	Kanuenghet	August 10, 2009				9 years 5 months			
17	Mr. Phongthep	Thitapan <sup>1)</sup>	February 25, 2013					5 years 11 months		
Directors resigned/termination during 2018, receive compensation										
1	Pol. Maj.Gen. Visit	Sukarasep <sup>1)</sup>	August 10, 2009 <sup>2)</sup>	8 years 9 months	8 years 9 months		8 years 9 months			20 April 2018
Directors resigned during 2017, receive compensation										
	- No -									

No.	Name List	The number of months Holding positions		Attendance of Sub-Committees											
				Board of Directors		Audit Committee		Risk Management Committee		The Nomination and Remuneration Committee		Good Corporate Governance Committee		Executive Committee <sup>5)</sup>	
		2017 (Month)	2018 (Month)	2017 (9 Times)	2018 (8 Times)	2017 (6 Times)	2018 (6 Times)	2017 (4 Times)	2018 (4 Times)	2017 (2 Times)	2018 (3 Times)	2017 (22 Times)	2018 (4 Times)	2017 (30 Times)	2018 (32 Times)

#### Directors and sub-committees

1	Mr. Gunkul	Dhumrongpiyawut	12	12	8/9	8/8									
2	Dr. Djitt	Laowattana <sup>1)</sup>	12	12	9/9	8/8	6/6	6/6							
3	Dr. Chongrak	Rarueysong <sup>1)</sup>	12	12	9/9	8/8	6/6	6/6				4/4	4/4		
4	Assoc. Prof. Dr. Panarat	Panmanee <sup>1)</sup>	8	12	-	5/8					2/3				
5	Mr. Tarakorn	Angpubate <sup>1)</sup>	8	12	-	6/8	-	4/6							
6	Miss Sopacha	Dhumrongpiyawut	12	12	9/9	8/8			4/4	4/4				22/22	32/32
7	Dr. Somboon	Aueatchasai	12	12	9/9	8/8								22/22	32/32
8	Miss Naruechon	Dhumrongpiyawut	12	12	9/9	8/8								22/22	32/32
9	Mrs. Areewan	Chaloemdan	12	12	9/9	8/8								22/22	32/32
10	Mr. Chaloempon	Sricharoen	12	12	9/9	8/8								22/22	32/32
11	AVM.Dr.Pian	Totarong <sup>1)</sup>	12	12					3/4	4/4					
12	Mr. Somchai	Trairatanapirom <sup>1)</sup>	12	12					4/4	4/4		4/4	4/4		
13	Mr. Thitipong	Techaratanayuenyong	12	12					4/4	4/4					
14	Mr. Decha	Chooligorn <sup>1)</sup>	12	12							2/2	2/3			
15	Mr. Hathai	Uthai <sup>1)</sup>	12	12							2/2	3/3			
16	Mrs. Somluk	Kanuenghet	12	12							2/2	3/3			
17	Mr. Phongthep	Thitapan <sup>1)</sup>	12	12								4/4	4/4		

#### Directors resigned/termination during 2018, receive compensation

1	Pol. Maj.Gen. Visit	Sukarasep <sup>1)</sup>	12	4	8/9	2/8	6/6	2/6			2/2	1/3			
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#### Directors resigned during 2017, receive compensation

	-No-														



No.	Name List		Annual compensation of 2017 <sup>4)</sup> Meeting allowance, Annual compensation, Bonus (if applicable)			Annual compensation of 2018 <sup>4)</sup> Meeting allowance, Annual compensation, Bonus (if applicable)		
			Board of Directors <sup>3)</sup>	Sub-Committee <sup>5)</sup>	Total Compensation	Board of Directors <sup>3)</sup>	Sub-Committee <sup>5)</sup>	Total Compensation
Directors and sub-committees								
1	Mr. Gunkul	Dhumrongpiyawut	920,000.00	-	920,000.00	926,000.00	-	926,000.00
2	Dr. Djitt	Laowattana <sup>1)</sup>	459,000.00	368,000.00	827,000.00	444,000.00	372,000.00	816,000.00
3	Dr. Chongrak	Rarueysong <sup>1)</sup>	459,000.00	463,500.00	922,500.00	444,000.00	468,000.00	912,000.00
4	Assoc. Prof. Dr. Panarat	Panmanee <sup>1)</sup>	-	-	-	299,200.00	99,800.00	399,000.00
5	Mr. Tarakorn	Angpubate <sup>1)</sup>	-	-	-	317,200.00	211,500.00	528,700.00
6	Miss Sopacha	Dhumrongpiyawut	459,000.00	653,500.00	1,112,500.00	444,000.00	648,000.00	1,092,000.00
7	Dr. Somboon	Aueatchasai	560,000.00	205,000.00	765,000.00	542,000.00	200,000.00	742,000.00
8	Miss Naruechon	Dhumrongpiyawut	459,000.00	205,000.00	664,000.00	444,000.00	200,000.00	644,000.00
9	Mrs. Areewan	Chaloemdan	459,000.00	205,000.00	664,000.00	444,000.00	200,000.00	644,000.00
10	Mr. Chaloeumon	Sricharoen	459,000.00	205,000.00	664,000.00	444,000.00	200,000.00	644,000.00
11	AVM.Dr.Pian	Totarong <sup>1)</sup>	-	142,500.00	142,500.00	-	160,000.00	160,000.00
12	Mr. Somchai	Trairatanapirom <sup>1)</sup>	-	292,000.00	292,000.00	-	296,000.00	296,000.00
13	Mr. Thitipong	Techaratanayuen-yong	-	194,000.00	194,000.00	-	197,000.00	197,000.00
14	Mr. Decha	Chooligorn <sup>1)</sup>	-	124,000.00	124,000.00	-	124,000.00	124,000.00
15	Mr. Hathai	Uthai <sup>1)</sup>	-	124,000.00	124,000.00	-	136,000.00	136,000.00
16	Mrs. Somluk	Kanuenghet	-	161,000.00	161,000.00	-	179,000.00	179,000.00
17	Mr. Phongthep	Thitapan <sup>1)</sup>	-	146,000.00	146,000.00	-	148,000.00	148,000.00
Directors resigned/termination during 2018, receive compensation								
1	Pol. Maj.Gen. Visit	Sukarasep <sup>1)</sup>	441,000.00	436,000.00	877,000.00	127,500.00	142,500.00	270,000.00
Directors resigned during 2017, receive compensation								
	-No-							
			4,675,000.00	3,924,500.00	8,599,500.00	4,875,900.00	3,981,800.00	8,857,700.00

- 1) Being an independent director / director who is not affiliated with or is an executive of any company.
- 2) On August 10, 2009. GUNKUL transformed into a Public Company. The date was registered with the Department of Business Development for the first Board of Directors to be the Company's director.
- 3) The date of being registered as director of the company shall be reported to the Department of Business Development.
- 4) The Company will pay annual compensation once a year in 2017 and by quarterly in 2018. The annual remuneration for 2017 will be paid in 2018 and for annual remuneration in 2018, the Company will pay by quarterly in 2019, For quarter 4, it paid in 2019. The annual compensation that is included in the "Compensation" table is the annual compensation for the year as recorded according to the accounting period of that year.
- 5) The annual meeting allowance and annual remuneration that the Executive Committee receives from attending the meeting and holding the position of Executive Director in 2017, 5 Executive Directors and Executive Directors who are Executive Directors do not wish to receive the meeting allowance totaling 577,500.00 Baht. In 2018, 5 executive committee members do not wish to receive the meeting allowance totaling 80,000.00 Baht
- 6) The date of holding a position of the Good Corporate Governance Committee and a position of the Risk Management Committee, respectively.

## **(2) Remuneration for Management Executive**

In 2017, the Company had 14 executives, 5 were executives and directors and 9 were executives only. The Company paid compensation to the management of the Company as shown in the table.

In 2018, the Company had 15 executives, 5 were executives and directors and 11 were executives only. The Company paid compensation to the management of the company as follows:

Remuneration	Executives and Directors				Executive Only			
	Year 2017		Year 2018		Year 2017		Year 2018	
	No. of persons	Remuneration	No. of persons	Remuneration	No. of persons	Remuneration	No. of persons	Remuneration
Total salary	5	20,347,500.00	5	23,272,200.00	9	24,559,200	11	26,097,840.00
Total bonus	5	8,966,554.93	5	18,998,005.00	9	10,933,477	11	17,861,382.67
Total	5	29,314,054.93	5	42,270,205.00	9	35,492,677	11	43,959,222.67

### **20.5.2 Non-cash remuneration**

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## **20.6 Personnel**

1. Total employees of the Company and subsidiaries as of 31st December 2018. The total number of employees is 796 persons, classified by type and employee level, as of 2014, 2015, 2016, 2017, and 2018, details are as follow;

Total Employees	Number of Employee				
	2014	2015	2016	2017	2018
Total Employees	552	635	709	728	796
Full time	415	526	583	598	667
Daily	137	109	126	130	129

Total Employees	Number of Employee				
	2014	2015	2016	2017	2018
<b>Total Employees by Category</b>					
Permanent	482	553	599	611	663
Contracted	70	82	110	117	133
<b>Total Employees by Gender</b>					
Male	331	390	433	448	509
Female	221	245	276	280	287
<b>Total Employees by Rank</b>					
Management Executive	17	25	25	26	28
Department Manager	34	48	56	53	57
Chief / Specialists	74	77	78	75	97
Primary –intermediate employees	195	291	312	345	376
Operation employee	232	194	238	229	238

## 2. Employee remuneration

- In 2018, cash remuneration of employees of the Company and subsidiaries comprised of salary, bonus and provident fund with combined amount of THB as details:

Unit : Baht	Year 2017	Year 2018
Salary	238,349,317.58	273,089,643.41
Bonus	57,332,840.64	73,101,598.10
Provident Fund	10,725,020.90	12,136,192.47
<b>Total</b>	<b>306,407,179.12</b>	<b>358,327,433.98</b>

- As the policy of remuneration for employees, the company has a policy to pay compensation in accordance with the results of operations each year, also consider the performance evaluation capabilities (Competency) of individual employees and performance (KPIs) of each segment to be consistent with the results of operations for both the short and long term and also the provident fund has been set up since 2008 to provide long-term employee benefits.

3. Labor dispute over the past three years

– None –

4. Personnel development policy

The Company has policy to develop staff with aim to support them to grow in the organization and require staff to work happily so they can create productivity which is good to company for sustainable growth.

The Company sets human resources development plan by using competency and KPIs as data to set training course to improve working skill. Followings are training courses provided to various levels of staff;

Management	Company wants management to clearly understand corporate management, vision, and strategy, so they can set up integrated corporate strategy for company resulting in competitive advantage by providing training courses on planning, strategy and management for top executives.
Dept. Head	Company wants to create skill on preliminary management and job responsibility so head of department can fulfill corporate strategic plan and use this skill to manage controlee. Training courses involve leadership, teamwork and basic management skill to head of department so they can apply to use with employees.

Employee                      Company wants employees to have knowledge and understand their roles and responsibility so they can improve their performance. Training courses focus on operating skill and working environment like primary work, presentation suggestion and rules and regulations.

The company's policy of continuously development for employees' knowledge and capability is main mission of corporation to stand up for increasing their skill and to be professional in their jobs.

On management structure policy, the Company group has policy to promote on annual basis for capable employees in accordance with career path policy. In addition, the Company group also supports employees to participate in sustainable quality development like expressing opinions to develop work and having skill test.

For directors and top executives of the Company and the Group, The Committees and the Company continuously support them to participate training courses held by Thai Institute of Directors (IOD) and others to improve understanding of roles, responsibility and skill in management as being company directors and executives that continuously knowledge will be most useful for the company's improving.

## 21. Details of the Board of Directors and Executives

### 21.1 Details of Directors and Executives

#### 1. Mr. Gunkul Dhumrongpiyawut

*Position (Appointed Date to be Director / Secretary) <sup>1)</sup>*

*Holding : Director / Secretary Position (Year) <sup>2)</sup>*

- Director with Authority to sign on behalf of the Company<sup>4)</sup>
- (Non-Executive Director) (9 Years 5 months)
- Chairman of the Board of Directors

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**Age**      64 Years

#### *Educational Qualifications*

- The Honorary Doctor of Art,  
Rajamangala University of Technology Phra Nakhon in 2016
- Honorary Master of Engineering, Western University in 2010
- Rule of Law for Democracy Class 6 (RLD.6), College of the Constitutional Court
- Leader Program 15/2012, Capital Market Academy
- Director Certification Program (DCP) 111/2008, Thai Institute of Director (IOD)
- Director Accreditation Program (DAP) 70/2008, Thai Institute of Director (IOD)
- Managing Finance for Business Owners by Peter Ho
- Secrets to Doubling Your Sales, Productivity & Profits Programme
- Train the Trainer of Anti-Corruption

#### *Training in 2018*

- Thai - Chinese Leadership Studies (TCL) Class 2 Huachiew Chalermprakiet University  
(Studying)

*Share Holding Percentage* <sup>3)</sup> (%) : 4.173

### *Relationship*

Husband of Miss Sopacha Dhumrongpiyawut and Father of Miss Naruechon Dhumrongpiyawut

### *Working Experience during the Past 5 Years (Period / Position / Company)*

2017-Present	Director	Great Miracle Asset Group 6)
2012-Present	Chairman of the Board of Directors	Gunkul Engineering Public Company Limited
2009-Present	Director	Gunkul Engineering Public Company Limited
2000-Present	Director	Gunkul Engineering (2000) Company Limited
1996-Present	Director	Gunkul Marine Line Company Limited
1994-Present	Director	G.M. Supply and Construction Company Limited
1991-Present	Director	Gunkul Group Company Limited
2015-2017	Director	Siam Gunkul Power Company Limited
2009-2013	Director	Gunkul Powergen Company Limited
1982-2012	Chief Executive Officer	Gunkul Engineering Public Company Limited

## **2. Dr. Djitt Laowattana**

*Position (Appointed Date to be Director / Secretary) <sup>1)</sup>*

*Holding : Director / Secretary Position (Year) <sup>2)</sup>*

- Director (Independent Director) (18<sup>th</sup> August 2014) <sup>5)</sup> 4 Years 5 months
- Member of the Audit Committee (18<sup>th</sup> August 2014) <sup>5)</sup> 4 Years 5 months
- Chairman of the Audit Committee

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**Age** 57 Years

### *Educational Qualifications*

- Bachelor of Engineering (Hons) King Mongkut's, University of Technology Thonburi
- Precision Mechanics Kyoto University Japan

- Ph.D., Carnegie Mellon University, USA., (With two US patents: (1) Curve Controlling Apparatus for Endoscopic Conduits (2) A Mechanism for Assembly of Non-Axisymmetric Rigid Parts)
- Certificate in Management of Technology and Innovation, Massachusetts Institute of Technology (MIT), USA.
- Finance for Non-Finance Director, Thai Institute of Director (IOD)
- Understanding the Fundamental of Finance Statement, Thai Institute of Director (IOD)
- Leader Program 15/2013, Capital Market Academy
- Financial Institutions Governance Program, FGP 3/2011, Thai Institute of Director (IOD)
- Regulatory Skills for Directors and Senior Management of Enterprises and Public Organizations, 3/2010, Public Director Institute (PDI)
- Audit Committee Program 29/2009, Thai Institute of Director (IOD)
- Monitoring Internal Audit Function, MIA 7/2009, Thai Institute of Director (IOD)
- Monitoring Fraud Risk Management, MFM 1/2009, Thai Institute of Director (IOD)
- Monitoring Financial Reporting, MFR 9/2009, Thai Institute of Director (IOD)
- Monitoring the System of Internal and Risk Management, MIR 7/2009, Thai Institute of Director (IOD)
- Roles of Chairman Program 19/2008, Thai Institute of Director (IOD)
- Director Certification Program (DCP) 93/2007, Thai Institute of Director (IOD)

**Share Holding Percentage <sup>3)</sup> (%) :** 0.023

### **Relationship**

None

### **Working Experience during the Past 5 Years (Period / Position / Company)**

2018-Present	Director	Buriram Sugar Public Company Limited
2015-Present	Chairman of the Audit Committee	Gunkul Engineering Public Company Limited
2015-Present	Chairman of the Strategic Committee	TOT Public Company Limited



2014-Present	Director (Independent Director)	Gunkul Engineering Public Company Limited
2014-Present	Member of the Audit Committee	Gunkul Engineering Public Company Limited
2012-Present	Technology Consultant	Siam Commercial Bank Public Company Limited
2010-Present	Director	Thai Engineering Company Limited
2005-Present	Confucius scholars the "brainchild".	Thai TV3
2004-Present	Consultant	Robotics Society Thailand
2002-Present	Chairman of the Technical Committee	ABU RoboCon (Thailand)
2014-2015	Chairman of the Good Corporate Governance Committee	Gunkul Engineering Public Company Limited
2010-2011	Company Director and Audit Committee	TOT Public Company Limited
2009-2011	Director, Risk Management Director And Executive Director of Information Technology.	Government Saving Bank
2008-2009	Assistant to Director	National Electronics and Computer Technology Center
2008-2011	Director of the hard disk drive.	National Science and Technology Development Agency
2008-2011	Director and Member of Audit Committee	KTB Computer Services Company Limited
2007-2008	Director / Chairman of the Finance Committee	TOT Public Company Limited
2007-2008	Director	ADC Company Limited
2007-2008	Consultant	Minister of Information and Communications Technology.
2006-2007	Director	Thai National Grid Center

2006-2012	Director	National Research Council of Thailand (NRCT)
2006-2007	Director	Bangkok Crstal Company Limited

### 3. Pol.Maj.Gen. Visit Sukarasep

**Position (Appointed Date to be Director / Secretary) <sup>1)</sup>**

**Holding : Director / Secretary Position (Year) <sup>2)</sup>**

- Director (Independent Director) (10<sup>th</sup> August 2009) <sup>4) 5)</sup> (8 Years 5 months)
- Member of the Audit Committee (10<sup>th</sup> August 2009) <sup>4) 5)</sup> (8 Years 5 months)
- Chairman of the Nomination and Remuneration Committee <sup>4) 5)</sup>

**Age** 63 Years

#### **Educational Qualifications**

- Bachelor Degree in Public Administration, Royal Police Dadet Academy
- Management Course for Higher Rank Police 28
- Course for Superintendent 31
- Director Accreditation Program (DAP) 78/2009, Thai Institute of Director (IOD)

**Share Holding Percentage <sup>3)</sup> (%) :** None

#### **Relationship**

None

#### **Working Experience during the Past 5 Years (Period / Position / Company)**

2012-Present	Chairman of the Nomination and Remuneration Committee	Gunkul Engineering Public Company Limited
2009-Present	Director (Independent Director)	Gunkul Engineering Public Company Limited
2009-Present	Member of the Audit Committee	Gunkul Engineering Public Company Limited

2014-2015	Commander	Chumporn Provincial Police Station, Chumporn Province
2013-2014	Commander	Ranong Provincial Police Station, Ranong Province
2013-2013	Commander	Administrative and Civil Affair Division, Royal Thai Police
2006-2012	Deputy Commander	Administrative and Civil Affair Division, Royal Thai Police
2005-2006	Superintendent	Administrative and Civil Affair Division, Royal Thai Police
2000-2005	Superintendent (Disciplinary Development)	Disciplinary Division, Royal Thai Police
1998-2000	Deputy Superintendent (Penalty Solicitor)	Disciplinary Division, Royal Thai Police
1992-1994	Chief of Police	Nongyasai District Provincial Police Station, Supanburi Province

#### 4. Dr. Chongrak Rarueysong

*Position (Appointed Date to be Director / Secretary) <sup>1)</sup>*

*Holding : Director / Secretary Position (Year) <sup>2)</sup>*

- Director (Independent Director) (3<sup>rd</sup> July 2015) <sup>5)</sup> (3 Years 6 months)
- Member of the Audit Committee (3<sup>rd</sup> July 2015) <sup>5)</sup> (3 Years 6 months)
- Chairman of the Good Corporate Governance Committee (3<sup>rd</sup> July 2015) <sup>5)</sup> (3 Years 6 months)

**Age** 65 Years

#### *Educational Qualifications*

- Ph.D., Economics, University of Illinois at Urbana - Champaign, U.S.A.
- Bachelor of Economics (Hons), Thammasat University
- Economic Statistics, United Nations
- Public Finance, International Monetary Fund

- Securities Market, U.S. Securities and Exchange Commission
- Directors Certification Program (DCP) 14/2002, Thai Institute of Director (IOD)
- Effective Audit Committee 4/2002, Thai Institute of Director (IOD)
- Japan Capital Market, Japan Securities Dealers Association

**Share Holding Percentage <sup>3)</sup> (%) :** None

### **Relationship**

None

### **Working Experience during the Past 5 Years (Period / Position / Company)**

2018-Present	Director	Hatari Wireless Company Limited
2016-Present	Chief Executive Group	Apple Wealth Securities Public Company Limited
2015-Present	Director (Independent Director)	Gunkul Engineering Public Company Limited
2015-Present	Member of the Audit Committee	Gunkul Engineering Public Company Limited
2015-Present	Chairman of the Good Corporate Governance Committee	Gunkul Engineering Public Company Limited
2004-2014	Director and Chairman of the Audit Committee	KTB Computer Services Company Limited
2002-2003	Director and Member of the Audit Committee	PTT Public Company Limited
2001-2002	Director	Petroleum Authority of Thailand
2001-2007	Director	Thai Bond Dealing Centre
1998-2007	Director	Thailand Securities Institute
1998-2007	Director	TRIS Corporation Limited
1998-2009	Director and Executive Director	Thai Securities Finance Company Limited
1996-2012	President	Association of Thai Securities Companies

1996-2012	President	ASCO Training Institute
1995-1996	Managing Director	Vachira Dhanadhun Securities Company Limited
1992-1995	Director of Research and Development	The Stock Exchange of Thailand
1991-1992	Assistant Vice President, Research Office	Dhana Siam Finance and Securities Public Company Limited
1983-1991	Senior Specialist	Loan Policy Division and Fiscal & Tax Policy Division
		Ministry of Finance

## 5. Associate Professor Dr. Panarat Panmanee

**Position (Appointed Date to be Director / Secretary) <sup>1)</sup>**

**Holding : Director / Secretary Position (Year) <sup>2)</sup>**

- Director (Independent Director) (20<sup>th</sup> April 2018) <sup>5)</sup> (9 months)
- Member of the Audit Committee (14<sup>th</sup> May 2018) <sup>5)</sup> (8 months)

**Age** 70 Years

### **Educational Qualifications**

- Ph.D. in Management and Accounting, Keio University, Japan
- Master of Accountancy, Thammasat University
- Bachelor of Accountancy, Thammasat University
- Certified Public Accountant
- Top Executive Program in Commerce and Trade Class 10 (TEPCoT 10), Commerce Academy
- Directors Certification Program (DCP) 264/2018, Thai Institute of Director (IOD)

**Share Holding Percentage <sup>3)</sup> (%) :** None

## Relationship

None

## Working Experience during the Past 5 Years (Period / Position / Company)

2018-Present	Director (Independent Director)	Gunkul Engineering Public Company Limited
2018-Present	Member of the Audit Committee	Gunkul Engineering Public Company Limited
2018-Present	Professional accounting and accounting technology advisor	Federation of Accounting Professions Royal patronage
2016-Present	Dean	Faculty of Accounting, University of the Thai Chamber of Commerce
2009-2015	Specialist	PhD program, Faculty of Business Administration, Rajamangala University of Technology Thanyaburi
2002-2007	Deputy Dean for Academic Affairs	Faculty of Commerce and Accountancy, Thammasat University

## 6. Mr. Tarakorn Angpubate

### Position (Appointed Date to be Director / Secretary) <sup>1)</sup>

### Holding : Director / Secretary Position (Year) <sup>2)</sup>

- Director (Independent Director) (20<sup>th</sup> April 2018) <sup>5)</sup> (9 months)
- Chairman of the Nomination and Remuneration Committee (14<sup>th</sup> May 2018) <sup>5)</sup> (8 months)

Age 54 Years

### Educational Qualifications

- MBA, Finance and Marketing, Sasin Graduate Institute of Business Administration of Chulalongkorn University
- Bachelor's Degree in Engineering (Computer), Chulalongkorn University
- The Executive Course (Class 24), Capital Market Academy, The Stock Exchange of Thailand
- Senior Finance Executive Program 2014, Institute of Personnel Development in Finance and Accounting, the Comptroller General's Department

- Senior Executive Administration Program Class 5, College of Justice Office of the Administrative Court
- National Defense Course (NDC) Class 55, The National Defence College of Thailand 2012
- Public Director Certification Program: PDI 9/2012, King Prajadhipok's Institute
- Director Certification Program (DCP 155/2012), Thai Institute of Directors: IOD
- Fast Track MD Program, Managing Director Training Urgent program at McDonald's Singapore Company and Hamburger University, Sydney, Australia

**Share Holding Percentage <sup>3)</sup> (%) :** 0.01

### **Relationship**

None

### **Working Experience during the Past 5 Years (Period / Position / Company)**

2018-Present	Director (Independent Director)	Gunkul Engineering Public Company Limited
2018-Present	Chairman of the Nomination and Remuneration Committee	Gunkul Engineering Public Company Limited
2018-Present	Director	Thai Agro Exchange Company Limited
2017-Present	Chairman of Executive Committee (CEO)	988 Plus Company Limited
2016-2017	Chairman of Executive Committee (CEO)	FOOD CAPITALS Public Company Limited
2013-2014	Director	Government Housing Bank
2011-2014	Director	Airports of Thailand Public Company Limited
2012-2013	Managing Director	Islamic Bank of Thailand
2007-2010	Managing Director	MCTHAI Company Limited

2004–2006	Managing Director	Capital OK Company Limited and Payment Solution Company Limited
2000–2003	Assistant Director	Shin Corporation Public Company Limited (Intouch)
1996–1998	Chief Financial Officer	Asia Cellular Satellite (ACES), Jakarta, Indonesia
1993–1996	Assistant Director of Finance and Strategic Planning	TT&T Public Company Limited
1989–1993	Credit Manager	Citibank Thailand
1985–1986	System Analyst	The Siam Cement Group Public Company Limited

## 7. Miss Sopacha Dhumrongpiyawut

**Position (Appointed Date to be Director / Secretary) <sup>1)</sup>**

**Holding: Director / Secretary Position (Year) <sup>2)</sup>**

- Director with Authority to sign on behalf of the Company (10<sup>th</sup> August 2009) <sup>4)</sup> (9 Years 5 months)
- Executive Director (10<sup>th</sup> August 2009) <sup>4)</sup> (9 Years 5 months)
- Chief Executive Officer
- Risk Management Committee (10<sup>th</sup> August 2009) <sup>4)</sup> (9 Years 5 months)

**Age** 52 Years

### **Educational Qualifications**

- Bachelor of Nurse, Srinakharinwirot University
- The National Defence Course Class 60, National Defence College
- Advanced Security Management Program : ASMP 6/ 2015, The Association National Defence College of Thailand under the Royal Patronage of His Majesty the King
- Leader Program 18/2014, Capital Market Academy
- Director Certification Program (DCP) 111/2008, Thai Institute of Director (IOD)



- Director Accreditation Program (DAP) 70/2008, Thai Institute of Director (IOD)
- Managing Finance for Business Owners by Peter Ho
- Secrets to Doubling Your Sales, Productivity & Profits
- Effective Senior Manager course
- Role of Chairman 21/2009, Thai Institute of Director (IOD)
- Train the Trainer of Anti-Corruption

### ***Training in 2018***

- Rule of Law for Democracy Class 7 (RLD.7), College of the Constitutional Court (Studying)

***Share Holding Percentage <sup>3)</sup> (%) :***          None

### ***Relationship***

Wife of Mr.Gunkul Dhumrongpiyawut

### ***Working Experience during the Past 5 Years (Period / Position / Company)***

2012-Present	Chief Executive Officer /Member of the Risk Management Committee	Gunkul Engineering Public Company Limited
2008-Present	Director	Gunkul Engineering Public Company Limited
2017-Present	Director	Gunkul Group Company Limited
2017-Present	Director	Great Miracle Asset Group 6)
2015-Present	Director	Korat Wind Energy Company Limited
2015-Present	Director	Siam Future Company Limited
2015-Present	Director	Happy Green 2558 Company Limited
2015-Present	Director	Tech-Green Company Limited
2015-Present	Director	Thong Lo 9 Company Limited

2015-Present	Director	Entrity Sam Company Limited
2014-Present	Director	Gunkul Solar Community Company Limited
2013-Present	Director	NK Power Sola Company Limited
2013-Present	Director	Gunkul Solar Power1 Company Limited
2013-Present	Director	Gunkul Solar Power2 Company Limited
2013-Present	Director	Siam Gunkul Solar Energy Company Limited
2013-Present	Director	Gunkul Solar Roof 1 Company Limited
2013-Present	Director	Gunkul Training Center Company Limited
2013-Present	Director	Gunkul Power Development Company Limited
2013-Present	Director	WHA Gunkul Green Solar Roof 1 Company Limited
2013-Present	Director	WHA Gunkul Green Solar Roof 3 Company Limited
2013-Present	Director	WHA Gunkul Green Solar Roof 6 Company Limited
2013-Present	Director	WHA Gunkul Green Solar Roof 17 Company Limited
2013-Present	Director	Gunkul Myanmar Central Power 1 Pte.Ltd.
2010-Present	Director	G-Power Source Company Limited
2008-Present	Director	G.K.Assembly Company Limited
2002-Present	Director	Gunkul Trading and Agency Company Limited
2000-Present	Director	G.K.Power Products Company Limited
2009-2012	Director	Gunkul Chubu Powergen Company Limited
1998-2012	Managing Director	Gunkul Engineering Public Company Limited

## 8. Dr. Somboon Aueatchasai

*Position (Appointed Date to be Director / Secretary) <sup>1)</sup>*

*Holding : Director / Secretary Position (Year) <sup>2)</sup>*

- Director with Authority to sign on behalf of the Company  
(9<sup>th</sup> June 2010) <sup>5)</sup> (8 Years 7 months)

- Executive Director (10<sup>th</sup> August 2009) <sup>4)</sup> (9 Years 5 months)
- Secretary to the Board of Directors (10<sup>th</sup> August 2009) <sup>4)</sup> (9 Years 5 months)
- Managing Director (2012)

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**Age**     48 Years

***Educational Qualifications***

- Doctor's Degree, Industrial Business Administration,  
King Mongkut's Institute of Technology Ladkrabang
- Master in Managerial Accounting, Thammasat University
- Diploma in Auditing, Thammasat University
- Bachelor in Accounting, Rajamangala University of Technology Phra Nakhon
- Intermediate Certificate Courses - Good Governance for Medical Executives Class 6 (IGM6)  
The Medical Council together with King Prajadhipok's Institute
- Top Executive Program in Commerce and Trade Class 10 (TEPCoT 10),  
University of the Thai Chamber of Commerce
- Train the Trainer of Anti-Corruption
- The Executive Course (Class 23) 2016, Capital Market Academy, The Stock Exchange of Thailand
- Advanced Security Management Program : ASMP 7/ 2015,  
The Association National Defence College of Thailand under the Royal Patronage of His Majesty the King
- Capital Market Leader Program, 1/2014, The Securities and Exchange Commission
- Advanced Certificate Course in Politics and Governance in Democratic Systems for Executives No.17, King Prajadhipok's Institute, 2013
- Public Economics Management for Executives No.10, King Prajadhipok's Institute, 2012
- Director Certification Program (DCP) 139/2011, Thai Institute of Director (IOD)
- Director Accreditation Program (DAP) 84/2010, Thai Institute of Director (IOD)
- Certificate Program in International Tax Law, Class 1, Thai Bar Association
- Diploma in Certified Internal Auditor, Class 1,  
Chulalongkorn University and The Institute of Internal Auditors of Thailand

- Tax Auditor Registration No. 1, Department of Revenue, Ministry of Finance
- Outstanding Alumni (Doctoral Degree) by Administration and Management College King Mongkut's Institute of Technology Ladkrabang
- Outstanding Alumni, Rajamangala University of Technology Phra Nakhon
- President of the Tax Auditor Association of Thailand
- President of the Alumni Association Rajamangala University of Technology Phra Nakhon

### ***Training in 2018***

- Thai - Chinese Leadership Studies (TCL) Class 2 Huachiew Chalermprakiet University (Studying)
- Thailand Insurance Leadership Program Class 8 Office of Insurance Commission
- Together for Change
- Discussion "Drive economic growth in the EEC"
- Contemporary management: CROSS-FUNCTIONAL ALIGNMENT
- Economic Valued Driver Workshop
- Discussion exchange learning, Technology changes the world
- Financial Reporting Standard No. 15-16
- Financial Reporting Standard No. 9

***Share Holding Percentage <sup>3)</sup> (%) :***      0.377

### ***Relationship***

None

### ***Working Experience during the Past 5 Years (Period / Position / Company)***

2015-Present	Director	Korat Wind Energy Company Limited
2015-Present	Director	Infinite Alternative Energy Company Limited
2015-Present	Director	Gio Bio Energy Company Limited
2015-Present	Director	Outgrow A Company Limited

2015-Present	Director	Outgrow D Company Limited
2015-Present	Director	Outgrow E Company Limited
2015-Present	Director	Gunkul Energy Solution and Lighting Company Limited
2015-Present	Director	Eco Thai Energy Company Limited
2014-Present	Director	Gunkul Solar Community Company Limited
2013-Present	Director	NK Power Sola Company Limited
2013-Present	Director	Gunkul Solar Roof 1 Company Limited
2013-Present	Director	Gunkul Training Center Company Limited
2013-Present	Director	Gunkul Power Development Company Limited
2012-Present	Managing Director	Gunkul Engineering Public Company Limited
2012-Present	Director	Wind Energy Development Company Limited
2011-Present	Director	G-Power Source Company Limited
2010-Present	Director	Gunkul Engineering Public Company Limited
2009-Present	Director	Gunkul Chubu Powergen Company Limited
2017-Present	Committee on Taxation Committee	Federation of Accounting Professions
2016-Present	Advisor to the Sub-Commission on Alternative Energy Education	National Legislative Assembly Committee 1(8)/2016
2016-Present	Highly qualified director of Business Administration Faculty and a Special Instructor	Faculty of Business Administration, Rajamangala University of Technology Phra Nakhon
2014-Present	Lay Judge	The Prachuapkhirikhan Juvenile and Family Court
2015-2017	Advisor to the Sub-Commission on Propagation, Renewable Energy and Energy Conservation	National Reform Steering Assembly

2015-2017	Specialist members of the Council of Propagation, Renewable Energy and Energy Conservation	National Reform Steering Assembly
2014-2015	Former expert of the Member of the National Reform Council	National Reform Council
2014	Former expert of the Senator	Senator
2010-2012	Deputy Managing Director	Gunkul Engineering Public Company Limited

## 9. Miss Naruechon Dhumrongpiyawut

*Position (Appointed Date to be Director / Secretary) <sup>1)</sup>*

*Holding : Director / Secretary Position (Year) <sup>2)</sup>*

- Director with Authority to sign on behalf of the Company (10<sup>th</sup> August 2009) <sup>4)</sup> (9 Years 5 months)
- Executive Director (10<sup>th</sup> August 2009) <sup>4)</sup> (9 Years 5 months)
- Assistant Managing Director, Business Development and Strategic Planning
- Senoir Vice President Logistics

**Age** 35 Years

### *Educational Qualifications*

- Master of Business Administration, Boston University U.S.A.
- Master of Management, Harvard University U.S.A.
- Bachelor of Engineering, Chulalongkorn University
- Thailand Energy Program for New Generation Executive Class 4, Thailand Energy Academy
- Financial Advisor Licence 2013, Investment Banking Club Association of Thai Securities Company
- Director Accreditation Program (DAP) 70/2008, Thai Institute of Director (IOD)
- Train the Trainer of Anti-Corruption

### ***Training in 2018***

- Draft of Financial Report Standards, Financial Instruments
- Together for Change
- Update Income Tax, 2018
- Due Diligence Guidelines as the New Manual by the Association of Thai Securities Companies - Investment Banking Club
- Cryptoasset Revolution Course # 1 by Thai Fintech Association and ICORA Co., Ltd.
- Impact of Accounting Changes by the Association of Thai Securities Companies - Investment Banking Club
- CryptoCurrency and ICOs: Opportunities & Challenges by the Association of Thai Securities Companies - Investment Banking Club
- Import- Export, Danger caused by import and export
- Discussion “Drive economic growth in the EEC”
- Contemporary management: CROSS-FUNCTIONAL ALIGNMENT
- Economic Valued Driver Workshop
- Discussion exchange learning, Technology changes the world
- Financial Reporting Standard No. 15-16
- Financial Reporting Standard No. 9

***Share Holding Percentage <sup>3)</sup> (%) :*** 0.005

### ***Relationship***

Daughter of Mr.Gunkul Dhumrongpiyawut

### ***Working Experience during the Past 5 Years (Period / Position / Company)***

2017-Present	Director	Gunkul Group Company Limited
2017-Present	Director	Great Miracle Asset Group 6)
2017-Present	Director	BMP Solar Company Limited

2016-Present	Assistant Managing Director, Business Development and Strategic Planning	Gunkul Engineering Public Company Limited
2016-Present	Senior Vice President, Logistics	Gunkul Engineering Public Company Limited
2015-Present	Director	Infinite Alternative Energy Company Limited
2015-Present	Director	Rangngen Solution Company Limited
2015-Present	Director	Gio Bio Energy Company Limited
2015-Present	Director	Outgrow A Company Limited
2015-Present	Director	Outgrow D Company Limited
2015-Present	Director	Outgrow E Company Limited
2015-Present	Director	Eco Thai Energy Company Limited
2015-Present	Director	Siam Future Company Limited
2015-Present	Director	Happy Green 2558 Company Limited
2015-Present	Director	Tech-Green Company Limited
2015-Present	Director	Thong Lo 9 Company Limited
2015-Present	Director	Entrity Sam Company Limited
2014-Present	Director	Gunkul LED Lighting Company Limited
2014-Present	Director	Greenovation Power Company Limited
2014-Present	Director	Gunkul Solar Community Company Limited
2013-Present	Director	Gunkul Investment (Singapore) Pte.,Ltd.
2013-Present	Director	Gunkul Myanmar Power (Hlawga) Pte.,Ltd.
2013-Present	Director	Gunkul Myanmar Central Power 1 Co.,Ltd.
2012-Present	Director	Wind Energy Development Company Limited
2008-Present	Director/ Executive Director	Gunkul Engineering Public Company Limited
2004-Present	Director	Noppakun Company Limited
2012-2016	Senior Vice President, Strategic Planning and Investment	Gunkul Engineering Public Company Limited



2011-2012	Assistant Vice President	Finansa Securities Company Limited
2010-2011	Senior Associate	Kasikorn Securities Public Company Limited

## 10. Mrs. Areewan Chaloemdan

*Position (Appointed Date to be Director / Secretary) <sup>1)</sup>*

*Holding : Director / Secretary Position (Year) <sup>2)</sup>*

- Director with Authority to sign on behalf of the Company (10<sup>th</sup> August 2009) <sup>4)</sup> (9 Years 5 months)
- Executive Director (10<sup>th</sup> August 2009) <sup>4)</sup> (9 Years 5 months)
- Acting Assitant Managing Director, Factory

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**Age**      49 Years

### *Educational Qualifications*

- Bachelor's Degree in Accounting, Dhurakij Bundit University
- Public Administration Economy for Executives Course, Class 15, King Prajadhipok's Institute
- Leadership Succession Program (LSP) Class 9, Institute of Research & Development for Public Enterprises
- Director Accreditation Program (DAP) 70/2008, Thai Institute of Director (IOD)
- Effective Senior Manager Course
- Superior Executive Program for Advanced Management Gen. 1 Rajamangala University of Technology Phra Nakhon
- Pioneering Leadership Training Program, Canaan Farmers School, Korea
- Implementation of Sufficiency Economy, Ministry of Industry TIS 99
- Train the Trainer of Anti-Corruption

### *Training in 2018*

- Advanced Communication Potential Development Program for Senior Management
- Together for Change
- VE Value Engineering

*Share Holding Percentage* <sup>3)</sup> (%) :        None

***Relationship***

None

***Working Experience during the Past 5 Years (Period / Position / Company)***

2010-Present	Senior Vice President, Factory	Gunkul Engineering Public Company Limited
2009-Present	Director / Executive Director	Gunkul Engineering Public Company Limited
2009-Present	Director	G.K. Assembly Company Limited
2009-Present	Director	G.K. Power Products Company Limited

***11. Mr. Chaloepon Sricharoen***

***Position (Appointed Date to be Director / Secretary) <sup>1)</sup>***

***Holding : Director / Secretary Position (Year) <sup>2)</sup>***

- Director with Authority to sign on behalf of the Company  
(10<sup>th</sup> August 2009) <sup>4)</sup> (9 Years 5 months)
- Executive Director (10<sup>th</sup> August 2009) <sup>4)</sup> (9 Years 5 months)
- Vice President, Sales and Marketing

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***Age***      49 Years

***Educational Qualifications***

- Bachelor of Arts, Ramkhamhaeng University
- Leadership Succession Program (LPS), Class 8, The Institute of Research and Development for Public Enterprises (IRDPE)
- Advanced Certificate Course in Public Administration and Law for Executives Gen.15 King Prajadhipok's Institute
- Cautions for Directors to Prevent Legal Risks, Responsibility of Directors according to Civil and Criminal Law, SET and SEC

- Public Economics Management for Executives No.12, King Prajadhipok's Institute, 2014
- Director Accreditation Program (DAP) 70/2008, Thai Institute of Director (IOD)
- Effective Senior Manager Course
- Managing Finance for Business Owners by Peter Ho
- Train the Trainer of Anti-Corruption

### ***Training in 2018***

- Advanced Security Management Program (ASMP) Class 10  
The Association National Defence College
- Advanced Warehouse Management in the 4.0 Era
- Together for Change
- Discussion "Drive economic growth in the EEC"
- Contemporary management: CROSS-FUNCTIONAL ALIGNMENT
- Economic Valued Driver Workshop
- Discussion exchange learning, Technology changes the world
- Microsoft Power BI Desktop for Business Analysis

***Share Holding Percentage <sup>3)</sup> (%) :***      None

### ***Relationship***

Brother of Miss Sopacha Dhumrongpiyawut

### ***Working Experience during the Past 5 Years (Period / Position / Company)***

2014-Present	Vice President, Sales and Marketing	Gunkul Engineering Public Company Limited
2010-Present	Director	K.N.P. Supply Company Limited
2009-Present	Director / Executive Director	Gunkul Engineering Public Company Limited
2007-2014	Manager, Government Sales	Gunkul Engineering Public Company Limited

## 12. AVM.Dr.Pian Totarong

*Position (Appointed Date to be Director / Secretary) <sup>1)</sup>*

*Holding : Director / Secretary Position (Year) <sup>2)</sup>*

- Chairman of the Risk Management Committee (Independent Committee)  
(9<sup>th</sup> November 2012) (6 Years 2 months)
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**Age**      64 Years

### ***Educational Qualifications***

- Ph.D.in Electrical Engineering,  
University of Pittsburgh, USA. (Supreme Command HQ Scholarship)
- M.S. in Electrical Engineering,  
Ohio University, USA. (Supreme Command HQ Scholarship)
- B.Sc. (Honours) in Physics, Mahidol University (Ministry of Defence Scholarship)
- Air War College, Royal Thai Air Force, Class No. 31
- National Defence College, Class No. 48
- Human Resources Certification Course ISO/ IEC 17024, Management System  
Certification Institute
- Technical Assessment Program, Professional Qualification Institute (Public Organization)  
(2014)
- Quality Systems Assessment Program ISO/IEC 17025, Class 20/ 2013, Office of  
Industrial Standards
- Director Certification Program (DCP 120/2009), Thailand Institute of Director (IOD)
- Certificate of Successful Formulation & Execution of Strategy Course (SFE) ,  
Class 11/2010  
Thai Institute of Director (IOD)
- Advanced Defence Management, Class No. 1, Association of National Defence College

### ***Training in 2018***

- Quality Systems Assessment Program ISO/IEC 17025:2017 by Mr.John HurlI, Former  
Assessor of ISO 17025 system from UKAS

- Quality Systems Assessment Program ISO/IEC 17025:2017 by Office of Industrial Standards

**Share Holding Percentage <sup>3)</sup> (%) :** None

### **Relationship**

None

### **Working Experience during the Past 5 Years (Period / Position / Company)**

2013-Present	Chairman of the Risk Management Committee	Gunkul Engineering Public Company Limited
2016-Present	Laboratory Consultant	Ministry of Industry and Trade - Lao PDR
2014-2015	Metrology Center Consultant	Department of Standardization and Metrology - Lao PDR
2012-2013	Member of The Risk Management Committee	Gunkul Engineering Public Company Limited
2012 - 2013	Advisor (Quality System Development)	Food and Drug Quality Control Center, Ministry of Public Health, Lao PDR
2003 - 2011	Director of National Institute of Metrology (Thailand)	Ministry of Science and Technology
2001 - 2003	Director of Science & Technology R&D Division	Military R&D Center, Supreme Command HQ
1997 - 2001	Director of Communication & Electronic R&D Division	Military R&D Center, Supreme Command HQ
1993 - 1997	Deputy Director of Communication & Electronic R&D Division	Military R&D Center, Supreme Command HQ
1980 - 1993	Researcher (Communication Systems and Electronic Warfare Systems)	Military R&D Center, Supreme Command HQ

Experience as Director (domestic)		
2015-Present	Director, Board of National Standards Committee.	Ministry of industry
2015-Present	Director, Board of Appeal Committee	Central Bureau of Weights and Measures
2015-Present	Chairman of the Skill Standards Committee, Calibration technician	Department of Skill Development, Ministry of Labour
2004-Present	Director, Metrology Association of Thailand	Metrology Association of Thailand
2003 - 2011	Director and secretary of National Metrology Board	Ministry of Science and Technology
Experience as a System Development Consultant ISO/IEC 17025		
2017-2018	Agricultural and Food Testing Center Champasak University, Lao PDR	
2016-2017	Calibration Laboratory - Oishi co.,Ltd.	
2015-2016	Transformer Testing Laboratory - Thai Maxwell electric co.,Ltd.	
2014-2015	Metrology center, Department of Standardization and Metrology - Lao PDR	
2013-2014	Sanitary Ware Testing Laboratory - Mogen co.,Ltd.	
2012-2013	Laboratory of drug analysis, Food and Drug Quality Control Center - Lao PDR	

### 13. Mr. Somchai Trairatanapirom

**Position (Appointed Date to be Director / Secretary) <sup>1)</sup>**

**Holding : Director / Secretary Position (Year) <sup>2)</sup>**

- Member of the Good Corporate Governance Committee (Independent Committee) (25<sup>th</sup> February 2013) (5 Years 11 months)
- Member of the Risk Management Committee (Independent Committee) (22<sup>th</sup> June 2015) (5 Years 11 months)

**Age**      58 Years

### ***Educational Qualifications***

- Doctor's Degree, Faculty of Monetary Economics,  
Gobe University, Japan (Governing Japanese Scholarship)
- Master Degree, Faculty of Economics (International Finance and Banking)  
Thammasart University
- Bachelor Degree, Faculty of Economics (Finance, Banking, Marketing)  
Thammasart University
- Advanced Certificate Course in Public Administration and Public Law (PorRorMor 4)
- Certificate of the Program on Management of Technology  
The Association for Overseas Technical Scholarship (Scholarship AOTS), Japan
- Director Certification Program (DCP 118/2552), Thai Institute of Director (IOD)
- Certificate Course of Corporate Governance Public Sufficiency Management for  
Executive, Advanced Course No. 1, the Office of the Public Sector Development  
Commission

***Share Holding Percentage <sup>3)</sup> (%) :***          None

### ***Relationship***

None

### ***Working Experience during the Past 5 Years (Period / Position / Company)***

2015-Present	Member of the Risk Management Committee	Gunkul Engineering Public Company Limited
2013-Present	Member of the Good Corporate Governance Committee	Gunkul Engineering Public Company Limited
2013-Present	Deputy Managing Director	Institute of Research and Development for Public Enterprises (IRDPE)
	CEO-Leadership Succession Program (LSP)	

2012-Present	Member of Sub-Committee, Appraisal of Good Corporate Governance	Thai Health Promotion Foundation
1998-Present	Team Leader/Specialist/Advisor, Performance Appraisal of State Enterprises	State Enterprise Policy Office, Ministry of Finance
2009-2012	Advisor, Project of Certificate Issuing and Annual Performance Appraisal for Governor	Office of The Attorney General
2012-2013	Advisor, Performance Controlling along with Appraisal System in quality of State Enterprises	State Enterprise Policy Office, Ministry of Finance
2008-2012	Deputy Managing Director	Tris Corporation Company Limited (TRIS)
2011-2012	Advisor, Follow-up and Project Appraisal - Development Policy Loan 2012, Area 4 North-East of Thailand	Public Debt Management Office, Ministry of Finance
2011-2012	Advisor, Competency Development in KPI and Appraisal Determination	International Institute for Trade and Development (Public Organization)
2011-2012	Advisory, Risk Management and Internal Audit	National Innovation Agency (Public Organization) NIA,
2010-2011	Advisory, Cost Analysis and NGV Price Determination	Petroleum Institute of Thailand (PTIP)/Energy Policy and Planning office, Ministry of Energy
2010-2012	Advisory, Follow-up and Performance Appraisal of GISTDA	Informatics and Space Technology Development Agency (Public Organization) - GISTDA
2010-2011	Team Leader, Performance Appraisal of The Nation Telecommunications Commission, 2012 - 2011	Office of The National Broadcasting and Telecommunications Commission (NBTC)



2009	Competency Appraisal of Personnel of Individual Development, Agricultural Research Development Agency (ARDA)	Ministry of Public Health
2008-2012	Advisory, Performance Appraisal in Working Capital Budget	The Comptroller General's Department (CGD), Ministry of Finance
2008-2012	Advisory, Performance Appraisal of Ministry of Energy	Ministry of Energy
2007-2012	Advisory, SET Award Project	The Stock Exchange of Thailand

#### 14. Mr.Decha Chooligorn

**Position (Appointed Date to be Director / Secretary) <sup>1)</sup>**

**Holding : Director / Secretary Position (Year) <sup>2)</sup>**

- Member of the Nomination and Remuneration Committee (Independent Committee) (9<sup>th</sup> November 2012) (6 Years 2 months)

**Age** 56 Years

#### **Educational Qualifications**

- MBA Marketing and Finance, Case Western Reserve University, USA Year 1988
- Bachelor Degree of Economics, Thammasat University
- Director Certification Program (DCP) 26/2003, Thai Institute of Director (IOD)
- Secrets to Doubling Your Sales, Productivity & Profits
- Key to Success in Organization Redesign
- Effective Managers Program
- Project Finance
- Nomination Committee Best Practice Guideline Course

**Share Holding Percentage <sup>3)</sup> (%) :** None

### **Relationship**

None

### **Working Experience during the Past 5 Years (Period / Position / Company)**

2012-Present	Member of the Nomination and Remuneration Committee	Gunkul Engineering Public Company Limited
2005-Present	Managing Director	Integrated Management Consultant Co.,Ltd.
2003-2005	Assistant Managing Director	Thai Rung Union Car Public Company Limited
2001-2003	Deputy Managing Director	Advance Power Supply Public Company Limited

### **15. Mr. Hathai Uthai**

#### **Position (Appointed Date to be Director / Secretary) <sup>1)</sup>**

#### **Holding : Director / Secretary Position (Year) <sup>2)</sup>**

- Member of the Nomination and Remuneration Committee  
(Independent Committee) (12<sup>th</sup> November 2015) (3 Years 2 months)

**Age** 64 Years

#### **Educational Qualifications**

- Management of Public and Private Programs.  
National Institute of Development Administration
- Bachelor of Engineering (Mechanical), Khonkaen University
- Bachelor of Laws, Thammasat University
- Nomination Committee Best Practice Guideline Course

**Share Holding Percentage <sup>3)</sup> (%) :** None

### **Relationship**

None

### ***Working Experience during the Past 5 Years (Period / Position / Company)***

2015-Present	Member of the Nomination and Remuneration Committee	Gunkul Engineering Public Company Limited
2014-2015	Secretary General of the Thai Industrial Standards Institute	Thai Industrial Standards Institute
2013-2014	Inspector, the Ministry of Industry	Ministry of Industry
2012-2013	Deputy director Office of Industrial Economics Ministry of industry	Ministry of Industry
2008-2012	Deputy Secretary General of the Thai Industrial Standards Institute Ministry of industry	Ministry of Industry

### **16. Mr. Phongthep Thitapan**

***Position (Appointed Date to be Director / Secretary) <sup>1)</sup>***

***Holding : Director / Secretary Position (Year) <sup>2)</sup>***

- Member of the Good Corporate Governance Committee (Independent Committee) (25<sup>th</sup> February 2013) (5 Years 11 months)

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***Age***     60 Years

### ***Educational Qualifications***

- Master Degree of Public Administration, National Institute of Development Administration (NIDA)
- Bachelor Degree of Laws, Ramkhamhaeng University
- Senior Justice Executive Course, Class 21/2017
- Senior Budget Administrator, Class 21, Bureau of the Budget 2016
- Certificate of “LEADERSHIP”, 2012, RIPA International, London, England
- Degree in N.D.C. 54/2011, National Defense College
- Advanced Certificate Course in Public Administration and Public Law for Executives No.8, King Prajadhipok’s Institute, 2009

- Director Certification Program (DCP) 125/2009, Thai Institute of Director (IOD)
- Advanced Certificate Course in Politics and Governance in Democratic Systems for Executives No.6, King Prajadhipok's Institute, 2008
- MOF Executive Program ( 2005), Ministry of Finance

**Share Holding Percentage <sup>3)</sup> (%) :** None

### **Relationship**

None

### **Working Experience during the Past 5 Years (Period / Position / Company)**

2015-Present	Director	DOD Biotech Public Company Limited
2013-Present	Member of the Good Corporate Governance Committee	Gunkul Engineering Public Company Limited
2014-2017	Director	Total Industrial Services Co.,Ltd.
2010-2015	Director	PTT LNG Company Limited

## **17. Dr.Phongsakorn Damnoen**

**Position (Appointed Date to be Director / Secretary) <sup>1)</sup>**

**Holding : Director / Secretary Position (Year) <sup>2)</sup>**

- Deputy Managing Director, Business Development & Strategic Planning

**Age** 41 Years

### **Educational Qualifications**

- Ph.D. in Renewable Energy, Naresuan University
- Master Degree in Electrical Engineering, Hannover University, Germany
- Bachelor Degree (Eng.) in Telecommunication, Rajamangala University of Technology
- Senior Executives in Industrial Business Development and Investment Class 4 (2017), Institute of Business and Industrial Development

- Leadership Succession Program (LSP) 6/2016  
Institute of Research and Development for Public Enterprises
- Director Certification Program (DCP) 149/2011, Thai Institute of Director (IOD)
- Train the Trainer of Anti-Corruption

### ***Training in 2018***

- Ultra Wealth, Class 4 (UW4), The Ultra Wealth Group Company Limited
- Together for Change
- Discussion “Drive economic growth in the EEC”
- Contemporary management: CROSS-FUNCTIONAL ALIGNMENT
- Economic Valued Driver Workshop
- Discussion exchange learning, Technology changes the world

***Share Holding Percentage <sup>3)</sup> (%) :*** 0.429

### ***Relationship***

None

### ***Working Experience during the Past 5 Years (Period / Position / Company)***

2017-Present	Director	Gunkul Solar Power Company Limited
2017-Present	Director	BMP Solar Company Limited
2016-Present	Deputy Managing Director, Business Development & Strategic Planning	Gunkul Engineering Public Company Limited
2015-Present	Director	ECO Thai Energy Limited
2015-Present	Director	Gunkul Solar Power 1 Company Limited
2015-Present	Director	Korat Wind Energy Company Limited
2015-Present	Director	Bright Green Power Company Limited
2015-Present	Director	Rangngen Solution Company Limited
2015-Present	Director	Gio Bio Energy Company Limited

2015-Present	Director	Outgrow A Company Limited
2015-Present	Director	Outgrow B Company Limited
2015-Present	Director	Outgrow D Company Limited
2015-Present	Director	Outgrow E Company Limited
2014-Present	Director	Grenovation Power Company Limited
2013-Present	Director	NK Power Sola Company Limited
2013-Present	Director	Siam Gunkul Solar Energy Company Limited
2013-Present	Director	Gunkul Myanmar Central Power 1 Pte.Ltd.
2012-Present	Director	Wind Energy Development Company Limited
2009-Present	Director	Gunkul Chubu Powergen Company Limited
2014-2015	Assistant Managing Director, Business Development & Strategic Planning	Gunkul Engineering Public Company Limited
2010-2014	Senior Vice President, Business Development and Special Project	Gunkul Engineering Public Company Limited
2010-2012	Director	G-Power Source Company Limited

## 18. Mr. Chaisiri Wattanacharnnarong

*Position (Appointed Date to be Director / Secretary) <sup>1)</sup>*

*Holding : Director / Secretary Position (Year) <sup>2)</sup>*

- Assistant Managing Director, Project Construction Management (6 months)

**Age** 43 Years

### *Educational Qualifications*

- Master Degree of Engineer, Construction Engineering and Management  
King Mongkut's University of Technology Thonburi
- Bachelor Degree of Engineer, Civil Engineering, Srinakharinwirot University
- Civil Engineering Professional License, Associate Engineering

**Share Holding Percentage <sup>3)</sup> (%) :** None

**Relationship**

None

**Working Experience during the Past 5 Years (Period / Position / Company)**

2018-Present	Assistant Managing Director, Project Construction Management	Gunkul Engineering Public Company Limited
2018	Senior Vice President, Project Construction Management	Gunkul Engineering Public Company Limited
2013-Present	Director	Future Electrical Control Company Limited

**19. Mrs. Somluk Kanuenghet**

**Position (Appointed Date to be Director / Secretary) <sup>1)</sup>**

**Holding : Director / Secretary Position (Year) <sup>2)</sup>**

- Member of the Nomination and Remuneration Committee (10<sup>th</sup> August 2009) <sup>4)</sup> (9 Years 5 months)
- Secretary of the Nomination and Remuneration Committee (10<sup>th</sup> August 2009) <sup>4)</sup> (9 Years 5 months)
- Senior Vice President, Executive Office

**Age** 53 Years

**Educational Qualifications**

- Bachelor Degree of Arts, Srinakharinwirot University
- Effective Senior Manager Course
- Performance Appraisal by Balance Scored Card Course
- Career Planning & Development & Sucession Planning Course
- Salary Administration for Line Manager Course
- Effective Techniques for Job Analysis & Job Description Course

- Effective Techniques for Job Evaluation & Salary Survey Course
- Nomination committee Best Practice Guideline Course
- Train the Trainer of Anti-Corruption

### ***Training in 2018***

- Together for Change
- Why supply chain Sustainability Means New Opportunities
- Seminar ‘Strategic HR BP’
- Sustainability Reporting Workshop : Get Start with GRI Standards
- Discussion “Drive economic growth in the EEC”
- Contemporary management: CROSS-FUNCTIONAL ALIGNMENT
- Economic Valued Driver Workshop
- Discussion exchange learning, Technology changes the world

***Share Holding Percentage <sup>3)</sup> (%) :***          None

### ***Relationship***

None

### ***Working Experience during the Past 5 Years (Period / Position / Company)***

2017-Present	Director	Gunkul Training Center Company Limited
2010-Present	Senior Vice President, Executive Office	Gunkul Engineering Public Company Limited
2010-Present	Director	G.K. Assembly Company Limited
2010-Present	Director	G.K. Power Product Company Limited
2009-Present	Member of the Nomination and Remuneration Committee	Gunkul Engineering Public Company Limited
2009-Present	Secretary of the Nomination and Remuneration Committee	Gunkul Engineering Public Company Limited
1991-Present	Director	Gunkul Group Company Limited



2015-2017	Director	Siam Gunkul Power Company Limited
2009-2013	Director	Gunkul Powergen Company Limited
1982-2012	Chief Executive Officer	Gunkul Engineering Public Company Limited

## 20. Mr. Thamrong Chankraithong

*Position (Appointed Date to be Director / Secretary) <sup>1)</sup>*

*Holding : Director / Secretary Position (Year) <sup>2)</sup>*

- Senior Vice President, Sales and Marketing

**Age** 47 Years

### **Educational Qualifications**

- Master Degree in Information Technology,  
King Mongkut's Institute of Technology Ladkrabang
- Bachelor Degree in Applied Physics,  
King Mongkut's Institute of Technology Ladkrabang
- Director Certification Program (DCP) 149/2011, Thai Institute of Director (IOD)
- Secrets to Doubling Your Sales, Productivity & Profits course
- Substation & Transmission Line & Building Base Concept course
- Stringing Equipments by TEMA, Italy
- Meter Training Program by General Electric Co., USA
- Meter Testing Equipments by ZERA Electric, Germany
- Energy Conservation for Factory
- Business Opportunities in Marketing Energy Efficiency
- Train the Trainer of Anti-Corruption

### **Training in 2018**

- Together for Change
- Discussion "Drive economic growth in the EEC"

- Contemporary management: CROSS-FUNCTIONAL ALIGNMENT
- Economic Valued Driver Workshop
- Discussion exchange learning, Technology changes the world
- Microsoft Power BI Desktop for Business Analysis

*Share Holding Percentage* <sup>3)</sup> (%) : None

### *Relationship*

None

### *Working Experience during the Past 5 Years (Period / Position / Company)*

2010-Present	Senior Vice President, Sales and Marketing	Gunkul Engineering Public Company Limited
2011-Present	Director / Senior Vice President, Sales and Marketing	K.N.P. Supply Company Limited

## **21. Mr. Thitipong Techaratanayuenyong**

*Position (Appointed Date to be Director / Secretary)* <sup>1)</sup>

*Holding : Director / Secretary Position (Year)* <sup>2)</sup>

- Member of the Risk Management Committee  
(12<sup>th</sup> November 2014) 4 Years 2 months
- Secretary of the Risk Management Committee  
(12<sup>th</sup> November 2014) 4 Years 2 months
- Chief Financial Officer

*Age* 43 Years

*Educational Qualifications*

- Master Degree of Business Administration (MBA)  
Sasin Graduate Institute of Business Administration of Chulalongkorn University
- Bachelor Degree of Economics (Major in International Economics)  
Chulalongkorn University
- Bachelor Degree of Engineering (Major in Civil & Environmental Engineering)  
Chulalongkorn University
- Business Leader Program by Dr. Noel M. Tichy
- Engaging Your People & Develop Coaching skills
- Global Business Leader Development
- CPF Good & Smart Team Management
- Building Relationships and Team Leading
- Strategic CFO in Capital Markets Program 2015, Class1
- Train the Trainer of Anti-Corruption

### ***Training in 2018***

- TFRs TALK 2018
- Together for Change
- Training on regulations in the bond market
- Discussion “Drive economic growth in the EEC”
- Contemporary management: CROSS-FUNCTIONAL ALIGNMENT
- Economic Valued Driver Workshop
- Discussion exchange learning, Technology changes the world
- Microsoft Power BI Desktop for Business Analysis
- Financial Reporting Standard No. 15-16
- Financial Reporting Standard No. 9

***Share Holding Percentage <sup>3)</sup> (%) :***      None

### ***Relationship***

None

### ***Working Experience during the Past 5 Years (Period / Position / Company)***

2014-Present	Senior Vice President, Financial Management and Controlling Foreign Affairs	Gunkul Engineering Public Company Limited
2014-Present	Member of the Risk Management Committee and Secretary	Gunkul Engineering Public Company Limited
2014-Present	Chief Financial Officer	Gunkul Engineering Public Company Limited
2008-2013	Assistant Vice President, Office of Chief Financial Officer	Charoen Pokphand Foods Public Company Limited

## **22. Dr. Phairot Phanukan**

***Position (Appointed Date to be Director / Secretary) <sup>1)</sup>***

***Holding : Director / Secretary Position (Year) <sup>2)</sup>***

- Senior Vice President, Innovation & Operating Maintenance

***Age***     51 Years

### ***Educational Qualifications***

- PhD in Renewable Energy, Naresuan University
- Master Degree of Business Administration (MBA), Huachiew Chalermprakiet University
- Bachelor Degree of Engineering, King Mongkut's Institute of Technology Ladkrabang
- Train the Trainer of Anti-Corruption

### ***Training in 2018***

- Together for Change
- Discussion "Drive economic growth in the EEC"
- Contemporary management: CROSS-FUNCTIONAL ALIGNMENT
- Economic Valued Driver Workshop

- Discussion exchange learning, Technology changes the world

**Share Holding Percentage <sup>3)</sup> (%) :** None

### **Relationship**

None

### **Working Experience during the Past 5 Years (Period / Position / Company)**

2015-Present	Senior Vice President, Project Management and Operating & Maintenance	Gunkul Engineering Public Company Limited
2010-2014	Senior Manager-Renewable Energies, Solution Center	Schneider (Thailand) Limited

### **23. Mrs. Nattawan Wongchan**

**Position (Appointed Date to be Director / Secretary) <sup>1)</sup>**

**Holding : Director / Secretary Position (Year) <sup>2)</sup>**

- Senior Vice President, Business Support

**Age** 50 Years

### **Educational Qualifications**

- Master Degree of Business Administration, Kasetsart University
- Bachelor Degree of Finance and Banking, Major in Finance Ramkhumharn University
- Diploma Program in Taxation, University of The Thai Chamber of Commerce
- Train the Trainer of Anti-Corruption

### **Training in 2018**

- Together for Change
- Contemporary management: CROSS-FUNCTIONAL ALIGNMENT
- Economic Valued Driver Workshop

- Discussion exchange learning, Technology changes the world

**Share Holding Percentage <sup>3)</sup> (%) :** None

**Relationship**

None

**Working Experience during the Past 5 Years (Period / Position / Company)**

2016-Present	Senior Vice President, Business Support	Gunkul Engineering Public Company Limited
2014-2016	Vice President, Business Support	Gunkul Engineering Public Company Limited

**24. Mr. Janpon Ngamaroonchote**

**Position (Appointed Date to be Director / Secretary) <sup>1)</sup>**

**Holding : Director / Secretary Position (Year) <sup>2)</sup>**

- Senior Director, Strategic Planning & Investment and Sales & Marketing-Energy Solution, Lighting and Groof

**Age** 35 Years

**Educational Qualifications**

- Master Degree of MBA, Major in General, Suffolk University, Boston U.S.A.
- Bachelor of Science, Major in Statistics, Kasetsart University
- Train the Trainer of Anti-Corruption

**Training in 2018**

- Together for Change
- Discussion “Drive economic growth in the EEC”
- Contemporary management: CROSS-FUNCTIONAL ALIGNMENT
- Economic Valued Driver Workshop

- Discussion exchange learning, Technology changes the world

**Share Holding Percentage <sup>3)</sup> (%) :** None

**Relationship**

None

**Working Experience during the Past 5 Years (Period / Position / Company)**

2016-Present	Senior Vice President, Strategic Planning and Investment	Gunkul Engineering Public Company Limited
2015-Present	Director	Gunkul Internation (Mauritius)
2014-Present	Director	Greenovation Power Company Limited
2013-Present	Director	NK Power Solar Company Limited
2013-Present	Director	Solar Energy Society Company Limited
2014-2016	Vice President, Strategic Planning and Investment	Gunkul Engineering Public Company Limited
2010-2013	Manager, Office of Managing Director	Gunkul Engineering Public Company Limited
2015-2017	Director	Siam Gunkul Power Company Limited
2009-2013	Director	Gunkul Powergen Company Limited
1982-2012	Chief Executive Officer	Gunkul Engineering Public Company Limited

**25. Miss Chantira Jongjamareeseethong**

**Position (Appointed Date to be Director / Secretary) <sup>1)</sup>**

**Holding : Director / Secretary Position (Year) <sup>2)</sup>**

- Company Secretary (10<sup>th</sup> August 2009) <sup>4)</sup> (9 Years 5 months)
- Secretary of the Good Coperate Government Committee (25<sup>th</sup> February 2013) (5 Years 11 months)
- Senior Vice President, Office of Managing Director & Investor Relations

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**Age** 51 Years

***Educational Qualifications***

- Master Degree of Business Administration, Major in Accounting  
Ramkhamhaeng University
- Bachelor's Degree, Major in Accounting, Siam University
- Bachelor of Arts, Major in Linguistics, Thammasart University
- Company Secretary Program, 28/2008, Thai Institute of Director (IOD)
- Effective Minute Taking (EMT), 12/2008, Thai Institute of Director (IOD)
- Japanese Certificate Level 3
- Train the Trainer of Anti-Corruption

***Training in 2018***

- SETPortal system Training
- Smart Disclosure Program
- Financial Reporting Standards Draft, Financial Instruments
- Together for Change
- Update Income Tax 2018
- AGM 2018 and Seminar on "Sustainable Organization Development"
- New CG Code Disclosure Seminar
- Tax Consultant, Section 1: Revenue Law
- Discussion on Driving business value & sustainability through active investors
- Enhancing Good Corporate Governance based on CGR Scorecard
- Estate Tax Planning
- Enhancing Good Corporate Governance based on CGR Scorecard Seminar
- Discussion "Drive economic growth in the EEC"
- TFRS 15 Draft: Revenue from Contracts Made with Customers
- How to Manage Intellectual Property for Maximum Benefit
- Tax Planning: Dividend Payment, Profit Sharing
- Tax Act Draft and Revenue Tax Risk
- Contemporary management: CROSS-FUNCTIONAL ALIGNMENT



- Economic Valued Driver Workshop
- Discussion exchange learning, Technology changes the world
- Financial Reporting Standard No. 15-16
- Financial Reporting Standard No. 9

**Share Holding Percentage <sup>3)</sup> (%) :** None

### **Relationship**

None

### **Working Experience during the Past 5 Years (Period / Position / Company)**

2016-Present	Senior Vice President, Office of Managing Director & Investor Relations	Gunkul Engineering Public Company Limited
2013-Present	Secretary of the Good Corporate Governance Committee	Gunkul Engineering Public Company Limited
2009-Present	Company Secretary	Gunkul Engineering Public Company Limited

## **26. Miss Suttirat Tangnorakul**

**Position (Appointed Date to be Director / Secretary) <sup>1)</sup>**

**Holding : Director / Secretary Position (Year) <sup>2)</sup>**

- Vice President, Business Support (Accounting)

**Age** 45 Years

### **Educational Qualifications**

- Master Degree of Business Administration,  
Major in Accounting, Ramkhamhaeng University

- Bachelor Degree of Business Administration, Major in Accounting, Ramkhamhaeng University
- Mini MBA I Taxation (Major in General Business), School of Tax
- Modern Accountants Program) Class 13 Faculty of Commerce and Accountancy, Chulalongkorn University
- Specialist Tax Law Practice Course 2015
- Train the Trainer of Anti-Corruption

### ***Training in 2018***

- Understand the rules regarding tax invoices precisely for preparing to receive an alternative to the E-tax system
- Financial Reporting Standards Draft, Financial Instruments
- Together for Change
- Update Income Tax 2018
- Getting to Know Financial Tools: TERS9
- Financial Reporting Standard No. 15
- Tax Consultant, Section 1: Revenue Law
- Discussion “Drive economic growth in the EEC”
- Contemporary management: CROSS-FUNCTIONAL ALIGNMENT
- Economic Valued Driver Workshop
- Discussion exchange learning, Technology changes the world
- Microsoft Power BI Desktop for Business Analysis
- Financial Reporting Standard No. 15-16
- Financial Reporting Standard No. 9

***Share Holding Percentage <sup>3)</sup> (%) :***      None

### ***Relationship***

None

### ***Working Experience during the Past 5 Years (Period / Position / Company)***

2017-Present	Vice President, Business Support (Accounting)	Gunkul Engineering Public Company Limited
2017-Present	Director	Gunkul Training Center Company Limited
2016-2017	Assistant Vice President, Business Support (Accounting)	Gunkul Engineering Public Company Limited

### **27. Mr. Tanetsiri Farkmitr**

***Position (Appointed Date to be Director / Secretary) <sup>1)</sup>***

***Holding : Director / Secretary Position (Year) <sup>2)</sup>***

- Secretary of the Audit Committee (20<sup>th</sup> October 2016) (2 Years 3 months)
- Assistant Vice President, Intenal Audit

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***Age***      42 Years

### ***Educational Qualifications***

- Master Degree of Accounting, Thammasat University
- Bachelor's Degree, Accounting, Thammasat University
- Certified Public Accountant, CPA (Thailand))
- Train the Trainer of Anti-Corruption

### ***Training in 2018***

- Update Income Tax 2018
- Discussion "Drive economic growth in the EEC"
- Financial Reporting Standards Draft, Financial Instruments
- Contemporary management: CROSS-FUNCTIONAL ALIGNMENT
- Economic Valued Driver Workshop

- Discussion exchange learning, Technology changes the world
- Microsoft Power BI Desktop for Business Analysis
- Financial Reporting Standard No. 15-16
- Financial Reporting Standard No. 9

**Share Holding Percentage <sup>3)</sup> (%) :** None

### **Relationship**

None

### **Working Experience during the Past 5 Years (Period / Position / Company)**

2016-Present	Assistant Vice Director, Internal Audit	Gunkul Engineering Public Company Limited
2016-Present	Secretary of the Audit Committee	Gunkul Engineering Public Company Limited
2015-2016	Group Manager, Internal Audit	Tipco Asphalt Public Co Ltd
2014-2015	Manager, Technology and Information Systems Internal Audit	Banpu Public Company Limited.

- 1) Date of Appointment and/or Registration as Director in the Board of Directors and/or Member in Sub-Committees, and/or Secretary to Board of Directors and/or to Sub-Committees
- 2) Continuous tenure as Director in the Board of Directors and/or Member in Sub-Committees, and/or Secretary to Board of Directors and/or to Sub-Committees
- 3) Shareholding by Directors and/or Executives in GUNKUL Securities at the Closing Date of XO's Register on December 19, 2017 (Total Paid-up Shares 7,418,621,493 shares)
- 4) GUNKUL is transformed into a public company on August 10, 2009. The date was registered with the Department of Business Development for the first Board of Directors.
- 5) The date of being registered as Director of the Board of Directors shall be reported to the Department of Business Development.
- 6) Great Miracle Asset Group is comprised of Great Miracle Asset Co., Ltd. / Great Miracle Asset 2 Co., Ltd. - Great Miracle Asset 5 Co., Ltd. /Great Miracle Asset 7 Co., Ltd. /Great Miracle Asset 11 Co., Ltd. / Great Miracle Asset 13 Co., Ltd. / Great Miracle Asset 14 Co., Ltd./ and Pranburi Boulevard Co., Ltd.

## 21.2 Details Position Titles of Directors in Subsidiary Companies

Name	Subsidiary Companies (Direct Subsidiaries and Indirect Subsidiaries)																																													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44		
	G.K. Assembly Co., Ltd.	G.K. Power Products Co., Ltd.	K.N.P. Supply Co., Ltd.	Wind Energy Development Co.,Ltd.	Greenovation Power Co.,Ltd.	Korat Wind Energy Co.,Ltd.	NK Power Sola Co., Ltd.	Gunkul Solar Power 1 Co., Ltd.	Gunkul Solar Power 2 Co., Ltd.	Gunkul Solar Power 3 Co., Ltd.	Gunkul Solar Power 4 Co., Ltd.	Gunkul Solar Power 5 Co., Ltd.	Bright Green Co.,Ltd.	Siam Gunkul Solar Energy Co.,Ltd.	Solar Energy Society Co., Ltd.	Gunkul Solar Roof 1 Co., Ltd.	Gunkul Training Center Co., Ltd.	Gunkul Solar Community Co.,Ltd.	Gunkul Power Development Co., Ltd.	Gunkul Energy Solution and Lighting Co., Ltd.	Infinite Alternative Energy Co.,Ltd.	Rangnen Solution Co.,Ltd.	Gio Bio Energy Co.,Ltd.	Outgrow A Co., Ltd.	Outgrow B Co.,Ltd.	Outgrow D Co.,Ltd.	Outgrow E Co.,Ltd.	Outgrow Wood Supply A Co.,Ltd.	Outgrow Wood Supply B Co.,Ltd.	Eco Thai Energy Co., Ltd.	Gunkul Bio Energy Co., Ltd.	Gunkul Solar Power Co., Ltd.	Gunkul Solar Power 6 Co., Ltd.	BMP Solar Co., Ltd.	Future Electrical Control Co., Ltd.	Gunkul International (Mauritius)	Gunkul Investment (Singapore) Pte. Ltd.	Gunkul Myanmar Power (Hlawga) Pte. Ltd.	Gunkul Myanmar Central Power 1 Co., Ltd.	Sendai Okura GD Dailichi Godo Kaisha	Kimitsu Mega Solar Godo Kaisha	GD Solar Utsunomiya Godo Kaisha	East Japan Solar 13 Godo Kaisha	Future Asset Management Kabushiki Kaisha		
1. Miss Sopacha Dhumrongpiyawut																																														
2. Dr. Somboon Aueatchasai																																														
3. Dr.Phongsakorn Damnoen																																														
4. Miss Naruechon Dhumrongpiyawut																																														
5. Mrs. Areewan Chaloemdan																																														
6. Mr. Chaloempon Srichaloen																																														
7. Mrs. Somluk Kanuenghet																																														
8. Mr. Thamrong Chankraithong																																														
9. Mr. Janpon Ngamaroonchote																																														
10. Ms. Vijittra Saengpredekorn																																														
11. Miss Suttirat Tangnorakul																																														
12. Mr. Tritdi Boonyayone																																														
13. Mr. Kritsanapan Piboonwattanakit																																														
14. Mr. Chaisiri Wattanachannarong																																														

Remark : | Director

## 20.3 Details Position Titles of Directors and Managements of Gunkul Engineering Public Company Limited

Name	Company	Subsidiary Companies (Direct Subsidiaries and Indirect Subsidiaries)																																											
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
	Gunkul Engineering Public Co., Ltd.	G.K. Assembly Co., Ltd.	G.K. Power Products Co., Ltd.	K.N.P. Supply Co., Ltd.	Wind Energy Development Co.,Ltd.	Greenovation Power Co.,Ltd.	Korat Wind Energy Co.,Ltd.	NK Power Sola Co., Ltd.	Gunkul Solar Power 1 Co., Ltd.	Gunkul Solar Power 2 Co., Ltd.	Gunkul Solar Power 3 Co., Ltd. (3)	Gunkul Solar Power 4 Co., Ltd. (3)	Gunkul Solar Power 5 Co., Ltd. (3)	Bright Green Co.,Ltd.	Siam Gunkul Solar Energy Co.,Ltd.	Solar Energy Society Co., Ltd.	Gunkul Solar Roof 1 Co., Ltd.	Gunkul Training Center Co., Ltd.	Gunkul Solar Community Co.,Ltd.	Gunkul Power Development Co., Ltd.	Gunkul Energy Solution and Lighting	Infinite Alternative Energy Co.,Ltd.	Rangngen Solution Co.,Ltd.	Gio Bio Energy Co.,Ltd.	Outgrow A Co., Ltd.	Outgrow B Co.,Ltd. (3)	Outgrow D Co.,Ltd.	Outgrow E Co.,Ltd.	Outgrow Wood Supply A Co.,Ltd. (3)	Outgrow Wood Supply B Co.,Ltd. (3)	Eco Thai Energy Co., Ltd.	Gunkul Bio Energy Co., Ltd.	Gunkul Solar Power Co., Ltd.	Gunkul Solar Power 6 Co., Ltd. (3)	BMP Solar Co., Ltd.	Future Electrical Control Co., Ltd.	Gunkul International (Mauritius)	Gunkul Investment (Singapore) Pte. Ltd.	Gunkul Myanmar Power (Hlawga) Pte. Ltd.	Gunkul Myanmar Central Power 1 Co., Ltd.	Sendai Okura GD Daiichi Godo Kaisha	Kimitsu Mega Solar Godo Kaisha	GD Solar Utsunomiya Godo Kaisha	East Japan Solar 13 Godo Kaisha	Future Asset Management Kabushiki Kaisha
1. Mr. Gunkul Dhumrongpiyawut	1) 2)																																												
2. Dr. Djitt Laowattana	2) 3) 4) 5)																																												
3. Dr. Chongrak Rarueysong	2) 3) 5) 6) 7)																																												
4. Assoc. Prof. Dr. Panarat Panmanee	2) 3) 5)																																												
5. Mr. Tarakorn Angpubate	2) 3) 6) 7)																																												
6. Pol. Maj. Gen Visit Sukarasep <sup>(1)</sup>	2) 3) 5) 6) 7)																																												
7. Miss Sopacha Dhumrongpiyawut	2) 7) 8) 9) 10)	2)	2)			2)	2)	2)	2)	2)	2)	2)		2)	2)	2)	2)	2)	2)														2)	2)		2)			2)						
8. Dr. Somboon Aueatchasai	2) 9) 10) 11)				2)		2)	2)							2)	2)	2)	2)	2)	2)	2)		2)	2)	2)	2)	2)	2)	2)	2)	2)				2)										
9. Miss Naruechon Dhumrongpiyawut	2) 9) 10)				2)	2)									2)			2)		2)	2)	2)	2)	2)	2)	2)	2)	2)	2)	2)				2)			2)	2)	2)						
10. Mrs. Areewan Chaloemdan	2) 9) 10)	2)	2)																																										
11. Mr. Chaloempon Srichaloen	2) 9) 10)			2)																																									
12. AVM. Dr.Pian Totarong	3) 6) 7)																																												
13. Mr. Somchai Trairatanapirom	3) 7)																																												
14. Mr. Decha Chooligorn	3) 7)																																												
15. Mr. Hathai Uthai	3) 7)																																												
16. Mr. Phongthep Thitapan	3) 7)																																												
17.Dr. Phongsakorn Damnoen	10)				2)	2)	2)	2)	2)		2)	2)	2)	2)	2)	2)							2)	2)	2)	2)	2)	2)	2)	2)	2)	2)	2)	2)						2)					

Name	Company	Subsidiary Companies (Direct Subsidiaries and Indirect Subsidiaries)																																															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44				
	Gunkul Engineering Public Co., Ltd.	G.K. Assembly Co., Ltd.	G.K. Power Products Co., Ltd.	K.N.P. Supply Co., Ltd.	Wind Energy Development Co.,Ltd.	Greenovation Power Co.,Ltd.	Korat Wind Energy Co.,Ltd.	NK Power Sola Co., Ltd.	Gunkul Solar Power 1 Co., Ltd.	Gunkul Solar Power 2 Co., Ltd.	Gunkul Solar Power 3 Co., Ltd. (3)	Gunkul Solar Power 4 Co., Ltd. (3)	Gunkul Solar Power 5 Co., Ltd. (3)	Bright Green Co.,Ltd.	Siam Gunkul Solar Energy Co.,Ltd.	Solar Energy Society Co., Ltd.	Gunkul Solar Roof 1 Co., Ltd.	Gunkul Training Center Co., Ltd.	Gunkul Solar Community Co.,Ltd.	Gunkul Power Development Co., Ltd.	Gunkul Energy Solution and Lighting	Infinite Alternative Energy Co.,Ltd.	Rangngen Solution Co.,Ltd.	Gio Bio Energy Co.,Ltd.	Outgrow A Co., Ltd.	Outgrow B Co.,Ltd. (3)	Outgrow D Co.,Ltd.	Outgrow E Co.,Ltd.	Outgrow Wood Supply A Co.,Ltd. (3)	Outgrow Wood Supply B Co.,Ltd. (3)	Eco Thai Energy Co., Ltd.	Gunkul Bio Energy Co., Ltd.	Gunkul Solar Power Co., Ltd.	Gunkul Solar Power 6 Co., Ltd. (3)	BMP Solar Co., Ltd.	Future Electrical Control Co., Ltd.	Gunkul International (Mauritius)	Gunkul Investment (Singapore) Pte. Ltd.	Gunkul Myanmar Power (Hlawga) Pte. Ltd.	Gunkul Myanmar Central Power 1 Co., Ltd.	Sendai Okura GD Daiichi Godo Kaisha	Kimitsu Mega Solar Godo Kaisha	GD Solar Utsunomiya Godo Kaisha	East Japan Solar 13 Godo Kaisha	Future Asset Management Kabushiki Kaisha				
18. Mr. Chaisiri Wattanachannarong																																																	
19. Mrs. Somluk Kanuenghet	7) 10) 14)	2)	2)															2)																															
20. Mr. Thamrong Chankraithong	10)			2)																																													
21. Mr. Thitipong Techaratanayuenyong	7) 10) 14)																																																
22. Dr. Phairot Phanukan	10)																																																
23. Mrs. Nattawan Wongchan	10)																																																
24. Mr. Janpon Ngamaroonchote	10)					2)		2)								2)																																	
25. Miss Chantra Jongjamareeseethong	10) 12) 14)																																																
26. Ms. Vijitra Saengpredekorn	10)															2)								2)	2)	2)	2)	2)	2)	2)																			
27. Ms. Suttirat Tangnorakul	10)																	2)																															
28. Mr. Tanetsiri Farkmitr	10) 13)																																																
29. Mr. Tridti Boonyayone	10)				2)																																												
30. Mr. Kritsanapan Piboonwattanakit																								2)	2)	2)	2)	2)	2)	2)																			

#### Remark

1) Chairman of the Board of Directors

2) Director

3) Independent Director

4) Chairman of the Audit Committee

5) Member of the Audit Committee

6) Chairman of the Other Sub-Committee

7) Member of the Other Sub-Committee

8) Chief Executive Officer

9) Executive Director

10) Executive

11) Secretary of the Board of Directors

12) Company Secretary

13) Secretary of the Audit Committee

14) Secretary of the Other Sub-Committee

(1) Termination during the year

(2) Registration of Dissolution in 2017

(3) Registration of Dissolution in 2017



Name	Joint Ventures															Related Companies																																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
	G-Power Source Co., Ltd.	Gunkul Chubu Powergen Co.,Ltd.	Siam Wind Energy Co.,Ltd. (2)	Kenyir Gunkul Solar Sdn Bhd.	WHA Gunkul Green Solar Roof 1 Co., Ltd.	WHA Gunkul Green Solar Roof 2 Co., Ltd. (2)	WHA Gunkul Green Solar Roof 3 Co., Ltd.	WHA Gunkul Green Solar Roof 4 Co., Ltd. (2)	WHA Gunkul Green Solar Roof 5 (2)	WHA Gunkul Green Solar Roof 6 Co., Ltd.	WHA Gunkul Green Solar Roof 8 Co., Ltd. (2)	WHA Gunkul Green Solar Roof 9 Co., Ltd. (2)	WHA Gunkul Green Solar Roof 10 Co., Ltd. (2)	WHA Gunkul Green Solar Roof 16 Co., Ltd. (2)	WHA Gunkul Green Solar Roof 17 Co., Ltd.	Gunkul Group Co.,Ltd.	Kulnatee Co., Ltd.	Gunkul Trading and Agency Co., Ltd.	Gunkul Marine Line Co., Ltd.	Gunkul Engineering (2000) Co., Ltd.	G.M. Supply and Construction Co., Ltd.	Siam Gunkul Power Co.,Ltd. (2)	Siam Future Co.,Ltd.	Happy Green Co.,Ltd.	Tech-Green co.,Ltd.	Thonglor 9 Co., Ltd.	Entrity Sap Co., Ltd.	Gunkul Tech Co.,Ltd. (2)	Noppakul Co.,Ltd.	Great Miracle Asset Co., Ltd.	Great Miracle Asset 2 Co., Ltd.	Great Miracle Asset 3 Co., Ltd.	Great Miracle Asset 4 Co., Ltd.	Great Miracle Asset 5 Co., Ltd.	Great Miracle Asset 7 Co., Ltd.	Great Miracle Asset 8 Co., Ltd.	Great Miracle Asset 9 Co., Ltd.	Great Miracle Asset 10 Co., Ltd.	Great Miracle Asset 11 Co., Ltd.	Great Miracle Asset 13 Co., Ltd.	Pranburi Boulevard Co., Ltd.	Great Miracle Asset 14 Co., Ltd.	Thai Engineering Co., Ltd.	Apple Wealth Holdings Public Co., Ltd.	Integrated Management Consultant Co., Ltd.	DOD Biotech Public Co., Ltd.		
1. Mr. Gunkul Dhumrongpiyawut															2)			2)	2)	2)	2)								2)	2)	2)	2)	2)	2)	2)	2)	2)	2)	2)									
2. Dr. Djitt Laowattana																																										2)						
3. Dr. Chongrak Rarueysong																																											2)					
4. Assoc. Prof. Dr. Panarat Panmanee																																											2)					
5. Mr. Tarakorn Angpubate																																											2)					
6. Pol. Maj. Gen Visit Sukarasep <sup>(1)</sup>																																																
7. Miss Sopacha Dhumrongpiyawut	2)		2)		2)	2)	2)	2)	2)	2)	2)	2)	2)	2)	2)	2)		2)					2)	2)	2)	2)	2)	2)			2)	2)	2)	2)	2)	2)	2)	2)	2)	2)	2)	2)	2)					
8. Dr. Somboon Aueatchasai	2)	2)	2)																										2)																			
9. Miss Naruechon Dhumrongpiyawut				2)											2)								2)	2)	2)	2)	2)		2)	2)	2)	2)	2)	2)	2)	2)	2)	2)	2)	2)	2)	2)	2)					
10. Mrs. Areewan Chaloemdan																																																
11. Mr. Chaloempon Srichaloen																																																
12. AVM. Dr.Pian Totarong																																																
13. Mr. Somchai Trairatanapirom																																																
14. Mr. Decha Chooligorn																																														2)		
15. Mr. Hathai Uthai																																																
16. Mr. Phongthep Thitapan																																															2)	
17.Dr. Phongsakorn Damnoen		2)	2)																																													

Name	Joint Ventures															Related Companies																															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
	G-Power Source Co., Ltd.	Gunkul Chubu Powergen Co.,Ltd.	Siam Wind Energy Co.,Ltd. (2)	Kenyir Gunkul Solar Sdn Bhd.	WHA Gunkul Green Solar Roof 1 Co., Ltd.	WHA Gunkul Green Solar Roof 2 Co., Ltd. (2)	WHA Gunkul Green Solar Roof 3 Co., Ltd.	WHA Gunkul Green Solar Roof 4 Co., Ltd. (2)	WHA Gunkul Green Solar Roof 5 (2)	WHA Gunkul Green Solar Roof 6 Co., Ltd.	WHA Gunkul Green Solar Roof 8 Co., Ltd. (2)	WHA Gunkul Green Solar Roof 9 Co., Ltd. (2)	WHA Gunkul Green Solar Roof 10 Co., Ltd. (2)	WHA Gunkul Green Solar Roof 16 Co., Ltd. (2)	WHA Gunkul Green Solar Roof 17 Co., Ltd.	Gunkul Group Co.,Ltd.	Kulnatee Co., Ltd.	Gunkul Trading and Agency Co., Ltd.	Gunkul Marine Line Co., Ltd.	Gunkul Engineering (2000) Co., Ltd.	G.M. Supply and Construction Co., Ltd.	Siam Gunkul Power Co.,Ltd. (2)	Siam Future Co.,Ltd.	Happy Green Co.,Ltd.	Tech-Green co.,Ltd.	Thonglor 9 Co., Ltd.	Entrity Sap Co., Ltd.	Gunkul Tech Co.,Ltd. (2)	Noppakul Co.,Ltd.	Great Miracle Asset Co., Ltd.	Great Miracle Asset 2 Co., Ltd.	Great Miracle Asset 3 Co., Ltd.	Great Miracle Asset 4 Co., Ltd.	Great Miracle Asset 5 Co., Ltd.	Great Miracle Asset 7 Co., Ltd.	Great Miracle Asset 8 Co., Ltd.	Great Miracle Asset 9 Co., Ltd.	Great Miracle Asset 10 Co., Ltd.	Great Miracle Asset 11 Co., Ltd.	Great Miracle Asset 13 Co., Ltd.	Pranburi Boulevard Co., Ltd.	Great Miracle Asset 14 Co., Ltd.	Thai Engineering Co., Ltd.	Apple Wealth Holdings Public Co., Ltd.	Integrated Management Consultant Co., Ltd.	DOD Biotech Public Co., Ltd.	
18 Mr. Chaisiri Wattanachannarong																																															
19 Mrs. Somluk Kanuenghet																																															
20 Mr. Thamrong Chankraithong																																															
21 Mr. Thitipong Techaratanayuenyong																																															
22 Dr. Phairot Phanukan																																															
23 Mrs. Nattawan Wongchan																																															
24 Mr. Janpon Ngamaroonchote																						2)																									
25 Miss Chantra Jongjamareeseethong																																															
26 Ms. Vijittra Saengpredekorn			2)																																												
27 Ms. Suttirat Tangnorakul																																															
28 Mr. Tanetsiri Farkmitr																																															
29 Mr. Tridti Boonyayone																																															
30 Mr. Kritsanapan Piboonwattanakit																																															

#### Remark

- 1) Chairman of the Board of Directors
- 2) Director
- 3) Independent Director
- 4) Chairman of the Audit Committee

- 5) Member of the Audit Committee
- 6) Chairman of the Other Sub-Committee
- 7) Member of the Other Sub-Committee
- 8) Chief Executive Officer

- 9) Executive Director
- 10) Executive
- 11) Secretary of the Board of Directors
- 12) Company Secretary

- 13) Secretary of the Audit Committee
- 14) Secretary of the Other Sub-Committee

- (1) Termination during the year
- (2) Registration of Dissolution in 2017
- (3) Registration of Dissolution in 2017

## 22.1 Good Corporate Governance Policy

(Citation to Good Corporate Governance Policy, Revised Version dated on November 19, 2018)

Our board of directors, sub-committees, corporate governance executive and employees of the organization adhere to the principles of good corporate governance. Therefore, it is a guideline for the operation of the Company in order to determine the quality management system by focusing on transparent disclosure, which will result to standardized performance. Boost productivity to build competitiveness and add value to the owner. These will satisfy the stakeholders. Stakeholders have set “Good Corporate Governance Policy” for the Board of Directors, sub-committees, executives, and employees have adopted the guidelines as follows:

- |                        |  |
|------------------------|--|
| 1. Accountability      | Responsibility for Performance and can explain to the practice.  |
| 2. Responsibility      | The full realization of duty and efficiency.   |
| 3. Equitable Treatment | Respect for rights, treatment of stakeholders honestly. And equitably also include opportunities for stakeholders to participate fairly. |
| 4. Transparency        | Disclosure, operation is transparent and can be verifiable.  |
| 5. Value Creation      | Value Creation for short and long term, by improving and enhancing competitiveness.  |
| 6. Ethics              | Ethics and code of the conduct for operation business.   |

This corporate governance policy has been agreed and approved in writing by the board of directors at board meeting 9/2017 on December 18, 2017. For the purpose of preparation

and policy matters of Good Corporate Governance to be use as a tracking policy, control and supervision of the delegates to administrative functions by managing the organization's resources, that is used effectively and effectively targeted. Including the maximize return to all stakeholders are fair. Although, the Board of Directors has regularly reviewed these policies and guidelines on a regular basis and the Company adheres to the principle of good and regular supervision.

The details of the Company's Good Corporate Governance Practices have conducted and prepared in accordance with good corporate governance principles for the listed companies with continuous improvement of the Stock Exchange of Thailand and the Company has continually reviewed and updated to ensure that they will compliance with good governance principles. The structure and guidelines of Good Corporate Governance are divided into 5 parts as follows:

## **Section 1 Shareholder Right**

The Board of Directors attaches great importance to the rights of shareholders, without infringing upon or depriving the shareholders of their rights. Both of the shareholders who are major shareholders and minority shareholders, Thai shareholders or foreign shareholders, by the fundamental rights of shareholders including the right to trade and transfer the company's shares, the right to have access to adequate business information, the right to share of the profits of a business, the right to be treated fairly in shares buy back by the company, the right to elect and remove directors, the right to consider on remuneration of directors in all forms, the right to approve the appointment of independent auditor annually, and the right to attend and vote at a shareholder meeting in order to make decision on significant issues that may affect the company such as dividend allocation, amendment to the memorandum and/or articles, reduction or increase of capital, approve the special items, and so on, which are typically defined by state law.

In addition, the Board of Directors has set a policy to facilitate and promote the attendance of shareholders for supporting the shareholders of the Company. Including institutional of the investors and have exercised their basic rights to attend the meeting and exercise their right to vote at the shareholders' meeting as follows:

### **1) Pre-shareholder Meeting**

- The opportunity for shareholders to send their opinions, questions or propose agenda items in advance of the shareholders' meeting. With clearly defined criteria by the information system of the Stock Exchange of Thailand. Also available on the company's website.
- Opportunity for shareholders to nominate persons to be elected as directors in advance of the shareholders' meeting. With clearly defined criteria by the information system of the Stock Exchange of Thailand. Also available on the company's website.
- Arrangement the meeting invitation and supporting documents to the shareholders at least 14-21 days (or any other time as required by the law) and announce the newspaper no less than 3 consecutive days for inform the date to appointment of the shareholders meeting according to the law. The meeting invitation and the supporting documents in both Thai and English versions had been published on the Company's website at least 30 days before meeting date.
- Identify important information in the meeting invitation, such as date, time, Place of the meeting. Agenda details. Be supporting documents with the Board of Directors' opinion Rules for vote counting on each agenda to be in accordance with the law. Proxy form as required by law list of independent directors, so that shareholders can choose to appoint a proxy to attend the meeting. Statement on how to appoint a proxy to attend the meeting and the voting in the shareholders meeting. A map of the meeting and place. Including the company's regulations about the meeting of shareholders and voting.

### **2) Action on Shareholders Meeting**

- Fix date, time and place of meeting. Taking into account the convenience of the shareholders. And to provide personnel. And technology is adequate for the number of shareholders.
- Provide the bar code system and arrange for independent auditors to count the votes or check votes and disclose to the meeting also recorded in the minutes.

- The Chairman will explain the rules used in the meeting. Voting procedure to allocate the meeting time appropriately. Include an opportunity for all shareholders to ask. Provide comments and suggestions. Fully the Board of Directors Audit Committee, sub-committees, relevant executives, auditors, and / or legal counsel. And / or independent financial advisors and / or bank sponsors. (As the case if any) attended the shareholders' meeting to answer the questions in the meeting. Including senior executives, Company secretary, Secretary to Board of Directors attend to the meeting.
- In case the shareholders could not attend the meeting by themselves, the Company gives the shareholders the opportunity to appoint a proxy to the independent director or any person as the Attend the meeting instead.

### ***3) After the Shareholders Meeting***

- Disclosure of the resolutions of the shareholders 'meeting and the voting results by the date of the shareholders' meeting in next business day from shareholders' meeting. By the information system of the Stock Exchange of Thailand. Also available on the company's website.
- Do the minutes of the meeting shall be prepared with accurate and complete information stating the issues raised by the shareholders and the Board of Directors 'replies to such questions within 14 days from the date of the shareholders' meeting. And submit the minutes of the meeting to the relevant authorities within the time limit. Also disclose the minutes on the Company's website for shareholders and related parties to verification.

In 2018, the Company held general shareholders' meeting for the year 2018 dated on April 20, 2018, at Grand Ballroom, 3rd Floor, the Emerald Hotel, 99/1 Ratchadapisek Road, Dindaeng, Dindaeng, Bangkok 10400, with all directors of every committee, all senior executives, secretary of every committee and company secretary. Along with the authorized auditor, representatives from financial advisors, representatives from banks that provide financial support and representatives from legal counsel attended a total of 26 people. In order to clarify details related to the meeting agenda and answer questions of shareholders. The Company had

assigned Thailand Securities Depository Co., Ltd., which is the registrar of the Company, to deliver the invitation letter to the shareholders' meeting and supporting documents for each agenda together with the annual report, rules and regulations relating to the shareholders' meeting and voting, Proxy forms and information of independent directors who are proxy agents in order to facilitate shareholders in the event they are unable to attend the meeting in person, including forms for obtaining annual reports in the form of books and the location map of the meeting place which has been delivered to the shareholders in advance before the meeting. Also, the Company had publicized the invitation letter to the shareholders' meeting and supporting documents including annual reports and documents as mentioned above, the Company's website at [www.gunkul.com](http://www.gunkul.com) in advance before the meeting. Therefore, the shareholders can access an information that related to the meeting of shareholders more conveniently and faster.

For registering and voting, the Company uses barcode system and provides revenue stamp for shareholders to send proxy to company with aim to make it fast and convenient to shareholders. In the meeting, the Company explains voting criteria before meeting starts and gives shareholders opportunity to express their opinions and raise questions in relation to the company and agenda.

## **Section 2 Equally Treatment among Shareholders**

The Board has set policies and procedures in various matters. To ensure that all shareholders are treated and protected equally, they are equally protected including the information before the shareholders' meeting, the protection of the rights of minority shareholders Prevention of internal data usage and the prevention of Conflict of Interest, inter-transactions as well as internal controls and internal audits as follows:

### ***1) Pre-meeting information and protection of minority shareholders' rights***

- Prepare meeting invitation and meeting documents both in Thai and English by put on the agenda, and opinion of the Board of Directors in the notice of the meeting. And through the information system of the Stock Exchange of Thailand. Also available on the company's website advance at least 30 days before the date of the shareholders' meeting.

- Inform the shareholders of the procedures and rules used in the meeting. Both how to register a proxy and vote.
- Allow the shareholders to send the inquiries. Propose agenda and nominate candidates to be elected as directors in advance of the meeting date. With clearly defined criteria by the information system of the Stock Exchange of Thailand. Also available on the company's website.
- Conduct the shareholders' meeting, according to the agenda set forth in the invitation letter. Without adding unnecessary agenda items advance notice.
- Determine whether the shareholders who are directors or executives disclose information about their interests and related persons. And there is no right to vote on such stake.

## ***2) Supervision of the use of inside information***

The Company maintains proper use of inside information in accordance with good corporate governance by setting policies and procedures for the support to directors and executives to use internal information of the company. That is not publicly available for personal gain. Including securities trading as follows:

- Notify the Directors and Executives of the Company's reporting obligations and report changes in holding of the Company's securities. Both its spouse and its underage children. To the Office of the Securities and Exchange Commission ("SEC") under Section 59 and penalties under Section 275 of the Securities and Exchange Act BE 1992 (as amended) and submit a copy of this report to the Company Secretary on the same day that, the report is sent to the SEC. Also report to the Good Corporate Governance Committee and the Board of Directors meeting every quarter.
- Fix the directors, executives, employees of the Company and the Group are required to obtain material inside information which affects the price change. Do not trade the company's securities. Prior to the date on which the financial statements or internal information would be made available to the public.
  1. Group of independent directors: not less than 7 days or when receiving the documents for the Board of Directors Meeting Whichever comes first.



2. Group of executive directors, executives, Employees related to the Company's financial information and the Group. To be aware of or possess internal information: Do not trade securities of the company. From the date of acknowledgment from the Company's financial statements until the date of disclosure of financial statements to the public through the information system of the Stock Exchange of Thailand. Due to obtaining financial information may cause a risk or cause the use of internal information of the Company.

After the information is publicly available by the Company, It is able to trade the Company's securities after past 24 hours then the person involved in such internal information must not disclose such information to others until information has been provided through, the information system of the Stock Exchange of Thailand.

- Directors, executives and employees of the Company and the Group are prohibited to use internal information of the Company that possible or likely to affect the price of the Company's securities which is not publicly available yet for using to buy or sell and offer for buy or offer to sell, or persuade others to buy or sell. The shares or other securities (if any) of the Company, either directly or indirectly. Also disclose such information to others. Whether or not they receive benefits.
- The Company has imposed significant disciplinary action on the part of the Company who seek the benefit of the Company's internal information. To use or disclose to do or may cause damage to the Company. The punishment should be punished according to the case, including warnings, probation and termination of employment as a result of dismissal, as the case may be, which has been approved by the Board of Directors.

### ***3) Prevention of Conflict of Interest***

- Define those who are involved or have an interest in the item considered, must notify to the Company that about relationship or stake in the list. In case of director, they must not participate in the decision. Including no authority to authorize of the transaction.

- For a transaction that causes a conflict of interest that is a trade agreement is not a general trading condition. That must be presented to the Board of Directors for approval. And must comply with the rules of the Capital Market Supervisory Board of The Securities. And Exchange Commission to The Stock Exchange of Thailand Or any other relevant regulatory authority.

#### **4) Connected Transaction**

- If there is a connected transaction, the Company shall comply with the law governing securities and exchange, also the regulations, notifications, orders or requirements of the Capital Market Supervisory Board. The Securities Commission and stock exchange. The Stock Exchange of Thailand or any other relevant regulatory authority. Including compliance with the disclosure requirements of the connected transaction of the Company. In accordance with accounting standards prescribed by the Federation of Accounting Professions.
- In the case, that the connected transactions are normal business transactions and normal business support transactions. With general trading conditions, include items to give or receive financial assistance. A listed company or a subsidiary provides financial assistance to a juristic person in which a listed company or a subsidiary is a shareholder. In proportion to their own interest in that, legal entity under the terms of trade in general or better. To comply with the operating framework approved by the Board of Directors.
- In case of connected transaction is other types of transactions are proposed to the Board of Directors for consideration. By compliance with the rules of the relevant regulatory bodies.

#### **5) Internal control and Internal audit**

- The Board of Directors, the Audit Committee and the management have a direct responsibility to provide and maintain an internal control system. It also conducts regular reviews of the effectiveness of the internal control system. To ensure reliable information and financial information system.
- The Company has appointed an internal audit unit. To be responsible for

monitoring the performance of the company. To be effective by reporting the results directly to the Audit Committee.

- The Audit Committee has reviewed the appropriateness and adequacy of the internal control system at least once a year and proposed to the Board for consideration and comments in the Annual Report. And Annual Information Disclosure (Form 56-1)

### Section 3 Stakeholders Role

The Board of Directors has priority to pay attention to the rights of all stakeholders in accordance with existing laws or agreements with the Company such as, shareholders, customers, trading partners, creditors, competitors, employees, society, communities and the public sectors. Each group as well as business practices under environmental quality standards. Anti-corruption Corruption, Non-infringement of intellectual property, not related to human rights abuses based on the principles of fairness and equality to have all personnel in the Company adhere to a guideline with a mechanisms to follow. There are channels to receive feedback or complaints by defined as a policy or practice. Detail as follows:

#### ***1. Rights of all stakeholders according to existing laws or agreements with the Company.***

Shareholder : The Company is committed to operate its business with honesty, transparency, morality and ethics by developing business to thrive to create a good return to shareholders and investors in a sustainable and sustainable manner.

Customer : Company has responsibility to customers by maintaining quality and standard of goods and services as well as reacting to customers' need perfectly and completely to maximize customer satisfaction in the long run.

Partner : Company treats trade partners fairly and in line with trade contract and has policy to create and develop relationship with trade partners continuously.

Creditor : Company complies with contract condition and gives information to creditors as per request.

Competitor :	Company operates business along with fair competition and develops market to grow for mutual benefit of industry.
Employee :	Company treats employees equally, gives them proper compensations and creates quality working environment.
Society / : Community/ And the environment	Community and social environment including compliance with relevant laws and regulations. Moreover, the Company has also implemented Corporate Social Responsibility (CSR) for sustainable community development and society.
Government Sector :	The Company is engaged in the business of enhancing and advancing the country's progress by adhering to the relevant laws, rules and regulations.

## ***2. Communication channels with the Board of Directors in providing clues or complaints***

To make sure that the rights of the various stakeholders are protected. The Board of Directors has provided channels for stakeholders. All parties are encouraged to provide feedback, report clues or complaints about suspected or unlawful actions. Include inaccurate financial reporting or defective internal control system by the Company. That will investigate the facts and take steps to ensure fairness to all parties. The information of the clerk will be kept confidential to protect the notified.

The suggestions or clerk can communicate to the Board of Directors as follows:

Via E-mail	:	audit_committee@gunkul.com
Via Mail	:	Chairman of the Audit Committee Gunkul Engineering Public Company Limited 1177 Pearl Bangkok Building FL.8 Phahonyothin Road, Phayathai, Phayathai, Bangkok 10400

## ***3. Anti-corruption Policy and report clues or complaints***

(Refer to the Anti-Corruption Policy and a clue or complaint: Revised version date on December 19, 2018)

The Board of Directors gives priority to anti-corruption. Therefore, the Company is required to prepare “Anti-corruption and clues or complaints Policy” as a guideline for the organization’s operations in a transparent, sustainable and integral manner.

The Company and the Group have a policy of forbidding directors, executives, and employees from acting in connection with corrupt practices in various forms, either directly or indirectly whether as a recipient, contributor, or bribe to the person or organization concerned review policies and guidelines every year in order to be consistent with changing business, regulations, and legal requirements.

Board of Directors responsibilities of the organization’s personnel are as follows.

1. **Board of Directors** has the duty and responsibility to formulate policies to oversee and support the anti-corruption process in the organization. To staff the company. Understand and recognize the importance of anti-corruption corruption by instilling culture and values.
2. **Audit Committees** has the duty and responsibility to supervise the implementation of Anti-Corruption measures by reviewing financial reporting and accounting systems, internal control system, internal audit system and risk management that related to Corruption Prevention Measures. Include the corroboration of corrupt practices in which the personnel of the organization are involved. Check the facts as they are informed and propose matters to the Board of Directors for acknowledgment or fix that problem.
3. **Good Corporate Governance Committee** has the duty and responsibility in the frame and review anti-corruption policy. And responsible for directing all personnel in all positions to adhere to the anti-corruption policy, strictly in accordance with the good corporate governance policy.
4. **Risk Management Committee** has the duty and responsibility to supervise and support the implementation of risk management and corruption management. Include risk assessments of operations across all sectors of the organization that to ensure adequate and appropriate review of policies and measures.
5. **Nomination and Remuneration Committee** has the duty and responsibility in the frame. Set on the guidelines for recruitment and consideration with transparency and fairness.

6. **Executive Board and Management** have the duty and responsibility to set up a system and measures to promote and support anti-corruption. To communicate to all employees and stakeholders. Including those with vested interests and provide assessment, review the suitability of systems and measures. To be consistent with changing business, regulations, and legal requirements.
7. **Internal Audit Executive** has the duty and responsibility to review the operation as accurately as possible in accordance with the code of conduct. Rule including the law and Regulator requirements. To ensure that there is adequate control over the risk of potential corruption. And report to the Audit Committee.
8. **Employees** have the duty and responsibility to follow and implement the code of conduct. Including the law and Regulator requirements. Also understands and recognizes the importance of anti-corruption.

The implementation guidelines, Terms of use, Acknowledgments or complaints in relation to the corruption, Corruption Reporting Channel, Protection and confidentiality and the process of receiving complaints, investigations and penalties, as well as the guidelines for the dissemination of anti-corruption corrupt policies, the Company has made a general acknowledgment, according to the documents referenced above, to express its intentions for committing to anti-corruption. The details of the full policy can be found at <http://www.gunkul.com/th/sustainability/charters>, with a conclusion as follows;

## Practice Guidelines

The Company and the Group committed to creating an organizational culture that is anti-corruption by the Company's personnel and the Group must comply with the anti-corruption policy and business ethics without being involved in corruption, whether directly or indirectly. The Company and the Group have established an internal control system and an audit process in all aspects that take into account the risk of corruption, including assessing risks and determining adequate and appropriate risk management measures. As well as, encouraging employees at all levels to receive training and disseminate such policies to those who involved to create understanding. The personnel must not be ignored when seeing actions that are considered as corruption, including determining penalties if the Company's personnel And the Group has been involved in such actions.

## Terms of Operation

Any action shall be taken in accordance with the guidelines set forth in the anti-corruption policy. Including a good corporate governance handbook, policies, rules, regulations, regulations, guidelines, practices, and other related work manuals. As well as, any other guidelines that the Company and the Group will set in the future by complying with all activities that related to the operations of the Company and the Group.

### Whistle Blowing or Anti-Corruption Complaint

1. When the personnel finds the act of direct or indirect corruption in relation to the Company and its subsidiaries / affiliates, for example the reception or offer of bribery by the personnel in the organization to the governmental agency's official or private agency's official.
2. When the personnel finds the wrong-doing according to the regulation of the Company and its subsidiaries / affiliates which affects the internal control system to the extent that it can be hypothesized that the wrong-doing is a channel of corruption.
3. When the personal finds any action which ruin the Company and its subsidiaries / affiliates' benefits and reputation.
4. When the personal finds any action which contradicts the laws, morality or business ethic.

### Reporting or Complaining Channels

Whistleblowers or complainants in actions that may cause suspicion of corrupt practices that occur with the Company. The clues can be reported via the assigned channels as follows:

Whistleblowers or complainants must provide details of the subject to report clues or complaints (Name or position of the complainant committing a crime time of committing an offense) with the name, address and contact number of the person who made the complaint. And send to the channels to receive channels one way.

- 1) Submit via the audit committee's e-mail [audit\\_committee@gunkul.com](mailto:audit_committee@gunkul.com)

- 2) Submit via the company's website      [www.gunkul.com](http://www.gunkul.com)
- 3) Submit via the postal mail to      Chairman of the Audit Committee  
GUNKUL ENGINEERING PUBLIC CO., LTD.  
1177 Pearl Bangkok Building FL.8  
Phahonyothin Road, Phayathai, Phayathai,  
Bangkok 10400
- 4) Submit via      “Whistle Blowing and Corruption Complaint”  
(The box is set inside the Company: Only the Audit Committee and / or the Secretary of the  
Audit Committee can be able open the box.)

### **Confidentiality Protection and Non-Disclosure Measure**

To protect the right of the reporter / complainer or the notifier who provide the information with regard to corruption with the good will, the Company shall keep the information of the reporter / complainer confidential. Only the authorized person responsible for the complaint inspection can access the said information.

The authorized person receiving the complaints shall preserve the information, complaint and documentary evidence of the reporter / complainer as confidential. They shall not be disclosed to the non-authorized person, except in the case of the disclosure required by the law.

In case of the corruption report / complaint, the Company shall be in charge for protection of the reporter / complainer, witness and information provider of the investigation process, so that they would not be affected by any trouble or injustice arising from their notification, complaint, witness status or information provision.

If the reporter / complainer, information provider or personnel who rejects the corruption is the personnel of the Company and its subsidiaries / affiliates, the Company shall extend the fair protection to prevent the negative consequence from the personnel, such as demotion, penalty, etc. , although it would ruin the Company's business opportunity.



## Process on Complaint Reception, Investigation and Penalty

The Company and the Group shall set up the process following the reception of the corruption report or complaint. They shall identify the group of involved person, complaint reception process, investigation and penalty, as follows;

### 1. Group of involved persons

- |                                      |  |
|--------------------------------------|--|
| 1) Corruption Reporter / Complainer  | Person who reports the corruption or submits the complaint   |
| 2) Complaint Receiver                | Persons who receive the report / complaint via the channels under item 9. They shall include Chairman of the Audit Committee, the Audit Committee and Secretary of the Audit Committee |
| 3) Coordinator                       | Person who preserves the information regarding the corruption report / complaint and the result of investigation. In this case, the person is the Secretary of the Audit Committee.    |
| 4) Investigation Committee           | CEO shall set up the Investigation Committee to investigate the fact.  |
| 5) Audit Committee                   | The Audit Committee of GUNKUL ENGINEERING PUBLIC CO., LTD.   |
| 6) Chairman of the Board of Director | The Chairman of the Board of Director of GUNKUL ENGINEERING PUBLIC CO., LTD.   |
| 7) CEO                               | CEO of GUNKUL ENGINEERING PUBLIC CO., LTD.   |
| 8) Managing Director                 | The Managing Director of GUNKUL ENGINEERING PUBLIC CO., LTD.   |
| 9) Human Resource Department         | Discipline controller  |
| 10) Secretary of the Audit Committee | Secretary of the Audit Committee of GUNKUL ENGINEERING PUBLIC CO., LTD.  |
| 11) Secretary of the Company         | Secretary of GUNKUL ENGINEERING PUBLIC CO., LTD.   |

## ***2. Registration and Submission of Corruption Report / Complaint***

- 1) The personnel receiving the corruption report / complaint shall submit the issue to the coordinator within 3 working days of the reception date of corruption report / complaint.
- 2) The coordinator submits the issue to the investigation Committee for the consideration or further investigation.

## ***3. Investigation***

- 1) After the consideration, if the Investigation Committee deems that; the corruption report / complaint
  - the corruption report / complaint is not significant, then the Committee shall submit the issue to the immediate supervisor of the reporting personnel for the further consideration of disciplinary penalty according to the Company's regulation.
  - the corruption report / complaint is not based on the fact or does not contradict the Company's benefits, the Committee shall record in the complaint registration and end the investigation.
- 2) After the consideration, if the Investigation Committee deems that the corruption or the conflict of interest really possibly occurred ;
  - The Investigation Committee shall investigate and report the result to the Audit Committee and CEO for consideration and further proceeding according to the Company's regulation and / or the legal penalty.
- 3) If the corruption report / complaint concerns the corruption of the high-ranked executive
  - The Investigation Committee shall investigate and report the result directly to the Investigation Committee for the further proceeding.

#### ***4. Order and Penalty***

- 1) If the reported person is really guilty, the Company shall order the penalty according to the Company's regulation and / or the legal proceeding.
- 2) After the investigation, if it is found that the corruption report / complaint is not done with the good intention and the reporting person is the personnel of the Company, the Company shall impose the disciplinary penalty according to the Company's regulation.

The investigation must be finalized within 30 days after the complaint was received from the coordinator. (If the investigation cannot be finalized within 30 days, the reason of the delay shall be notified to the coordinator.)

#### ***5. Notification of the Investigation Result to the Reporter / Complainer***

- 1) The Investigation Committee submits the operational result to the coordinator.
- 2) The coordinator records the operational result in the registration and notifies the result to the reporter / complainer.
- 3) The coordinator reports the operational result and the following-up (if any) to the Investigation Committee, the Good Governance Committee and the Board of Directors for their acknowledgement. The report shall be proposed every quarter.

#### **Dissemination of Anti-corruption Policies**

To communicate the anti-corruption policy to all personnel in the organization, the Company shall;

- 1) Communicate the anti-corruption policy and other relevant policy via the channels, so that the personnel in the organization, relevant persons, and stakeholders can efficiently access to the policy.
- 2) Hold the anti-corruption policy training for the personnel of the organization and stakeholders once a year.
- 3) Encourage the employees to participate in the projects or activities held by the governmental or private sectors to affirm the determination of the Company and its subsidiaries / affiliates in compliance with the anti-corruption policy.

In the Board of Directors' meeting held on February 20, 2019, the Secretary to the Audit Committee and the Audit Committee informed the meeting of the results of the complaint regarding corruption in 2018 by summarized as follows;

The follow-up of fraud complaints for the year 2018

Channel of fraud complaints	JAN		FEB		MAR		APR		MAY		JUN		JUL		AUG		SEP		OCT		NOV		DEC	
	15	31	15	28	15	31	15	30	15	31	15	30	15	31	15	31	15	30	15	31	15	30	15	31
Complaints via Email	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Complaints via website	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Complaints via letter.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Complaints through the complaint box																								
- Sri Yan Office	x																							
- Pearl Bangkok Building Office											x	x	x	x	x	x	x	x	x	x	x	x	x	x
- Phichai Office	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
- GKA & GKP Office	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
- Rung Ngoen Building Office	x																							

x : No complaints

√ : Complaints

## Section 4 Disclosure of information and transparency

The Board of Directors shall accurately, completely, timely, transparently disclose the important information in compliance with the laws and regulations of Stock Exchange of Thailand and the Securities and Exchange Commission. The information shall include the financial report, general information, and other information affecting the price of the stock and decision of the investors and stakeholders. This is to ensure that all stakeholders could equally access the information. The Company shall circulate the information via the website of Stock Exchange of Thailand and the Company's website.

### *1) Disclosure of information*

The Board of Directors realizes the significance of the accurate, complete, true and reasonable financial report made in accordance with the prevailing accounting standard. Hence, the Board of Directors appoints the Audit Committee to review the financial report for its accuracy, comprehensiveness and reliability. And the Company is obliged to disclose the information in time in accordance with the requirement of the relevant supervising agency.

The Company is obliged to clarify the role of the Board of Directors and all committees, personal information of each committee, the number of meetings of all committees and their attendance, remuneration of the Directors and Executives, committee performance evaluation process and principle, individual committee's development and training, report of the selling, buying and holding of the Company's asset, the annual change of the individual stock possession of the Directors and Executive in accordance with the definition of the Securities and Exchange Commission, etc. The information shall be disclosed in the annual report and the annual information declaration (56-1 Form).

### *2) Communication channel with the Company's Secretary / Investor Relation*

The Company Secretary / Investor Relation

Tel. No. (66) 2 242-5867, (66) 2 242-5868,

E-mail: [ir@gunkul.com](mailto:ir@gunkul.com)

Website: [www.gunkul.com](http://www.gunkul.com)

In 2018, the Company disclosed information related to the Company through various channels to shareholders and investors to acknowledge accurately and completely, such as informing the Company's operating results and the Group of quarterly and annual Information on investment in various projects, revised policy including the preparation of financial reports and general information of the Company along with a report of the Board of Directors' responsibility for the financial report, along with the report of the Board of Directors and the auditor's report is included in the annual report to disclose matters in accordance with good corporate governance principles through the annual report and website of the Company etc.

In addition to disclosure in accordance with the requirements of the Securities and Exchange Commission and the Stock Exchange of Thailand, the Company has provided channels of communication to shareholders, investors, analysts both domestically and internationally. With Investor Relations will Communicate and publish information directly.

In 2018, The Company had held quarterly and annual performance reports to its shareholders, investors and analysts (Opportunity Day) for 4 times. There were 1 meeting with analysts and a meeting with analysts; as well as, investors who wished to know the overall business operation of the Company at least 10 times, including published a press release every time that had the major investment or business activities.

In addition, information disclosure is done via company website [www.gunkul.com](http://www.gunkul.com) both in Thai and English so all stakeholders can participate. If interested, you can contact investor relations department at telephone no. 0-2242-5867 and 0-2242-5868 or e-mail [ir@gunkul.com](mailto:ir@gunkul.com)

## **Section 5 Responsibility of the Board of Directors**

### ***1. The Board of Directors***

According to the charter of the Board of Directors, the composition of the Board of Directors is not less than 5 persons and not more than 12 persons, also not less than one third of directors must be independent directors. At least half of the directors must have a residence in the Kingdom of Thailand. The Board of Directors is appointed by the shareholders' meeting. The term of office is 3 years or from the Board of Directors' meeting, in accordance with the law. The term of office of the independent director who holds the position of director and member of the audit committee is not more than 9 years. The composition of the Board of Directors should be proportionate to the Company's directors with an expertise in various areas

suitable for the business and having a balance of power within the Board. Including, they must not engage in a partnership or a director in other juristic persons with the same conditions and conduct business in competition with the business of the Company. In the case of an independent director, the qualifications required to be independent are as specified by the Company and must be equally beneficial to the interests of all shareholders and can also comment freely.

However, Features, Tenure, Scope of Authority and Responsibility including the number of times in the annual meeting of the Board of Directors must comply with the charter of the Board of Directors. The Company Secretary is also required to perform duties in accordance with the criteria set by the relevant regulatory authority.

On December 31, 2018, the Board of Directors consisted of 10 members, consisting of 5 directors, 5 non-executive directors, 1 non-executive independent director, and 4 independent directors. All of who are knowledgeable and experienced, expertise. In the business of the company, there are 4 independent directors who are responsible for balancing the voting power and review the management of the management to maximize the benefits to the Company.

The company has a policy to appointing separate president and managing director to different person aim to balance management authority and prevent unlimited power over other members. The board of directors will determine roles and responsibilities of each position and response to recruit and appoint the right person for the position.

## **2. Sub-Committees**

The Board of Directors shall set up the committees to support and supervise the administration in accordance with the good governance. Details as follow:

### **2.1) The Audit Committee**

According to the Charter of the Audit Committee, the composition of the Audit Committee shall be no less than 3 persons, selected by the independent directors in the Board of Directors. The Board of Directors will appoint the Audit Committee. The term of office is 3 years. The Audit Committee member must have sufficient knowledge and experience to serve as a member of the Audit Committee. Not being a director assigned by the Board of Directors, make decisions on the operations of the Company, subsidiaries, affiliated companies. Major Shareholders or the Company's controlling authority. And not being a director of the parent

company, subsidiary of the same order of the listed companies. There must be at least 1 person that has sufficient knowledge and experience to be able to review the reliability of the financial statements.

However, Features, Tenure, Scope of Authority and Responsibility including the number of meetings in the annual meeting of the Audit Committee must comply with the charter of the Audit Committee and set the head of the internal audit to act as Secretary to the Audit Committee.

On December 31, 2018, the Audit Committee comprised of 3 independent directors, appointed by the Board of Directors, with 1 independent director that graduated in accounting and being a director who is a woman. The Company has a policy that the person holding the position of Chairman of the Audit Committee shall not be the Chairman of the Board of Directors.

## *2.2) Risk Management Committee*

According to the charter of the Risk Management Committee, the composition of the Risk Management Committee is not less than 3 persons, and one half of the Board of Directors must not be the Company's management and will be appointed by the Board of Directors. The term of office is 3 years, which is selected by a number of directors and / or executives and / or experts. The Risk Management Committee must be knowledgeable in the business of the Company, knowledge and experience in risk management, investment management. This is a very important factor in the Company's business operation in order to achieve the objectives of the Company. The Risk Management Committee shall not be a director, an executive or an operator in the company which operates in the same manner as the Company.

However, Features, Tenure, Scope of Authority and Responsibility including the number of times in the annual meeting of the Risk Management Committee must comply with the charter of the Risk Management Committee.

On December 31, 2018, the Risk Management Committee consisted of 4 members, consisting of 2 non-executive directors and 2 executive directors. The Company has the policy to appoint the Chairman of the Risk Management Committee and not Chairman of the Board.



### *2.3) Nomination and Remuneration Committee*

According to the charter of the Nomination and Remuneration Committee, the composition of the Nomination and Remuneration Committee must be no less than 3 persons and more than half of which shall not be the Company's management. The Board of Directors will appoint the Nomination and Remuneration Committee also the term of position is 3 years. This is selected from a number of directors and / or executives of the Company. And / or qualified The Nomination and Remuneration Committee must be a competent person. Personnel Management Have the skills, expertise and experience in relevant work.

However, Features, Tenure, Scope of Authority and Responsibility including the number of times in the annual meeting of the Nomination and Remuneration Committee must comply with the charter of the Nomination and Remuneration Committee.

On December 31, 2018, the Nomination and Remuneration Committee consisted of 4 members, consisting of 3 non-executive directors and 1 executive director. The policy is to nominate persons to serve as chairmen of the Nominating and Remuneration Committee. The return must not be the Chairman of the Board and must be an independent director.

### *2.4) The Corporate Governance Committee*

According to the charter of the Good Corporate Governance Committee, the composition of the Good Corporate Governance Committee must be no less than 3 persons and not be the management of the Company. The Board of Directors will appoint the Corporate Governance Committee. The term of office is 3 years, selected from a number of directors and / or management of the Company and / or qualified persons. Good Corporate Governance Committee members must be knowledgeable in Corporate Governance and use the knowledge as well as the experience of working as a good corporate governance committee to achieve the objectives of the Company. However, Features, Tenure, Scope of Authority and Responsibility including the number of time the annual meeting of the Good Corporate Governance Committee must comply with the charter of the Good Corporate Governance Committee.

On December 31, 2018, the Good Corporate Governance Committee consists of 3 non-executive directors. The Company has the policy of appointing a person holding the position of Chairman of the Good Corporate Governance Committee and not Chairman of the Board.

### *2.5) Executive Committee*

According to the charter of the Executive Board, the composition of the Executive Committee shall not be less than 5 persons. The Board of Directors shall appoint the Executive Committee is select from a number of directors and / or executives of the Company and / or the qualified persons. Moreover, it must not be a member of the Audit Committee and the term of office is 3 years. The Executive Committee must be a person with knowledge, ability and experience that would be beneficial to the Company's business also to be honest and ethical in conducting business. It must not be a director, an executive or an entrepreneur in the same business as the Company unless the entity is a subsidiary, joint venture or joint venture of the Company. Also, Features, Tenure, Scope of Authority and Responsibility including the number of times in the annual meeting of the Good Corporate Governance Committee must comply with the charter of the Good Corporate Governance Committee.

On December 31, 2018, the Executive Committee has 5 members. The Company has the policy that the Chairman of the Board of Directors shall not be the Chairman of the Executive Committee in order to create a balance between management and good corporate governance.

## **3. Board Meetings**

### *1) Board of Directors*

The Board of Directors requires that at least 6 meetings, be held every quarter to consider the financial statements in accordance with the law. And may hold additional meetings as deemed appropriate by the Chairman. And there should be meetings between independent directors and auditors to discuss the issues about the management in the organization at least once a year. Also, non-executive directors must meet at least once a year, with no executive and management directors attending the meeting. To discuss the issues related to responsibilities and responsibilities, all directors are required to attend the Board of Directors' meetings unless than 75% of the annual meeting.

There should be unless than one quorum of the Board of Directors present at the meeting, so that the meeting can be opened. There must be at least 2 in 3 of the total number of directors attending the meeting. The Chairman of the Board serves as chairman of the meeting and if the chairman of the board is not present at the meeting or is unable to perform

his duties. The Board of Directors selects one director to serve as the chairman of the meeting. All directors have the opportunity to discuss and express their opinions openly. In the event that directors of the Company, stakeholders are significantly involved in the subject matter under consideration. The director must leave the meeting during the consideration of the matter.

To vote by resolution of the Board of Directors' meeting, the votes should be counted as follows:

- (1) In the general case, the resolution of the Board of Directors is composed of majority votes. If the votes are the same, the chairman of the meeting shall have the casting vote.
- (2) In case of replacement of vacant seats. The resolution of the Board of Directors consists of votes of unless than 3 in 4 of the remaining directors.

The directors who have conflict of interest in the consideration must abstain from voting on such matters.

## *2) Audit Committee*

The Board of Directors requires an Audit Committee meeting at least once a quarter. Additional meetings may be convened by the Chairman of the Audit Committee. At the meeting, there must be at least on half of the members of the Audit Committee attending the meeting to constitute a quorum. The Chairman of the Audit Committee chairs the meeting and if the Chairman of the Audit Committee is not present at the meeting or is unable to perform his duties. One of the members of the Audit Committee is to preside over the meeting. In the meeting of the Audit Committee with related agenda or other relevant agenda, the Company's auditor and the Company's internal auditor also top management in accounting must be participate for clarity, completeness, reliability for preparing the financial statements.

To vote, majority of the members of the Audit Committee who attend the meeting and cast their votes. One member of the Audit Committee has one vote. If the votes are the same, the chairman of the meeting shall have the casting vote. The Audit Committee with vested interests in the consideration will have to abstain from voting on that matter.

### *3) Risk Management Committee*

The Board of Directors requires that, the Risk Management Committee meet at least 4 times a year, and held additional meetings as deemed appropriate, by the Chairman of the Risk Management Committee. At the meeting, at least on half of the members of the Risk Management Committee shall be present at the meeting. The Chairman of the Risk Management Committee chairs the meeting.

If the Chairman of the Risk Management Committee is not present at the meeting or is unable to perform the duties, the Risk Management Committee also selects one, Risk Management Committee to chair the meeting.

To vote the majority of the members of the Risk Management Committee attend the meeting and cast their votes. One Risk Management Committee member has one vote. If the votes are the same, the chairman of the meeting shall have the casting vote. The Risk Management Committee has a stake in the consideration will have to abstain from voting on that issue.

### *4) Nomination and Remuneration Committee*

The Board of Directors requires at least 2 meetings a year of the Nomination and Remuneration Committee, and held additional meetings as deemed appropriate by the Chairman of the Nomination and Remuneration Committee. At the meeting, there must be at least on half of the members of the Nomination and Remuneration Committee to attend the meeting. The Chairman of the Nomination and Remuneration Committee chairs the meeting. If the Chairman of the Nominating and Remuneration Committee is not present at the meeting or is unable to perform duties, the Nomination and Remuneration Committee selects one of the Nomination and Remuneration Committee members to chair the meeting.

To vote the majority of the members of the Nomination and Remuneration Committee attend the meeting and cast their votes. One member of the Nomination and Remuneration Committee has one vote.

If the votes are the same, the chairman of the meeting shall have the casting vote. The Nominating and Remuneration Committee with vested interests in the subject matter will have to abstain from voting on such matters, except for the consideration of remuneration for all committees.

### *5) Good Corporate Governance Committee*

The Board of Directors requires a meeting of the Corporate Governance Committee at least 4 times a year. Additional meetings may be held as the Chairman of the Good Corporate Governance Committee deems appropriate. At the meeting, a good corporate governance committee member must attend not less than on half of the total number of the members of the Corporate Governance Committee to constitute a quorum. The Chairman of the Good Corporate Governance Committee presides over the meeting. If the Chairman of the Good Corporate Governance Committee is not present at the meeting or is unable to perform the duties, the Good Corporate Governance Committee selected one of the good corporate governance committees to chair the meeting.

To vote the majority vote of the members of the Good Corporate Governance Committee who attend the meeting and vote. One good Corporate Governance Committee member has one vote. If the votes are the same, the Chairman of the meeting shall have an additional vote as a casting vote. Good Corporate Governance Committee with vested interests in the subject matter will have to abstain from voting on such matter.

### *6) Executive Committee*

The Board of Directors requires that, the Executive Board meetings must be held at least once a month. There must be executive director approval. In less than on half of the total number of the members, a quorum is convened although the Chairman of the Executive Committee shall preside over the meeting.

If the Chairman of the Executive Board is absent or unable to perform the duties, the Executive Director will select one of the Executive Directors to chair the meeting.

To vote, the majority of the Executive Directors who attend the meeting and cast their votes.

The one executive director has one vote. If the votes are the same, the chairman of the meeting shall have the casting vote. Executive Directors with vested interests in the subject matter will have to abstain from voting on that issue.

At the meeting of the committees, every committee has to clear agenda. The meeting documents are sufficient and submitted to the Board of Directors at least 7 days in advance, so that the Board of Directors has sufficient time to study the information before attending the

meeting and may request additional information. Unless urgent need to maintain the rights or benefits of The Company will inform the meeting by other means and set the date faster.

The Company will schedule the meeting in advance every year to make an appointment with each director in advance. The minutes of the meeting were certified by the Board of Directors and authenticated by the Chairman of the Board and filing the original and digital document to facilitate the directors and related parties can check the reference. The Company shall disclose details of the number of meetings and the meeting's attendance for past year of the director that will be show in the annual report and annual registration statement.

In 2018, the Company held a meeting of shareholders and each committee. By the way, should be set the agenda to be clear. The meeting documents are sufficient and sent to the Board of Directors at least 7 days in advance, so that the Board of Directors has sufficient time to review the information before attending the meeting. Adding an agenda after the delivery of a document, only be possible on very justified grounds and must be approved by the Chairman of the Board. In summary, the number of meetings for 2018 is as follows:

Meeting type	Number of meetings
1) 2018 Annual General Meeting of Shareholders	1 Time
2) Extraordinary General Meeting of Shareholders	1 Time
3) Board of Directors Meeting	8 Times
4) Meeting between non-executive directors and the auditor to discuss issues related to corporate governance	1 Time
5) Meeting during non-executive directors to discuss and exchange ideas about issues related to responsibilities and good corporate governance	1 Time
6) Audit Committee Meeting	6 Times
7) Risk Management Committee Meeting	4 Times
8) Nomination and Remuneration Committee Meeting	3 Times

9) Good Corporate Governance Committee Meeting	4 Times
10) Executive Board Meetings	32 Times

The details of the directors attending the meeting individually including the remuneration for each director are summarized in “Title 19 Management Structure” of this Annual Report.

#### ***4. Limitation of the number of the registered company in which the Director of the Company could serve as its director***

To effectively execute the Board of Directors’ performance, the policy is to limit the number of listed companies in which each director does not hold more than 5 directorship positions, and requires the executive directors to hold director positions in listed companies outside the group of companies not over 2 companies.

#### ***5. Determination of the remuneration***

The “Compensation Policy of All Committees” policy is designed to provide a framework and guidelines for determining the remuneration of each committee. The compensation should be consistent with experience, obligations, scope of roles and responsibilities. (Accountability and Responsibility) The criteria are comparable to the level of performance in the same industry. To ensure that, the level and composition of the compensation is appropriate and sufficient to motivate and maintain the quality committee as desired.

#### ***Principles and consideration criteria***

The Board of Directors assigns the Nomination and Remuneration Committee to propose the Remuneration of all committees to the Board of Directors for their approval. Then, the proposal shall be considered in the shareholders’ meeting for the approval under the following criteria:

1. Role, scope, authority and responsibility of Board of Director and each committee.
2. The collective and individual performance of the committees.

3. The operational performance of the Company, based on the type and size of the Company's business.
4. The remuneration survey, in comparison with other companies in the same industry.

### ***Components of remuneration***

To reflect the duties, responsibility and mission of the committees, the components of remuneration determination are composed, can divided 3, such as Meeting attendance fee, Annual remuneration and Bonus or other similar remunerations.

### ***Remuneration Determination Process***

The Board of Directors sets up the remuneration determination process to comply with the principle of good governance based on transparency and accountability. The consideration process is as follows;

1. 1. The Nomination and Remuneration Committee considers and determine the remuneration in accordance with the principle in item 4.
2. The Nomination and Remuneration Committee proposes the remuneration rate to the Board of Directors for the approval.
3. The Board of Directors approves and proposes the remuneration rate to the Shareholders' meeting for the approval.
4. The shareholders' meeting approves the remuneration rate.

The amount of remuneration in 2017 that the Company paid to directors and executives  
(Details as shown in the "Management Structure" section 19 of this Annual Report)

### **6. Performance evaluation of the Board of Directors Sub-committee and Chief Executive Officer / CEO**

All committees shall evaluate their own performance to be a guideline for development and improvement to expand the work of the committees to cover all aspects in compliance with the Company's business operation.

The Board of Directors shall evaluate the performance of the Chairman of the Administration Committee in comparison with the corporate goal and the individual competency. The evaluation shall be based on the qualitative factors such as leadership,



strategy creation and implementation, planning, performance, relationship with the Directors, relationship with outside agency, administration, relationship with the personnel, succession, knowledge of product and service, as well as the individual qualification. The evaluation process and principle shall be annually considered by each set of committees.

### ***1) Performance evaluation of the Board of Directors***

The Board of Directors has the policy to determine the performance of the Board of Directors by self-assessment, collectively and individually, as follows;

- Self-evaluation of each set of Committee  
To evaluate the collective performance of the whole Committee
- Self-evaluation of the individual Committee  
To evaluate the individual performance of individual committee

### ***2) Performance evaluation of the committee***

The Board of Directors has the policy to set the committee to self-evaluate the performance by providing a group assessment. The purpose is to evaluate the work of the subcommittee in the overall of the faculty.

### ***3) Performance evaluation of the CEO***

The Board of Directors has the policy for the Board of Directors to evaluate the performance of the CEO.

### ***4) Processes and criteria for evaluation***

The procedures and criteria for the evaluation will be reviewed by every board each year. The process and criteria for the evaluation for the CEO will be reviewed by the Board of Directors every year. In 2018 The Board of Directors and the Sub-committees determine the process and criteria for self-assessment and for the CEO as detail below;

### ***The Process of Self-Assessment and Performance Evaluation***

The Board of Directors and Sub-committees determine the process of self-assessment and evaluation of performance of the CEO is as follows:

### **Process of Self-Assessment of the Board of Directors and Sub-committees and the CEO**

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1. The Board of Directors requires the self-evaluation form of the Board of Directors, both group and individual. And there is a self-assessment form of self-evaluation by individual committees. In addition, the form of performance appraisal of the Chairman of the Executive Committee/ CEO, which is the top management of the organization, is set out once a year to serve as a framework for evaluating the performance of the Executive Committee. And / or good practice. Also used as a tool to review and improve the performance over the past year.
  2. The Board of Directors shall approve and review the performance appraisal form of the Board. Including the performance evaluation form of the Executive Chairman. The sub-committee shall approve and revise the self-assessment form of the faculty. To be accurate, complete and in accordance with the rules prescribed by the regulatory body.
  3. Company secretary, the self-assessment form of the Board of Directors and the form of performance appraisal of the Chairman of the Executive Board/ CEO shall be submitted to the Board of Directors. Including Sub-committee secretary. Deliver the self-assessment form of the faculty. Within December every year.
  4. The Company's Board of Directors made the self-assessment form of the Board of Directors and the performance evaluation form of the Chairman of the Executive Committee/ CEO. Including committees of committees. Make a self-assessment and return the secretary to the subcommittee. Within January of every year.
  5. Company Secretary / Secretary to the Board Summary the results of the assessment and input into the agenda of the Board of Directors. To analyze the performance evaluation results of the Board of Directors. Subcommittee and the Executive Chairman.
  6. Secretary to the Board of Directors / Secretary to the Board of Directors Takes further analysis and comments from the Board of Directors. To make a plan to carry out the improvement.
- 

### ***Criteria for Self-Assessment and Performance Evaluation***

The criteria used in the performance appraisal of the Board of Directors, the subcommittees and the CEO is as follows:

Self-Assessment form The Board of Directors		Self-Assessment Form Audit Committee	
Evaluation content	Number of items	Evaluation content	Number of items
<i>Group</i>		<i>Group</i>	
1. Structure and Qualifications of the Board of Directors	15	1. Structure and Qualifications of the Audit Committee	5
2. Roles and Responsibilities of the Board of Directors	22	2. Audit Committee Meeting	6
3. Board of Directors' Meetings	9	3. Roles and responsibilities of the Audit Committee	9
4. The duties of the Board of Directors	7	4. Relationship with Management	4
5. Relationship with Management	5	5. Self-Development of the Audit Committee	4
6. Self-Development of Directors and Management Development	6		
<b>Total</b>	<b><u>64</u></b>		<b><u>28</u></b>
<i>Individually</i>			
1. Structure and Qualifications of the Board of Directors	2		
2. Board of Directors' Meetings	4		
3. Roles and Responsibilities of the Board	5		
<b>Total</b>	<b><u>11</u></b>		

Self-Assessment Risk Committee		Self-Assessment form Nomination and Remuneration Committee	
Evaluation content	Number of items	Evaluation content	Number of items
<i>Group</i>		<i>Group</i>	
1. Structure and Qualifications of the Risk Management Committee	7	1. Structure and Qualifications of the Nomination and Remuneration Committee	7
2. Risk Management Committee Meeting	6	2. Nominating and Remuneration Committee Meetings	6
3. Roles and Responsibilities of the Risk Management Committee	6	3. Roles and Responsibilities of the Nomination and Remuneration Committee	7
<b>Total</b>	<b>19</b>		<b>20</b>

Self-assessment form of Good Corporate Governance Committee		Evaluation form of the Executive Chairman (CEO)	
Evaluation content	Number of items	Evaluation content	Number of items
<i>Group</i>		<i>Section 1: Progress of the Plan</i> Specify goals and status	
		<i>Section 2: Performance Measurement</i>	
1. Structure and Qualifications of the Good Corporate Governance Committee	7	1.1 Leadership	6
2. Good Corporate Governance Committee Meeting	6	1.2 Strategic Planning	6
3. Roles and Responsibilities of the Good Corporate Governance Committee	5	1.3 Compliance Strategy	6
<b>Total</b>	<b>18</b>	1.4 Planning and Financial Performance	6
		1.5 Relationships with the Board	6
		1.6 External Relations	5
		1.7 Administration and relations with personnel	6
		1.8 Succession	3
		1.9 Product and service knowledge	4
		1.10 Private feature	6
			<b>54</b>
		<i>Section 3: Development Executive Chairman</i> Specify comment	
		3.1 The strengths that the CEO should maintain	
		3.2 Issues that the CEO should receive. Develop more in the next year.	

To allow the Board of Directors, the sub-committees and the CEO compare the results of each topic or compare the results of each year. The scoring method is as follows: (Score 4 points or equal 100%)

- 0 = Strongly disagree or no action on that issue
- 1 = Disagree or take action on that matter a bit
- 2 = Agree or take action on that matter fairly
- 3 = Quite agree Or have a good deal on it
- 4 = Strongly agree Or have a great deal about it

### ***7. Development of Directors and Executives of the Company***

The Company has a policy to encourage all directors and executives to be trained to increase their knowledge under the good corporate governance. The training can be done within the company or training from outside institutions. The directors / audit committee must attend courses related to the Duties of the Company's Director / Audit Committee.

### ***8. Orientation of new directors and support for training***

The Company is aware of the importance of the duties of the new director. The new directors are required. All you have to join "Orientation for new entrants" as required by the Company. The Company will provide information and lectures on the Company's business. Including other relevant information for the directors who have been appointed to the position of the Company are acknowledged. There are important contents, including the roles and responsibilities of all committees. Holding and trading securities of directors Report of Directors' Benefits Meeting management Information Disclosure. Contact with compensation management and the benefits to directors and sub-committees, Power grid and general information of the company including the Charter of the Audit Committee, Charter of the Internal Audit Department, Scope of Authority and Responsibilities of the Internal Audit Department and inter-measure measures etc.

## ***9. Report of the Board of Directors***

9.1) The board of directors of the company is responsible for the consolidated financial statements of the company and its subsidiary companies and financial information disclosed in the annual report. Such financial report is prepared in accordance with generally accepted accounting principles in Thailand while the accounting policy is appropriately selected and complied in a consistent manner and the audit committee and the auditor will jointly and regularly review the accounting policy complied to ensure suitability.

The chairman of the board of directors of the company shall disclose the following information in the annual report and the annual information sheet.

9.2) Responsible for the Company's major information disclosure. The information affects stock prices or important to investment decisions, or affect the benefits of shareholders.

9.3) Responsible for the disclosure of charter of all committees and policies of the Company.

9.4) Responsible for disclosing the following items in the annual report and the annual report.

1. Process and criteria on performance assessment of the board of directors of the company as a whole basis or an individual basis.
2. Number of the meetings arranged and number of attendance to the meeting of each director.
3. Remuneration of each director.
4. Information on development and training of the directors of the company on an individual basis during the year.
5. Report on sale and purchase and holding of securities of the company and changes in holding during the year of the directors of the company and the executives in accordance with the definition of the Office of Securities and Exchange Commission on an individual basis.

9.5) To be responsible for reporting any other items that the Board of Directors deems appropriate to the shareholders and general investors, subject to the scope of authority and responsibility assigned by the shareholders.

The Board of Directors is of the opinion that, financial reports of the company. And its subsidiaries as on December 31, 2017 are accurate, complete and reliable.

#### ***10. The supervision of operation of the subsidiaries / affiliates***

According to the Company's regulations, the nomination and election of the Director of the subsidiaries / affiliates requires the approval of the Board of Directors. The appointed Director of the subsidiaries / affiliates shall operate the business for the utmost benefits of the subsidiaries / affiliates. The Company requires the appointed Director to obtain the approval from the Board of Directors prior to the vote casting of the important agenda which normally requires the approval of the Board of Directors, if the Company considers such agenda by itself. The appointment of the Directors to operate the business, as a representative of the Company, in the subsidiaries / affiliates shall be according to the share-holding proportion of the Company.

In case of the subsidiaries, the Company shall supervise the appointed Director to set up the regulations for the related transactions, the gain or disposal of asset or any important transactions of the subsidiaries, so that the transactions would be accurately carried out. The regulations shall be based on the same principles of the Company with regard to the similar transactions and information disclosure. The appointed Director shall supervise the information and accounting records of the subsidiaries to ensure their accountability. The financial information of the subsidiaries shall be delivered to make the collective financial statement of the Company in time.

#### ***11. Supervision and risk management policy***

The Board of Directors realizes the significance of the risk management. It is directly obliged to manage the risk of the organization to support the effective operation of the Management until it achieves the organizational goals. As the organization may face the business uncertainty affecting the Company's objectives/goals, the Board of Directors determines the relevant risk management policy and framework in all aspects to cover all risk factors.

The Board of Directors has set the risk management policy and framework in all aspects and covers the risk factors of the business by setting guidelines within the company. This is based on the chance of occurrence and the severity of the impact, risk reduction, regular reporting and monitoring and evaluation processes, including the emphasis on early warning signs.

### ***Policy Objectives and Scope***

1. To be the framework for enterprise risk management of the Company and Group of Companies as well as to be the guidelines for practicing enterprise risk management of the Company and Group of Companies to be in accordance with the entire organization bases on law, rules and regulations of the relevant sectors, including to anticorruption according to the principles of Good Corporate Governance.
2. To lead to the actual practice and the harmony with enterprise risk management and internal control which is considered the significant component of the Company and Group of Companies' activity.
3. To determine roles and responsibilities for controlling the determined risk appropriately.
4. This policy shall be effective with all operation of directors, executives and all employees in organization.

### ***Roles and Responsibilities***

1. Board of Directors is responsible for the overall regulation and monitoring the enterprise risk management operation appropriately and regularly via risk management committee.
2. Audit committee supports the Board of Director to perform enterprise risk management operation by reviewing the enterprise risk management policy whether it is appropriate and effective or not.
3. Executive committee is responsible for considering and reviewing the enterprise risk management and internal control system of the Company and Group of Companies.
4. Chairman of the Executive committee is responsible for performing according to the policy, regulating the organization to strictly practice and monitoring the



constant implementation as well as creating the awareness of risk and enterprise risk management to become the organizational culture.

5. Risk management committee is responsible for creating the confidence that the significant enterprise risk is regularly determined and evaluated, including having the effective risk management by responsible for the following matters: Set policy, practice and framework for enterprise risk management for the Company and Group of Companies to be the guidelines for business operation to be in accordance with securities and exchange law, the regulations of SET or the relevant laws to the business operation of Company and Group of Companies, including the measure and practices of anticorruption, Monitor, follow up and support the achievement of enterprise risk management in organizational level to the project level considering the risk of each aspect to evaluate, analyze and make decision to ensure that there is the risk management that concludes all processes of business operation, review practice and framework for enterprise risk management comparing to the international practice and propose suggestion to the Board of Director for the revision as appropriate, consider the review of risk and guidelines for risk management of the Company and Group of Companies as the agency has evaluated the risk, including give recommendation for revision, monitor the effectiveness of enterprise risk management of the Company and Group of Companies by having continual monitoring and review, report the risk with the highest and high level to the President of Executive Committee, Executive Committee, Audit Committee and Board of Directors.
6. Internal audit team is responsible for review the effectiveness of the internal risk control through the annual internal audit, which is the monitoring of business process based on the risk factors, including revise the fault.
7. All executives and employees are responsible for identifying, analyzing, evaluating and sorting the risk of department they are in charge of, including determine the appropriate measure of risk management as it is the part of responsible job.

The Company has disclosed and disclosed information on major risk factors in the annual report, which covers risks in every aspect. The Board of Directors has assigned the Risk

Management Committee to formulate policies and operational framework for risk management.

The Company (Risk Management Framework) as well as the roles and responsibilities of the management by overseeing and supporting risk management at the organizational level. As well as the project level. Raise the importance of risk-based considerations and assess each factor to make proper use of resources and processes to align with the direction of the organization and enhance risk management capabilities. Throughout the organization

In addition, the Board of Directors has assigned the Audit Committee to review the internal control system and internal audit to ensure that the operation is effective. And cover all sides. Both accounting and finance. Property Care working, Operation is legal, related regulations. The Internal Audit Department is responsible for assessing risk and assessing control activities at the operational level within the organization. Include a review of financial reports and risk management information by reporting to the Audit Committee on a quarterly basis.

Moreover, the Company has appointed a management team to enable the organization to carry out concrete work to achieve the objectives and goals set. The scope of duties and responsibilities are as follows:

1. Has the duty to support the performance of the Risk Management Committee.
2. Define policies and guidelines for risk management. Prepare risk management plan. Risk assessment, recommend preventive measures and solutions.
3. Analyze, identify, and evaluate operational risks of the Company. Include risk prioritization, management plan, recommendations for improvement, to reduce the risk.
4. The Communicate understanding of the risk management plan to the company's personnel. Can be practically implemented.
5. Monitor the implementation of measures in each line. Provides a systematic risk management process across all lines of business and reduce the impact on the business of the company.

## **12. Business ethics**

(Cited by Business Ethics Policy Revised Version dated on November 12, 2018)

The Board of Directors shall establish the system to ensure that the Company's

operation shall comply with the laws and good ethic. That shall acknowledge all employees about the business morality and ethic framework. It shall regularly review the moral practice in response to the changing expectation of the company and shareholders. Moreover, it shall disclose the morality and ethic framework in the company's business ethic policy. The Board of Directors shall establish the good ethic practice, so that all Directors, Executives and employees acknowledge and comply with that.

The Board of Directors has prepared a "policy on (Business Ethics Policy) and Good Code of Conduct for Ethics to communicate to every board. All management and employees acknowledge and comply with them. The Board has approved and approved a review of the Business Ethics Policy. For the Board of Directors Meeting No. 1/2018 on February 21, 2018 and No. 7/2018 on November 12, 2018, the objective is to prepare and review the policy as follows:

1. To guide the work in accordance with the ethics beyond Business Elements and Code of Conduct.
2. To create and maintain relationships and responsibilities for all stakeholders including shareholders, employees, customers, trading partners, creditors, competitors, society, communities and the environment also participants for making a mutual benefit.
3. To understand the principles and practices of the private interests of directors, executives and employees as well as the interests of the Company and the Group without conflict of interest.
4. To create security and safety in health, work, the environment and the protection of corporate assets.

This policy sets the framework for action to be used as a guideline for achieving the same goal by defining the vision and mission of the organization, Business Ethics including Anti-Corruption, Ethics of Directors Management and staff, Ethics for Stakeholders which covers responsibilities for shareholders, employees, customers, partners / creditors , competitors, safety, health and environment in the organization. And responsibilities to the social, community and the environment including the guidelines for clarity, convenient for directors, executives and employees of the Company to be aware of the standards of practice that the

Company expects and adhere to as a guideline for its operations for every involved with all stakeholders. The details of the full policy can be found at

<http://www.gunkul.com/th/sustainability/charters> which can summarize the important content as follows;

### ***Business Practices***

The Company and the Group have guidelines for conducting business by complying with relevant laws, regulations, rules and regulations, good corporate governance policy and business ethics including any other relevant policies, by conducting business with transparency, honesty and fairness to all stakeholders. There is a system for reviewing the work system for transparency through the internal control system and internal audit.

### ***Ethics of Directors, Executives and Employees***

#### ***1. Compliance with relevant laws and regulations***

The director, executive and employee are required to comply with the related laws and regulations, as well as the requirements of the Stock Exchange of Thailand, the SEC Office and other related supervisory authority.

#### ***2. Conflict of Interest and Use of Insider Information***

The directors, executives and employees are not allowed to use inside information for personal gain or for the benefit of related person or the third party, including information not disclosed to the public under the rules of the SEC Office and the Stock Exchange of Thailand, including any related laws.

#### ***3. Responsibilities towards Property of the Company and Its Group***

Utilizing the assets and resources of the Company and the Group to maximize benefits. Prepare documents that are the property of the Company and the Group with honesty, prudence, cautiousness, and in accordance with the specified standards. Either related to accounting, financial or other relevant regulatory requirements, including the provision of a system for storing documents and maintaining the level of importance and confidentiality of documents to be accurate, complete and able to be examined

#### *4. Information Technology*

Comply with the “Information Technology Policy” of the Company and the Group, including relevant laws and regulations to maintain stability and security of the information technology system of the company and its group. Including checking and evaluating the adequacy of the policy and internal control system by independent agencies at least once a year. Also having risk assessment at least once a year by setting risk levels and determining measures or practices for risk control.

#### *5. Non-infringement of intellectual property or copyright*

Everyone must comply with all laws, regulations and contractual obligations regarding the right to intellectual property rights, including patents, copyrights, trade secrets and other proprietary information that will not violate the right of intellectual property rights and the use of others in corruption methods. In addition, intellectual property and copyright that creating from the performance of duties that has been assigned by the Company or the work that used for the Company. It is considered as the property of the Company and must be delivered to the Company regardless of the information, work or copyrighted work will be stored in any form.

### ***Ethics towards the Stakeholders***

#### *1. Responsibilities towards Shareholders*

Create more value for shareholders in the long term by performing their duties responsibly, prudently and honestly under reasonable decisions based on sufficient, accurate information, without direct or indirect interest. Including reporting information on management, operating results and information of the Company and the Group for shareholders to acknowledge regularly, completely according to the criteria of the Securities and Exchange Commission and the Stock Exchange of Thailand, to be sufficient for the decisions of all shareholders equally.

#### *2. Responsibilities towards Employees*

The Company and the Group have a policy to treat employees fairly by adhering to the principles of equality in terms of employment and compensation, appointment, promotion, migration and potential development along with Moral development. As well as, encouraging

employees to participate in the presentation of operational guidelines as information for improving the organization.

### *3. Responsibilities towards Customers*

The Company and the Group are determined to treat customers in both the public and private sectors with the responsibility to provide quality products and services that meet the standards, meet the requirements and satisfy the customers by providing a system and process for receiving complaints from customers in order to promptly resolve problems from complaints. Also, providing a channel for information and adequate guidance for customers about the Company and the Group's products and services.

### *4. Responsibilities towards Trading Partners/ Creditors*

#### Trading Partners

Determine to treat trade partners equally and fairly by taking into account the fairness of both parties and avoiding situations that cause conflicts of interest by complying with the conditions agreed upon with partners, debtors and / or creditors. Also, must not support products or actions that violate intellectual property.

#### Creditors

The Company and the Group has a policy of adhering to creditors equally, fairly and transparently including comply with the terms and conditions of various contracts with creditors correctly. Also repaying the loan and / or interest to the creditors completely and in accordance with the agreed deadline .

### *5. Responsibilities towards Trade Competitors*

Determine to treat competitors under the framework of laws relating to trade competition practices and strictly comply with intellectual property laws.

### *6. Occupational Safety and Environment in the Organization*

The Company and the Group adhere to the safety, occupational health and environment according to the laws, regulations and according to the international standard.

### *7. Responsibilities towards Community and Environment*

The Company and the Group focus on business activities together with social responsibility with regard to nearby communities, efficient use of resources and sustainable environmental protection by strictly complying with environmental laws and regulations. Support and

cooperate for various activities to improve community learning; as well as, manage the work with the goal of preventing the impact on the environment. Also, constantly reviewing and evaluating the Company's performance on a regular basis, whether or not affecting the environment or not. Moreover, to use technology to make the operation more efficient.

#### *8. Human rights practices*

The Board of Directors attaches importance and recognizes the importance of respecting human rights in accordance with international standards in order to ensure that the business operations of the Company are free from violations of human rights and work rights. The Company will provide fairness and protect people who report human rights violations related to the Company by using measures to protect the complainants specified in the "Anti-Corruption and Whistle Blowing Policy". If anyone commits a violation, it must be considered disciplinary according to the regulations that set by the Company and might be punished by law if such action violates the law.

The Company determines the duties and responsibilities of all directors, executives and employees to understand and comply with the policies and practices set forth in the Code of Business Conduct. The meeting was organized to clarify, media outreach and do activities to continually understand. To get the employees of the company to acknowledge and understand the importance of compliance with the business ethics policy, the Company requires the executives in charge of the organization to take the responsibility for the employees under their supervisory line to understand and promote to comply with the Code of Business Ethics and all employees must act as a good example. In addition to the Code of Business Conduct set out in the Business Ethics Handbook, the Company has created Corporate Shared Values for employees to enhance their corporate values and culture. It is a clear recommendation for employees to understand which one they need to do or ignore. This is consistent with the policies set out in the Business Ethics Handbook. This makes the practice more concrete and if the personnel of the Company are failure to do so is a violation of the Company and the Group's regulations and also require a review of "Business Ethics Policy" annually.

### **13. Investor Relations Ethics**

Basic principles of investor relations ethics

1. Disclose important and necessary information to make accurate and timely investment decisions.
2. Do not use internal information for personal gain and others.
3. Disclose information equally and fairly by giving opportunities for all related parties to access and inquire information.
4. Perform duties with integrity in the profession based on the principles of equality.

#### *Code of Conduct for Investor Relations*

Perform work in accordance with the rules, regulations, and relevant laws in accordance with the regulations of the Securities and Exchange Commission (SEC), the Stock Exchange of Thailand and the regulatory agencies related to the Company's business on the basis of the principles of investor relations ethics.

### **14. Leadership and Vision**

Board of directors recommends company to have vision, mission, goal, policy, operational Direction, long-term strategy and plan & annual budget by assigning executive management to present and board of directors to comment and discuss to get common agreement before approval. Board of directors appoints president of executives to develop and implement business strategy. Role, duty and responsibility of board of directors, sub-committee and executive committee are needed to be identified reviewing at least every years.

According to the resolution of the Board of Directors Meeting No. 9/2017, held on December 18, 2017 and the Board of Directors Meeting No. 1/2018, held on February 20, 2018, the Board reviewed the Company's vision and mission which has been amended to the current version as follows;



## Vision

Be a leader in the integrated renewable energy and electrical systems business, implementing state of the art technology for sustainable infrastructure development.

## Mission

### 1. Renewable Energy :

To operate the business of the renewable energy power plants under the highest efficiency standards with the emphasis on the society and environment.

### 2. Sales :

To procure the equipment for power systems, energy saving products distribution channels and render the service which fulfills the customers' demand.

### 3. Technology :

To develop the IT system and adopt the new technology to improve management and productivity, increase work efficiency and reduce the production costs.

### 4. Returns :

To maximize the shareholders' and stakeholders' returns.

### 5. Personal:

To increase the employees' capability to enhance the Company's competitiveness on the global scale.

### 6. Management:

To create a strong management structure based on the principle of good governance.

## 22.2 Sub-committee

The Board of Directors has appointed 5 sub-committee, Audit Committee, Good Corporate Governance Committee, Nomination and Remuneration Committee, Risk Management Committee and Executives Committee are in the details as follows:

### 1) The Audit Committee

As of December 31, 2018, the Audit Committee comprised of three independent directors by taking in each term not more than 3 years as defined by the Board of Directors.

The members of the Audit Committee are as follow;

Name list	Position
1. Dr. Djitt Laowattana <sup>1)</sup>	Chairman of the Audit Committee (Independent Director)
2. Dr. Chongrak Rarueysong <sup>1)</sup>	Member of the Audit Committee (Independent Director)
3. Assoc. Prof. Dr. Panarat Panmanee <sup>1)2)</sup>	Member of the Audit Committee (Independent Director)
4. Mr. Tanetsiri Farkmitr	Secretary of the Audit Committee
Remark 1) Audit Committee/ Independent Director who has knowledge and experience in auditing on the Company's financial statements	
2) Audit Committee / Independent Director who graduated in Accounting	

### **Scope of Authority, Duties and Responsibilities**

Board of directors of the company assigns the audit committee with the authority as follows.

1. To perform the duty within the scope of authority and responsibility indicated within the charter of the audit committee
2. To examine and investigate any matter as necessary and to ask for information of the company as necessary to undertake the work within the duty and responsibility of the audit committee completely

### ***Duty and responsibility of the audit committee***

1. The audit committee is a subcommittee assigned by the board of directors with duty and responsibility as follows.

- (1) To review the financial report of the company to ensure accuracy and reliability, including sufficient disclosure through coordination with the external auditor and the executives of the company responsible for preparation of the financial report, both quarterly and annually.
- (2) To review the internal control and the internal audit system of the company to ensure suitability and efficiency in coordination with the external

and internal auditors and to examine the independence of the internal audit unit or the other responsible agency related to internal audit and to provide consent on appointment, rotation, dismissal chief of the internal audit unit or other responsible agency related to internal audit.

- (3) To review compliance with law on securities and stock exchange, requirements of the stock exchange or the laws related to the business of the company.
- (4) To examine, select, propose for appointment of the independent person to perform the duty of the auditor of the company, to examine the remuneration of the auditor with consideration on reliability, sufficiency of resources and quantity of the audit work of such auditor and experience of the person assigned to examine the accounts of the company, to dismiss and require the audit committee to arrange a meeting jointly with the external independent auditor without the management in the meeting at least once a year.
- (5) To examine the related transactions or the transactions with conflict of interest in accordance with the laws and requirements of the stock exchange to ensure that such transactions are justified and beneficial to the company.
- (6) To review compliance with anti-corruption policy to ensure efficiency, to examine the outcome of the review on fraud and to provide the company a channel receive complaint on fraudulent act and to promote and encourage risk awareness and assessment, preparation of the preventive system and examination system.
- (7) To assess performance of the audit committee, to provide recommendations on development and improvement to the board of directors for acknowledgment and information to determine the policy on continued development of the organization.
- (8) To review the charter of the audit committee and the charter of the internal audit division annually.
- (9) To prepare an activity report of the audit committee for disclosure in the

annual report of the company and such report will be signed by the chairman of the audit committee.

- Comments on accuracy, completeness and reliability related to preparation process and disclosure in the financial report of the company.
- Comments on sufficiency of the internal control system of the company.
- Comments on compliance with laws on securities and stock exchange, requirements of the stock exchange or laws related to the business of the company.
- Comments on suitability of the auditor.
- Comments on transactions with possible conflict of interest.
- Overall comments or remarks that the audit committee has learned from the duty performed in accordance with the charter.
- Number of meetings of the audit committee and attendance to the meeting by each audit committee, including remuneration received by each audit committee.
- Other reports that the audit committee has viewed that the shareholders and the investors should know within the scope of authority and responsibility assigned by the board of directors of the company.

(10) To examine the matter informed by the auditor of the company for the case that is doubtful that the director, manager or the person responsible for the operation of the company has involved in the wrongdoing as indicated in the Securities and Exchange Act (No.4) B.E. 2551 and to prepare the preliminary finding report to the Office of Securities and Exchange Commission and the auditor within 30 days since the date that it is informed by the auditor.

(11) To perform the duty, the audit committee may ask for independent opinion from the other professional consultant as deemed necessary at the expense of the company.

- (12) To perform any other duty assigned by the board of directors of the company with approval from the audit committee such as review of the policy on financial management and risk management, review of compliance with the business ethics of the executives, joint review with the executives of the company on key matters to be presented to the public as required by the laws such as report and analysis of the executives.

2. The audit committee is required to arrange the meeting to examine the assigned matters as follows.

- (1) To review the financial statements and related financial reports, accounting principles and accounting methods, compliance with accounting standards, continuity of the business, change in major policy, including justification of the management related to the accounting policy to present to the board of directors of the company for approval on the financial statements before distribution to shareholders and investors.
- (2) To review the transactions with possible conflict of interest such as transactions with related company.
- (3) To review the internal control system and the internal audit system.
- (4) To review the annual internal audit plan of the company, assessment of the examination jointly with the internal auditor and the independent auditor.
- (5) To examine the problems or restrictions incurred during the examination jointly with the internal auditor and to review the performance of the internal auditor.
- (6) To examine the problems or restrictions incurred from the financial statements examined jointly with the internal auditor.
- (7) To examine whether the plan to review the method and control on electronic data processing and security maintenance project jointly with the internal auditor and the auditor.
- (8) To review the policy and sufficiency in key risk management of the company jointly with the management.
- (9) To review the financial management policy of the company.
- (10) To comply with the laws on public limited company, laws and/or notification on

securities and stock exchange and other related laws and/or notifications.

- (11) To perform any other task assigned by the board of directors of the company.
- (12) To assess the performance of the audit committee in relation to the duty and responsibility assigned by the board of directors of the company.
- (13) To jointly assess and consider the performance, reward and penalty of the chief of the internal audit division with the management.
- (14) To review the charter of the audit committee and the charter of the internal audit division as deemed necessary or at least once a year.
- (15) To report the tasks performed by the audit committee to the board of directors of the company.

For the responsibility of the audit committee to perform the duty in accordance with this charter, the audit committee directly reports to the board of directors of the company and the directors of the company are still held responsible for the operation of the company to the public.

### ***Qualifications of Audit Committee and Independent Directors***

The independent director who is appointed as a director and audit committee will be independent from management and major shareholders of the Company. It is required to possess the following qualifications.

1. Not to hold shares over one percent of the total shares with voting right of the company, the parent company, the subsidiary company, the affiliated company, the major shareholder or the person with power to control the company, including shares of the related person of such independent director as well.
2. Not to be or used to be the director participating in the management, the employee, officer, advisor with regular salary or the person with power to control the company, the parent company, the subsidiary company, the affiliated company, the subsidiary company of the same level, the major shareholder or the person with power to control the company unless it has not possessed such qualification at least two years before the date of appointment as the independent director. Such forbidden qualification does not include the case that such independent

- director used to be a government officer or advisor of the government agency which is the major shareholder or the person with power to control the company.
3. Not to be the person with lineage relationship or with legal registration in the nature of being the father, mother, spouse, brother and sister and children, including spouse of the children of the other director, executive, major shareholder, the person with control power or the person proposed to be the director, the executive or the person with power to control the company or subsidiary company.
  4. Not to be or used to have business relationship with the company, the parent company, the subsidiary company, the affiliated company, the major shareholder or the person with power to control the company of which the nature may obstruct his independent judgment and not to be or used to be the shareholder with significant shareholding or the person with power to control the those having business relationship with the company, the parent company, the subsidiary company, the affiliated company, the major shareholder or the person with power to control the company unless it has not possessed such qualification at least two years before the date of appointment as the independent director.

The business relationship in the first paragraph includes the business transaction made regularly to undertake the business, lease out or lease of the immovable, transaction related to property or service or financial assistance provided or accepted through borrowing or lending, guarantee, property provided as a collateral on debt, including other behavior of the same nature which will cause the company or trading partner to have the liability to pay to the other party at three percent of the net tangible asset value of the company or twenty million baht or more, whichever the lower. The computation of such liability is in accordance with the computation of the value of the related transaction in accordance with the notification of the capital market supervision committee on criteria on undertaking the related transactions, implicitly. However, such liability will include the liability incur one year before there is the business relationship with the same person.

5. Not to be or used to be the auditor of the company, the parent company, the subsidiary company, the affiliated company, the major shareholder or the person

with control power or the partner of the auditing office of which supervises the auditor of the parent company, the subsidiary company, the affiliated company, the major shareholder or the person with control power of the company unless it has not possessed such qualification at least two years before the date of appointment as the independent director.

6. Not to be or used to be the person providing any professional service, including legal consulting service or financial service with service charge over two million baht per year from the company, the parent company, the subsidiary company, the affiliated company, the major shareholder or the person with power to control the company and not to be the shareholder with significant shareholding, the person with control power or the partner of those providing such professional service unless it has not possessed such qualification at least two years before the date of appointment as the independent director.
7. Not to be the director appointed to be the representative of the director of the company, the major shareholder or the shareholder who is related to the major shareholder of the company.
8. Not to significantly undertake the business similar to and in competition with the business of the company or the subsidiary company or not to be the partner with significant stake in the partnership or the director participating in the management, the employee, the officer, the advisor with regular salary or to hold shares over one percent of the total shares with voting right of the other company significantly undertaking the business similar to and in competition with the business of the company or the subsidiary company.
9. Not possess any qualification which could obstruct the independent opinion related to the operation of the company.

After he is appointed the independent director with qualifications in accordance with the first paragraph (1) to (9), the independent director may be assigned by the board of directors to make a decision to undertake the business of the company, the parent company, the subsidiary company, the affiliated company, the subsidiary in the same level, the major shareholder or the person with control power of the company through the collective decision.



## 2) The Good Corporate Governance Committee

As of December 31, 2018, the Good Corporate Governance Committee comprised of three independent directors as follow;

Name	Position
1. Dr. Chongrak Rarueysong	Chairman of the Good Corporate Governance Committee (Independent Director)
2. Mr. Phongthep Thitapan	Member of the Good Corporate Governance Committee (Independent Director)
3. Mr. Somchai Trairatanapirom	Member of the Good Corporate Governance Committee (Independent Director)
4. Miss Chantira Jongjamareeseethong	Secretary of the Good Corporate Governance Committee

### *Scope of authority, duties and responsibilities*

The board of directors of the company has determined the scope of authority, duties and responsibilities of the good corporate governance committee as follows.

1. To determine policies, guidelines and framework on good corporate governance of the company, including other work undertaken and related to good corporate governance such as sustainable management, social responsibility, anti-corruption measures and guidelines to the board of directors of the company.
2. To supervise and monitor to ensure that the company, corporate group, committee, executives, employees and stakeholders have complied with the policies and guidelines provided and with the laws or requirements related to good corporate governance principles, anti-corruption measures and guidelines, business conducts and ethics through continued appropriate development.
3. To review the guidelines in accordance with good corporate governance principles of the company in comparison with the international guidelines and to provide recommendations on appropriate improvement to the board of directors of the company.

4. To propose the board of directors of the company, sub-committee and the management with rules and criteria on good corporate governance, business conducts and ethics, and proper business practices.
5. To encourage and support the company to distribute the good corporate governance principles, including information on related matters consistently so the sub-committee, the executives and every level of employees will acknowledge and understand.
6. To promote and support the company to participate in the assessment or ranking contest on good corporate governance to develop and upgrade the good corporate governance standard of company continuously.
7. To assess performance of the good corporate governance committee, to provide recommendations on development and improvement to the board of directors for acknowledgment and information to determine the policy on continued development of the organization.
8. To review the charter of the good corporate governance committee annually.
9. To prepare an activity report of the good corporate governance committee for disclosure in the annual report of the company and such report will be signed by the chairman of the good corporate governance committee.
  - (1) Overall comments or remarks that the good corporate governance committee has learned from the duty performed in accordance with the charter.
  - (2) Other reports that the good corporate governance committee has viewed that the shareholders and the investors should know within the scope of authority and responsibility assigned by the board of directors of the company.
  - (3) Number of meetings of the good corporate governance committee and attendance to the meeting by each good corporate governance committee, including remuneration received by each good corporate governance committee.
10. To perform the duty, the good corporate governance committee may ask for independent opinion from the other professional consultant as deemed necessary

at the expense of the company.

11. To perform any other task assigned by the board of directors of the company.

### **3) The Risk Management Committee**

As of December 31, 2018, the Risk Management Committee comprised of four persons including independent and executive directors as follow;

Name		Position
1. AVM.Dr.Pian	Totarong	Chairman of the Risk Management Committee (Independent Director)
2. Miss Sopacha	Dhumrongpiyawut	Member of the Risk Management Committee
3. Mr. Somchai	Trairatanapirom	Member of the Risk Management Committee (Independent Director)
4. Mr. Thitipong	Techaratanayuenyong	Member of the Risk Management Committee & Secretary

### **Scope of authority, duties and responsibilities**

The board of directors of the company has determined the scope of authority, duties and responsibilities of the risk management committee as follows.

1. To determine policies, guidelines and framework on risk management of the company as a guideline to undertake the business in accordance with the law on securities and stock exchange, requirements of the stock exchange or the laws related to the business conducted by the company, including anti-corruption measures and practice.
2. To supervise, monitor and support the organization and the project to accomplish the success in risk management with consideration on each risk to support the assessment, analysis and decision to ensure that the risk management process has covered every step of the business undertaken.
3. To review the guidelines and framework on risk management in comparison with the international practice and to provide recommendations on correction and

improvement as deemed suitable to the board of directors of the company.

4. To assess performance of the risk management committee, to provide recommendations on development and improvement to the board of directors for acknowledgment and information to determine the policy on continued development of the organization.
5. To review the charter of the risk management committee annually.
6. To prepare an activity report of the risk management committee for disclosure in the annual report of the company and such report will be signed by the chairman of the risk management committee.
  - (1) Overall comments or remarks that the risk management committee has learned from the duty performed in accordance with the charter.
  - (2) Other reports that the risk management committee has viewed that the shareholders and the investors should know within the scope of authority and responsibility assigned by the board of directors of the company.
  - (3) Number of meetings of the risk management committee and attendance to the meeting by each risk management committee, including remuneration received by each risk management committee.
7. To perform the duty, the risk management committee may ask for independent opinion from the other professional consultant as deemed necessary at the expense of the company.
8. To perform any other task assigned by the board of directors of the company.

#### **4) The Nomination and Remuneration Committee**

As of December 31, 2018, the Nomination and Remuneration Committee comprised of four persons including independent and executive directors as follow;

Name		Position
1. Mr. Tarakorn	Angpubate	Chairman of the Nomination and Remuneration Committee (Independent Director)
2. Mr. Decha	Chooligorn	Member of the Nomination and Remuneration Committee (Independent Director)

3. Mr. Hathai	Uthai	Member of the Nomination and Remuneration Committee (Independent Director)
4. Mrs. Somluk	Kanuenghet	Member of the Nomination and Remuneration Committee & Secretary

### ***Scope of authority, duties and responsibilities***

The board of directors of the company has determined the scope of authority, duties and responsibilities of the nomination and remuneration committee as follows.

1. To determine policies, criteria and process on recruitment, selection and nomination of the person with suitable qualification in accordance with related laws and regulations to take the post as the director of the company, the committee in various sub-committee with clear and transparent criteria in congruent with the business strategy of the company for submission to the meeting of shareholders or the board of directors of the company for approval or appointment as applicable in accordance with the requirements of the company.
2. To determine policies, criteria and guidelines on remuneration, methods of payment of remuneration and benefits to the board of directors of the company and the sub-committee suitable to the duties and responsibilities for the company for submission to the meeting of shareholders or the board of directors of the company for approval as applicable in accordance with the requirements of the company.
3. To review the structure, criteria related to recruitment and remuneration to ensure suitability with the duties and responsibilities and performance of the company.
4. To consider and propose the succession plan of the top executives of the organization from the managing director or higher to the board of directors of the company for approval.
5. To assess performance of the nomination and remuneration committee, to provide recommendations on development and improvement to the board of directors for acknowledgment and information to determine the policy on continued development of the organization.

6. To review the charter of the nomination and remuneration committee annually.
7. To prepare an activity report of the nomination and remuneration committee for disclosure in the annual report of the company and such report will be signed by the chairman of the nomination and remuneration committee.
  - (1) Overall comments or remarks that the nomination and remuneration committee has learned from the duty performed in accordance with the charter.
  - (2) Other reports that the nomination and remuneration committee has viewed that the shareholders and the investors should know within the scope of authority and responsibility assigned by the board of directors of the company.
  - (3) Number of meetings of the nomination and remuneration committee and attendance to the meeting by each nomination and remuneration committee, including remuneration received by each nomination and remuneration committee.
8. To perform the duty, the nomination and remuneration committee may ask for independent opinion from the other professional consultant as deemed necessary at the expense of the company.
9. To perform any other task assigned by the board of directors of the company.

### 5) Executive Committee

As of December 31, 2018, the Executive Committee comprised of five persons as follow;

	Name	Position
1. Ms. Sopacha	Dhumrongpiyawut	Chief Executive Officer
2. Mr. Somboon	Aueatchasai	Executive Director
3. Ms. Naruechon	Dhumrongpiyawut	Executive Director
4. Mr. Chaloepon	Sricharoen	Executive Director
5. Mrs. Areewan	Chaloemdan	Executive Director

### ***Scope of authority, duties and responsibilities***

The board of directors of the company has determined the scope of authority, duties and responsibilities of the executive committee as follows.

1. To determine policies, guidelines, framework, target, business plan, management structure, rules and regulations, authority, duty, approval authority and budget, including supervision, examination, monitoring and review of the operation of the company in accordance with vision, mission, strategy and policy of the board of directors and in compliance with the laws on securities and stock exchange, requirements of the stock exchange or laws related to the business conducted by the company, requirements of the company, including anti-corruption measures and guidelines.
2. To determine regulations, policies and guidelines on corporate social responsibility to look after the society, community and environment.
3. To screen, approve or agree with the key business conducted in a normal course of business and management of the company within the scope of authority provided.
4. To determine the working regulations of the employees of the company without any conflict with related regulations and laws.
5. To approve the structure of the office and salary and other benefits of the employees and to approve the management structure of the division level or lower.
6. To screen, consent or approve the annual budget plan, to supervise and monitor the operation in accordance with the policy, target and budget plan approved.
7. To ensure that the internal control system of the company is suitable and proper.
8. To screen, consent or approve the investment and/or participation in the bidding contest of new projects and to undertake the project as deemed suitable and to enter into a juristic act related to such matter until its completion within the scope of authority provided.
9. To screen, consent or approve the joint venture with the person, juristic person and/or group of persons in any form to undertake the business in accordance with the objectives of the company, including enter into the juristic act related to such

matter until its completion within the scope of authority provided.

10. To screen, consent or approve the appointment or employment of the advisor, including the expert outside the organization to provide opinions and undertake any act related to the business conducted by the company.
11. The executive committee may assign its authority and appoint a special working group, group of persons, executive or any person to undertake any work within the duty and responsibility as deemed suitable to the executive committee.
12. To authorize the management, special working group, group of persons, executive or any person as a substitute to undertake any act but not the approval on the related transaction or the transaction with possible conflict of interest or the transaction with conflict of interest as indicated in the regulations of the company, policy, rules and regulations and notifications of the Capital Supervision Commission as the approval on the transaction of such nature is required to be submitted to the meeting of the board of directors and/or the shareholders to examine and approve such transaction in accordance with the regulations of the company or the related laws unless it is an approval on the transaction of which the nature is a normal course of business of the company and in accordance with the policy and criteria approved by the board of directors.
13. To assess performance of the executive committee, to provide recommendations on development and improvement to the board of directors for acknowledgment and information to determine the policy on continued development of the organization.
14. To prepare an activity report of the executive committee for disclosure in the annual report of the company and such report will be signed by the chairman of the executive committee.
  - (1) Overall comments or remarks that the executive committee has learned from the duty performed in accordance with the charter.
  - (2) Other reports that the executive committee has viewed that the shareholders and the investors should know within the scope of authority and responsibility assigned by the board of directors of the company.



- (3) Number of meetings of the executive committee and attendance to the meeting by each executive committee, including remuneration received by each executive committee
15. To perform the duty, the executive committee may ask for independent opinion from the other professional consultant as deemed necessary at the expense of the company.
16. To perform any other task assigned by the board of directors of the company.

Board of directors may appoint other sub-committee as per necessity. Scope of authority of each sub-committee has to be clear and specific as sub-committee should be close to issue or problem than others.

## 22.3 Selection and Appointment of Directors and Executives

### *Selection of Board of Directors*

Though the Company doesn't have director search committee, the company's board of directors handles that job by using following criteria, knowledge, capability, experience, vision, creditability and professional qualification (no ban manner), to select director and then propose to shareholders' meeting for approval. The Company sets key criteria for director search as follow;

1. Board of directors comprises of at least 9 persons in which at least half of that must have residence in Thailand and directors must have qualifications as law said
2. Director search by shareholders' meeting is based on majority vote as follow;
  - 2.1 One shareholder has voting right equivalent to one share, one vote
  - 2.2 Shareholder votes director on one-on-one basis
  - 2.3 Director search is based on highest-scored ranking. In the case that qualified persons get same scores and exceed number of directors required, chairman of meeting has final decision.
3. In every annual shareholder meeting, one third of directors are required to resign. If total directors can't be divided by three, use close amount of directors to resign. Directors who are required to resign in the first year and second year use lucky

draw technique. For the following years after that, directors who are in position for the longest period have to resign. However, directors who resign may be selected again.

4. Director has right to get compensation from company in term of reward, meeting fee, pension fund, bonus or other compensations as defined by rules or resolution from shareholders' meeting either in term of fixed amount or general concept. Moreover, director also gets allowance and fringe benefit on top of normal benefits like salary and bonus as employee.
5. Director who wants to resign sends resignation form to company. It will be effective once company accepts. Director may give resignation notice to register person.
6. In case that director position is vacant due to extra reasons (not term expired), board of directors can select qualified person with no banned manner as replacement director in next meeting of board of directors, except director's term has less than two months left. Such replacement director will be in the position for time equivalent to remaining term of previous director. This resolution from board of director requires at least three fourth of remaining directors.
7. If shareholders want director to resign, it needs to get vote from shareholders' meeting of at least three fourth of total shareholders attending the meeting and total voting right and have a share of not less than half of the total number of shares held by the shareholders who attend the meeting and have the right to vote.

### ***Audit Committee/Independent Directors Selection***

Regarding to the selection of Audit Committee, Board of directors or shareholders' meeting will select persons to be a committee in selecting audit committee in which such committee must have at least 3 persons from audit committee by selecting from independent directors. Audit committee has 3 year term but may get renewal from board of directors or shareholders' meeting. Among audit committee, there is at least 1 person who has knowledge and experience in financial & accounting background, so he/she can do financial statement

review.

### ***Good Corporate Governance Committee Selection***

In the part of best corporate governance committee selection, the board of directors or the meeting of shareholders should appoint the committee members which all of them are the independent directors who are not directly involved in doing company business. In order to comply with the principles of good corporate governance and to provide fairness and transparency auditing for the company, it has been defined that the good corporate governance committee must have service period of 3 years. However, they may be appointed by the board of directors or the meeting of shareholders to continue his/her tenure roles and responsibilities as the good corporate governance committee. The good corporate governance committee will be considered by their qualifications in deep knowledge in the company's business area, experiences in corporate governance, and expertise in policy formation in order to ensure compliance with the good governance principles.

### ***Risk Management Committee Selection***

In the part of risk management committee selection, the board of directors or the meeting of shareholders should appoint the committee members consist of 2 independent directors and 2 managing directors. The directors must have well understanding of the organization's risk and the independent directors must able to advise the global types of risk management to the company. It has been defined that the risk management committee must have service period of 3 years. However, they may be appointed by the board of directors or the meeting of shareholders to continue his/her tenure roles and responsibilities as the risk management committee. The risk management committee will be considered by their qualifications in deep knowledge in the company's business area, skill and expertise in accounting and financial in policy formation in order to concretely implement risk management.

### ***Nomination and Remuneration Committee Selection***

In the part of the nomination and remuneration committee selection, the board of directors or the meeting of shareholders should appoint the committee members consist of 3 independent directors and 1 executive management. The executive management will be

appointed to oversee the Division of Human Resources. It has been defined that the nomination and remuneration committee must have service period of 3 years. However, they may be appointed by the board of directors or the meeting of shareholders to continue his/her tenure roles and responsibilities as the nomination and remuneration committee. The nomination and remuneration committee will be considered by their qualifications in deep knowledge in the company's business area, skills and experiences in legal, expertise in developing such remuneration and nominations policy and structure. The information obtained from the database of Consultant Company will be used for the purpose of nomination and remuneration in the organization to compatible with internationally-recognized standards.

### ***Executive Committee Selection***

Board of directors appoints executive committee in which executive committee comprises of 3 at least and 6 at most by selecting from directors or employees or capable persons who are no audit committee. Executive committee has responsibility to manage company as per assignment from board of directors. Executive committee directly reports to board of directors.

However, the selection of all committee, the company will consider from select committee who are expert and has qualification in wide range of professional skill, special expertise, and deep knowledge in the company's business area in order to obtain policy guidelines, recommendations, and continuous improvement company processes to compatible with internationally-recognized standards.

The policy of "Nomination and appointment of Directors and Executives" is prepared to serve as a framework and guideline in nomination of the qualified and competent Directors and executives suitable to the Company's demands in compliance with the Good Governance. In addition, the policy shall promote the effective management to lead the Company to the sustainable progress and development. Including, directors or executives of the Company must never be an employee or partner of an external audit firm that has been in service for the past two years.

### ***Principles on nomination and appointment***

- 1) Qualification of Directors and committees

The qualification of Directors and committees shall be in accordance with each committee's charter, the laws, the requirements of the relevant supervising agency and the Company's association.

2) Qualification of executives

- The executives shall have knowledge, capability, experience and specialized qualification necessary and beneficial to the organization's business operation.
- The executives have leadership and intuitive vision.
- The executives shall be capable in preparation of strategy and organization management.

3) To be recognized by the relevant business organization.

### ***Nomination and Appointment Process***

The Board of Directors sets up the nomination and appointment process to comply with the principle of good governance based on transparency and accountability. The consideration process shall be as follows;

- 1) The Nomination and Remuneration Committee considers and nominates the committees and/or the high-ranked executives of the organization in accordance with the principle.
- 2) The Nomination and Remuneration Committee proposes the personal data and qualification of the committee to the Board of Directors for the approval.
- 3) The Board of Directors approves the appointment of the committee.
- 4) In case of the nomination of the Director retired by rotation or the nomination of the Director in replacement of the retired Director whose term is less than 2 months to propose to the shareholders' meeting for the appointment.

In the process of recruiting, The Company has a policy of using Professional Search Firm or Director Pool to nominate new directors for the selection and appointment process.

According to the Company's policy, the Company allows the minor shareholders to propose the qualified person to serve as the Director in the Ordinary General Meeting of Shareholders. In this regard, the Company shall notify of the proposal through the system of the Stock Exchange of Thailand, so that the shareholders are notified thereof in advance of the

meeting day.

### ***Executive Recruitment and Appointment***

The board assists management in making policy and selection criteria for the position of managing director and policy to emergency succession or the retirement of managing director. The selection process will be clear and transparency. The selection criteria for the position will be considered by knowledge, experiences, abilities, ethics and leadership. The Nomination and Remuneration Committee are assigned to propose the qualified person for appointing as managing director.

The managing director was assigned to recruit the best candidates with extensive knowledge, skills, and experience for the position of executive in accordance to the properties and methods of selection defined by the company.

### **22.4 The Company's Share Trading and Securities Holdings Report**

The board of directors defined that the Company must prepare and report the trade and transfer the company's shares/securities to the board meeting of the good corporate governance committee and the board of directors in all meeting. The guidelines are set out in the charter of each committee, in the "Business Ethics Policy" and "Good Corporate Governance Policy", in order to be aware of the general practice. The detail is as follow;

## 22.4 Report on the Holding of Securities of the Company's Directors and Senior Executives for 2018

No.	Director / Senior Executive Name (A)	Relation	Type of Securities	Number of shares that held at the beginning of the year <sup>1)</sup>	Dividends of ordinary shares: Resolution AGM 2018		Number of shares purchased during the year		Number of shares sold during the year		Number of shares that held at the beginning of the year <sup>2)</sup>	Increase / (decrease) (Shares)	% of Paid up shares <sup>3)</sup>
					Payment Date (Cash Dividend Only)	Amount (Resolution: No stock dividend)	Date of purchase	Amount	Date of sale	Amount			
1	Mr. Gunkul Dhumrongpiyawut	Director	Common share	309,592,726	15-May-18	-		-		-	309,592,726	-	4.1732
		Spouse	Common share	-	-	-		-		-	-	-	-
		Underage children	Common share	-	-	-		-		-	-	-	-
				309,592,726		-		-		-	309,592,726	-	4.1732
2	Dr. Djitt Laowattana	Director (Independent Director)	Common share	1,728,400	15-May-18	-		-		-	1,728,400	-	0.0233
		Spouse	Common share	-	-	-		-		-	-	-	-
		Underage children	Common share	-	-	-		-		-	-	-	-
				1,728,400		-		-		-	1,728,400	-	0.0233
3	Dr. Chongrak Rarueysong	Director (Independent Director)	Common share	-	-	-		-		-	-	-	-
		Spouse	Common share	-	-	-		-		-	-	-	-
		Underage children	Common share	-	-	-		-		-	-	-	-
				-	-	-		-		-	-	-	-
4	Assoc. Prof. Dr. Panarat Panmanee	Director (Independent Director)	Common share	-	-	-		-		-	-	-	-
		Spouse	Common share	-	-	-		-		-	-	-	-
		Underage children	Common share	-	-	-		-		-	-	-	-
				-	-	-		-		-	-	-	-
5	Mr. Tarakorn Angpubate	Director (Independent Director)	Common share	2,858,333	15-May-18	-		-		(2,108,300)	750,033	-2,108,300	0.0101
		Spouse	Common share	-	-	-		-		-	-	-	-
		Underage children	Common share	-	-	-		-		-	-	-	-
				2,858,333		-		-		(2,108,300)	750,033	-2,108,300	0.0101

No.	Director / Senior Executive Name (A)	Relation	Type of Securities	Number of shares that held at the beginning of the year <sup>1)</sup>	Dividends of ordinary shares: Resolution AGM 2018		Number of shares purchased during the year		Number of shares sold during the year		Number of shares that held at the beginning of the year <sup>2)</sup>	Increase / (decrease) (Shares)	% of Paid up shares <sup>3)</sup>
					Payment Date (Cash Dividend Only)	Amount (Resolution: No stock dividend)	Date of purchase	Amount	Date of sale	Amount			
6	Miss Sopacha Dhumrongpiyawut	Director / Senior Executive	Common share	-	-	-		-		-	-	-	-
		Spouse	Common share	-	-	-		-		-	-	-	-
		Underage children	Common share	-	-	-		-		-	-	-	-
				-	-	-		-		-	-	-	-
7	Dr. Somboon Aueatchasai	Director / Senior Executive	Common share	28,000,000	15-May-18	-		-		-	28,000,000	-	0.3774
		Spouse	Common share	3,397,333	15-May-18	-		-		-	3,397,333	-	0.0458
		Underage children	Common share	-	-	-		-		-	-	-	-
				<b>31,397,333</b>		-		-		-	<b>31,397,333</b>	-	<b>0.4232</b>
8	Miss Naruechon Dhumrongpiyawut	Director / Senior Executive	Common share	359,328	15-May-18	-		-		-	359,328	-	0.0048
		Spouse	Common share	-	-	-		-		-	-	-	-
		Underage children	Common share	-	-	-		-		-	-	-	-
				<b>359,328</b>		-		-		-	<b>359,328</b>	-	<b>0.0048</b>
9	Mrs. Areewan Chaloezman	Director / Senior Executive	Common share	-	-	-		-		-	-	-	-
		Spouse	Common share	-	-	-		-		-	-	-	-
		Underage children	Common share	-	-	-		-		-	-	-	-
				-	-	-		-		-	-	-	-
10	Mr. Chaloezman Sricharoen	Senior Executive	Common share	-	-	-		-		-	-	-	-
		Spouse	Common share	-	-	-		-		-	-	-	-
		Underage children	Common share	-	-	-		-		-	-	-	-
				-	-	-		-		-	-	-	-



No.	Director / Senior Executive Name (A)	Relation	Type of Securities	Number of shares that held at the beginning of the year <sup>1)</sup>	Dividends of ordinary shares: Resolution AGM 2018		Number of shares purchased during the year		Number of shares sold during the year		Number of shares that held at the beginning of the year <sup>2)</sup>	Increase / (decrease) (Shares)	% of Paid up shares <sup>3)</sup>
					Payment Date (Cash Dividend Only)	Amount (Resolution: No stock dividend)	Date of purchase	Amount	Date of sale	Amount			
11	Dr. Phongsakorn Damnoen	Senior Executive	Common share	31,811,728	15-May-18	-		-		-	31,811,728	-	0.4288
		Spouse	Common share	280,000	15-May-18	-		-		-	280,000	-	0.0038
		Underage children	Common share	-	-	-		-		-	-	-	-
				32,091,728		-		-		-	32,091,728	-	0.4326
12	Mr. Chaisiri Wattanachannarong	Senior Executive	Common share	-	-	-		-		-		-	-
		Spouse	Common share	-	-	-		-		-		-	-
		Underage children	Common share	-	-	-		-		-		-	-
				-	-	-		-		-		-	-
13	Mrs. Somluk Kanuenghet	Senior Executive / Secretary of the Nomination and Remuneration Committee	Common share	-	-	-		-		-	-	-	-
		Spouse	Common share	-	-	-		-		-	-	-	-
		Underage children	Common share	-	-	-		-		-	-	-	-
				-	-	-		-		-	-	-	-
14	Mr. Thamrong Chankraithong	Senior Executive	Common share	-	-	-		-		-	-	-	-
		Spouse	Common share	-	-	-		-		-	-	-	-
		Underage children	Common share	-	-	-		-		-	-	-	-
				-	-	-		-		-	-	-	-
15	Mr. Thitipong Techaratanayuenyong	Senior Executive / Secretary of the Risk Management Committee	Common share	-	-	-		-		-	-	-	-
		Spouse	Common share	-	-	-		-		-	-	-	-
		Underage children	Common share	-	-	-		-		-	-	-	-
				-	-	-		-		-	-	-	-

No.	Director / Senior Executive Name (A)	Relation	Type of Securities	Number of shares that held at the beginning of the year <sup>1)</sup>	Dividends of ordinary shares: Resolution AGM 2018		Number of shares purchased during the year		Number of shares sold during the year		Number of shares that held at the beginning of the year <sup>2)</sup>	Increase / (decrease) (Shares)	% of Paid up shares <sup>3)</sup>
					Payment Date (Cash Dividend Only)	Amount (Resolution: No stock dividend)	Date of purchase	Amount	Date of sale	Amount			
16	Dr. Phairot Phanukan	Senior Executive	Common share	-	-	-		-		-		-	-
		Spouse	Common share	-	-	-		-		-		-	-
		Underage children	Common share	-	-	-		-		-		-	-
				-	-	-		-		-		-	-
17	Mrs. Nattawan Wongchan	Senior Executive	Common share	-	-	-		-		-		-	-
		Spouse	Common share	-	-	-		-		-		-	-
		Underage children	Common share	-	-	-		-		-		-	-
				-	-	-		-		-		-	-
18	Mr. Janpon Ngamaroonchote	Senior Executive	Common share	-	-	-		-		-		-	-
		Spouse	Common share	-	-	-		-		-		-	-
		Underage children	Common share	-	-	-		-		-		-	-
				-	-	-		-		-		-	-
19	Miss Chantira Jongjamareeseethong	Senior Executive / Company Secretary	Common share	-	-	-		-		-		-	-
		Spouse	Common share	-	-	-		-		-		-	-
		Underage children	Common share	-	-	-		-		-		-	-
				-	-	-		-		-		-	-
20	Ms. Suttirat Tangnorakul	Executive	Common share	-	-	-		-		-		-	-
		Spouse	Common share	-	-	-		-		-		-	-
		Underage children	Common share	-	-	-		-		-		-	-
				-	-	-		-		-		-	-

No.	Director / Senior Executive Name (A)	Relation	Type of Securities	Number of shares that held at the beginning of the year <sup>1)</sup>	Dividends of ordinary shares: Resolution AGM 2018		Number of shares purchased during the year		Number of shares sold during the year		Number of shares that held at the beginning of the year <sup>2)</sup>	Increase / (decrease) (Shares)	% of Paid up shares <sup>3)</sup>
					Payment Date (Cash Dividend Only)	Amount (Resolution: No stock dividend)	Date of purchase	Amount	Date of sale	Amount			
21	Mr. Tanetsiri Farkmitr	Executive / Secretary of the Audit Committee	Common share	-	-	-		-		-		-	-
		Spouse	Common share	-	-	-		-		-		-	-
		Underage children	Common share	-	-	-		-		-		-	-
				-	-	-		-		-		-	-

#### Remark

- 1) Ordinary shares as of the closing date of XO on December 19, 2017
  - 2) Ordinary shares as of the closing date of XO on December 21, 2018
  - 3) As of December 31, 2018, the Company has a registered capital of 1,854,655,373 baht and the paid-up shares totaling 7,418,621,493 shares
- A Director / Senior Executive

#### Auditor fee

##### 1. Audit fee

In 2014 - 2018, audit fees for the Company comprises annual audit fee and audit fees for the 3 quarters, as per following details:-

Year	Audit Fee of Gunkul Engineering PCL. (THB)
2018	1,700,000.00
2017	1,480,000.00
2016	1,100,000.00
2015	940,000.00
2014	892,000.00

The parties related to the auditor and the auditing firm for 2018 is KPMG Phoomchai Audit Limited which is not a related party to the Company. It is an independent auditor and has been approved by the Securities and Exchange Commission and qualified by the Audit Committee and the Board of Directors including the Annual General Meeting of Shareholders for 2018.

## **2. Non-Audit fee**

The Company had compensation for other services, such as overtime, vehicle fees, document binding fee, confirmation fee, and delivery fee, totaling THB 413,355.00 which was already paid within 2018.

### **21.4 Compliance with the Principles of Good Corporate Governance in Any Other Matter**

The board of directors set agenda to acknowledge from every subcommittee chairman, report the progress of the subcommittee to the board of directors in quarterly for the efficiency of organization management for growing sustainably and continuing oversight of the principles of good corporate governance.

The Company is committed to bringing good corporate governance principles to the concrete operations throughout the organization. In the year 2018, the Company received the Good Corporate Governance rating (CGR) at the excellent level rating of 91.5 points, comparing with the results that obtained in 2017 at the excellent level rating of 91 points. In addition, in the year 2018, the Company received the results of the 2018 annual general meeting assessment at the excellent level rating of 96 points, comparing with the results that obtained in 2017 at the excellent level rating of 97.5 points.

The Company is committed to bringing good corporate governance principles into operation throughout the organization. In 2017, the Company received Corporate Good Governance (“CGR”) ratings with an excellent rate of 91 points, compared with the result obtained in 2016 with a very good rate of 82 points. In addition, 2017, the Company received the result of the evaluation of the quality in holding the meeting in 2017 with an excellent rate of 97.5 points compared to the results obtained in 2016 with an excellent rate of 97.0 points.

In order to encourage voluntary compliance by the private sector to cooperate in the prevention and fight against corruption with the standardization of business to be correct and transparent as well as creating a higher standard of business ethics. In 2017, the Company issued a statement announcing its commitment to the Private Sector Collective Action Coalition Against Corruption (CAC). Also, the CAC Council has evaluated and approved the Company as a member of the Private Sector Collective Action Coalition Against Corruption from August 18, 2017 for a period of 3 years (until August 18, 2020). The Company has established guidelines on such principles throughout the organization, reflecting the overall development of the Company's good corporate governance. Moreover, the company is committed to sustainable this development.

In addition, in 2018, the Company has prepared a plan to comply with the good corporate governance principles for Thai listed companies (Corporate Governance Code for Listed Companies "CG Code") according to the guidelines and recommendations from the Securities and Exchange Commission. Then, brought to the Good Corporate Governance Committee meeting and the Board of Directors to define as a concrete practice and continue to develop. Such principles and plans have been acknowledged, reviewed and considered by the Good Corporate Governance Committee and the Board of Directors continuously during the year 2018.



## 23. Internal Control and Risk Management

The Board of Directors realizing about the importance of risk management and have direct responsibility for risk management of the organization. The objective is to support the operations of the Company's management division to be more efficient and achieve goals by specifying the policy and risk management framework and involved in all sections of the business and specify the internal regulation, preventive and decrease risk measure, reporting system, monitoring procedure and regularly evaluate to cover business risk factors.

The Board of Directors has delegated to the Audit Committee which consists of 3 independent directors and each one is not an employee of the Company to take the responsibility of review and audit the internal control to ensure that the operations are effective by checking balances and controlling use of the property for the benefit of the Company. The Internal Audit Department performs to assess the risk and internal operation control activities including reviews the financial report and risk management information by reporting to the Audit Committee quarterly.

In the Board of Directors' Meeting No. 1/2562 on 20th February 2019 with the Audit Committee which is 3 independent directors, the management and the internal audit department also attended the meeting. The Board of Directors jointly assessed the adequacy of the internal control system as determined by the Securities and Exchange Commission (SEC) in accordance with the COSO 2013 framework (The Committee of Sponsoring Organizations of the Treadway Commission) which covering 5 elements, including

1. Control Environment
2. Risk Assessment
3. Control Activities
4. Information & Communication
5. Monitoring Activities

The Board of Directors and the Audit Committee have the same opinion as the Internal Audit Team. The internal control system of the Company is compliance with the form of internal control in accordance with COSO guidelines. It is adequate, appropriate and has an environment that good for an internal control system. This is due to the organizational structure and the clear chain of command designed to accommodate the overall objectives of the Company including authorizing authority (review and update regularly) for each level of operation, to achieve corporate-level objectives. In addition, the Company manages to have sufficiently personnel to perform the system effectively. The Company also has an internal control system to monitor and control the operations of its subsidiaries to protect the assets of the Company and its subsidiaries from improper or unauthorized use by the directors or management including the transactions with the persons who may have conflicts and the connected persons.

From the overall assessment results, the Board of Directors also assigned the Risk Management Committee, consists of two independent directors, one executive director and one management. The responsibilities are to formulate policies and operational framework. The risk management framework is based on the COSO guideline. To specify the risk appetite and the risk tolerance level under the Company's acceptance and to specify the roles and responsibilities of the management and participate in setting goals for organizational use. It also oversees and evaluates the risks of the Company's activities to ensure transparency and fairness to stakeholders and all stakeholders.

To ensure the guidelines and policies of the Board of director and the Management is being observed. The Company has set Key Performance Indicator (KPI) for all departments by comparing actual performance with periodic goals to analyze the causes of the differences and specify the improvement to conform to the current situation. The Internal Audit Team which is under the supervisory board will monitor and evaluate the performance and the internal control system of the Company and its subsidiaries in various fields frequently. When defects any error or anything that should improve the internal control system, will report to relevant management and the Audit Committee to acknowledge and to ensure that the management team sets the corrective and action plan.

The Audit Committee and the management has given importance to good corporate governance, internal control and continuous risk management for the Company in order to

have good corporate governance, have adequate internal controls suitable for business operations, have risk management at an acceptable level, have a reliable accounting system and financial reports including compliance with laws, regulations that relating to the business of the Company.

### ***Head of the Company's Internal Audit Section***

The Audit Committee Meeting has appointed Mr. Tanetsiri Farkmitr, Assistant Vice President of Internal Audit to be the head of internal audit section of the Company and Secretary to the Audit Committee. An effective date is 20<sup>th</sup> October 2016. Mr. Thananee Sirideeam has experience in internal audit. He is a certified public accountant (CPA) and has sufficiently experience in managing the Internal Audit Department. The Audit Committee therefore deemed that it was appropriate to perform such duties appropriately.

In this regard, the consideration and approval of the appointment, removal and transfer of the head of the internal audit department of the Company must be approved or received approval from the Audit Committee.



## 24. Related Transaction

### 24.1 Shareholding in Subsidiaries and Joint Ventures

- The related transaction between GUNKUL, subsidiaries and joint ventures (associated companies or affiliates) for normal business which are useful for company procedure. GUNKUL is the shareholder of the following subsidiaries and joint ventures.

Classification	Investment <sup>4)</sup>	Shareholding in Subsidiaries and Joint Ventures <sup>1)</sup>															
		GUNKUL : Direct Shareholding <sup>2)</sup>											GUNKUL : Indirect Shareholding <sup>2)</sup>				
	100%	100%	99.99%	99.97%	99.94%	74.90%	70.00%	67.00%	51.00%	48.98%	40.00%	25.01%	100%	99.99%	74.90%	67.00%	51.00%
Subsidiaries	GK Sendai	GIM	GKA,GKP	GTRC	GBE	GOB		IAE	ECO	BMPS			GIS	GSP-1	OGA <sup>3)</sup>	RNS	GKMCP-1
	GK Kimitsu		KNP,WED										GMP	GSP-2	OGB <sup>3)</sup>		
	GD Utsunomiya		GNP,KWE										FAM	FEC	OGD		
	GK Solar 13		NKP,BGP											GSP-3 <sup>3)</sup>	OGE <sup>3)</sup>		
			SGSE,SES											GSP-4 <sup>3)</sup>	OGW-A <sup>3)</sup>		
			GSR1,GSC											GSP-5 <sup>3)</sup>	OGW-B <sup>3)</sup>		
			GPD,GES											GSP-6 <sup>3)</sup>			
			GSP														
Associates/Joint Ventures							Kenyir		GCPG		GPS	WHA GSR-1					
											SWE <sup>3)</sup>	WHA GSR-3					
												WHA GSR-6					
												WHA GSR-17					

- 1) *The full name of the subsidiary / associates / joint ventures listed in Clause 15 “General Information and Other Significant Information”.*
- 2) *GUNKUL holds indirect shares through the following companies:*
  - *GUNKUL holds for 100% stake in GIM / GIM holds for 100% stake in GIS / GIS holds for 100% stake in GMP.*
  - *GUNKUL holds for 99.99% stake in GSP / GSP holds for 99.99% stake in GSP-1, GSP-2, GSP-3, GSP-4, GSP-5 and GSP-6.*
  - *GUNKUL holds for 99.99% stake in GPD / GPD holds for 99.99% stake in FEC.*
  - *GUNKUL holds for 74.90% stake in GOB / GOB holds for 99.99% stake in OGA, OGB, OGD, OGE, OGW-A and OGW-B.*
  - *GUNKUL holds for 67% stake in IAE / IAE holds for 99.99% stake in RNS.*
- 3) *GSP-3 - GSP-6 and OGB OGW-A OGW-B and SWE already registered for dissolution and liquidation / OGA and OGE already registered for dissolution and is waiting to register liquidation.*
- 4) *GUNKUL invested in the companies listed above through GIM.*

So that the related transaction between the Company and subsidiaries and affiliates or joint venture will not cause any Conflict in the future

## 24.2 Opinion of the Audit Committee for the Related Transaction between the Company with Subsidiaries, Joint Ventures and related companies/persons

- Buy/Sell transactions benefit the Company’s operations, are reasonable and have normal trade conditions.
- Renting or leasing space contracts between the Company and subsidiaries and related persons, the Company and the Group have made a lease agreement and the sublease agreement. The rental price is determined by the independent appraiser. The rental rates for land and buildings used for the establishment of the Company and the Group were assessed. The terms and rates of rental can be comparable to renting to third parties which is Reasonable and necessary.
- Service of O&M and Management between the Group are made under both agreed on service fee which are useful for the Company’s operation and are reasonable.
- The Group has entered into an agreement with a related company for the construction of a replacement power plant with a reasonable price by the fair rate

which is comparable to other clients. The Company follows the practice of the regulations which related to the Stock Exchange of Thailand (SET) which in this case is considered that it is not “Normal business” (please see “Listed Companies Handbook” in the topic of “Related Transaction) size list more than 1 million baht or more than 0.03% of NTA and the Company need to ask for the resolution from the board of director’s or the shareholder’s meeting before enter the transaction (depended on transaction value).

- Subsidiaries and associated companies sign solar rooftop power plant construction contracts which are useful for the Company’s operation and are reasonable.
- Asset acquisitions from related persons and companies to use for operation are necessary for and benefit the Company and the Group’s operation. Conditions and prices of these acquisitions are comparable to acquire from a third party.
- The loans are charged at the interest rate close to the rate borrowed from financial institutions. The interest rates charged on intercompany loans within the Group and all related companies. The interest rate is on average and close to that of a financial institution. These lending are necessary and reasonable and benefit the Company and the Group’s operations.

### Credit Facilities and Collateral

As of 31st December 2018, GUNKUL got credit lines from several banks for total amount of 6,591.64 million baht and USD 265.00 million . Details are as follows.

Credit	Credit Line (Million Baht)	Credit Line (USD Million)	Credit Line Amount which the Company, subsidiaries and joint venture available to share (Million Baht)											
			GKA	GKP	KNP	WED	GNP	NK	GPD	GUNKUL- LED	RNS	GCPG	GPS	FEC
1. Overdraft	34.00	-	1.00	1.00	1.00	-	-	-	1.00	1.00	-	-	-	2.00
2. Letter of Guarantee	567.14	-	180.00	-	50.00	-	-	-	-	-	1.21	-	-	-
3. Letter of Guarantee and Letter of Credit/ Trust Receipt (Multi)*	1,245.00	15.00	190.00	190.00	193.15	-	12.00	-	213.92	190.00	-	0.45	-	-
4. Letter of Guarantee and Letter of Credit/ Trust Receipt /Short term Credit Line (Multi)*	1,500.00	-	-	-	-	-	-	-	-	-	-	-	-	-
5. Letter of Credit/Trust Receipt	790.00	-	80.00	170.00	-	-	-	-	-	-	-	-	-	-
6. Short Term Credit Line	450.00	20.00	-	-	-	-	-	-	-	-	-	-	-	-
7. Foreign Exchange Forward Contracts	2,005.50	230.00	25.00	29.00	20.00	-	-	-	20.00	20.00	-	-	-	-
<b>Total</b>	<b>6,591.64</b>	<b>265.00</b>	<b>476.00</b>	<b>390.00</b>	<b>264.15</b>	<b>-</b>	<b>12.00</b>	<b>-</b>	<b>234.92</b>	<b>211.00</b>	<b>1.21</b>	<b>0.45</b>	<b>-</b>	<b>2.00</b>

\* Credit line of “ Multi” Type which got from several commercial bank, the subsidiaries, associates and affiliates available to share this credit line, asking for approving at a time.

Opinion of the Audit Committee : This transaction makes a benefit to the Company. It is reasonable to enter into the transaction for using the financial management of the organization

As of 31st December 2018, GUNKUL's Group got credit lines from several banks to serve for construction and development of power plant projects of the Group.

Credit Type	Credit Line (Million Baht)
1. Wind Energy Development Co., Ltd.	3,675.00
2. Rang Ngern Solution Co., Ltd.	4,080.00
3. Greenovation Power Co., Ltd.	4,455.00
4. Korat Wind Energy Co., Ltd.	3,048.75
5. NK Power Solar Co., Ltd.	48.00
6. Gunkul Chubu Powergen Co., Ltd.	2,276.10
7. G-Power Source Co., Ltd.	2,200.00
8. WHA Gunkul Green Solar Roof 1 Co., Ltd.	33.00
9. WHA Gunkul Green Solar Roof 2 Co., Ltd.	42.43
10. WHA Gunkul Green Solar Roof 6 Co., Ltd.	42.43
11. WHA Gunkul Green Solar Roof 17 Co., Ltd.	46.91
Total	19,947.62

The total amount is guaranteed by the claim in the deposit account, the claim in Power Purchase Agreement and related contract, mortgage of land and buildings, pledge/mortgage of machinery and equipment and pledge of share certificates of such subsidiary. Opinion of the Audit Committee : This transaction is reasonable due to a guarantee by the assets of the subsidiary Company.

## 24.3 Summary of Relationship between the Company, Subsidiaries, Joint Ventures and Related Companies/Persons

Company	Symbol	Type of Business	Relationship
<b>Subsidiaries : GUNKUL holding 100% stake</b>			
Gunkul International (Mauritius)	GIM	Overseas Investment	December 31, 2018 - GUNKUL was major shareholder of GIM for 100% stake.
Gunkul Investment (Singapore) Pte. Ltd.	GIS	Overseas Investment	December 31, 2018 - GIM was major shareholder of GIS for 100% stake.
Gunkul Myanmar Power (Hlawga) Pte, Ltd.	GMP	Overseas Investment	December 31, 2018 - GIS was major shareholder of GMP for 100% stake.
<b>Subsidiaries : GUNKUL invest for 100% stake</b>			
Sendai Okura GD Daiichi Godo Kaisha	GK Sendai	Generating Electrical Power	December 31, 2018 - GIM and BGP invested in GK Sendai in total for 100% stake.
Kimitsu Mega Solar Godo Kaisha	GK Kimitsu	Generating Electrical Power	December 31, 2018 - GIM and BGP invested in GK Kimitsu in total for 100% stake.
GD Solar Utsunomiya Godo Kaisha	GD Utsunomiya	Generating Electrical Power	- December 31, 2018 GIM and BGP invested in GD Utsunomiya in total for 100% stake.
East Japan Solar 13 Godo Kaisha	GK Solar 13	Generating Electrical Power	- December 31, 2018 GIM and BGP invested in GK Solar 13i in total for 100% stake.
<b>Subsidiaries : GUNKUL holding 99.99% stake</b>			
G.K. Assembly Co., Ltd.	GKA	Manufacturing Electrical Products	December 31, 2018 - GUNKUL was major shareholder of GKA for 99.99 % stake.
			- Shared shareholder between GKA and GUNKUL is Mr.Gunkul Dhumrongpiyawut holding 0.00005% stake in GKA. - Shared directors between GKA and GUNKUL are Miss Sopacha Dhumrongpiyawut and Mrs. Areewan Chaloemdan.

Company	Symbol	Type of Business	Relationship
G.K.Power Products Co., Ltd.	GKP	Manufacturing Electrical Products	<p>December 31, 2018</p> <ul style="list-style-type: none"> <li>- GUNKUL was major shareholder of GKP for 99.99% stake.</li> <li>- Shared shareholder between GUNKUL and GKP is Mr.Gunkul Dhumrongpiyawut holding 0.001% stake in GKP.</li> <li>- Shared directors between GKP and GUNKUL are Miss Sopacha Dhumrongpiyawut and Mrs. Areewan Chaloezman.</li> </ul>
K.N.P. Supply Co., Ltd.	KNP	Supplying Electrical Products	<p>December 31, 2018</p> <ul style="list-style-type: none"> <li>- GUNKUL was major shareholder of KNP for 99.99 % stake.</li> <li>- Shared shareholder between GUNKUL and KNP is Mr. Gunkul Dhumrongpiyawut holding 0.0002% stake in KNP.</li> <li>- Shared director between KNP and GUNKUL is Mr.Chaloempon Sricharoen.</li> </ul>
Wind Energy Development Co., Ltd.	WED	Generating Electrical Power	<p>December 31, 2018</p> <ul style="list-style-type: none"> <li>- GUNKUL was major shareholder of WED for 99.99% stake.</li> <li>- Shared shareholder between GUNKUL and WED is Mr. Gunkul Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut holding 0.00001% stake in WED.</li> <li>- Shared directors between WED and GUNKUL are Mr. Somboon Aueatchasai and Miss Naruechon Dhumrongpiyawut, daughter of Mr. Gunkul Dhamrongpiyawut.</li> <li>- Shared director between WED and GCPG and GPS is Mr. Somboon Aueatchasai.</li> </ul>
Greenovation Power Co., Ltd.	GNP	Generating Electrical Power	<p>December 31, 2018</p> <ul style="list-style-type: none"> <li>- GUNKUL was major shareholder of GNP for 99.99% stake.</li> <li>- Shared shareholders between GNP and GUNKUL are Mr. Gunkul Dhamrongpiyawut and Miss Naruechon Dhumrongpiyawut holding 0.00001% stake each in GNP.</li> <li>- Shared director between GNP and GUNKUL is Miss Naruechon Dhumrongpiyawut</li> </ul>
Korat Wind Energy Co., Ltd.	KWE	Generating Electrical Power	<p>December 31, 2018</p> <ul style="list-style-type: none"> <li>- GUNKUL was major shareholder of KWE for 99.99% stake.</li> </ul>

Company	Symbol	Type of Business	Relationship
			<ul style="list-style-type: none"> <li>- Share shareholders between KWE and GUNKUL are Mr. Gunkul Dhamrongpiyawut and Miss Sopacha Dhumrongpiyawut by holding 0.00001% stake each in KWE.</li> <li>- Shared directors between KWE and GUNKUL are Miss Sopacha Dhumrongpiyawut and Mr. Somboon Aueatchasai.</li> </ul>
Gunkul Solar Power Co., Ltd.	GSP	Generating Electrical Power	<p>December 31, 2018</p> <ul style="list-style-type: none"> <li>- GUNKUL was major shareholder of GSP for 99.99% stake.</li> <li>- Shared shareholder between GUNKUL and GSP is Mr. Somboon Aueatchasai holding 0.0001% stake in GSP.</li> <li>- Shared director between GSP and GUNKUL is Miss Sopacha Dhumrongpiyawut.</li> </ul>
Gunkul Solar Power 1 Co., Ltd.	GSP-1	Generating Electrical Power	<p>December 31, 2018</p> <ul style="list-style-type: none"> <li>- GSP was major shareholder of GSP-1 for 99.99% stake. GUNKUL holds GSP-1 through GSP.</li> <li>- Shared shareholder between GUNKUL and GSP-1 is Mr. Somboon Aueatchasai holding 0.0001% stake in GSP-1.</li> <li>- Shared director between GSP-1 and GUNKUL is Miss Sopacha Dhumrongpiyawut.</li> </ul>
Gunkul Solar Power 2 Co., Ltd.	GSP-2	Generating Electrical Power	<p>December 31, 2018</p> <ul style="list-style-type: none"> <li>- GSP was major shareholder of GSP-2 for 99.99% stake. GUNKUL holds GSP-2 through GSP.</li> <li>- Shared shareholder between GUNKUL and GSP-2 is Mr. Somboon Aueatchasai holding 0.0001% stake in GSP-2.</li> <li>- Shared director between GSP-2 and GUNKUL is Miss Sopacha Dhumrongpiyawut.</li> </ul>
Gunkul Solar Power 3 Co., Ltd. 1. Dissolution on 9 April 2018 2. Liquidation on 18 July 2018	GSP-3	Generating Electrical Power	<p>December 31, 2018</p> <ul style="list-style-type: none"> <li>- GSP was major shareholder of GSP-3 for 99.99% stake. GUNKUL holds GSP-3 through GSP.</li> <li>- Shared director between GSP-3 and GUNKUL is Miss Sopacha Dhumrongpiyawut.</li> </ul>
Gunkul Solar Power 4 Co., Ltd. 1. Dissolution on 9 April 2018 2. Liquidation on 18 July 2018	GSP-4	Generating Electrical Power	<p>December 31, 2018</p> <ul style="list-style-type: none"> <li>- GSP was major shareholder of GSP-4 for 99.99% stake. GUNKUL holds GSP-4 through GSP.</li> <li>- Shared director between GSP-4 and GUNKUL is Miss Sopacha Dhumrongpiyawut.</li> </ul>



Company	Symbol	Type of Business	Relationship
Gunkul Solar Power 5 Co., Ltd. 1. Dissolution on 9 April 2018 2. Liquidation on 18 July 2018	GSP-5	Generating Electrical Power	December 31, 2018 - GSP was major shareholder of GSP-5 for 99.99% stake. GUNKUL holds GSP-5 through GSP. - Shared director between GSP-5 and GUNKUL is Miss Sopacha Dhumrongpiyawut.
Gunkul Solar Power 6 Co., Ltd. 1. Dissolution on 9 April 2018 2. Liquidation on 6 June 2018	GSP-6	Generating Electrical Power	December 31, 2018 - GSP was major shareholder of GSP-6 for 99.99% stake. GUNKUL holds GSP-6 through GSP. - Shared shareholder between GUNKUL and GSP-6 is Mr. Somboon Aueatchasai holding 0.0001% stake in GSP-6. - Shared director between GSP-6 and GUNKUL is Miss Sopacha Dhumrongpiyawut.
Bright Green Power Co., Ltd.	BGP	Generating Electrical Power	December 31, 2018 - GUNKUL was major shareholder of BGP for 99.99% stake.
Siam Gunkul Solar Energy Co., Ltd.	SGSE	Generating Electrical Power	December 31, 2018 - GUNKUL was major shareholder of SGSE for 99.99% stake. - Shared shareholder between SGSE and GUNKUL is Mr. Somboon Aueatchasai holding 0.0002% stake in SGSE. - Shared director between SGSE and GUNKUL is Miss Sopacha Dhumrongpiyawut.
Solar Energy Society Co., Ltd.	SES	Generating Electrical Power	December 31, 2018 - GUNKUL was major shareholder of SES for 99.99% stake. - Shared director between SES and GUNKUL is Miss Sopacha Dhumrongpiyawut, Miss Naruechon Dhumrongpiyawut and Mr. Somboon Aueatchasai
Gunkul Solar Roof1 Co., Ltd.	GSR-1	Generating Electrical Power	December 31, 2018 - GUNKUL was major shareholder of GSR-1 for 99.99% stake. - Shared shareholder between GSR-1 and GUNKUL is Mr. Somboon Aueatchasai holding 0.0005% stake in GSR-1. - Shared directors between GSR-1 and GUNKUL are Miss Sopacha Dhumrongpiyawut and Mr. Somboon Aueatchasai.

Company	Symbol	Type of Business	Relationship
Gunkul Solar Community Co., Ltd.	GSC	Generating Electrical Power	<p>December 31, 2018</p> <ul style="list-style-type: none"> <li>- GUNKUL was major shareholder of GSC for 99.99% stake.</li> <li>- Shared shareholders between GSC and GUNKUL are Miss Naruechon Dhumrongpiyawut holding 0.001% stake and Mr.Somboon Aueatchasai holding 0.001% stake in GSC.</li> <li>- Shared directors between GSC and GUNKUL are Miss Sopacha Dhumrongpiyawut, Miss Naruechon Dhumrongpiyawut and Mr. Som boon Aueatchasai.</li> <li>- Share director between GSC and GNP is Miss Naruechon Dhumrongpiyawut.</li> </ul>
Gunkul Power Development Co., Ltd.	GPD	Contractors and Generating Electric Power	<p>December 31, 2018</p> <ul style="list-style-type: none"> <li>- GUNKUL was major shareholder of GPD for 99.99% stake.</li> <li>- Shared shareholder between GPD and GUNKUL is Mr. Somboon Aueatchasai holding 0.0002% stake in GPD.</li> <li>- Shared directors between GPD and GUNKUL are Miss Sopacha Dhumrongpiyawut and Mr. Somboon Aueatchasai.</li> </ul>
NK Power Solar Co., Ltd.	NKP	Generating Electrical Power	<p>December 31, 2018</p> <ul style="list-style-type: none"> <li>- GUNKUL was major shareholder of NKP for 99.99% stake.</li> <li>- Shared shareholder between GUNKUL and NKP is Miss Sopacha Dhumrongpiyawut holding 0.0038% stake in NKP.</li> <li>- Shared directors between NKP, GUNKUL and GPS are Miss Sopacha Dhumrongpiyawut and Mr. Somboon Aueatchasai.</li> <li>- Shared directors between NKP and GCPG are Mr.Somboon Aueatchasai and Mr. Phongsakorn Damnoen.</li> </ul>
Gunkul Energy Solution and Lighting Co., Ltd.	GES	Producing LED electric bulbs for sale and Contractor to install electricity generation equipment from renewable energy	<p>December 31, 2018</p>

Company	Symbol	Type of Business	Relationship
(Former: Gunkul LED Lighting Co., Ltd. – Registered change on 21 February 2018)			<ul style="list-style-type: none"> <li>- GUNKUL was major shareholder of GES for 99.99% stake.</li> <li>- Shared shareholder between GES and GUNKUL is Miss Naruechon Dhumrongpiyawut holding 0.0001% stake in GES.</li> <li>- Shared shareholder between GES and GUNKUL is Mr. Somboon Aueatchasai holding 0.0001% stake in GES</li> <li>- Shared directors between GES and GUNKUL are Miss Naruechon Dhumrongpiyawut and Mr. Somboon Aueatchasai.</li> </ul>
Future Electrical Control Co., Ltd. (GPD bought shares on 3 July 2018)	FEC	Contractor	<p>December 31, 2018</p> <ul style="list-style-type: none"> <li>- GPD was major shareholder of FEC for 99.99% stake by GUNKUL held FEC pass GPD.</li> <li>- Shared shareholders between FEC and GPD are Miss Sopacha Dhumrongpiyawut and Mr. Somboon Aueatchasai holding 0.01% stake in FEC.</li> <li>- Shared director between FEC and GUNKUL are Miss Sopacha Dhumrongpiyawut and Mr. Somboon Aueatchasai.</li> <li>- Shared director between FEC and GPD are Miss Sopacha Dhumrongpiyawut and Mr. Somboon Aueatchasai.</li> </ul>
<b>Subsidiaries : GUNKUL holding for 99.97% stake</b>			
Gunkul Training Solar Center Co., Ltd.  (Former : Gunkul Solar Roof 2 Co., Ltd. Registered change on March 16, 2017)	GTRC	Education Services, Seminar Management, Training management, etc.	<p>December 31, 2018</p> <ul style="list-style-type: none"> <li>- GUNKUL was major shareholder of GTRC for 99.97% stake.</li> <li>- Shared shareholder between GTRC and GUNKUL is Mr. Somboon Aueatchasai holding 0.01% stake in GTRC.</li> <li>- Shared director between GTRC and GUNKUL are Miss Sopacha Dhumrongpiyawut and Mr. Somboon Aueatchasai.</li> </ul>

Company	Symbol	Type of Business	Relationship
<b>Subsidiaries : GUNKUL holding for 99.94% stake</b>			
Gunkul Bio Energy Co., Ltd.	GBE	Generating Electrical Power	<p>December 31, 2018</p> <ul style="list-style-type: none"> <li>- GUNKUL was a shareholder of GLED for 99.94% stake.</li> <li>- Shared shareholder between GBE and GUNKUL is Mr. Somboon Aueatchasai holding 0.02% stake in GBE.</li> <li>- Shared director between GBE and GUNKUL is Mr. Somboon Aueatchasai.</li> </ul>
<b>Subsidiaries : GUNKUL holding for 74.90% stake</b>			
GO Bio Energy Co., Ltd.	GOB	Investing in Generating Electrical Power Business Company	<p>December 31, 2018</p> <ul style="list-style-type: none"> <li>- GUNKUL was a shareholder of GOB for 74.90% stake.</li> <li>- Shared shareholder between GOB and GUNKUL is Mr. Phongsakorn Damnoen holding 0.0003 % stake in GOB.</li> <li>- Shared directors between GOB and GUNKUL are Mr. Somboon Aueatchasai and Miss Naruechon Dhumrongpiyawut.</li> </ul>
<p>Outgrow A Co., Ltd.</p> <p>1. Dissolution on 26 June 2018</p> <p>2. Waiting for Liquidation</p>	OGA	Generating Electrical Power	<p>December 31, 2018</p> <ul style="list-style-type: none"> <li>- GOB was major shareholder of OGA for 99.99% stake, GUNKUL held OGA pass GOB.</li> <li>- Shared shareholder between OGA and GOB is Mr. Phongsakorn Damnoen holding 0.0013% stake in OGA.</li> <li>- Shared directors between OGA and GUNKUL are Mr. Somboon Aueatchasai and Miss Naruechon Dhumrongpiyawut.</li> <li>- Shared directors between OGA and GOB are Mr. Somboon Aueatchasai, Miss Naruechon Dhumrongpiyawut and Mr. Phongsakorn Damnoen.</li> </ul>
<p>Outgrow B Co., Ltd.</p> <p>1. Dissolution on 26 June 2018</p> <p>2. Liquidation on 12 December 2018</p>	OGB	Generating Electrical Power	<p>December 31, 2018</p> <ul style="list-style-type: none"> <li>- GOB was major shareholder of OGB for 99.99% stake, GUNKUL held OGB pass GOB.</li> <li>- Share shareholder between OGB and GOB is Mr. Phongsakorn Damnoen holding 0.0013% stake in OGB.</li> </ul>

Company	Symbol	Type of Business	Relationship
			<ul style="list-style-type: none"> <li>- Shared directors between OGB and GUNKUL are Mr. Somboon Aueatchasai and Miss Naruechon Dhumrongpiyawut.</li> <li>- Shared directors between OGB and GOB are Mr. Somboon Aueatchasai, Miss Naruechon Dhumrongpiyawut and Mr. Phongsakorn Damnoen.</li> </ul>
Outgrow D Co., Ltd.	OGD	Generating Electrical Power	<p>December 31, 2018</p> <ul style="list-style-type: none"> <li>- GOB was major shareholder of OGD for 99.99% GUNKUL held OGB pass GOB.</li> <li>- Shared shareholder between OGD and GOB is Mr. Phongsakorn Damnoen holding 0.0013% stake in OGD.</li> <li>- Shared directors between OGD and GUNKUL are Mr. Somboon Aueatchasai and Miss Naruechon Dhumrongpiyawut.</li> <li>- Shared directors between OGD and GOB are Mr. Somboon Aueatchasai, Miss Naruechon Dhumrongpiyawut and Mr. Phongsakorn Damnoen.</li> </ul>
<p>Outgrow E Co., Ltd.</p> <p>1. Dissolution on 26 June 2018</p> <p>2. Waiting for Liquidation</p>	OGE	Generating Electrical Power	<p>December 31, 2018</p> <ul style="list-style-type: none"> <li>- GOB was major shareholder of OGE for 99.99% stake, GUNKUL held OGB pass GOB.</li> <li>- Shared shareholder between OGE and GOB is Mr. Phongsakorn Damnoen holding 0.0013% stake in OGE.</li> <li>- Shared directors between OGE and GUNKUL are Mr. Somboon Aueatchasai and Miss Naruechon Dhumrongpiyawut.</li> <li>- Shared directors between OGE and GOB are Mr. Somboon Aueatchasai, Miss Naruechon Dhumrongpiyawut and Mr. Phongsakorn Damnoen.</li> </ul>
<p>Outgrow Wood Supply A Co., Ltd.</p> <p>1. Dissolution on 9 April 2018</p> <p>2. Liquidation on 26 July 2018</p>	OGW-A	Related to Power Plant Business	<p>December 31, 2018</p> <ul style="list-style-type: none"> <li>- GOB was major shareholder of OGW-A for 99.98% stake, GUNKUL held OGW-A pass GOB.</li> <li>- Shared shareholder between OGW-A and GOB is Mr. Phongsakorn Damnoen holding 0.0100% stake in OGW-A.</li> </ul>

Company	Symbol	Type of Business	Relationship
			<ul style="list-style-type: none"> <li>- Shared directors between OGW-A and GUNKUL are Mr. Somboon Aueatchasai and Miss Naruechon Dhumrongpiyawut.</li> <li>- Shared directors between OGW-A and GOB are Mr. Somboon Aueatchasai, Miss Naruechon Dhumrongpiyawut and Mr. Phongsakorn Damnoen.</li> </ul>
Outgrow Wood Supply B Co., Ltd.  1. Dissolution on 9 April 2018  2. Liquidation on 18 July 2018	OGW-B	Related to Power Plant Business	December 31, 2018  <ul style="list-style-type: none"> <li>- GOB was major shareholder of OGW-B for 99.98% stake , GUNKUL held OGW-B pass GOB.</li> <li>- Shared shareholder between OGW-B and GOB is Mr. Phongsakorn Damnoen holding 0.0100% stake in OGW-B.</li> <li>- Shared directors between OGW-B and GUNKUL are Mr. Somboon Aueatchasai and Miss Naruechon Dhumrongpiyawut</li> <li>- Shared directors between OGW-B and GOB are Mr. Somboon Aueatchasai, Miss Naruechon Dhumrongpiyawut and Mr. Phongsakorn Damnoen.</li> </ul>
<b>Subsidiaries : GUNKUL holding for 67% stake</b>			
Infinite Alternative Energy Co., Ltd.	IAE	Investing in Generating Electrical Power Business Company	December 31, 2018  <ul style="list-style-type: none"> <li>- GUNKUL was major shareholder of IAE for 67.00% stake.</li> <li>- Shared director between IAE and GUNKUL are Mr. Somboon Aueatchasai and Miss Naruechon Dhumrongpiyawut.</li> </ul>
Rang Ngern Solution Co., Ltd.	RNS	Generating Electrical Power	December 31, 2018  <ul style="list-style-type: none"> <li>- IAE was major shareholder of RNS for 99.99% stake, GUNKUL held RNS pass IAE</li> <li>- Shared director between RNS and GUNKUL is Miss Naruechon Dhumrongpiyawut.</li> </ul>

Company	Symbol	Type of Business	Relationship
<b>Subsidiaries : GUNKUL holding for 51% stake</b>			
Eco Thai Energy Co., Ltd.	ECO	Generating Electrical Power	December 31, 2018 - GUNKUL was major shareholder of ECO for 51.00% stake. - Shared directors between ECO and GUNKUL are Miss Naruechon Dhumrongpiyawut and Mr. Somboon Aueatchasai.
Gunkul Myanmar Central Power 1 Co., Ltd.	GMCP-1	Overseas Investment	December 31, 2018 - GMP was major shareholder of GMCP-1 for 51.00% stake.
<b>Subsidiaries : GUNKUL holding for 48.98% stake</b>			
BMP Solar Co., Ltd.	BMPS	Generating Electrical Power	December 31, 2018 - GUNKUL was major shareholder of BMPS for 48.98% stake. - Shared director between BMPS and GUNKUL is Miss Naruechon Dhumrongpiyawut.
<b>Associated Company and Joint Venture: GUNKUL holding for 51% stake</b>			
Gunkul Chubu Powergen Co., Ltd.	GCPG	Generating Electrical Power	December 31, 2018 - GUNKUL was major shareholder of GCPG for 51.00% stake. - GCPG is held by Dhumrongpiyawut family for 0.00005% stake. - Shared director between GCPG and GUNKUL is Mr. Somboon Aueatchasai. - On February 28, 2015. GCPG had sold its shares to Chubu Electric Power G.B. ("CHUBU") for 40.00% stake, sharing control by GUNKUL. - On July 1, 2015. The Board of Committee made an agreement to change the company name from "Gunkun Powergen Co., Ltd. (GPG)" to "Gunkul Chubu Powergen Co., Ltd. (GCPG)"
<b>Associated Companies and Joint Ventures : GUNKUL holding for 49% stake</b>			
Kengir Gunkul Solar San Bhd.	KENYIR	Generating Electrical Power	December 31, 2018 -GUNKUL was shareholder of Kenyir's ordinary shares for 49% stdle and major shareholder of Kenyir's preferred shares for 70% stake -Shared directas between Kenyir and GUNKUL is Ms. Naruechon Dhumrongpiyawut

Company	Symbol	Type of Business	Relationship
<b>Associated Companies and Joint Ventures : GUNKUL holding for 40% stake</b>			
G- Power Source Co., Ltd.	GPS	Generating Electrical Power	December 31, 2018 - GUNKUL was a shareholder of GPS for 40.00 % stake. - Shared directors between GPS and GUNKUL are Miss Sopacha Dhumrongpiyawut and Mr. Somboon Aueatchasai.
Siam Wind Energy Co., Ltd. 1. Dissolution on 19 June 2017 2. Liquidation on 2 August 2017	SWE	Generating Electrical Power	December 31, 2018 - GUNKUL was a shareholder of SWE at 40.00% stake. - Shared shareholder between GUNKUL and SWE is Miss Naruechon Dhumrongpiyawut holding 0.01% stake in SWE. - Shared directors between SWE and GUNKUL are Miss Sopacha Dhumrongpiyawut and Mr. Somboon Aueatchasai, sharing control by GUNKUL.
<b>Joint Ventures (No Sharing Control) : GUNKUL holding for 25.01% stake</b>			
WHA Gunkul Green Solar Roof 1 Co., Ltd.	WHA_GSR-1	Generating Electrical Power	December 31, 2018 - GUNKUL was a shareholder of WHA_GSR-1 for 25.01% stake. - Shared director between WHA_GSR-1 GUNKUL is Miss Sopacha Dhumrongpiyawut.
WHA Gunkul Green Solar Roof 2 Co., Ltd. 1. Dissolution on 12 September 2017 2. Liquidation on 12 October 2017	WHA_GSR-2	Generating Electrical Power	October 12, 2017 - GUNKUL was a shareholder of WHA_GSR-2 for 25.01% stake. - Shared director between WHA_GSR-2 and GUNKUL is Miss Sopacha Dhumrongpiyawut.
WHA Gunkul Green Solar Roof 3 Co., Ltd.	WHA_GSR-3	Generating Electrical Power	December 31, 2018 - GUNKUL was a shareholder of WHA_GSR-3 for 25.01% stake. - Shared director between WHA_GSR-3 and GUNKUL is Miss Sopacha Dhumrongpiyawut.
WHA Gunkul Green Solar Roof 4 Co., Ltd. 1. Dissolution on 12 September 2017 2. Liquidation on 12 October 2017	WHA_GSR-4	Generating Electrical Power	December 31, 2018 - GUNKUL was a shareholder of WHA_GSR-4 for 25.01% stake. - Shared director between WHA_GSR-4 and GUNKUL is Miss Sopacha Dhumrongpiyawut.



Company	Symbol	Type of Business	Relationship
WHA Gunkul Green Solar Roof 5 Co., Ltd. 1. Dissolution on 12 September 2017 2. Liquidation on 12 October 2017	WHA_GSR-5	Generating Electrical Power	December 31, 2018 - GUNKUL was a shareholder of WHA_GSR-5 for 25.01% stake. - Shared director between WHA_GSR-5 and GUNKUL is Miss Sopacha Dhumrongpiyawut.
WHA Gunkul Green Solar Roof 6 Co., Ltd.	WHA_GSR-6	Generating Electrical Power	December 31, 2018 - GUNKUL was a shareholder of WHA_GSR-6 for 25.01% stake. - Shared director between WHA_GSR-6 and GUNKUL is Miss Sopacha Dhumrongpiyawut.
WHA Gunkul Green Solar Roof 8 Co., Ltd. 1. Dissolution on 12 September 2017 2. Liquidation on 12 October 2017	WHA_GSR-8	Generating Electrical Power	December 31, 2018 - GUNKUL was a shareholder of WHA_GSR-8 for 25.01% stake - Shared director between WHA_GSR-8 and GUNKUL is Miss Sopacha Dhumrongpiyawut.
WHA Gunkul Green Solar Roof 9 Co., Ltd. 1. Dissolution on 12 September 2017 2. Liquidation on 12 October 2017	WHA_GSR-9	Generating Electrical Power	December 31, 2018 - GUNKUL was a shareholder of WHA_GSR-9 for 25.01% stake - Shared director between WHA_GSR-9 and GUNKUL is Miss Sopacha Dhumrongpiyawut.
WHA Gunkul Green Solar Roof 10 Co., Ltd. 1. Dissolution on 12 September 2017 2. Liquidation on 12 October 2017	WHA_GSR-10	Generating Electrical Power	December 31, 2018 - GUNKUL was a shareholder of WHA_GSR-10 for 25.01% stake. - Shared director between WHA_GSR-10 and GUNKUL is Miss Sopacha Dhumrongpiyawut.
WHA Gunkul Green Solar Roof 16 Co., Ltd. 1. Dissolution on 12 September 2017 2. Liquidation on 12 October 2017	WHA_GSR-16	Generating Electrical Power	December 31, 2018 - GUNKUL was a shareholder of WHA_GSR-16 for 25.01% stake. - Shared director between WHA_GSR-16 and GUNKUL is Miss Sopacha Dhumrongpiyawut.
WHA Gunkul Green Solar Roof 17 Co., Ltd.	WHA_GSR-17	Generating Electrical Power	December 31, 2018 - GUNKUL was shareholder of WHA_GSR-17 for 25.01% stake. - Shared director between WHA_GSR-17 and GUNKUL is Miss Sopacha Dhumrongpiyawut.
<b>Related Companies</b>			
Gunkul Group Co., Ltd.	GKG	Holding company	- GKG is major shareholder of GUNKUL with 49.97% stake. - GKG is held by Dhumrongpiyawut family at 99.73% stake.

Company	Symbol	Type of Business	Relationship
			- GKG has shared director with GUNKUL which is Mr. Gunkul Dhumrongpiyawut, Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut. (Added Registration of Directors on February 20, 2017)
Kulnatee Co., Ltd.	KNT	Marine Transport in Asian Region	- Major shareholder of KNT is Sricharoen family holding 97.93% stake, Sricharoen family is a family of Miss Sopacha Dhumrongpiyawut.
Gunkul Trading & Agency Co., Ltd.	GKT	International Marine Transport	- GKT is held by Dhumrongpiyawut family, major shareholding of GKG, Dhumrongpiyawut family holds 67.00% stake. - Shared director between GKT and GUNKUL is Miss Sopacha Dhumrongpiyawut.
Gunkul Marine Line Co., Ltd.	GML	Operating Closed	- GML is held by Dhumrongpiyawut family holding 97.00% stake. - Shared director between GML and GUNKUL is Mr. Gunkul Dhumrongpiyawut.
Gunkul Engineering (2000) Co., Ltd.	GK2000	Rental	- Major shareholders of GK2000 are GKG and Dhumrongpiyawut family holding 100% stake. - Shared director between GK2000 and GUNKUL is Mr. Gunkul Dhumrongpiyawut.
G.M. Supply & Construction Co., Ltd.	GMS	Rental	- GMS is held by Dhumrongpiyawut family holding 98.00% stake. - Shared director between GMS and GUNKUL is Mr. Gunkul Dhumrongpiyawut.
Siam Gunkul Power Co., Ltd. 1. Dissolution on 3 July 2017 2. Liquidation on 18 August 2017	SGP	Electricity Industry	- SGP is held by Dhumrongpiyawut family holding 75.00% stake. - Shared director between SGP and GUNKUL is Mr. Gunkul Dhumrongpiyawut.
Siam Future Co., Ltd.	SF	Electricity Industry	- Major shareholder of SF is GKG holding 99.97% stake. - Shareholders between SF and GUNKUL are Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut holding 0.0001% stake each in SF. - Shared director between SF and GUNKUL are Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.
Happy Green 2558 Co., Ltd.	HPG	Electricity Industry	- Major shareholder of HPG is GKG holding 99.94% stake. - Shareholders between HPG and GUNKUL are Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut holding 0.02% stake each in HPG.

Company	Symbol	Type of Business	Relationship
Tech-Green Co., Ltd.	TG	Electricity Industry	<ul style="list-style-type: none"> <li>- Shared director between HPG and GUNKUL are Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.</li> <li>- Major shareholder of TG is GKG holding 99.94% stake.</li> <li>- Shareholders between TG and GUNKUL are Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut holding 0.02% stake each in TG.</li> <li>- Shared director between TG and GUNKUL are Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.</li> </ul>
Thong Lo9 Co., Ltd. (Former : Thanasap 2558 Co., Ltd. - Registered change on 9 January 2017)	TL9	Electricity Industry	<ul style="list-style-type: none"> <li>- Major shareholder of TL9 is GKG holding 99.94% stake.</li> <li>- Shareholders between TLG and GUNKUL are Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut holding 0.0006% stake each in TL9.</li> <li>- Shared director between TL9 and GUNKUL are Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.</li> </ul>
Entirety Sap Co., Ltd.	ETS	Electricity Industry	<ul style="list-style-type: none"> <li>- Major shareholder of ETS is GKG holding 99.94% stake.</li> <li>- Shareholders between ETS and GUNKUL are Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut holding 0.0006% stake each in ETS.</li> <li>- Shared director between ETS and GUNKUL are Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.</li> </ul>
Gunkul Tech Co., Ltd.  1. Dissolution on 3 July 2017  2. Liquidation on 18 August 2017	GTC	Technology	<ul style="list-style-type: none"> <li>- Shareholder of GTC is GKG which holding 50.00% stake and Mr. Somboon Aueatchasai holding 0.005% stake.</li> <li>- Shared directors of GTC and GUNKUL are Miss Sopacha Dhumrongpiyawut and Mr. Somboon Aueatchasai.</li> </ul>
Noppakul Co., Ltd.	NPK	Chattel and Realty	<ul style="list-style-type: none"> <li>- Major shareholder of NPK is Miss Naruechon Dhumrongpiyawut holding 82.00% stake and Srichaen family holds 18.00% stake.</li> <li>- Shared director between NPK and GUNKUL is Miss Naruechon Dhumrongpiyawut.</li> </ul>
Joint venture FEC and SAC	JV-FEC & SAC	Contractor	<ul style="list-style-type: none"> <li>- Joint venture FEC and SAC has FEC as partner to do construction business.</li> </ul>

Company	Symbol	Type of Business	Relationship
Green Field Energy Co., Ltd.	Greenfield	Real Estate	- Shareholder of Greenfield is Mr. Khabaphat Jirakasempong, he is a relative of Mr. Gunkul Dhumrongpiyawut.
P.M. Building Group Co., Ltd.	PMBG	Rental	- Shareholder of PMBG is Ms. Fahmui Trikanjanothai, she is a relative of Mr. Gunkul Dhumrongpiyawut.
Great Miracle Asset Co., Ltd.	GMA	Movable and Immovable	<ul style="list-style-type: none"> <li>- Major shareholder of GMA is Mr. Gunkul Dhumrongpiyawut holding 99.99% stake.</li> <li>- Shareholder between GMA and GUNKUL is Miss Naruechon Dhumrongpiyawut holding 0.000001% stake in GMA.</li> <li>- Shared directors between GMA and GUNKUL are Mr. Gunkul Dhumrongpiyawut, Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.</li> </ul>
Great Miracle Asset 1 Co., Ltd. 1. Dissolution on 4 December 2017  2. Liquidation on 23 January 2017	GMA-1	Movable and Immovable	<ul style="list-style-type: none"> <li>- Major shareholder of GMA-1 is Mr. Gunkul Dhumrongpiyawut holding 99.99% stake.</li> <li>- Shareholder between GMA-1 and GUNKUL is Miss Naruechon Dhumrongpiyawut holding 0.000001% stake in GMA-1.</li> <li>- Shared directors between GMA-1 and GUNKUL are Mr. Gunkul Dhumrongpiyawut, Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.</li> </ul>
Great Miracle Asset 2 Co., Ltd.	GMA-2	Movable and Immovable	<ul style="list-style-type: none"> <li>- Major shareholder of GMA-2 is Mr. Gunkul Dhumrongpiyawut holding 99.99% stake.</li> <li>- Shareholder between GMA-2 and GUNKUL is Miss Naruechon Dhumrongpiyawut holding 0.000001% stake in GMA-2.</li> <li>- Shared directors between GMA-2 and GUNKUL are Mr. Gunkul Dhumrongpiyawut, Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.</li> </ul>
Great Miracle Asset 3 Co., Ltd.	GMA-3	Movable and Immovable	<ul style="list-style-type: none"> <li>- Major shareholder of GMA-3 is Mr. Gunkul Dhumrongpiyawut holding 99.99% stake.</li> <li>- Shareholder between GMA-3 and GUNKUL is Miss Naruechon Dhumrongpiyawut holding 0.000001% stake in GMA-3.</li> <li>- Shared directors between GMA-3 and GUNKUL are Mr. Gunkul Dhumrongpiyawut, Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.</li> </ul>
Great Miracle Asset 4 Co., Ltd.	GMA-4	Movable and Immovable	- Major shareholder of GMA-4 is Mr. Gunkul Dhumrongpiyawut holding 99.99% stake.
			- Shareholder between GMA-4 and GUNKUL is Miss Naruechon Dhumrongpiyawut holding 0.000001% stake in GMA-4.

Company	Symbol	Type of Business	Relationship
			<ul style="list-style-type: none"> <li>- Shared directors between GMA-4 and GUNKUL are Mr. Gunkul Dhumrongpiyawut, Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.</li> </ul>
Great Miracle Asset 5 Co., Ltd.	GMA-5	Movable and Immovable	<ul style="list-style-type: none"> <li>- Major shareholder of GMA-5 is Mr. Gunkul Dhumrongpiyawut holding 99.99% stake.</li> <li>- Shareholder between GMA-5 and GUNKUL is Miss Naruechon Dhumrongpiyawut holding 0.000001% stake in GMA-5.</li> <li>- Shared directors between GMA-5 and GUNKUL are Mr. Gunkul Dhumrongpiyawut, Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.</li> </ul>
Great Miracle Asset 6 Co., Ltd. 1. Dissolution on 4 December 2017  2. Liquidation on 23 January 2017	GMA-6	Movable and Immovable	<ul style="list-style-type: none"> <li>- Major shareholder of GMA-6 is Mr. Gunkul Dhumrongpiyawut holding 99.99% stake.</li> <li>- Shareholders between GMA-6 and GUNKUL are Mr. Gunkul Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut holding 0.000001% stake in GMA-6.</li> <li>- Shared directors between GMA-6 and GUNKUL are Mr. Gunkul Dhumrongpiyawut, Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.</li> </ul>
Great Miracle Asset 7 Co., Ltd.	GMA-7	Movable and Immovable	<ul style="list-style-type: none"> <li>- Major shareholder of GMA-7 is Mr. Gunkul Dhumrongpiyawut holding 99.99% stake.</li> <li>- Shareholder between GMA-7 and GUNKUL is Miss Naruechon Dhumrongpiyawut holding 0.000001% stake in GMA-7.</li> <li>- Shared directors between GMA-7 and GUNKUL are Mr. Gunkul Dhumrongpiyawut, Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.</li> </ul>
Great Miracle Asset 8 Co., Ltd.	GMA-8	Movable and Immovable	<ul style="list-style-type: none"> <li>- Major shareholder of GMA-8 is Mr. Gunkul Dhumrongpiyawut holding 99.02% stake.</li> <li>- Shareholders between GMA-8 and GUNKUL are Mr. Gunkul Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut holding 0.000001% stake in GMA-8.</li> <li>- Shared directors between GMA-8 and GUNKUL are Mr. Gunkul Dhumrongpiyawut, Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.</li> </ul>
Great Miracle Asset 9 Co., Ltd.	GMA-9	Movable and Immovable	<ul style="list-style-type: none"> <li>- Major shareholder of GMA-9 is Mr. Gunkul Dhumrongpiyawut holding 99.02% stake.</li> <li>- Shareholder between GMA-9 and GUNKUL is Miss Naruechon Dhumrongpiyawut holding 0.000001% stake in GMA-9.</li> </ul>

Company	Symbol	Type of Business	Relationship
			<ul style="list-style-type: none"> <li>- Shared directors between GMA-9 and GUNKUL are Mr. Gunkul Dhumrongpiyawut, Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.</li> </ul>
Great Miracle Asset 10 Co., Ltd.	GMA-10	Movable and Immovable	<ul style="list-style-type: none"> <li>- Major shareholder of GMA-10 is Mr. Gunkul Dhumrongpiyawut holding 99.99% stake.</li> <li>- Shareholders between GMA-10 and GUNKUL are Mr. Gunkul Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut holding 0.000001% stake in GMA-10.</li> <li>- Shared directors between GMA-10 and GUNKUL are Mr. Gunkul Dhumrongpiyawut, Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.</li> </ul>
Great Miracle Asset 11 Co., Ltd.	GMA-11	Movable and Immovable	<ul style="list-style-type: none"> <li>- Major shareholder of GMA-11 is Mr. Gunkul Dhumrongpiyawut holding 99.02% stake.</li> <li>- Shareholder between GMA-11 and GUNKUL is Miss Naruechon Dhumrongpiyawut holding 0.000001% stake in GMA-11.</li> <li>- Shared directors between GMA-11 and GUNKUL are Mr. Gunkul Dhumrongpiyawut, Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.</li> </ul>
Great Miracle Asset 12 Co., Ltd.	GMA-12	Movable and Immovable	<ul style="list-style-type: none"> <li>- Shared shareholders between GMA-12 and GUNKUL are Mr. Gunkul Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut holding 0.000001% stake in GMA-12.</li> </ul>
Great Miracle Asset 13 Co., Ltd.	GMA-13	Movable and Immovable	<ul style="list-style-type: none"> <li>- Major shareholder of GMA-13 is Mr. Gunkul Dhumrongpiyawut holding 99.99% stake.</li> <li>- Shareholders between GMA-13 and GUNKUL are Mr. Gunkul Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut holding 0.000001% stake in GMA-13.</li> <li>- Shared directors between GMA-13 and GUNKUL are Mr. Gunkul Dhumrongpiyawut, Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.</li> </ul>
Great Miracle Asset 14 Co., Ltd.	GMA-14	Movable and Immovable	<ul style="list-style-type: none"> <li>- Major shareholder of GMA-14 is Mr. Gunkul Dhumrongpiyawut holding 99.99% stake.</li> <li>- Shareholders between GMA-14 and GUNKUL are Mr. Gunkul Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut holding 0.000001% stake in GMA-14.</li> <li>- Shared directors between GMA-14 and GUNKUL are Mr. Gunkul Dhumrongpiyawut, Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.</li> </ul>

Company	Symbol	Type of Business	Relationship
Pranburi Boulevard Co., Ltd.	PB	Movable and Immovable	<ul style="list-style-type: none"> <li>- Major shareholder of PB is Mr. Gunkul Dhumrongpiyawut holding 99.99% stake.</li> <li>- Shareholder between PB and GUNKUL is Miss Naruechon Dhumrongpiyawut holding 0.000001% stake in GMA-10.</li> <li>- Shared directors between GMA-10 and GUNKUL are Mr. Gunkul Dhumrongpiyawut, Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.</li> </ul>
<b>Related Person</b>			
Mr. Gunkul Dhumrongpiyawut	-	Director	- Mr. Gunkul Dhumrongpiyawut and family hold 49.97% stake in GKG which is major shareholder of GUNKUL. He is a Chairman of the Board Directors of GUNKUL.
Miss Sopacha Dhumrongpiyawut	-	Director	- Miss Sopacha Dhumrongpiyawut is Mr.Gunkul Dhumrongpiyawut's wife. She is the Chief Executive Officer of GUNKUL.
Miss Naruechon Dhumrongpiyawut	-	Director	- Miss Naruechon Dhumrongpiyawut is Mr.Gunkul Dhumrongpiyawut's daughter. She is a director of GUNKUL.
Mr. Pawich Dhumrongpiyawut	-	Mr. Gunkul Dhumrongpiyawut's son	- Mr.Pawich Dhumrongpiyawut is Mr.Gunkul Dhumrongpiyawut's son.
Mr. Chaloepon Sricharoen	-	Director	- Mr.Chaloepon Sricharoen is Miss Sopacha Dhumrongpiyawut's younger brother. He is a director of GUNKUL.

## 24.4 Summary of Related Transactions in 2017 and 2018

Company	Related Companies	Type of Transaction	Size		Reason and necessity
			2018 (Million baht)	2017 (Million baht)	
(1) Sales of goods and rendering of service					
GUNKUL	GKA	Sale of goods	8.63	11.55	GUNKUL sold raw material to GKA on cost plus 5-30% profit, for production of finished goods.
		Sale of Properties	0.08	-	
		Account receivable	0.95	-	
		Other Receivable	0.02	0.49	
	GKP	Sale of goods	-	2.68	GUNKUL sold raw material to GKP on cost plus 5-30% profit, for production of finished goods.
		Sale of Properties	0.01	-	
		Other Receivable	0.88	-	
	KNP	Sale of goods	-	1.34	GUNKUL sold finished goods to KNP for selling to the client for use in operations on cost plus 5-30% profit.
		Account receivable	-	1.44	
		Other Receivable	-	0.01	
	GES	Sale of goods	0.04	-	GUNKUL sold finished goods to GES (as before "GLED") for selling to the client for use in operations on cost plus 5-30% profit. .
		(as before "GLED") Other Receivable	-	-	
	GPD	Sale of goods	126.02	2.41	GUNKUL sold finished goods to GPD for selling to the client for use in operations on cost plus 5-30% profit.
		Account receivable	133.27	1.18	
		Other Receivable	0.34	2.30	
	RNS	Sale of goods	3.89	0.97	GUNKUL sold finished goods to RNS for selling to the client for use in operations on cost plus 5-30% profit.
		Account receivables	-	1.44	



Company	Related Companies	Type of Transaction	Size		Reason and necessity
			2018 (Million baht)	2017 (Million baht)	
	WED	Service revenue (S&A)	5.04	5.04	GUNKUL has entered into a service agreement with RNS to manage 11 power plants for a period of 5 years starting 1/1/2016 to 31/12/2020 with a total annual value of 5,040,000 Baht (before VAT) , totaling amount for yearly contract is 25,200,000 Baht  GUNKUL sold finished goods to WED for selling to the client for use in operations on cost plus 5-30% profit. .
		Other Receivable	0.45	0.02	
		Sale of goods	-	0.01	
	GPS5	Other Receivable	-	0.03	
	KWE	Other Receivable	-	0.02	
	SES	Sale of goods	3.11	-	
		Account receivable	3.33	-	
		Other Receivable (Cash advance)	0.04	-	
	ECO	Management income (S & A service)	0.37	0.36	GUNKUL has entered into a service agreement with ECO for a period of 5 years from Jan 1, 2017 to Jan 1, 2022. The contract value is Baht 1,949,876.00.
		Sale of goods	0.01	-	
		Account receivable	-	0.06	
		Other Receivable	0.03	-	
	NK	Service revenue O&M	1.58	1.58	GUNKUL has entered into a maintenance agreement with NK for a period of 5 years from November 16, 2013 to November 15, 2018, at a rate of Baht 1.50 million per year. The Bo Phloi site in Kanchanaburi is 0.94 MW with a value of Baht 7.65 million.
		Account receivable	0.21	-	
		Other Receivable	-	0.16	

Company	Related Companies	Type of Transaction	Size		Reason and necessity
			2018 (Million baht)	2017 (Million baht)	
	GPS	Service revenue O&M	0.51	9.10	GUNKUL has entered into a 4-year contract for maintenance of power plant equipment (O&M) with GPS, as a size of 6.5 MW x 4 power plants, total amount Baht 104.30 million.
	GNP	Sale of goods	0.01	-	
	BMPS	Sale of goods	0.01	-	
	FEC	Sale of goods	4.16	10.48	GUNKUL sold finished goods to FEC for selling to the client for use in operations on cost plus 5-30% profit.
		Sale of Properties	0.07	-	
		Account receivable	2.80	7.66	
	GSC	Sale of goods	3.00	-	
		Account receivable	3.20	-	
	GCPG	Service revenue O&M	8.56	26.25	GUNKUL signed the Operation & Maintenance (O&M) with GCPG for 4 solar power plants for 5 years, Site Vicienburi size 8MW for Baht 40.80 million, Site Srichula size 8MW for Baht 40.80 million, Site Numpor size 4.5 MW for 25.50 million baht and Site Buengsampun size 3 MW for Baht 20.40 Million.
		Unearned income O&M	-	8.56	
		Service revenue S&A	5.11	4.91	
		Account receivables	-	4.93	
		Other Receivable	0.46	-	
		Advance Debtors	-	0.01	
	GKT	Sale of Properties	0.03	0.01	Book value
		Sale of goods	0.01	-	
		Other Receivable	0.03	-	

Company	Related Companies	Type of Transaction	Size		Reason and necessity
			2018 (Million baht)	2017 (Million baht)	
GKA	KNT	Sale of goods	-	0.04	GUNKUL sold finished goods to KNT for selling to the client for use in operations on cost plus 5-30% profit.
		Account receivables	-	0.02	
	GKP	Sale of goods	21.42	20.39	GKA sold finished goods to GKP for selling to the client for use in operations on cost plus 5-30% profit.
		Account receivables	4.33	5.02	
	GES	Sale of goods	0.44	0.47	GKA sold finished goods to GES (as before "GLED") for selling to the client for use in operations on cost plus 5-30% profit.
	(as before "GLED")	Account receivables	-	0.32	
	GPD	Sale of goods	0.36	1.00	GKA sold finished goods to GPD for selling to the client for use in operations on cost plus 5-30% profit.
		Account receivables	-	0.69	
	GNP	Sale of goods	0.10	-	
	KWE	Sale of goods	0.24	-	
GKP	FEC	Sale of goods	21.43	37.03	GKA sold finished goods to FEC for selling to the client for use in operations on cost plus 5-30% profit.
		Other income	0.05	0.42	
		Account receivables	2.88	21.58	
	GES	Sale of goods	0.07	0.89	GKP sold finished goods to GES (as before "GLED") for selling to the client for use in operations on cost plus 5-30% profit.
	(as before "GLED")	Account receivables	0.08	0.09	
	GPD	Sale of goods	14.11	1.15	GKP sold finished goods to GPD for selling to the client for use in operations on cost plus 5-30% profit.
		Account receivables	-	1.23	
	RNS	Sale of goods	0.81	1.17	GKP sold finished goods to RNS for selling to the client for use in operations on cost plus 5-30% profit.
		Account receivables	0.29	1.26	
	FEC	Sale of goods	0.33	0.01	GKP sold finished goods to FEC for selling to the client for use in operations on cost plus 5-30% profit.
		Account receivables	-	0.01	

Company	Related Companies	Type of Transaction	Size		Reason and necessity
			2018 (Million baht)	2017 (Million baht)	
GPD	BMPS	Sale of goods	0.08	-	
	GES	Sale of goods	0.28	-	
	WED	Sale of goods	-	0.30	GPD sold finished goods to WED on cost plus 5-30% profit.
	KWE	Sale of goods	0.03	-	
	ECO	Service revenue O&M	2.50	2.50	GPD signed the Operation & Maintenance (O&M) with the ECO for 5 years. The contract date is January 1, 2017 - December 31, 2022, with a contract value of Baht 12,500,000.
	BMPS	Account receivables	-	0.05	GPD signed the Operation & Maintenance (O&M) with BMP for 5 years. Commencement date: May 1, 2017 - April 30, 2022. Total contract value is Baht 500,000.
		Service revenue O&M	0.10	0.07	
		Unearned income O&M	0.03	0.03	
	SES	Construction revenue	48.06	3.26	According to the agreed contract
		Sale of goods	0.33	-	
		Account receivables	0.36	3.49	
		Unbilled revenue	21.52	-	
	RNS	Service revenue O&M	56.22	54.63	GPD signed the Operation & Maintenance (O&M) with RNS total 10 places for 5 years starting contract on November 10, 2015 – October 10, 2020 total amount for 10 contracts is 259.09 million baht.
		Account receivables	2.81	-	
		Accrued service fee	1.22	-	
		Unearned income O&M	4.01	1.86	
	FEC	Sale of goods	0.01	-	
	GPS	Service revenue O&M	26.83	20.15	GPD signed the Operation & Maintenance (O&M) with the GPS for 5 years. The contract date is March 2017 - December 2021, with a contract value of Baht 127,543,217.00.
		Account receivables	1.59	1.19	

Company	Related Companies	Type of Transaction	Size		Reason and necessity
			2018 (Million baht)	2017 (Million baht)	
FEC	GCPG	Service revenue O&M	16.89	4.23	GPD signed the Operation & Maintenance (O&M) with the ECO for 5 years. The contract date is January 1, 2017 - December 31, 2021, with a contract value of Baht 21,137,575.
		Account receivables	3.42	-	
		Unearned income O&M	6.13	-	
	WHA_GSR-1	Service revenue O&M	0.57	0.55	GPD signed the Operation & Maintenance (O&M) with WHA_GSR-1, WHA_GSR-3, and WHA_GSR-6 WHA_GSR-17 total 5 places for 5 years starting the contract on July 16, 2014 with contract value Baht 14.13 million.
		Account receivables	0.05	0.05	
	WHA_GSR-3	Service revenue O&M	0.75	0.72	GPD signed the Operation & Maintenance (O&M) with WHA_GSR-1, WHA_GSR-3, and WHA_GSR-6, WHA_GSR-17 total 5 places for 5 years starting the contract on July 16, 2014 with contract value Baht 14.13 million.
		Account receivables	0.07	0.07	
	WHA_GSR-6	Service revenue O&M	0.75	0.72	GPD signed the Operation & Maintenance (O&M) with WHA_GSR-1, WHA_GSR-3, and WHA_GSR-6, WHA_GSR-17 total 5 places for 5 years starting the contract on July 16, 2014 with contract value Baht 14.13 million.
		Account receivables	0.07	0.07	
	WHA_GSR-17	Service revenue O&M	0.90	0.87	GPD signed the Operation & Maintenance (O&M) with WHA_GSR-1, WHA_GSR-3, and WHA_GSR-6, WHA_GSR-17 total 5 places for 5 years starting the contract on July 16, 2014 with contract value Baht 14.13 million.
		Account receivables	0.08	0.08	
	GSC	Sale of goods	1.71	-	
		Account receivables	1.83	-	
	RNS	Other Receivable	9.42	-	
<b>(2) Purchase of goods and taking of services</b>					
GUNKUL	GKA	Purchase of goods	276.81	255.93	GUNKUL bought finished goods from GKA for use in operations on cost plus 5-30%.
		Purchase of Properties	0.03	-	
		Account payables	50.97	119.59	

Company	Related Companies	Type of Transaction	Size		Reason and necessity
			2018 (Million baht)	2017 (Million baht)	
GKA	GKP	Purchase of goods	244.55	149.90	GUNKUL bought finished goods from GKP for use in operations on cost plus 5-30%.
		Purchase of Properties	0.01	-	
		Service cost	-	0.10	
		Account payables	127.69	58.51	
	KNP	Purchase of goods	-	1.41	GUNKUL bought finished goods from KNP for use in operations on cost plus 5-30%.
		Purchase of properties	-	0.20	
		Account payables	-	1.51	
	GES (as before "GLED")	Purchase of goods	0.37	2.11	GUNKUL bought finished goods from GES (as before "GLED") for use in operations on cost plus 5-30%.
		Purchase of properties	0.04	-	
		Accounts payable	0.01	2.21	
	GPD	Cost of construction	-	0.13	GUNKUL bought finished goods from GPD for use in operations on cost plus 5-30%.
		Purchase of goods	0.02	-	
		Other payables	-	1.50	
	RNS	Purchase of properties	-	0.97	GUNKUL bought finished goods from RNS for use in operations with book value.
		Other payables	-	0.99	
	GTRC	Training Fee	1.16	0.16	
	GPS-5	Other payables	-	0.10	
	FEC	Construction / Services cost	-	1.52	GUNKUL signed contract for the construction of the wind energy power stations and utilities size 60 MW (Subplu1:8 MW, Subplu2: 2 MW, Wayu: 50 MW) located at Huay Bong, Dan Khuntod, Nakornrachasima, contract value 340 million baht.
		Purchase of properties	0.10	-	
		Creditor of retention	1.76	2.36	
GKA	GKP	Purchase of goods	1.01	1.35	GKA bought finished goods from GKP for use in operations on cost plus 5-30%.

Company	Related Companies	Type of Transaction	Size		Reason and necessity
			2018 (Million baht)	2017 (Million baht)	
GKP		Account payables	0.06	0.58	
	GES (as before "GLED")	Purchase of goods	2.35	0.03	GKA bought finished goods from GES (as before "GLED") for use in operations on cost plus 5-30%.
		Purchase of properties	0.03	-	
		Accounts payable	0.92	-	
	FEC	Purchase of goods	0.01	-	
		Account payables	-	8.92	
	GTRC	Training Fee	0.78	-	
	GES	Purchase of goods	0.05	-	
		Account payables	0.02	-	
	GTRC	Training Fee	0.18	-	
	GTRC	Training Fee	0.01	-	
	FEC	Purchase of goods and services	3.50	-	
		Construction Cost	4.96	45.19	
		Account payables	0.97	39.20	
		Creditor of retention	0.17	-	
WED	GES	Purchase of goods	0.50	1.93	GPD bought finished goods from GES (as before "GLED") for use in operations on cost plus 5-30%.
	(as before "GLED")	Account payables	-	0.84	
	GTRC	Training Fee	3.22	-	
	FEC	Purchase of goods and services	10.02	-	RNS hired FEC to do a turnkey extra project, a flood protection system, an installation of pumping station, a civil and a public utility testing and a transmission line system 115kV, value contract 93.12 million baht.
		Creditor of retention	-	6.04	

Company	Related Companies	Type of Transaction	Size		Reason and necessity
			2018 (Million baht)	2017 (Million baht)	
KWE	FEC	Purchase of intangible assets (transmission line costs)	-	255.55	KWE hired FEC to build a 115KV transmission line and build a renewable energy project at the agreed price.
		Account payables	-	144.50	
		Creditor of retention	27.40	12.42	
GNP	FEC	Purchase of intangible assets (transmission line costs)	-	371.01	GNP hired FEC to build alternative energy projects at the agreed price.
		Account payables	-	55.58	
		Creditor of retention	-	33.13	
ECO	GES	Purchase of goods and services	0.02	-	
GES	GTRC	Training Fee	0.23	-	
FEC	GTRC	Training Fee	0.40	-	
		Purchase of goods and services	0.44		
		Creditor of retention	0.47	-	
GCPG	GTRC	Training Fee	0.01	-	
GKT	GTRC	Training Fee	0.05	-	
KNT	GTRC	Training Fee	-	-	
BGP	GTRC	Training Fee	0.03	-	
GIM	FEC	Purchase of properties	-	-	



Company	Related Companies	Type of Transaction	Size		Reason and necessity
			2018 (Million baht)	2017 (Million baht)	
(3) Acquisition and divestment of assets and rental					
GUNKUL	GK2000	Rental	-	6.45	GK 2000 rented land and building from Mr. Gunkul Dhumrongpiyawut and then re-rent it to GUNKUL to use land and building as a warehouse (Ruamjit) and a warehouse (Pichai) with three-years contract starting from July 1, 2012 to June 30, 2015, at average rental rate of 467,000.00 baht/ month and renew a lease for 2 years from January 1, 2016 to December 31, 2017, at average rental rate of 565,000.00 baht/ month. This rental rate is added with 10% from last year rate that is appraised by independent appraiser. As of December 13, 2017 and December 6, 2017 and December 1, 2017, ownership of land and buildings leased for using as offices and storage warehouses (Ruamjit) and the land that is the location of the warehouse (Pichai) have changed into Great Miracle Asset Co., Ltd., Great Miracle Asset 3 Co., Ltd. and Great Miracle Asset 2 Co., Ltd., respectively. GUNKUL has changed the counterparty which has effective date since the date of registration of changing ownership.
	GMS	Rental	-	1.46	GMS who rented 2 little deeds of land including building from Mr.Gunkul Dhumrongpiyawut in the total 0-3-31 Rai (331 squaremeters) at Soi Watsawasdiwari Srimaram, Nakornchaisri Road, Nakornchaisri, Dusit Bangkok and sublease to GUNKUL in the purpose of office and garage using during April 17, 2013 - December 31, 2015 by rental fee in amount of 119,000 baht per month. Then, renew a lease for 2 years from January 1, 2016 to December 31, 2017 at average rental rate of 128,000 baht/ month. This rental rate is added with 8% from last year rate which referred to the appraisal from independent appraiser. Later GUNKUL canceled the rental of some space of the office. The rental rate decreased to 115,400.00 baht per month, which effective from July 1, 2016. As of December 14, 2017, the ownership of the land and buildings leased for using as an office and parking lot has been changed to Great Miracle Asset 5 Co., Ltd. GUNKUL has changed the counterparty which has effective date since the date of registration of changing ownership.
	NK	Rental Income	0.23	0.23	NK Signed lease agreement with GUNKUL for title deed of land NorSor 3 no. 86 located at Nongkum, Borploysaeng, Karnchanaburi Province in the total area of 19-2-23 Rai for solar power plant construction in the capacity of 0.94 Mw starting June 12, 2013 for 26 years in total rental amount of 6.06 million baht.
		Advance Rental Revenue	0.20	0.16	

Company	Related Companies	Type of Transaction	Size		Reason and necessity
			2018 (Million baht)	2017 (Million baht)	
	GSR-1	Rental Income	0.02	0.02	GUNKUL allowed GSR1 to rent factory's rooftop in order to install solar panel 600 Sq.m during 3 years, rental fees 1 Sq.m./3 baht, since the first day the tenant started selling electricity into the system. (starting September 3, 2014)
	GMA	Rental	3.08	0.14	GUNKUL rented land and headquarters building by contracting for a period of 1 year from January 2018 - December 2018 at the rental rate of 236,500 baht per month between January 2018 - February 2018, and 260,300 baht per month between March 2018 - December 2018. This rental rate is added with 10% from cost appraisal by independent appraiser.
		Other payables	-	0.14	
	GMA-2	Rental	2.18	0.17	GUNKUL rented the land that is the location of the warehouse (Pichai) by contracting for a period of 3 years from January 2018 - December 2020 at the rental rate of 167,500 baht per month between January 2018 - February 2018 and 184,500 baht per month between March 2018 - December 2020. This rental rate is added with 10% from cost appraisal by independent appraiser.
		Other payables	-	0.17	
	GMA-3	Rental	1.13	0.15	GUNKUL rented the land and warehouse (Ruamjit) by contracting for a period of 3 years from January 2018 - December 2020 at the rental rate of 176,000 baht per month between January 2018 - February 2018 and 193,600 baht per month between March 2018 - December 2020. This rental rate is added with 10% from cost appraisal by independent appraiser. Later, the lease period was adjusted to June 2018.
		Other payables	-	0.15	
	GMA-5	Rental	-	0.07	As of December 14, 2017, GUNKUL and GMS have made the same record at the end of the lease to change the existing sub-leaseholder of GMS, a new tenant, namely: 1. Great Miracle Asset 5 Co., Ltd., based on the existing rental rate (Lease term from 1 January 2016 to 31 December 2017) for office land and parking lot, total area of 0-3-31 rai (331 square wah) Soi Wat Sawaswareesrimaram, Nakornchaisri Road, Nakhonratchasima, Dusit, Bangkok.
		Other payables	-	0.07	

Company	Related Companies	Type of Transaction	Size		Reason and necessity
			2018 (Million baht)	2017 (Million baht)	
GKA	GMA-8	Rental	0.92	-	GUNKUL rented the land and building as a document warehouse by contracting for a period of 2-10 years from March 2018 - December 2020 at the rental rate of 91,700 baht per month. However, the said rental rate is comparable to the cost appraisal by an independent appraiser.
	GKP	Other payables	-	-	
		Rental Income	1.08	1.00	GKA rented manufacturing building to GKP to use for goods assembly, with 3 year contract starting from July 1, 2012 to December 31, 2015 at rental rate of 100,000 baht/month. Then, renew a lease for 3 years from July 1, 2015 to June 30, 2018 at the same rental rate. Then, renew a lease for 3 years from January 1, 2018 to December 31, 2020 by decreasing the amount of rental space at the rental rate of 83,000 baht per month between January 2018 - February 2018 and 91,800 baht per month between March 2018 - December 2020.
	"GES (as before ""GLED""")"	Rental Income	0.44	0.40	GKA rented some part of factory area to GES (as before "GLED") to manufacturing Led bulbs lighting, Agreement period during 3 years starting July 1, 2014 to June 30, 2017 rental rate at 48,000.00 baht/month. However, a rental rate change into 33,000 baht/ month referred to the appraisal. The new contract will start from January 1, 2016 to December 31, 2017. Then, renew a lease for 3 years from January 1, 2018 to December 31, 2020 by decreasing the amount of rental space at the rental rate of 83,000 baht per month between January 2018 - February 2018 and 91,800 baht per month between March 2018 - December 2020.
		Accrued rental income	0.04	-	
	GSR-1	Rental Income	0.12	0.12	GKA rented factory rooftop area to GSR-1 for install solar panels 3,456 sq.m. Agreement during 3 years rented per month is 3 baht/sq.mt, since the first day the tenant started selling electricity into the system. (starting September 2, 2014)
		Accrued rental income	0.01	0.02	

Company	Related Companies	Type of Transaction	Size		Reason and necessity
			2018 (Million baht)	2017 (Million baht)	
GKP	Director	Rental	-	0.66	GKA has entered into a land lease agreement of 3,472 square meters on 2 plots of land, located on the end of Nonthaburi Rd., near the GKA factory, which is rented from Mr. Gunkul Dhumrongpiyawut to serve as a storage space for goods and merchandise. The lease agreement is for a period of 3 years from January 1, 2012 to December 31, 2015, at a rental rate of Baht 57,800 per month and renewable for a period of 2 years from January 1, 2016 to June 30, 2017 at a rental rate of Baht 57,800 per month and from July 1, 2017 to December 31, 2017, at a rental rate of 63,600 baht per month. This rental rate is added with 10% from cost appraisal by independent appraiser.  As of December 1, 2017, the ownership of the said land for using as a storage space for goods and merchandise has been changed to Great Miracle Asset 9 Co., Ltd. GUNKUL has changed the counterparty which has effective date since the date of registration of changing ownership.
	GMA-9	Rental	0.83	0.06	GKA rented the land for using as a storage space for goods and merchandise by contracting for a period of 3 years from January 2018 - December 2020 at the rental rate of 63,600 baht per month between January 2018 - February 2018 and 70,000 baht per month between March 2018 - December 2020. This rental rate is added with 10% from cost appraisal by independent appraiser.
		Other payables	-	0.06	
	GMS	Rental	-	0.56	GMS rented land and building from Mr. Gunkul Dhumrongpiyawut and re-let them to GKP for use as office, testing building and warehouse. The term of rent agreement is 3 years starting from July 1, 2012 to December 30, 2015 at rental rate of 42,000 baht/ month. Then, renew a lease for 2 years from January 1, 2016 to December 31, 2017 at average rental rate of 51,000 baht/ month. This rental rate is added with 10% from last year rate that is appraised by independent appraiser.  As of December 1, 2017, the ownership of the said land for using as office, testing building and warehouse has been changed to Great Miracle Asset 7 Co., Ltd. GUNKUL has changed the counterparty which has effective date since the date of registration of changing ownership.

Company	Related Companies	Type of Transaction	Size		Reason and necessity
			2018 (Million baht)	2017 (Million baht)	
	GMA-7	Rental	0.67	0.05	GKP rented land and building for using as office, testing building and warehouse. The term of rent agreement is 3 years starting from January 2018 to December 2020 at the rental rate of 51,000 baht per month between January 2018 - February 2018 and 56,300 baht per month between March 2018 - December 2020. This rental rate is added with 10% from cost appraisal by independent appraiser.
		Other payables	-	0.05	
KNP	GK2000	Rental	-	1.06	"GK2000 who rented land and warehouse (Ratchaneekorn) from Mr. Gunkul Dhumrongpiyawut re-lets the land to KNP for use as an office, testing building and warehouse. The term of contract is 3 years from July 1, 2012 – December 30, 2015 at total rental rate of 88,500 baht/month. Then, renew a lease for 2 years from January 1, 2016 to December 31, 2017 at average rental rate of 107,000 baht/ month. This rental rate is added with 10% from last year rate that is appraised by independent appraiser. Later, KNP canceled only the rental of office space. The rental rate decreased to 92,000.00 baht per month, which is effective from April 1, 2017 onwards. As of December 1, 2017, the ownership of the said land for using as office, testing building and warehouse has been changed to Great Miracle Asset 4 Co., Ltd. GUNKUL has changed the counterparty which has effective date since the date of registration of changing ownership."
	GMA-4	Rental	0.59	0.09	GMA-4 rented land and warehouse (Ratchaneekorn) for using as office, testing building and warehouse. The term of rent agreement is 3 years starting from January 2018 to December 2020 at the rental rate of 92,000 baht per month between January 2018 - February 2018 and 101,300 baht per month between March 2018 - December 2020. This rental rate is added with 10% from cost appraisal by independent appraiser. Later, the lease period was adjusted to June 2018.
		Other payables	-	0.09	
"GES (as before ""GLED""")"	PMBG	Rental and service	0.11	0.68	GES (as before "GLED") rented the office area of PM and PMBG Building to be the head office size 225 sq.m. located at 23 Ruamjit Road, Nakornchisri , Dusit Bangkok during 3 years contract from January 9, 2015 - January 8, 2018, rental rate 28,125 baht/month including the service contract of the building at rate 28,125 baht/ month.
		Accrued rent	-	0.06	

Company	Related Companies	Type of Transaction	Size		Reason and necessity		
			2018 (Million baht)	2017 (Million baht)			
(4) Financial Support							
GUNKUL	GPD	Short-term loans			GUNKUL lent money to GPD to use in business by issuing promissory note with charged interest at the rate of 2.65-2.73% per year. The interest rates are mutually agreed.		
		Early repayment loan	-	-	GUNKUL borrowed money from GPD for use in business with an interest at the rate of 2.73% per year, which is in accordance with the mutual agreement.		
		Loans during the period	254.50	124.00			
		Payment received	197.43	124.00			
		Balance	57.07	-			
		Interest received	2.62	0.44			
		Accrued interest receivable.	0.02	-			
		Short-term loans					
		Early repayment loan	-	-			
		Loans during the period	-	100.00			
		Pay back	-	(100.00)			
		Balance	-	-			
		Interest payable	-	0.22			
		GES	Short-term loans				GUNKUL lent money to GES to use in business by issuing promissory note with charged interest at the rate of 2.60-3.13% per year. The interest rates are mutually agreed.
		(as bfore “GLED”)	Early repayment loan	44.00		47.00	
		Loans during the period	10.00	-			
		Payment received	-	(3.00)			
	Balance	54.00	44.00				

Company	Related Companies	Type of Transaction	Size		Reason and necessity
			2018 (Million baht)	2017 (Million baht)	
		Interest received	1.53	1.34	
		Accrued interest receivable	3.85	2.32	
	BGP	<u>Short-term loans</u>			GUNKUL lent money to BGP to use in business by issuing promissory note with charged interest at the rate of 0% per year. The interest rates are mutually agreed.
		Early repayment loan	40.33	40.33	
		Loans during the period	3.50	-	
		Payment received	-	-	
		Balance	43.83	40.33	
		Interest received	-	-	
		Accrued interest receivable	-	-	
	RNS	<u>Short-term loans</u>			GUNKUL lent money to RNS to use in business by issuing promissory note with charged interest at the rate of 4.70% per year. The interest rates are mutually agreed.
		Early repayment loan	-	345.00	
		Payment received	-	(345.00)	
		Balance	-	-	
		Interest received	-	3.97	
		Accrued interest receivable	-	-	
	WED	<u>Short-term loans</u>			GUNKUL lent money to WED to use in business by issuing promissory note with charged interest at the rate of 3.06% per year. The interest rates are mutually agreed.
		Early repayment loan	-	-	
		Payment received	-	-	
		Balance	-	-	
		Interest received	-	-	

Company	Related Companies	Type of Transaction	Size		Reason and necessity
			2018 (Million baht)	2017 (Million baht)	
	GIM	<u>Short-term loans</u>			GUNKUL lent money to GIM to use in business without interest.
		Early repayment loan	-	-	
		Loans during the period		517.81	
		Convert debt to investment	-	-	
		Payment received	-	(517.81)	
		Balance	-	-	
		Interest received	-	-	
		<u>Short-term loans</u>			GUNKUL borrowed money to GIM to use in business without interest.
		Early repayment loan	352.12	-	
		Loans during the period	-	349.06	
		Difference from exchange rate change	(2.49)	3.06	
		Balance	349.63	352.12	
		Interest payable	-	-	
	ECO	<u>Short-term loans</u>			GUNKUL lent money to ECO to use in business by issuing promissory note with charged interest at the rate of 5.00% per year. The interest rates are mutually agreed.
		Early repayment loan	-	125.00	
		Loans during the period	-	57.00	
		Pay back	-	(182.00)	
		Balance	-	-	
		Interest received	-	6.51	
		Accrued interest receivable	-	0.78	



Company	Related Companies	Type of Transaction	Size		Reason and necessity
			2018 (Million baht)	2017 (Million baht)	
	BMPS	<u>Short-term loans</u>			GUNKUL lent money to BMPS to use in business by issuing promissory note with charged interest at the rate of 3.01% per year. The interest rates are mutually agreed.
		Early repayment loan	440.98	-	
		Loans during the period	-	460.98	
		Payment received	(52.50)	(20.00)	
		Balance	388.48	440.98	
		Interest received	13.05	7.86	
		Accrued interest receivable	7.33	7.86	
	GNP	<u>Short-term loans</u>			GUNKUL lent money to GNP to use in business by issuing promissory note with charged interest at the rate of 2.80-3.27% per year. The interest rates are mutually agreed.
		Early repayment loan	-	-	
		Loans during the period	480.00	500.00	
		Pay back	(348.00)	(500.00)	
		Balance	132.00	-	
		Interest received	1.22	1.38	
		Accrued interest receivable	-	-	
	GSP	<u>Short-term loans</u>			GUNKUL lent money to GSP to use in business by issuing promissory note with charged interest at the rate of 2.97% per year. The interest rates are mutually agreed.
		Early repayment loan	0.50	-	
		Loans during the period	-	0.50	
		Pay back	(0.50)	-	
		Balance	-	0.50	
		Interest received	0.01	0.01	

Company	Related Companies	Type of Transaction	Size		Reason and necessity
			2018 (Million baht)	2017 (Million baht)	
		Accrued interest receivable	-	0.01	GUNKUL borrowed money from GSP for use in business with an interest at the rate of 2.85% per year, which is in accordance with the mutual agreement.
		<u>Short-term loans</u>			
		Early repayment loan	-	-	
		Loans during the period	80.00	-	
		Pay back	-	-	
		Balance	80.00	-	
		Interest payable	1.01	-	
		Accrued interest payable	1.01	-	
	GSP-1	<u>Short-term loans</u>			GSP-1 lent money to GUNKUL to use in business by issuing promissory note with charged interest at the rate of 2.65% per year. The interest rates are mutually agreed.
		Early repayment loan	-	-	
		Loans during the period	-	34.00	
		Pay back	-	(34.00)	
		Balance	-	-	
		Interest payable	-	0.14	
		Accrued interest payable	-	-	
	GSP-2	<u>Short-term loans</u>			GSP-2 lent money to GUNKUL to use in business by issuing promissory note with charged interest at the rate of 2.65% per year. The interest rates are mutually agreed.
		Early repayment loan	-	-	
		Loans during the period	-	23.00	
		Pay back	-	(23.00)	
		Balance	-	-	

Company	Related Companies	Type of Transaction	Size		Reason and necessity
			2018 (Million baht)	2017 (Million baht)	
		Interest payable	-	0.16	
		Accrued interest payable	-	-	
	GSP-3	<u>Short-term loans</u>			GSP-3 lent money to GUNKUL to use in business by issuing promissory note with charged interest at the rate of 2.65% per year. The interest rates are mutually agreed.
		Early repayment loan	-	-	
		Loans during the period	-	30.00	
		Pay back	-	(30.00)	
		Balance	-	-	
		Interest payable	-	0.13	
		Accrued interest payable	-	-	
	GSP-4	<u>Short-term loans</u>			GSP-4 lent money to GUNKUL to use in business by issuing promissory note with charged interest at the rate of 2.65% per year. The interest rates are mutually agreed.
		Early repayment loan	-	-	
		Loans during the period	-	37.00	
		Pay back	-	(37.00)	
		Balance	-	-	
		Interest payable	-	0.17	
		Accrued interest payable	-	-	
	GPS-5	<u>Short-term loans</u>			GSP-5 lent money to GUNKUL to use in business by issuing promissory note with charged interest at the rate of 2.65% per year. The interest rates are mutually agreed.
		Early repayment loan	-	-	
		Loans during the period	-	36.00	

Company	Related Companies	Type of Transaction	Size		Reason and necessity
			2018 (Million baht)	2017 (Million baht)	
		Pay back	-	(36.00)	
		Balance	-	-	
		Interest payable	-	0.17	
		Accrued interest payable	-	-	
	GPS-6	<u>Short-term loans</u>			GSP-6 lent money to GUNKUL to use in business by issuing promissory note with charged interest at the rate of 2.65% per year. The interest rates are mutually agreed.
		Early repayment loan	-	-	
		Loans during the period	-	40.00	
		Pay back	-	(40.00)	
		Balance	-	-	
		Interest payable	-	0.17	
		Accrued interest payable	-	-	
	SES	<u>Short-term loans</u>			GUNKUL lent money to SES to use in business by issuing promissory note with charged interest at the rate of 2.77% per year. The interest rates are mutually agreed.
		Early repayment loan	31.00	-	
		Loans during the period	-	31.00	
		Payment received	(31.00)	-	
		Balance	-	31.00	
		Interest received	0.39	0.41	
		Accrued interest receivable	-	0.41	
		<u>Short-term loans</u>			GUNKUL borrowed money from SES for use in business with an interest at the rate of 2.73% per year, which is in accordance with the mutual agreement.
		Early repayment loan	-	-	

Company	Related Companies	Type of Transaction	Size		Reason and necessity
			2018 (Million baht)	2017 (Million baht)	
		Loans during the period	54.00	-	
		Pay back	-	-	
		Balance	54.00	-	
		Interest payable	0.81	-	
		Accrued interest payable	0.81	-	
	GOB	<u>Short-term loans</u>			GUNKUL lent money to GOB to use in business by issuing promissory note with charged interest at the rate of 6.50% per year. The interest rates are mutually agreed.
		Early repayment loan	-	-	
		Loans during the period	-	8.00	
		Payment received	-	(8.00)	
		Balance	-	-	
		Interest received	-	0.05	
		Accrued interest receivable	-	-	
	KWE	<u>Short-term loans</u>			GUNKUL lent money to KWE to use in business with charged interest at the rate of 2.67-2.98% per year. The interest rates are mutually agreed.
		Early repayment loan	-	-	
		Loans during the period	1,224.07	-	
		Payment received	(155.00)	-	
		Balance	1,069.07	-	
		Interest received	5.88	-	
		Accrued interest receivable	5.44	-	
GPD	GSP-1	<u>Short-term loans</u>			GPD short-term loans from GSP-1 for use as working capital by issuing promissory note with charged interest at the rate of 2.87% per year. The interest rates are mutually agreed.

Company	Related Companies	Type of Transaction	Size		Reason and necessity
			2018 (Million baht)	2017 (Million baht)	
		Early repayment loan	15.00	-	
		Loans during the period	-	15.00	
		Pay back	-	-	
		Balance	15.00	15.00	
		Interest payable	0.43	0.03	
		Accrued interest payable	0.46	0.03	
	GSP-2	<u>Short-term loans</u>			GPD short-term loans from GSP-2 for use as working capital by issuing promissory note with charged interest at the rate of 2.87% per year. The interest rates are mutually agreed.
		Early repayment loan	17.00	-	
		Loans during the period	-	17.00	
		Pay back	-	-	
		Balance	17.00	17.00	
		Interest payable	0.49	0.04	
		Accrued interest payable	0.53	0.04	
	GSP-3	<u>Short-term loans</u>			GPD short-term loans from GSP-3 for use as working capital by issuing promissory note with charged interest at the rate of 2.87% per year. The interest rates are mutually agreed.
		Early repayment loan	14.00	-	
		Loans during the period	-	14.00	
		Pay back	(14.00)	-	
		Balance	-	14.00	
		Interest payable	0.07	0.03	
		Accrued interest payable	-	0.03	

Company	Related Companies	Type of Transaction	Size		Reason and necessity
			2018 (Million baht)	2017 (Million baht)	
	GSP-4	<u>Short-term loans</u>			GPD short-term loans from GSP-4 for use as working capital by issuing promissory note with charged interest at the rate of 2.87% per year. The interest rates are mutually agreed.
		Early repayment loan	18.00	-	
		Loans during the period	-	18.00	
		Pay back	(18.00)	-	
		Balance	-	18.00	
		Interest payable	0.09	0.04	
		Accrued interest payable	-	0.04	
	GSP-5	<u>Short-term loans</u>			GPD short-term loans from GSP-5 for use as working capital by issuing promissory note with charged interest at the rate of 2.87% per year. The interest rates are mutually agreed.
		Early repayment loan	18.00	-	
		Loans during the period	-	18.00	
		Pay back	(18.00)	-	
		Balance	-	18.00	
		Interest payable	0.12	0.04	
		Accrued interest payable	-	0.04	
	GSP-6	<u>Short-term loans</u>			
		Early repayment loan	18.00	-	
		Loans during the period	-	18.00	
		Pay back	(18.00)	-	
		Balance	-	18.00	
		Interest payable	0.07	0.04	
		Accrued interest payable	-	0.04	

Company	Related Companies	Type of Transaction	Size		Reason and necessity
			2018 (Million baht)	2017 (Million baht)	
GOB	OGA	<u>Short-term loans</u>			GOB short-term loans from OGA for use as working capital by issuing promissory note with charged interest at the rate of 6.30% per year. The interest rates are mutually agreed.
		Early repayment loan	3.50	3.50	
		Pay back	(3.50)	-	
		Balance	-	3.50	
		Interest payable	-	0.23	
		Accrued interest payable	-	0.12	
	OGB	<u>Short-term loans</u>			GOB short-term loans from OGB for use as working capital by issuing promissory note with charged interest at the rate of 6.30% per year. The interest rates are mutually agreed.
		Early repayment loan	2.60	2.60	
		Pay back	(2.60)	-	
		Balance	-	2.60	
		Interest payable	-	0.17	
		Accrued interest payable	-	0.09	
	OGD	<u>Short-term loans</u>			GOB short-term loans from OGD for use as working capital by issuing promissory note with charged interest at the rate of 6.30% per year. The interest rates are mutually agreed.
		Early repayment loan	0.60	0.60	
		Pay back	(0.60)	-	
		Balance	-	0.60	
		Interest payable	-	0.04	
		Accrued interest payable	-	0.02	
	OGE	<u>Short-term loans</u>			GOB short-term loans from OGE for use as working capital by issuing promissory note with charged interest at the rate of 6.30% per year. The interest rates are mutually agreed.



Company	Related Companies	Type of Transaction	Size		Reason and necessity
			2018 (Million baht)	2017 (Million baht)	
		Early repayment loan	0.40	0.40	
		Pay back	(0.40)	-	
		Balance	-	0.40	
		Interest payable	-	0.03	
		Accrued interest payable	-	0.01	
FEC	KNT	<u>Loans</u>			FEC lent money to KNT to use in business with charged interest at the rate of 1.55-4.55% per year. The interest rates are mutually agreed.
		Early repayment loan	29.00	29.00	
		Loans during the period	-	-	
		Payment received	(29.00)	-	
		Balance	-	29.00	
		Interest received	0.25	1.01	
		Accrued interest receivable	-	-	
	Director	<u>Short-term loans</u>			FEC lent money to Director to use in business with charged interest at the rate of 1.50-4.85% per year. The interest rates are mutually agreed.
		Early repayment loan	392.39	217.49	
		Loans during the period	63.50	212.30	
		Pay back	(455.89)	(37.40)	
		Balance	-	392.39	
		Interest received	2.91	10.21	
		Accrued interest receivable	-	-	

Company	Related Companies	Type of Transaction	Size		Reason and necessity
			2018 (Million baht)	2017 (Million baht)	
(5) Other items					
GUNKUL	GKP	Dividend income	14.54	14.49	<p>- In 2017, GUNKUL got dividend from GKP according to the resolution of the Board of Directors' meeting. From the number of shares held of 99,998 shares (par value of 1,000.00 Baht per share), the total dividend received was 14.49 million baht and expected to pay within January 2018.</p> <p>- In 2018, GUNKUL got dividend from GKP according to the resolution of the Board of Directors' meeting. From the number of shares held of 99,998 shares (par value of 1,000.00 Baht per share), the total dividend received was 14.54 million baht. The dividends payment date is within one month from the date of resolution in order to comply with the law.</p>
	GKA	Dividend income	50.00	-	<p>- No dividend payment in 2017</p> <p>- In 2018, GUNKUL got dividend from GKA according to the resolution of the Board of Directors' meeting. From the number of shares held of 1,999,998 shares (par value of 100.00 Baht per share), the total dividend received was 50 million baht. The dividends payment date is within one month from the date of resolution in order to comply with the law.</p>
	KNP	Dividend income	-	10.00	<p>- In 2017, GUNKUL got dividend from KNP according to the resolution of the Board of Directors' meeting. From the number of shares held of 499,998 shares (par value of 1,000.00 Baht per share), the total dividend received was 10.00 million baht and expected to pay within October 2017.</p> <p>- No dividend payment in 2018</p>
	GPS	Dividend income	50.41	70.12	<p>- In 2017, GUNKUL got dividend from GPS according to the resolution of the AGM 2017 and the resolution of the Board of Directors' Meeting From the number of shares held of 3,719,998 shares (at par value of 100.00 Baht per share), the total dividend received was 70.12 million baht.</p>
		Dividend receivable	115.80	115.80	<p>- In 2018, GUNKUL got dividend from GPS according to the resolution of the AGM 2018 and the resolution of the Board of Directors' Meeting. From the number of shares held of 3,719,998 shares (at par value of 100.00 Baht per share), the total dividend received was 50.41 million baht. The dividends payment date is within one month from the date of resolution in order to comply with the law.</p>

Company	Related Companies	Type of Transaction	Size		Reason and necessity
			2018 (Million baht)	2017 (Million baht)	
	GCPG	Dividend income	155.32	107.10	<p>- In 2017, GUNKUL received the dividend from GCPG according to the resolution of the AGM 2017 and the resolution of the Board of Directors' Meeting. From the number of shares held of 5,059,195 shares (at par value of 100.00 Baht per share), the total dividend received was 107.10 million baht. The Company paid such amount in April, June, August and November 2017.</p> <p>- In 2018, GUNKUL received the dividend from GCPG according to the resolution of the AGM 2018 and the resolution of the Board of Directors' Meeting. From the number of shares held of 5,059,195 shares (at par value of 100.00 Baht per share), the total dividend received was 155.32 million baht. The dividends payment date is within one month from the date of resolution in order to comply with the law.</p>
	WHA_GSR-1	Dividend income	0.01	1.20	<p>- In 2017, GUNKUL received the dividend from WHA_GSR-1 according to the resolution of the AGM 2017. From the number of shares held of 287,615 shares (at par value of 10.00 Baht per share), the total dividend received was 1.20 million baht.</p> <p>- In 2018, GUNKUL received the dividend from WHA_GSR-1 according to the resolution of the AGM 2018. From the number of shares held of 287,615 shares (at par value of 10.00 Baht per share), the total dividend received was 0.01 million baht.</p>
	WHA_GSR-3	Dividend income	0.13	-	<p>- No dividend payment in 2017</p> <p>- In 2018, GUNKUL got dividend from WHA_GSR-3 according to the resolution of the AGM 2018. From the number of shares held of 362,645 shares (par value of 10.00 Baht per share), the total dividend received was 0.13 million baht.</p>
	WHA_GSR-6	Dividend income	0.13	-	<p>- No dividend payment in 2017</p> <p>- In 2018, GUNKUL got dividend from WHA_GSR-6 according to the resolution of the AGM 2018. From the number of shares held of 362,645 shares (par value of 10.00 Baht per share), the total dividend received was 0.13 million baht.</p>
	WHA_GSR-17	Dividend income	1.00	-	<p>- No dividend payment in 2017</p> <p>- In 2018, GUNKUL got dividend from WHA_GSR-17 according to the resolution of the AGM 2018. From the number of shares held of 400, 160 shares (par value of 10.00 Baht per share), the total dividend received was 1.00 million baht.</p>

Company	Related Companies	Type of Transaction	Size		Reason and necessity
			2018 (Million baht)	2017 (Million baht)	
	GSP-2	Dividend income	-	1.20	- In 2017, GUNKUL got dividend from GSP-2 according to the resolution of the Board of Directors' meeting. From the number of shares held of 999,997 shares (par value of 100.00 Baht per share), the total dividend received was 1.20 million baht and expected to pay within April 2017.
				-	- No dividend payment in 2018
	GPD	Dividend income	620.00	172.80	- In 2017, GUNKUL got dividend from GPD according to the resolution of the Board of Directors' meeting. From the number of shares held of 499,997 shares (par value of 100.00 Baht per share), the total dividend received was 172.80 million baht and expected to pay within March 2017.
				-	- In 2018, GUNKUL got dividend from GPD according to the resolution of the Board of Directors' meeting. From the number of shares held of 1,249,997 shares and 2,999,997 shares (par value of 100.00 Baht per share), the total dividend received was 620 million baht. The dividends payment date is within one month from the date of resolution in order to comply with the law.
	IAE	Dividend income	165.44	238.09	- In 2017, GUNKUL received the dividend from IAE according to the resolution of the Board of Directors' Meeting. From the number of shares held of 10,652,999 shares (at par value of 100.00 Baht per share), the total dividend received was 238.09 million baht. The Company paid such amount in March, July, October and November 2017, respectively.
				-	- In 2018, GUNKUL received the dividend from IAE according to the resolution of the Board of Directors' Meeting. From the number of shares held of 10,652,999 shares which decreased to 10,478,799 shares (at par value of 100.00 Baht per share), the total dividend received was 165.44 million baht. The dividends payment date is within one month from the date of resolution in order to comply with the law.
	NK	Dividend income	12.00	20.00	- In 2017, GUNKUL received the dividend from NK according to the resolution of the Board of Directors' Meeting. From the number of shares held of 2,940 shares (at par value of 100.00 Baht per share), the total dividend received was 20 million baht. The Company paid such amount in April and December 2017, respectively.

Company	Related Companies	Type of Transaction	Size		Reason and necessity
			2018 (Million baht)	2017 (Million baht)	
					- In 2018, GUNKUL received the dividend from NK according to the resolution of the Board of Directors' Meeting. From the number of shares held of 2,940 shares (at par value of 100.00 Baht per share), the total dividend received was 12 million baht. The dividends payment date is within one month from the date of resolution in order to comply with the law.
	SES	Dividend income	-	2.04	- In 2017, GUNKUL got dividend from SES according to the resolution of the Board of Directors' meeting. From the number of shares held of 203,997 shares (par value of 100.00 Baht per share), the total dividend received was 2.04 million baht and expected to pay within April 2017.  - No dividend payment in 2018
	SGSE	Dividend income	-	6.03	- In 2017, GUNKUL got dividend from SGSE according to the resolution of the Board of Directors' meeting. From the number of shares held of 408,997 shares (par value of 100.00 Baht per share), the total dividend received was 6.03 million baht and expected to pay within April 2017.  - No dividend payment in 2018
	WED	Dividend income	389.02	-	- No dividend payment in 2017  - In 2018, GUNKUL got dividend from WED according to the resolution of the AGM 2018 and the resolution of the Board of Directors' meeting. From the number of shares held of 157,499,987 shares (par value of 100.00 Baht per share), the total dividend received was 398.02 million baht. The dividends payment date is within one month from the date of resolution in order to comply with the law.
	ECO	Dividend income	6.96	-	- No dividend payment in 2017  - In 2018, GUNKUL got dividend from ECO according to the resolution of the AGM 2018 and the resolution of the Board of Directors' meeting. From the number of shares held of 390,150 shares (par value of 100.00 Baht per share), the total dividend received was 6.96 million baht. The dividends payment date is within one month from the date of resolution in order to comply with the law.
IAE	BMPS	Dividend income	27.00	-	- No dividend payment in 2017

Company	Related Companies	Type of Transaction	Size		Reason and necessity
			2018 (Million baht)	2017 (Million baht)	
					- In 2018, IAE got dividend from BMPS according to the resolution of the Board of Directors' meeting. From the number of shares held of 48,010 shares, by the Company's regulations, preferred shareholders will receive dividends before ordinary shareholders at a rate of 99% of the total dividend. The total dividend received was 27 million baht. The dividends payment date is within one month from the date of resolution in order to comply with the law.
	RNS	Dividend income	259.75	378.72	<p>- In 2017, IAE received the dividend from RNS according to the resolution of the Board of Directors' Meeting. From the number of shares held of 13,549,997 shares (at par value of 100.00 Baht per share), the total dividend received was 378.72 million baht. The Company paid such amount in February, June, September and November 2017, respectively.</p> <p>- In 2018, IAE received the dividend from RNS according to the resolution of the AGM 2018 and the resolution of the Board of Directors' Meeting. From the number of shares held of 13,549,997 shares (at par value of 100.00 Baht per share), the total dividend received was 259.75 million baht. The dividends payment date is within one month from the date of resolution in order to comply with the law.</p>
GSP	GSP-2	Dividend income	1.80	-	<p>- No dividend payment in 2017</p> <p>- In 2018, GSP got dividend from GSP-2 according to the resolution of the Board of Directors' meeting. From the number of shares held of 999.997 shares (at par value of 100.00 Baht per share), the total dividend received was 1.80 million baht. The dividends payment date is within one month from the date of resolution in order to comply with the law.</p>

## 24.5 Policy and procedure of related transaction approval

Related transaction between the Company and its subsidiaries and related companies/ person depend on reason, necessity and benefit to the Company as a whole. Price has to be fair or equivalent to normal business condition and in compliance with Securities and Exchange Act and other related rules and regulations. The Company sets procedures and steps of approving such related transactions by not allowing management or related persons who have conflict of interest in that transaction to participate in the approval process. In case this transaction involves related person who may have conflict of interest, or might happen in the future. A management division may propose the transaction to the board of directors or shareholders meeting for approval depend on size list.

In case of a transaction with a person which may cause the conflict of interest, the Board of Directors has set up the policy to ensure the transparency and justice equally for all shareholders based on the following principles;

- The transaction shall gain the approval from the Directors and Executives with the careful, honest and transparent consideration, by which the interested person does not participate in the decision.
- The transaction is conducted with consideration of the Company's benefits like the transaction with the outsider.
- The Company establishes the monitoring and following-up system to ensure that the transaction is in compliance with the process.
- The transaction information is disclosed completely and correctly in the proper time.

The Company's policy on the transaction categorizes the transactions as follows;

- The regular business and regular business promotion between the Company and its subsidiaries / affiliates and Directors, Executives or the related person which gains the approval in principles from the Board of Directors shall be conducted by the Management, if the transaction has the trade agreement in the manner that the respectable person would agree with his counterpart in the same situation with the trade bargain leverage not influenced by the fact that he is the Director, Executive or the related person.

The Company shall make the transaction summary report to propose in the meeting of the Audit Committee and the meeting of the Board of Directors every quarter.

- Other transactions aside from the above-mentioned regular business and regular business promotion such as the short-term rent or lease of immovable property, transaction in relation to the asset or service (for example the investment or sale of the financial investment in the business) or the offer or reception of the financial assistance.

The Company's policy specifies the approval authority in compliance with the principle of Stock Exchange of Thailand.

The Company shall make the transaction summary report to propose in the meeting of the Audit Committee and the meeting of the Board of Directors every quarter.

The Board of Directors shall comply with the Securities and Exchange Act B.E. 2535, regulations, notifications, orders or requirements of Stock Exchange of Thailand. Additionally, it shall comply with regulations regarding the related transaction and the gain / disposal of the key assets of the Company or its subsidiaries / affiliates, so that the transaction does not bring about the conflict of interest and cause the utmost benefits for all shareholders. In this regard, the Company shall disclose the details of transactions in the annual information declaration (Form 56-1), the Company's annual report and the notes to financial statement which shall be audited by the Company's auditors.

## 24.6 Policy and trend to do related transactions in the future

### 1. *Trend of related transactions with persons with possible conflict of interest*

- Business of producing, supplying and selling electrical and energy-saving products, The Company continues to conduct related transactions with its subsidiaries for product trading, asset trading, financial support including guaranteeing credit facilities for subsidiaries. Also, the use of the subsidiary's assets to guarantee the credit facilities of the Company.
- Business of production and distribution of electricity from renewable energy, the Company continues to conduct related transactions with its subsidiaries, associated companies and joint ventures for the sale of products, power plant



maintenance service, asset trading, financial support. This is also including the guarantee of credit facilities for the subsidiary and the use of the subsidiary's assets to guarantee the credit facilities of the Company.

- Business of construction and system work, the Company continues to conduct related transactions with its subsidiaries for selling products, construction service and system contractor, financial support. This is also including the guarantee of credit facilities for the subsidiary and the use of the subsidiary's assets to guarantee the credit facilities of the Company.
- Business of foreign investment and project of foreign investment, the Company continues to conduct related transactions with subsidiaries and projects continuously for providing financial support.
- The Company and the Group have leased real estate and movable properties for using in business operations from the group of companies with mutual directors.

## 2. Policy on related transactions in the future

The Company has a policy on related transactions by set up a normal practical business terms, set up a market price which can compare with a price from outsider and comply with the law or the principle of Stock Exchange of Thailand including, regulations, notifications, orders or requirements. The Company sets measures and procedures of approving such related transactions by not allowing management or related persons who have conflict of interest in that transaction to participate in the approval process. In case this transaction involves related person who may have conflict of interest, or might happen in the future. A management division may propose the transaction to the board of directors or shareholders meeting for approval depend on size list. In purpose to comply with a policy and a table of approval authority, which set up to be a guideline for proceeding the matter and for ensuring the transparency.

The Company will comply with regulations about disclosure of related transactions as well as make the transaction summary report to propose in the meeting of the Audit Committee and the meeting of the Board of Directors every quarter. The Company will disclose related transactions in its annual report and in the notes to the audited financial statements.



## Board of Directors

### 25. Responsibility for Financial Reporting

According to the Public Company Act B.E. 2535 (1992), Accounting Act, B.E. 2543 (2000) Securities, the Exchange Act BE 2535 (1992) and the Notification of Capital Market by the subject of criteria, conditions, and procedures for disclosing information in financial status and performance of a securities issuing company stated that the board of directors should prepare the financial statement to present their financial status, operational performance, the change of shareholder's equity, and statement of cash flows of the previous fiscal year which is true and reasonable.

Since the board of directors becomes aware of obligations and responsibilities of overseeing the financial reports preparation to ensure efficient operational processes, the audit committee has been appointed to response for auditing the accounting policy and quality of the financial report, reviewing the internal control system, internal auditing to an organization's overall risk management framework, developing appropriate and efficiency internal controls ensuring accurate, complete, reasonably and consistent accounting data and must be sufficient to maintain the property and to significantly prevent fraud or unusual operation, disclosure transparent information related to all transactions between each other and financial information contained in the annual report. The financial statements prepared in accordance with a generally accepted accounting standard by selecting the most appropriate policy, practice consistently, very careful in the judgments, preparing a good estimate, and adequate disclosure of important information in notes to the financial statement for benefit of shareholders and general investors with transparency.

The financial statements of the Company and the consolidated financial statements of Company and its subsidiaries for the year ended December 31, 2018 have been examined by an external auditor, KPMG Phoomchai Audit Ltd. To conduct the audits and express an opinion in accordance with generally accepted auditing standards, the auditor was provided with all of the Company's records and related data as requested. The auditor's opinion is presented in the auditor's report as part of this annual report.

The Board of Directors considers the Company's overall internal control system satisfactory and provides credibility and reliability to Gunkul Engineering Public Company Limited and its subsidiaries' consolidated financial statements for the year ended December 31, 2018. The Board of Directors also believes that all these financial statements have been prepared in accordance with generally accepted accounting principle and related regulations.



(Mr. Gunkul Dhumrongpiyawut)

Chairman of the Board

20<sup>th</sup> February 2019

## 26. Summary of Financial Statements

### Financial Statements

#### *(1) Independent Auditor's Report*

- Miss Susan Eiamvanicha, Certified Public Accountant (Thailand) No. 4306 from S.P. Audit Company Limited has audited the consolidated and separate financial statements of Gunkul Engineering Public Company Limited and its subsidiaries (the “Group”) and of Gunkul Engineering Public Company Limited (the “Company”), respectively, which comprise the consolidated and separate statements of financial position as of December 31, 2016, and expressed the unqualified opinion that the consolidated and separate financial statements, consolidated and separate cash flows statements for the year then ended, and notes, comprising a summary of significant in accordance with Thai Financial Reporting Standards.
- Mr. Waiyawut Kosamarnchaiyakij, Certified Public Accountant (Thailand) No. 6333 from KPMG Phoomchai Audit Ltd. has audited the consolidated and separate financial statements of Gunkul Engineering Public Company Limited and its subsidiaries (the “Group”) and of Gunkul Engineering Public Company Limited (the “Company”), respectively, which comprise the consolidated and separate statements of financial position as of December 31, 2017, and expressed the unqualified opinion that the consolidated and separate financial statements, consolidated and separate cash flows statements for the year then ended, and notes, comprising a summary of significant in accordance with Thai Financial Reporting Standards.

- Mr. Waiyawut Kosamarnchaiyakij, Certified Public Accountant (Thailand) No. 6333 from KPMG Phoomchai Audit Ltd. has audited the consolidated and separate financial statements of Gunkul Engineering Public Company Limited and its subsidiaries (the “Group”) and of Gunkul Engineering Public Company Limited (the “Company”), respectively, which comprise the consolidated and separate statements of financial position as of December 31, 2018, and expressed the unqualified opinion that, the consolidated and separate financial statements, consolidated and separate cash flows statements for the year then ended, and notes, comprising a summary of significant in accordance with Thai Financial Reporting Standards.

For the emphasis of matter, attention to note 4 to the financial statements describing the effect of the businesses combination under common control. The corresponding figures presented are based on the audited financial statements as at and for the year ended 31 December 2017 after making the adjustments described in note 4. My opinion is not modified in respect of this matter

## (2) Table Summary of Financial Statements

Gunkul Engineering Public Company Limited and Its Subsidiaries

Statements of Financial Position As at 31 December 2016, 31 December 2017 and 31 December 2018

Unit : Baht

Items	Consolidated Financial Statements			Separate Financial Statements		
	2018	2017 (Restated)	2016 (Restated)	2018	2017	2016
<b>Assets</b>						
<i>Current assets</i>						
Cash and cash equivalents	892,652,654	1,158,017,322	2,670,103,053	273,762,813	240,328,765	1,043,943,100
Current investments	606,089,344	645,019,982	964,357,175	529,906,475	550,020,906	949,668,647
Short-term deposits from financial institution pledged as collateral	1,501,020,586	964,049,692	585,106,438	-	-	-
Trade accounts receivable	1,068,798,910	1,153,979,661	712,268,159	388,885,965	223,096,299	472,975,037
Unbilled revenue	225,175,687	759,609,883	336,760,467	-	12,148,598	12,294,188
Other receivables	405,733,234	370,171,541	275,131,574	178,641,960	171,580,815	138,475,797
Revenue Department receivable	298,960,074	100,734,948	348,773,321	-	-	-
Short-term loans to related parties	-	402,390,094	227,490,094	1,754,452,670	556,807,750	557,327,750
Current portion of long-term loan to related party	-	19,000,000	-	-	-	-
Inventories	540,167,019	408,985,378	442,867,990	284,332,577	194,904,660	226,817,716
<b>Total current assets</b>	<b>5,538,597,508</b>	<b>5,981,958,501</b>	<b>6,562,858,271</b>	<b>3,409,982,460</b>	<b>1,948,887,793</b>	<b>3,401,502,235</b>
<i>Non-current assets</i>						
Long-term deposits from financial institution pledged as collateral	592,003,707	40,770,206	47,008,111	-	-	45,572,105
Long-term loan to related parties	-	-	19,000,000	-	-	-
Investments in associates	426,852,710	381,407,019	356,891,224	397,594,800	397,594,800	397,694,800
Investments in joint ventures	1,078,764,354	1,005,233,337	939,043,106	576,610,150	520,050,150	521,281,892
Investments in subsidiaries	-	-	-	12,884,624,101	12,272,402,201	10,135,282,120
Other non-current receivables	302,916,885	413,048,266	409,254,153	273,070,614	273,070,614	330,923,338
Investment properties	-	-	-	3,143,658	3,143,658	3,143,658
Property, plant and equipment	23,018,092,750	18,072,860,859	13,556,883,394	74,184,502	70,572,269	70,861,343
Goodwill	163,476,324	163,476,324	220,950,087	-	-	-
Intangible assets and goodwill	4,213,228,830	4,068,184,786	3,074,606,387	4,928,514	4,091,404	4,663,578
Advance for shares subscription	-	-	180,000,000	-	-	180,000,000
Deposit for purchase of assets	-	362,141,578	384,815,570	-	-	-
Advance for land lease	215,351,112	215,440,843	209,441,988	-	-	-
Deferred tax assets	75,465,591	21,933,011	37,353,056	61,100,361	9,392,391	6,666,921
<b>Total non-current assets</b>	<b>30,086,152,263</b>	<b>24,744,496,229</b>	<b>19,435,247,076</b>	<b>14,275,256,700</b>	<b>13,550,317,487</b>	<b>11,696,089,755</b>
<b>Total assets</b>	<b>35,624,749,771</b>	<b>30,726,454,730</b>	<b>25,998,105,347</b>	<b>17,685,239,160</b>	<b>15,499,205,280</b>	<b>15,097,591,990</b>

Unit : Baht

Items	Consolidated Financial Statements			Separate Financial Statements		
	2018	2017 (Restated)	2016 (Restated)	2018	2017	2016
<b>Liabilities and equity</b>						
<i>Current liabilities</i>						
Short-term loans from financial institutions	2,306,788,075	2,271,966,942	3,985,544,240	2,012,489,398	1,957,821,723	3,922,101,802
Short-term loans from related parties	-	-	-	483,630,656	352,121,984	-
Trade accounts payable	340,646,726	770,710,822	563,545,136	246,918,703	259,998,139	310,963,054
Unearned revenues	104,217,170	258,756,368	232,261,387	16,166,890	14,813,972	1,844,128
Payable for purchases of assets	454,767,934	1,496,735,070	715,919,350	-	-	16,474
Revenue Department payable	59,323,015	22,799,576	15,777,028	3,310,866	1,171,368	6,359,001
Retention payables	532,589,874	274,237,683	236,479,884	9,617,538	10,113,851	27,603,885
Other payables	315,094,448	353,570,840	202,792,956	119,595,334	98,421,099	65,579,772
Current portion of						
long-term loans	1,546,994,980	632,315,625	528,346,274	28,443,981	-	-
Current portion of debentures	2,765,500,000	280,000,000	300,000,000	2,765,500,000	280,000,000	300,000,000
Current portion of						
finance lease liabilities	13,931,656	15,315,477	16,442,185	7,185,659	9,426,787	9,205,418
Income tax payable	64,806,817	55,027,127	23,939,764	-	-	1,762,540
<b>Total current liabilities</b>	<b>8,504,660,695</b>	<b>6,431,435,530</b>	<b>6,821,048,204</b>	<b>5,692,859,025</b>	<b>2,983,888,923</b>	<b>4,645,436,074</b>
<i>Non-current liabilities</i>						
Long-term loans	14,129,849,292	9,750,699,546	6,781,774,331	393,486,850	-	-
Debentures	2,819,000,000	3,765,500,000	1,780,000,000	2,819,000,000	3,765,500,000	1,780,000,000
Retention payables	146,051,080	280,406,769	180,967,606	133,298	170,031	17,273,980
Finance lease liabilities	18,866,326	28,233,539	39,475,883	7,615,657	14,230,162	20,012,632
Deferred tax liabilities	188,230,332	188,595,429	212,161,982	-	-	-
Provisions for employee benefits	52,889,050	45,781,071	23,326,674	34,690,365	30,038,092	15,136,780
Provisions for decommissioning costs of power plants	203,979,259	5,305,520	5,125,205	-	-	-
Other non-current liabilities	61,175,854	46,638,128	26,251,481	25,326,970	15,285,122	19,656,204
<b>Total non-current liabilities</b>	<b>17,620,041,193</b>	<b>14,111,160,002</b>	<b>9,049,083,162</b>	<b>3,280,253,140</b>	<b>3,825,223,407</b>	<b>1,852,079,596</b>
<b>Total liabilities</b>	<b>26,124,701,888</b>	<b>20,542,595,532</b>	<b>15,870,131,366</b>	<b>8,973,112,165</b>	<b>6,809,112,330</b>	<b>6,497,515,670</b>

Gunkul Engineering Public Company Limited and Its Subsidiaries

Statements of Financial Position As at 31 December 2016, 31 December 2017 and 31 December 2018

Unit : Baht

Items	Consolidated Financial Statements			Separate Financial Statements		
	2018	2017 (Restated)	2016 (Restated)	2018	2017	2016
<i>Equity</i>						
<b>Share capital</b>						
Authorised share capital	1,854,655,373	1,982,967,060	1,699,686,359	1,854,655,373	1,982,967,060	1,699,686,359
Issued and paid-up share capital	1,854,655,373	1,854,655,373	1,589,693,963	1,854,655,373	1,854,655,373	1,589,693,963
Treasury shares	(304,674,256)	-	-	(304,674,256)	-	-
Additional paid in capital:						
Premium on ordinary shares	5,179,473,454	5,179,473,454	5,179,217,075	5,179,473,454	5,179,473,454	5,179,217,075
Retained earnings						
Appropriated						
Legal reserve	198,300,000	198,300,000	159,000,000	198,300,000	198,300,000	159,000,000
Treasury shares reserve	304,674,256	-	-	304,674,256	-	-
Unappropriated	2,452,439,992	2,005,777,871	2,110,804,503	1,479,522,211	1,457,643,217	1,672,165,282
Difference arising from business combination						
under common control	(464,752,542)	93,622,450	93,622,450	-	-	-
Other components of equity	(309,604,699)	(362,631,882)	(90,160,466)	175,957	20,906	-
Equity attributable to owners of the Company	8,910,511,578	8,969,197,266	9,042,177,525	8,712,126,995	8,690,092,950	8,600,076,320
Former shareholder before business restructuring	-	616,557,891	444,503,878	-	-	-
Non-controlling interests	589,536,305	598,104,041	641,292,578	-	-	-
<b>Total equity</b>	<b>9,500,047,883</b>	<b>10,183,859,198</b>	<b>10,127,973,981</b>	<b>8,712,126,995</b>	<b>8,690,092,950</b>	<b>8,600,076,320</b>
<b>Total liabilities and equity</b>	<b>35,624,749,771</b>	<b>30,726,454,730</b>	<b>25,998,105,347</b>	<b>17,685,239,160</b>	<b>15,499,205,280</b>	<b>15,097,591,990</b>



Gunkul Engineering Public Company Limited and Its Subsidiaries

Statements of Compensation Income As of 31 December 2016, 31 December 2017 and 31 December 2018

• Statement of comprehensive income

Unit : Baht

Items	Consolidated Financial Statements			Separate Financial Statements		
	2018	2017 (Restated)	2016 (Restated)	2018	2017	2016
<b>Revenue</b>						
Revenue from sale	1,344,964,976	1,159,981,559	1,351,394,673	1,212,462,215	1,079,644,994	1,203,428,170
Revenue from sale of electricity	1,762,808,281	1,114,880,961	778,977,757	-	-	-
Revenue from rendering of services	68,541,412	68,088,980	80,074,234	28,309,677	44,485,943	87,424,815
Revenue from construction services	1,887,242,809	2,045,042,136	909,497,080	60,852,900	25,549,214	484,387,200
Revenue from adder	1,166,941,762	420,683,775	88,950,089	-	-	-
Dividend income	-	-	-	1,491,947,483	641,879,081	232,628,903
Net foreign exchange gain	-	7,266,458	-	6,380,350	-	-
Interest income	14,266,266	38,740,077	84,225,961	26,844,921	42,851,382	105,953,249
Other income	216,121,172	58,800,362	73,714,107	50,502,901	43,039,588	67,110,815
<b>Total revenue</b>	<b>6,460,886,678</b>	<b>4,913,484,308</b>	<b>3,366,833,901</b>	<b>2,877,300,447</b>	<b>1,877,450,202</b>	<b>2,180,933,152</b>
<b>Expenses</b>						
Cost of sale	943,583,114	795,831,255	930,260,549	944,887,737	826,499,809	892,774,492
Cost of sale of electricity	901,674,319	490,256,740	277,932,210	-	-	-
Cost of rendering of services	42,241,899	64,568,671	51,547,864	21,251,070	33,681,167	41,241,578
Cost of construction services	1,282,474,222	1,710,546,458	834,476,370	47,683,757	25,744,897	413,122,248
Selling expenses	63,205,732	57,953,686	40,801,778	46,564,007	46,644,733	31,138,007
Administrative expenses and others	679,832,705	592,148,697	492,743,564	344,421,150	325,676,108	300,849,874
Unwind foreign exchange option contracts fee	588,109,119	95,278,978	-	588,109,119	60,278,978	-
ขาดทุนจากอัตราแลกเปลี่ยนสุทธิ	146,810,278	-	24,336,792	-	13,689,898	7,438,025
<b>Net foreign exchange loss</b>	<b>4,647,931,388</b>	<b>3,806,584,485</b>	<b>2,652,099,127</b>	<b>1,992,916,840</b>	<b>1,332,215,590</b>	<b>1,686,564,224</b>
Share of profit of associates and joint ventures	269,402,971	269,262,917	271,815,171	-	-	-
<b>Profit before finance costs and income tax expense (income)</b>	<b>2,082,358,261</b>	<b>1,376,162,740</b>	<b>986,549,945</b>	<b>884,383,607</b>	<b>545,234,612</b>	<b>494,368,928</b>
Finance costs	800,452,148	570,284,549	329,800,388	275,702,662	191,465,116	132,762,852
<b>Profit before income tax expense (income)</b>	<b>1,281,906,113</b>	<b>805,878,191</b>	<b>656,749,557</b>	<b>608,680,945</b>	<b>353,769,496</b>	<b>361,606,076</b>
Income tax expense (income)	103,496,017	91,089,954	41,379,419	(51,707,970)	(241,807)	26,625,205
<b>Profit for the year</b>	<b>1,178,410,096</b>	<b>714,788,237</b>	<b>615,370,138</b>	<b>660,388,915</b>	<b>354,011,303</b>	<b>334,980,871</b>

Gunkul Engineering Public Company Limited and Its Subsidiaries

Statements of Compensation Income As of 31 December 2016, 31 December 2017 and 31 December 2018

Unit : Baht

Items	Consolidated Financial Statements			Separate Financial Statements		
	2018	2017 (Restated)	2016	2018	2017	2016
<b>Other comprehensive income</b>						
<i>Component of other comprehensive income that will be reclassified to profit or loss</i>						
Exchange differences on translating financial statement	52,216,056	(272,491,787)	(109,809,980)	-	-	-
Net change in fair value of available-for-sale investments	826,812	20,371	-	155,051	20,906	-
<b>Total component of other comprehensive income that will be reclassified to profit or loss</b>	<b>53,042,868</b>	<b>(272,471,416)</b>	<b>(109,809,980)</b>	<b>155,051</b>	<b>20,906</b>	<b>-</b>
<i>Component of other comprehensive income that will not be reclassified to profit or loss</i>						
Defined benefit plan actuarial losses	-	(18,848,974)	-	-	(12,418,314)	-
Income tax relating to comprehensive income that will not be reclassified to profit or loss	-	3,768,771	-	-	2,483,663	-
<b>Total component of other comprehensive income that will not be reclassified to profit or loss</b>	<b>-</b>	<b>(15,080,203)</b>	<b>-</b>	<b>-</b>	<b>(9,934,651)</b>	<b>-</b>
<b>Other comprehensive income (loss) for the year, net of income tax</b>	<b>53,042,868</b>	<b>(287,551,619)</b>	<b>(109,809,980)</b>	<b>155,051</b>	<b>(9,913,745)</b>	<b>-</b>
<b>Total comprehensive income for the year</b>	<b>1,231,452,964</b>	<b>427,236,618</b>	<b>505,560,158</b>	<b>660,543,966</b>	<b>344,097,558</b>	<b>334,980,871</b>
<b>Profit attributable to:</b>						
Owners of parent	1,085,172,042	465,794,332	537,717,353	660,388,915	354,011,303	334,980,871
Former shareholder before business restructuring	5,067,117	172,800,522	-	-	-	-
Non-controlling interests	88,170,937	76,193,382	77,652,785	-	-	-
<b>Profit for the year</b>	<b>1,178,410,096</b>	<b>714,788,236</b>	<b>615,370,138</b>	<b>660,388,915</b>	<b>354,011,303</b>	<b>334,980,871</b>
<b>Total comprehensive income attributable to:</b>						
Owners of parent	1,138,199,225	178,989,222	427,907,373	660,543,966	344,097,558	334,980,871
Former shareholder before business restructuring	5,067,117	172,054,013	-	-	-	-
Non-controlling interests	88,186,622	76,193,382	77,652,785	-	-	-
<b>Total comprehensive income for the year</b>	<b>1,231,452,964</b>	<b>427,236,617</b>	<b>505,560,158</b>	<b>660,543,966</b>	<b>344,097,558</b>	<b>334,980,871</b>
<b>Basic earnings per share (Baht)</b>	<b>0.15</b>	<b>0.06</b>	<b>0.07</b>	<b>0.09</b>	<b>0.05</b>	<b>0.05</b>

- Statement of changes in equity Information shown on pages 385-388

Items	Consolidated Financial Statements			Separate Financial Statements		
	2018	2017 (Restated)	2016	2018	2017	2016
<i>Cash flows from operating activities</i>						
Profit for the year	1,178,410,096	714,788,237	615,370,138	660,388,915	354,011,303	334,980,871
Adjustments to reconcile profit to cash receipts (payments)						
Tax expense (income)	103,496,017	91,089,954	41,379,419	(51,707,970)	(241,807)	26,625,205
Finance costs	800,452,148	570,284,549	329,800,388	275,702,662	191,465,116	132,762,852
Depreciation and amortisation	762,809,614	472,418,121	264,535,188	15,090,095	13,631,544	12,264,034
Provisions for employee benefits	7,694,195	5,830,122	3,435,811	4,664,594	4,304,947	2,285,560
Unrealised (gain) loss on foreign exchange	2,106,223	(26,864,540)	34,063,951	8,309,632	18,133,716	6,901
Share of profit of associates and joint ventures	(269,402,971)	(269,262,917)	(271,815,171)		-	-
Loss on disposal of investment in subsidiary, associates and joint ventures	-	-	(131,727)	-	614,038	-
Benefit received from advance payment of machinery for investment	(34,552,697)	(41,158,080)	(47,980,456)	(34,552,697)	(41,158,080)	(47,980,456)
Dividend income		-	-	(1,491,947,483)	(641,879,081)	(232,628,903)
(Reversal of) doubtful debts expenses	(1,189,735)	-	(248,488)		-	-
(Reversal of) allowance for decline in value of inventories	1,358,873	2,801,346	(2,580,478)	2,480,263	(337,460)	(5,094,843)
(Gain) loss on disposal of property, plant and equipment	8,242,027	3,823,232	2,945,354	(75,454)	(1,125)	(32,939)
Gain on disposal of current investments	(1,974,744)	-	-	(1,925,655)	-	-
Interest income	(14,266,266)	(38,740,077)	(84,225,961)	(26,844,921)	(42,851,382)	(105,953,249)
	2,543,182,780	1,485,009,947	884,547,968	(640,418,019)	(144,308,271)	117,235,033
<i>Changes in operating assets and liabilities</i>						
Short-term deposits from financial institution pledged as collateral	(1,098,180,584)	(372,705,349)	(341,238,002)	-	45,572,105	149,830,823
Trade accounts receivable	86,370,486	(441,711,503)	174,582,675	(165,789,666)	249,881,056	110,775,326
Unbilled revenue	534,434,196	(422,849,416)	(8,662,860)	12,148,598	145,590	167,689,169
Other receivables	(50,976,783)	-105,125,674	5,440,351	7,287,378	(7,915,100)	51,483,550
Revenue Department receivable	(198,225,126)	248,038,373	23,043,671	-	-	1,898,355
Inventories	(132,540,514)	31,081,266	(34,641,485)	(91,908,180)	32,250,516	(1,081,771)
Other non-current assets	113,226,714	(3,794,113)	(87,280,317)	-	57,852,724	(47,245,384)
Trade accounts payable	(429,554,738)	207,165,686	(11,908,306)	(12,741,717)	(50,907,204)	(140,280,953)
Unearned revenues	(154,539,198)	26,494,980	120,892,549	1,352,918	12,969,844	(97,811,455)
Revenue Department payable	36,523,439	7,022,548	7,069,040	2,139,498	(5,187,633)	6,359,001

Gunkul Engineering Public Company Limited and Its Subsidiaries  
Statements of Cash Flow As of 31 December 2016, 31 December 2017 and 31 December 2018

Unit : Baht

Items	Consolidated Financial Statements			Separate Financial Statements		
	2018	2017 (Restated)	2016	2018	2017	2016
Retention payables	140,440,649	154,529,593	379,791,390	(533,046)	(34,593,983)	20,020,633
Other payables	(115,965,624)	337,930,138	(11,757,435)	5,835,607	(10,560,966)	(7,160,296)
Provisions for employee benefits	(586,216)	(2,224,699)	-	(12,321)	(1,821,949)	-
Other non-current liabilities	14,537,726	20,566,962	25,855,101	(14,028,927)	(4,371,082)	18,675,168
Cash generated from (used in) operating activities	1,288,147,207	1,169,428,739	1,125,734,340	(896,667,877)	139,005,647	350,387,199
Taxes paid	(163,759,102)	(95,258,107)	(136,195,649)	(9,480,432)	(14,442,422)	(66,115,306)
<b>Net cash from (used in) operating activities</b>	<b>1,124,388,105</b>	<b>1,074,170,632</b>	<b>989,538,691</b>	<b>(906,148,309)</b>	<b>124,563,225</b>	<b>284,271,893</b>
<i>Cash flows from investing activities</i>						
Acquisition of Subsidiaries, net of cash acquired	(573,628,353)	-	(455,549)	-	-	1,874,975
Payment for incremental of capital in subsidiaries	-	-	-	(629,641,900)	(1,926,122,245)	(2,920,954,190)
Proceeds from reduction of shares in subsidiary	-	-	-	17,420,000	-	-
Payment for reduction of shares to non-controlling interests	(8,580,000)	-	-	-	-	-
Proceeds from disposal of investment in associates and joint ventures	-	717,704	-	-	717,704	-
Acquisition of non-controlling interest	-	(4,059,900)	-	-	(4,059,900)	-
Payment for interest in joint venture	(56,560,000)	-	-	(56,560,000)	-	-
Proceeds from sale of current investments	1,968,784,038	604,999,854	-	1,801,746,980	1,560,550,603	-
Payment for purchase of current investments	(1,927,051,843)	(989,668,647)	(597,131,351)	(1,779,551,843)	(1,160,881,956)	(582,442,823)
Payment for advance for shares subscription	-	-	(180,000,000)	-	-	(180,000,000)
Payment for payable for shares subscription	-	-	(388,800,000)	-	-	(388,800,000)
Benefit received from advance payment of machinery for investment	35,147,322	45,502,708	60,484,888	35,147,322	45,502,708	60,484,888
Payment for deposit for purchase of assets	-	22,673,992	(398,183,623)	-	-	-
Payment for advance for land lease	(2,105,743)	(16,978,091)	-	-	-	-
Acquisition of property, plant and equipment	(6,167,793,747)	(4,060,582,578)	(6,698,647,204)	(17,820,463)	(8,330,875)	(4,720,153)
Acquisition of intangible assets	(135,311,376)	(654,938,080)	(600,510,612)	(1,993,870)	(449,850)	(397,880)
Proceeds from sale of property, plant and equipment	713,784	414,382	46,350	288,855	6,000	40,187
Proceeds of short-term loans to related parties	421,390,094	28,400,000	-	787,958,290	1,689,806,414	814,055,286
Payment for short-term loans to related parties	-	(203,300,000)	-	(1,985,603,210)	(1,689,286,414)	(1,567,343,669)
Dividend received	206,986,264	177,255,128	187,504,251	1,491,947,483	617,475,894	311,383,043
Interest received	46,129,984	48,825,784	86,603,094	21,443,700	50,399,905	91,197,051
<b>Net cash used in investing activities</b>	<b>(6,191,879,576)</b>	<b>(5,000,737,744)</b>	<b>(8,529,089,756)</b>	<b>(315,218,656)</b>	<b>(824,672,012)</b>	<b>(4,365,623,285)</b>

Gunkul Engineering Public Company Limited and Its Subsidiaries  
Statements of Cash Flow As of 31 December 2016, 31 December 2017 and 31 December 2018

Unit : Baht

Items	Consolidated Financial Statements			Separate Financial Statements		
	2018	2017 (Restated)	2016	2018	2017	2016
<i>Cash flows from financing activities</i>						
Proceeds from issue of ordinary shares	-	-	943,738,111	-	-	906,361,430
Proceeds from exercise of share options	-	270,401	-	-	270,401	-
Repurchase of treasury shares	(304,674,256)	-	-	(304,674,256)	-	-
Proceeds of short-term loans	37,795,883	-	103,857,584	55,151,096	-	265,162,051
Repayment of short-term loans	-	(1,713,087,422)	-	-	(1,964,227,273)	-
Proceeds of short-term loans to related parties	-	-	-	134,000,000	649,060,352	-
Repayment of short-term loans to related parties	-	-	-	-	(300,000,000)	-
Proceeds of long-term loans	6,140,207,783	3,658,803,291	4,325,509,574	428,760,000	-	-
Repayment of long-term loans	(848,101,466)	(550,753,000)	(6,852,000)	(7,200,000)	-	-
Proceeds of debentures	1,819,000,000	2,265,500,000	1,780,000,000	1,819,000,000	2,265,500,000	1,780,000,000
Repayment of debentures	(280,000,000)	(300,000,000)	-	(280,000,000)	(300,000,000)	-
Payment by a lessee for reduction of	(15,942,293)	(17,649,130)	(18,175,305)	(8,855,633)	(9,572,021)	(12,967,817)
Dividend paid	(333,793,403)	(254,320,025)	(289,669,715)	(333,793,403)	(254,320,025)	(289,669,715)
Dividends paid to non-controlling interests	(88,174,358)	(117,270,472)	-	-	-	-
Dividend paid to former shareholder before business restructuring	(562,000,000)	-	-	-	-	-
Interest paid	(756,770,609)	(545,305,743)	(291,157,423)	(235,964,690)	(178,510,463)	(117,581,772)
<b>Net cash cash from (used in) financing activities</b>	<b>4,807,547,281</b>	<b>2,426,187,900</b>	<b>6,547,250,826</b>	<b>1,266,423,114</b>	<b>(91,799,029)</b>	<b>2,531,304,177</b>
Net increase (decrease) in cash and cash equivalents	(259,944,290)	(1,500,379,212)	992,300,239	45,056,149	(791,907,816)	(1,550,047,215)
Effect of exchange rate changes on balances held in foreign currencies	(5,420,378)	(11,706,519)	(9,632,156)	(11,622,101)	(11,706,519)	-
Cash and cash equivalents as at 1 January	1,158,017,322	2,670,103,053	3,496,664,553	240,328,765	1,043,943,100	2,593,990,315
<b>Cash and cash equivalents at 31 December</b>	<b>892,652,654</b>	<b>1,158,017,322</b>	<b>2,494,732,158</b>	<b>273,762,813</b>	<b>240,328,765</b>	<b>1,043,943,100</b>

**Remarks** - As at 31<sup>st</sup> December 2018, the company has registered capital 1,854,655,373.25 Baht and paid-up capital 1,854,655,373.25 Baht with total 7,418,621,493 common shares, at a par value of 0.25 Baht  
- In the year 2016, showing numbers that do not include the acquisition of Future Electrical Control Co., Ltd.

### (3) Table of Key Financial Ratios

Items	Consolidated Financial Statements			Separate Financial Statements		
	2018	2017	2016	2018	2017	2016
<b>Liquidity Ratio</b>						
Liquidity Ratio (time)	0.65	0.93	0.96	0.60	0.65	0.73
Quick Liquidity Ratio (time)	0.59	0.87	0.90	0.55	0.59	0.68
Cash Flow Liquidity Ratio (time)	0.10	0.18	0.39	0.05	0.08	0.22
Trade Account Receivable Turnover (time)	3.88	3.25	2.61	4.17	3.19	2.42
Average Collection Period (days)	93.95	112.44	140.41	87.51	114.37	150.58
Inventory Turnover (days)	4.20	6.29	4.10	3.57	4.55	5.94
Average Selling Period (days)	86.92	58.06	89.00	102.37	80.30	61.46
Payable Turnover (time)	4.08	3.85	3.33	4.00	3.10	3.30
Credit Term (days)	89.42	94.71	109.48	91.25	117.62	110.55
Cash Cycle (days)	91.46	75.79	119.92	98.62	77.06	101.48
<b>Profitability Ratio</b>						
Gross Profit Margin (%)	49.12	36.34	34.74	22.11	22.94	24.12
Operating Profit Margin (%)	33.42	28.62	30.74	67.94	47.42	27.85
Net Profit Margin (%)	18.91	14.86	19.18	50.74	30.79	18.87
Return on Equity (%)	12.40	7.02	6.08	7.58	4.07	3.90
<b>Efficiency Ratio</b>						
Return on Assets (%)	3.31	2.33	2.37	3.73	2.28	2.22
Return on Fixed Assets (%)	3.92	2.89	3.17	4.63	2.61	2.91
Asset Turnover (time)	0.17	0.16	0.12	0.07	0.07	0.12
<b>Financial Ratio</b>						
Debt to Equity Ratio (time)	2.75	2.02	1.57	1.03	0.78	0.76
Interest Coverage Ratio (time)	2.60	2.41	2.99	3.21	2.85	3.72
Dividend Payout (%)	40.00	75.00	102.13	66.67	90.00	163.40
<b>Other Ratios</b>						
Earnings Per Share (Baht) <sup>1)</sup>	0.16	0.10	0.10	0.09	0.05	0.05
Basic Earnings Per Share (Baht) <sup>2)</sup>	0.15	0.06	0.07	0.090	0.05	0.050
Book Value Per Share (Baht) <sup>2)</sup>	1.28	1.37	1.59	1.17	1.17	1.35

**Remarks** 1) Earnings per Share: to calculate with the number of all average weighted common shares which have been paid up.  
2) Basic Earnings per Share and Book Value per Share: to calculate with the total number of all paid up common stocks at the end of the period by using the par value of the shares at 0.25 Baht per share to be used for comparison.

### • Operating Performance

#### *Revenue*

The main revenue of the Group during the years 2016 – 2018 comes from three main types of revenue: the revenue from manufacturing, supply and distribution of electrical equipment business, renewable power plant business and construction services business. For the year ended December 31, 2018, the Company had total revenue of 6,460.89 million baht, increased from the same period of last year showing the amount of 4,913.48 million baht, an increase of 1,547.41 million baht, representing an increase of 31.49% and profit for the period (the portion of the parent company) in the amount of 1,085.17 million baht, increased from the same period of the previous year showing the amount of 638.59 million baht. (Shown as the profit of the parent company that is compared with 465.79 million baht and the existing shareholders' equity from the business restructuring of 172.80 million baht) Which increased by 446.58 million baht or increased by 69.93% and compared by including the effect of the existing shareholders from the business restructuring that will show the profit attributable to the parent company for the year ended December 31, 2018 and 2017 showing the amount of 1,085.17 million baht and 465.79 million baht respectively. Which increased by 619.38 million baht or increased by 132.97%, due to the company has revenue that grows in all sectors as follows;

Revenue from the sale of electricity and the increase in the purchase price of electricity that shown in the consolidated financial statements for the year ended December 31, 2018, showing the amount of 2,929.75 million baht, compared with the same period of the previous year showing the amount of 1,535.56 million baht, increased by 1,394.19 million baht or representing 90.79% increase. The significant increase in revenue was caused by the sale of electricity from 3 projects of wind turbine power plants, with a total capacity of 170 MW, which

is considered to increase when compared to the same period of the previous year which was only 60 MW.

The Company had revenue from construction services that shown in the consolidated financial statements for the year ended December 31, 2018, amounting to 1,887.24 million baht, compared with the same period of the previous year showing the amount of 2,045.04 million baht, which is considered to have revenue in the same proportion.

The Company had revenue from selling electrical equipment that shown in the consolidated financial statements for the year ended December 31, 2018, showing the amount of 1,344.96 million baht compared with the same period of the previous year showing the amount of 1,159.98 million baht, increased by 184.98 million baht, representing an increase of 15.95%, increased from being appointed as a distributor of electrical equipment to the public sector.

#### Revenue structure of the group which divided by product line

Revenue Type	2016		2017		2018	
	THB mln	%	THB mln	%	THB mln	%
1. Revenue from the manufacturing, supply and distribution of equipment business for electrical systems and renewable energy systems"						
1.1 Sourcing for Distribution	791.97	24.68	480.68	10.00	573.03	9.20
1.2 Production for Distribution	559.42	17.43	679.30	14.13	771.93	12.39
2. Revenue from electricity generation and distribuion business from renewable energy						
- Produce and sell electricity from solar energy	867.93	27.05	1,535.56	31.93	2,929.75	47.02



Revenue Type	2016		2017		2018	
	THB mln	%	THB mln	%	THB mln	%
3. Revenue from construction of renewable energy power plants	909.50	28.34	2,045.04	42.53	1,887.24	30.29
4. Service Revenue	80.07	2.50	68.09	1.42	68.54	1.10
Total Revenue	3,208.89	100.00	4,808.67	100.00	6,230.49	100.00

**Remark** Revenue in the year 2016, showing numbers that do not include the acquisition of Future Electrical Control Co., Ltd.

Revenue from the total sales of the Group in 2016 - 2018, the main customers of the Group were government, private agencies and business customers that produce electricity from renewable energy.

#### Revenue structure which divided by customer Segment

Revenue Type	2016		2017		2018	
	THB mln	%	THB mln	%	THB mln	%
Public Sector Customer						
- Revenue from the sale of equipment for electrical and renewable energy systems and rendering of services	504.89	15.73	683.81	14.22	768.44	12.33
- Revenue from electricity distribution	867.93	27.05	1,535.56	31.93	2,929.75	47.02
Private Sector Customer						
- Revenue from the sale of equipment for electrical and renewable energy systems	894.33	27.87	507.11	10.55	620.46	9.96
- Revenue from construction of power plants	909.50	28.34	2,045.04	42.53	1,887.24	30.29
Foreign customers	32.24	1.00	37.15	0.77	24.60	0.39
Total Revenue	3,208.89	100.00	4,808.67	100.00	6,230.49	100.00

**Remark** Revenue in the year 2016, showing numbers that do not include the acquisition of Future Electrical Control Co., Ltd

### ***Cost of Sales and Gross margin***

The Group had a gross profit margin of 49.12% and 36.34% in 2018 and 2017, respectively, according to the consolidated financial statements. The trend of such gross profit was in the same direction as the increase in revenue from commercial electricity sales from wind and solar energy including the increase in revenue from construction that recognizes the completion of the work according to the Company's goals.

### ***Sale and Administrative Expenses and Financial Costs***

The Company had sale and administrative expenses and financial costs which was normally increased and varies according to the increasing revenue.

The Company had financial costs for the year ended December 31, 2018, showing the amount of 800.45 million baht, compared with the same period of the previous year showing the amount of 570.28 million baht, increased by 230.17 million baht or 40.36%. Because the Company had more credit for project loans from the sale of commercial electricity in the wind project which increased by 170 MW.

### ***Net Profit***

The Company's consolidated financial statements for the year 2018 were 1,178.41 million baht, the year 2017 were 714.79 million baht and the year 2016 were 615.37 million baht, (In the year 2016, showing profit that do not include the acquisition of Future Electrical Control Co., Ltd net profit increased 463.62 million baht if considering the normal operating results of the Company and subsidiaries in the consolidated financial statements for the year 2018 compared to the same period of the previous year. Because the Company had sold commercial electricity from the 110 MW of wind project into the system and the electricity production cost was not very high compared to the revenue received, thus resulting in a higher profit margin compared to the revenue.

## **Financial Status**

### ***Total Assets***

The Company's total assets at the end of 2018, 2017 and 2016 are 35,624.75 million

baht, 30,726.45 million baht and 25,988.11 million baht, respectively. The main items of current assets are Accounts Receivables and merchandise Inventory, which vary according to sales. Also the construction of renewable power plants for external companies and the ability of the Group to invoice customer. Investments in subsidiaries increase; as well as, the cash flow that the Company must reserve for investment, operation and dividend payments. The main items of non-current assets are buildings and equipment invested by the Group to generate electricity.

In providing financing for working capital and investing in fixed assets, the Group has financing both from the capital increase and borrowing from financial institutions. As a result, the Group debt-to-equity ratios are 2.75 times, 2.02 times and 1.57 times, according to the consolidated financial statements as at the end of 2018, 2017 and 2016, respectively.

### ***Trade Account Receivables***

The Company and its subsidiaries have a policy to provide credit to customers based on their financial position, payment history, order frequency and order value. The average credit term was approximately 30-90 days for both private and government customers and credit term 30-60 days for foreign customers.

As at the end of 2018, 2017 and 2016 according to consolidated financial statements, The Group had total trade accounts receivable and revenue from rendering of services of 1,293.98, 1,913.59 million baht and 1,049.03 million baht. (excluding other receivables and allowance), respectively. With an average collection period at the end of 2018, 2017 and 2016, was 94 days, 112 days and 140 days, respectively. In 2018, The Company had a decrease in accounts receivable which was due to the payment of debt from energy group construction receivables and power plant customer group within the deadline.

Details of the Group's Trade Account Receivables are as follows:

#### Related Party receivables

	2016		2017		2018	
	THB mln	%	THB mln	%	THB mln	%
Not Yet Due	12.81	23.54	6.38	99.84	5.28	100.00
Overdue						

	2016		2017		2018	
	THB mln	%	THB mln	%	THB mln	%
- Not over 3 months	41.61	76.46	0.01	0.16	-	-
- During 3-6 months	-	-	-	-	-	-
- During 6-12 months	-	-	-	-	-	-
- Over than 12 months	-	-	-	-	-	-
Total Trade Receivable	54.42	100.00	6.39	100.00	5.28	100.00
Deduction of Allowance for Doubtful Accounts	-	-	-	-	-	-
Net Trade Receivables	54.42	100.00	6.39	100.00	5.28	100.00

#### Other Trade Account Receivables

	2016		2017		2018	
	THB mln	%	THB mln	%	THB mln	%
Not Yet Due	462.48	68.36	666.03	57.93	858.19	80.63
Overdue						
- Not over 3 months	196.12	28.99	457.56	39.80	161.07	15.13
- During 3-6 months	10.25	1.51	8.96	0.78	31.68	2.98
- During 6-12 months	0.53	0.08	3.52	0.31	0.77	0.07
- Over than 12 months	7.20	1.06	13.60	1.18	12.69	1.19
Total Trade Receivable	676.58	100.00	1,149.67	100.00	1,064.40	100.00
Deduction of Allowance for Doubtful Accounts	(0.89)	(0.00)	(2.08)	(0.00)	(0.89)	(0.00)
Net Trade Receivables	675.69	100.00	1,147.59	100.00	1,063.51	100.00

**Remark** Account Receivables in the year 2016, showing numbers that do not include the acquisition of Future Electrical Control Co., Ltd.

## Inventory

When considering the consolidated financial statements as at the end of 2018, 2017 and 2016, the Group's inventories amounted to 540.17 million baht, 408.98 million baht and 402.34 million baht.

	2016		2017		2018	
	THB mln	%	THB mln	%	THB mln	%
Raw Material	99.47	23.63	85.47	19.85	146.08	25.94
Inter-Production	39.54	9.39	43.88	10.19	0.72	0.13
Instant Product	260.59	61.89	244.64	56.82	374.65	66.54
Goods in Transit	20.27	4.81	25.18	5.85	28.57	5.07
Supplies	1.07	0.25	1.01	0.23	1.71	0.30
Construction in Process	0.09	0.02	30.35	7.05	11.34	2.01
Total	421.03	100.00	430.53	100.00	563.07	100.00
Decution of Allowance for Devaluation	(18.69)	(4.44)	(21.55)	(5.01)	(22.90)	(4.07)
Net Inventories	402.34	95.56	408.98	94.99	540.17	95.93

**Remark** Inventory in the year 2016, showing numbers that do not include the acquisition of Future Electrical Control Co., Ltd. If when including such item, net inventory after restated will be 442.87 million baht.

The Group has a policy to set allowance for diminution in value of inventories for obsolete, defective and outdated inventories by considering each item. The products of the Company are used for basic electricity systems in countries where technology is often unlikely to change. As a result, the Company's products can be sold continuously without obsolete. However, the Group reversed allowance for diminution in value of inventories because the Company had already sold such products at 22.90 million baht, 21.55 million baht and 18.69 million baht at year-end of 2018, 2017 and 2016, respectively.

The Company has average selling period from 87 days, 58 days, and 89 days in 2018, 2017 and 2016, most of them are products related to sourcing for distribution and for renewable energy construction projects.

## Investments in Subsidiaries and Associates

The Company's investment structure in subsidiaries and associates is as follows:

Company Name	Paid-up Capital (Thousand Baht)			Proportion of Investment (%)			Cost Method (Thousand Baht)			Dividend (Thousand Baht)		
	2018	2017	2016	2018	2017	2016	2018	2017	2016	2018	2017	2016
G.K. Power Products Co., Ltd.	100,000	100,000	100,000	100	100	100	80,425	80,425	80,425	14,540	14,488	25,000
G.K. Assembly Co., Ltd.	200,000	200,000	200,000	100	100	100	163,188	163,188	163,188	50,000	-	-
K.N.P. Supply Co., Ltd.	50,000	50,000	50,000	100	100	100	41,408	41,408		-	10,000	-
Wind Energy Development Co.,Ltd.	1,575,000	1,575,000	1,575,000	99.99	99.99	99.99	2,226,150	2,226,150	2,226,150	389,025	-	-
NK Power Sola Co., Ltd.	2,600	2,600	2,600	100	100	100	40,854	40,854	40,854	12,000	20,000	-
Gunkul Solar Roof 1 Co., Ltd	21,000	21,000	21,000	100	100	100	21,000	21,000	21,000	-	-	-
"Gunkul Training Center Co., Ltd. (Gunkul Solar Roof 2 Co., Ltd.)"	1,000	250	250	100	100	100	1,000	250	250	-	-	-
Solar Energy Society Co., Ltd.	140,300	20,400	20,400	100	100	100	140,300	20,400	20,400	-	2,040	-
Bright Green Power Co.,Ltd.	120,000	102,850	89,900	100	100	100	120,000	102,850	89,900	-	-	-
Gunkul Power Development Co., Ltd.	300,000	15,000	15,000	100	100	100	300,000	23,749	23,749	619,999	172,799	-
Gunkul Solar Power 1 Co., Ltd.	-	-	25,000			100	-	-	25,000	-	-	-
Gunkul Solar Power 2 Co., Ltd.	-	-	54,250			100	-	-	54,250		1,200	-
Gunkul International (Mauritius) Ltd.	4,740,445	4,740,445	3,239,983	100	100	100	4,740,445	4,740,445	3,239,983	-	-	-

Gunkul Energy Solution and Lighting Co., Ltd.	40,600	40,600	40,600	100	100	90	40,600	40,600	36,540	-	-	-
Company Name	Paid-up Capital (Thousand Baht)			Proportion of Investment (%)			Cost Method (Thousand Baht)			Dividend (Thousand Baht)		
	2018	2017	2016	2018	2017	2016	2018	2017	2016	2018	2017	2016
Gunkul Solar Community Co.,Ltd.	10,000	2,750	2,750	100	100	100	10,000	2,750	2,750	-	-	-
Siam Gunkul Solar Energy Co.,Ltd.	40,900	40,900	40,900	100	100	100	40,899	40,899	40,899	-	6,033	-
Gunkul Bio Energy Co., Ltd.	499	125	125	100	100	100	499	125	125	-	-	-
Gunkul and UCI Power Co., Ltd.	-	-	-	-	-	-	-	-	-	-	-	-
Greenovation Power Co.,Ltd.	1,485,000	1,485,000	1,138,100	100	100	100	1,916,500	1,916,500	1,569,600	-	-	-
Korat Wind Energy Co.,Ltd.	1,017,138	809,170	778,360	100	100	100	1,448,887	1,240,920	1,210,110	-	-	-
Gunkul Solar Power Co., Ltd.	179,250	179,250	-	100	100	-	179,250	179,250	-	-	-	-
Gunkul Solar Power 3 Co., Ltd.	-	-	25,000			100	-	-	25,000	-	-	-
Gunkul Solar Power 4 Co., Ltd.	-	-	25,000			100	-	-	25,000	-	-	-
Gunkul Solar Power 5 Co., Ltd.	-	-	25,000			100	-	-	25,000	-	-	-
Infinite Alternative Energy Co.,Ltd.	1,564,000	1,590,000	1,590,000	67	67	67	1,088,576	1,105,996	1,105,996	165,436	238,094	-
Gio Bio Energy Co.,Ltd.	34,300	34,300	34,300	74.9	74.9	74.9	25,690	25,690	25,690	-	-	-
Eco Thai Energy Co., Ltd.	76,500	76,500	76,500	51	51	51	42,015	42,015	42,015	6,964	-	-
BMP Solar Co., Ltd.	980	980	-	100	100	-	216,938	216,938	-	26,997	-	-
Total							12,884,625	12,272,402	10,135,282	1,284,961	464,654	25,000

### ***Land, Buildings and Equipment***

In 2018, the Company had net building and equipment equal to 74.18 million baht, 70.57 million baht and 70.86 million baht in 2018, 2017 and 2016, respectively. Since the Company had invested in buildings and equipment by increase in vehicle parts, tools, appliances and office equipment due to the increase of staff and executive from the expansion of the Company.

For the consolidated financial statements of the Group as at the end of 2018, 2017 and 2016 were 23,018.09 million baht, 18,072.86 million baht and 13,556.88 million baht, respectively. The substantial increase in land, buildings and equipment were based on the consolidated financial statements as compared to the separate financial statements of the Company. It was due to the consolidation of land value, building and equipment of the construction for 2 projects of wind power plants at Nakhon Ratchasima Province and 1 project of solar power plant in Sendai City, Japan. The details of the land Building and equipment of subsidiaries are as follows:

#### ***Wind Energy Development Co.,Ltd.***

In 2012, the company purchased a land for the power plant business in the amount of 378 million baht for the construction of a 60 MW wind power plant.

In 2017, the said subsidiary had complete commercial electricity sales for 3 projects.

#### ***Greenovation Power Co.,Ltd.***

In 2014, the said subsidiary began acquiring land for the construction of the wind power plant by purchasing land assets for the power plant business in amount to 204 million baht.

In 2018, the said subsidiary had complete commercial electricity sales in March 2018.

#### ***Korat Wind Energy Co.,Ltd.***

In 2018, the said subsidiary had complete commercial electricity sales in June 2018.

#### ***Korat Wind Energy Co.,Ltd.***

In 2018, the said subsidiary had complete commercial electricity sales in November 2018.



### ***Total Liabilities***

The Company's total liabilities at the end of 2018, 2017 and 2016 were 26,124.70 million baht, 20,542.60 million baht and 15,870.13 million baht, respectively. In 2018, the Group began to have a higher total liability. Since in 2018, the Company and its subsidiaries have grown and expanded. The Company has issued debentures to raise funds for investment expansion. As a result, the Company has short-term and long-term loans project and trust receipts to support sales and the increasing construction since 2017 to 2018.

Total liabilities of the Company consisting of current debts, mainly including Short-term loans from financial institutions account for 8.83% of the Group's total liabilities. Trade payable account and assets payable for approximately 3.04% of the Group's total liabilities and long-term loans account and current portion of debentures for 16.51% of total liabilities. These 4 lists, the Company are used as a source of funds for the procurement of raw materials and commercial credits and construction of power plants of the Group.

The Group's liquidity ratios according to the consolidated financial statements for the year 2018-2016 were 0.65 times, 0.93 times and 0.96 times, respectively. For quick liquidity ratios were 0.59 times, 0.87 times and 0.90 times. The average repayment period was 89 days, 95 days and 109 days. The Company has a cash cycle of 91 days, 76 days and 120 days, respectively. The selling period was 87 days, 58 days and 89 days. The collection period was 94 days, 112 days and 140 days, respectively. There was more time to collect revenue due to the increase in construction income and there was a way to recognize revenue including payment which was different from the case of the purchase.

In 2018 and 2017, the Company's debt-to-equity ratio increased significantly from 2.02 times to 2.75 times. The Company has higher debt to equity ratio, due to issuance of debentures for investment in public utilities from renewable energy.

### ***Shareholders' Equity***

Shareholders' equity of the Company was 8,712.13 million baht, 8,690.09 million baht and 8,600.08 million baht at the end of the year 2018, 2017 and 2016, according to the separate financial statements, respectively.

For the consolidated financial statements as at the end of 2018, 2017 and 2016, The Group's shareholders' equity was 9,500.05 million baht, 10,183.86 million baht and 10,127.97 million baht, respectively. The increase in shareholders' equity in 2018, 2017 and 2016, respectively which the shareholders' equity had already included the profit (loss) for the year that appeared to have and effect on the shareholders' equity as follows:

- Treasury stock from the Shares Repurchase Program for financial management in the amount of 304.67 million baht.
- The impact of business integration under the same control (Acquisition of a subsidiary, FEC) in the amount of 558.37 million baht.
- The Company had a resolution to have a dividend payment for the operating results of year 2017 in the amount of 333.84 million baht.

### **Cash Flow**

In 2018, the Company's net cash flow from operation was 1,124.39 million baht, due to in 2018, the Company had a higher revenue growth especially investing in subsidiaries in the renewable energy sector to invest in a subsidiary company on renewable energy. In the investment activity of 6,191.88 million baht and capital increase, there has cash flow from short-term loans, debentures and long-term loans from banks for investing in 170 MW of wind power projects in 2018.

For the year 2018, the Company had cash flow that needs to be spent on investing activities for 6,191.88 million baht from cash paid in order to buy land, building and equipment of subsidiaries for the construction of power plants from renewable energy from domestic and abroad. The Company had cash flow from financing activities of 4,807.55 million baht, cash flow from long-term loans, cash flow from debentures issuance and pay dividends. The remaining cash flow of approximately 892.65 million baht for use in business management in 2019.

In 2017, the Company's net cash flow from operating activities was approximately 1,074.17 million baht. Since in 2018, the Company had increased the revenue growth from investment in subsidiaries in renewable energy groups in order to invest in a subsidiary about renewable energy, in respect of investment activities, the amount of 5,000.74 million baht and

capital increase, cash flow from short-term loans, issuance of debentures and long-term loans from banks in the investment of 170 MW wind power project

In 2016, the Company had cash flow from normal operating activities of approximately 963.04 million baht. Due to in the year 2016, the Company had quite a lot of revenue growth from equipment sales and advance payments and retention payable from power plant contractors. The Company had borrowed for the investment in the construction of the power plant and the Company had paid cash to buy assets.



## **Certified Public Accountant's** Report, Financial Statements and Notes

To the Shareholders of Gunkul Engineering Public Company Limited

### **Opinion**

I have audited the consolidated and separate financial statements of Gunkul Engineering Public Company Limited and its subsidiaries (the “Group”) and of Gunkul Engineering Public Company Limited (the “Company”), respectively, which comprise the consolidated and separate statements of financial position as at 31 December 2018, the consolidated and separate statements of comprehensive income, changes in equity and cash flows for the year then ended, and notes, comprising a summary of significant accounting policies and other explanatory information.

In my opinion, the accompanying consolidated and separate financial statements present fairly, in all material respects, the financial position of the Group and the Company, respectively, as at 31 December 2018 and their financial performance and cash flows for the year then ended in accordance with Thai Financial Reporting Standards (TFRSs).

### **Basis for Opinion**

I conducted my audit in accordance with Thai Standards on Auditing (TSAs). My responsibilities under those standards are further described in the Auditor’s Responsibilities for the Audit of the Consolidated and Separate Financial Statements section of my report. I am independent of the Group and the Company in accordance with the Code of Ethics for Professional Accountants issued by the Federation of Accounting Professions that is relevant to my audit of the consolidated and separate financial statements, and I have fulfilled my other ethical responsibilities in accordance with these requirements. I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my opinion.

## Key Audit Matters

Key audit matters are those matters that, in my professional judgment, were of most significance in my audit of the consolidated and separate financial statements of the current period. These matters were addressed in the context of my audit of the consolidated and separate financial statements as a whole, and in forming my opinion thereon, and I do not provide a separate opinion on these matters.

Impairment testing for cash-generating units containing goodwill	
Refer to Note 3 and 15	
The key audit matter	How the matter was addressed in the audit
<p>The Group holds significant amounts of goodwill from the business combination in the past. There is a risk that the carrying values of the Group's goodwill balances might exceed its recoverable values.</p> <p>The annual impairment testing of goodwill requires the significant judgement of management in determining the assumptions to estimate the recoverable amount. These models use several key assumptions, including estimates of future sales volumes and prices, operating costs, terminal value growth rates and the weighted-average cost of capital (discount rate). I considered the measurement of the recoverable amount as the key audit matter.</p>	<p>My audit procedures in this areas included, among others;</p> <ul style="list-style-type: none"> <li>• Understanding the estimate of the recoverable amount;</li> <li>• Evaluating the appropriateness of the discount rate applied, which included comparing the weighted average cost of capital with sector averages for the relevant markets in which the Group operate;</li> <li>• Evaluating the appropriateness of the assumptions applied to key inputs such as sales volumes and prices, operating costs, and long-term growth rates, which included comparing these inputs with externally derived data as well as my knowledge of the Group and the industry;</li> <li>• Performing a sensitivity analysis, which included assessing the possible effect in growth rates and forecast cash flows and the discount rate.</li> <li>• Evaluating the adequacy of the disclosures in accordance with the relevant Thai Financial Reporting Standards.</li> </ul>

## Revenue and cost of construction services

Refer to Note 3, 5 and 9

The key audit matter	How the matter was addressed in the audit
<p>The Group accounts for revenue and cost of construction services by referencing the stage of completion of the constructions. This is assessed by the responsible project's engineers and considered with the actual costs and the estimated costs to complete the constructions.</p> <p>The management and the project's engineers are required to exercise significant judgement to estimate the cost of construction services to complete the contracts that will affect the stage of completion. I considered the stage of completion and estimation for cost of construction services as the key audit matter.</p>	<p>My audit procedures in this areas included, among others;</p> <ul style="list-style-type: none"> <li>• Understanding the processes of the estimation and revision of the estimated costs of construction services;</li> <li>• Testing the estimated costs of construction services which were approved by the management, actual costs, revenue from construction services and unbilled revenue with related contracts and documents;</li> <li>• Comparing the stage of completion determined by engineers with the actual costs and the estimated costs including tested customers' acceptance documents;</li> <li>• Performing site visits together with the engineers to assess the appropriateness of the actual constructions progress and the stage of completion;</li> <li>• Performing analyses of the actual costs incurred and the estimated costs comparison, gross profits, progress of constructions and challenging the management for any deviations;</li> <li>• Testing the stage of completions and unbilled revenue calculations;</li> <li>• Testing the actual costs incurred after the period ended with related documents;</li> <li>• Evaluating the adequacy of the disclosures in accordance with the relevant Thai Financial Reporting Standards.</li> </ul>

## Emphasis of Matter

I draw attention to note 4 to the financial statements describing the effect of the business combination under common control. The corresponding figures presented are based on the audited financial statements as at and for the year ended 31 December 2017 after making the adjustments described in note 4. My opinion is not modified in respect of this matter.

## Other Information

Management is responsible for the other information. The other information comprises the information included in the annual report, but does not include the consolidated and separate financial statements and my auditor's report thereon. The annual report is expected to be made available to me after the date of this auditor's report.

My opinion on the consolidated and separate financial statements does not cover the other information and I will not express any form of assurance conclusion thereon.

In connection with my audit of the consolidated and separate financial statements, my responsibility is to read the other information identified above when it becomes available and, in doing so, consider whether the other information is materially inconsistent with the consolidated and separate financial statements or my knowledge obtained in the audit, or otherwise appears to be materially misstated.

When I read the annual report, if I conclude that there is a material misstatement therein, I am required to communicate the matter to those charged with governance and request that the correction be made.

## Responsibilities of Management and Those Charged with Governance for the Consolidated and Separate Financial Statements

Management is responsible for the preparation and fair presentation of the consolidated and separate financial statements in accordance with TFRSs, and for such internal control as management determines is necessary to enable the preparation of consolidated and separate financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the consolidated and separate financial statements, management is responsible for assessing the Group's and the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Group and the Company or to cease operations, or has no realistic alternative but to do so.

Those charged with governance are responsible for overseeing the Group's and the Company's financial reporting process.

### **Auditor's Responsibilities for the Audit of the Consolidated and Separate Financial Statements**

My objectives are to obtain reasonable assurance about whether the consolidated and separate financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes my opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with TSAs will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these consolidated and separate financial statements.

As part of an audit in accordance with TSAs, I exercise professional judgment and maintain professional skepticism throughout the audit. I also:

- Identify and assess the risks of material misstatement of the consolidated and separate financial statements, whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for my opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Group's and the Company's internal control.



- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management.
- Conclude on the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Group's and the Company's ability to continue as a going concern. If I conclude that a material uncertainty exists, I am required to draw attention in my auditor's report to the related disclosures in the consolidated and separate financial statements or, if such disclosures are inadequate, to modify my opinion. My conclusions are based on the audit evidence obtained up to the date of my auditor's report. However, future events or conditions may cause the Group and the Company to cease to continue as a going concern.
- Evaluate the overall presentation, structure and content of the consolidated and separate financial statements, including the disclosures, and whether the consolidated and separate financial statements represent the underlying transactions and events in a manner that achieves fair presentation.
- Obtain sufficient appropriate audit evidence regarding the financial information of the entities or business activities within the Group to express an opinion on the consolidated financial statements. I am responsible for the direction, supervision and performance of the group audit. I remain solely responsible for my audit opinion.

I communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that I identify during my audit.

I also provide those charged with governance with a statement that I have complied with relevant ethical requirements regarding independence, and to communicate with them all relationships and other matters that may reasonably be thought to bear on my independence, and where applicable, related safeguards.

From the matters communicated with those charged with governance, I determine those matters that were of most significance in the audit of the consolidated and separate financial statements of the current period and are therefore the key audit matters. I describe these matters in my auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, I determine that a matter should not be communicated in my report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.

(Waiyawat Kosamarnchaiyakij)  
Certified Public Accountant  
Registration No. 6333

KPMG Phoomchai Audit Ltd.  
Bangkok  
20 February 2019

Gunkul Engineering Public Company Limited and its Subsidiaries  
Statement of financial position

Assets	Note	Consolidated financial statements			Separate financial statements	
		31 December		1 January	31 December	
		2018	2017 (Restated)	2017 (Restated)	2018	2017
		(in Baht)				
Current assets						
Cash and cash equivalents	6	892,652,654	1,158,017,322	2,670,103,053	273,762,813	240,328,765
Current investments	7	606,089,344	645,019,982	964,357,175	529,906,475	550,020,906
Short-term deposits from financial institution pledged as collateral	18	1,501,020,586	964,049,692	585,106,438	-	-
Trade accounts receivable	5, 8	1,068,798,910	1,153,979,661	712,268,159	388,885,965	223,096,299
Unbilled revenue	9	225,175,687	759,609,883	336,760,467	-	12,148,598
Other receivables	5	405,733,234	370,171,541	275,131,574	178,641,960	171,580,815
Revenue Department receivable		298,960,074	100,734,948	348,773,321	-	-
Short-term loans to related parties	5	-	402,390,094	227,490,094	1,754,452,670	556,807,750
Current portion of long-term loan to related party	5	-	19,000,000	-	-	-
Inventories	10	540,167,019	408,985,378	442,867,990	284,332,577	194,904,660
Total current assets		5,538,597,508	5,981,958,501	6,562,858,271	3,409,982,460	1,948,887,793
Non-current assets						
Long-term deposits from financial institution pledged as collateral	18	592,003,707	40,770,206	47,008,111	-	-

The accompanying notes are and integral part of these financial statements.

Gunkul Engineering Public Company Limited and its Subsidiaries  
Statement of financial position (Continue)

Assets	Note	Consolidated financial statements			Separate financial statements	
		31 December		1 January	31 December	
		2018	2017 (Restated)	2017 (Restated)	2018	2017
		(in Baht)				
Long-term loan to related parties		-	-	19,000,000	-	-
Investments in associates	11	426,852,710	381,407,019	356,891,224	397,594,800	397,594,800
Investments in joint ventures	11	1,078,764,354	1,005,233,337	939,043,106	576,610,150	520,050,150
Investments in subsidiaries	12	-	-	-	12,884,624,101	12,272,402,201
Other non-current receivables	17	302,916,885	413,048,266	409,254,153	273,070,614	273,070,614
Investment properties		-	-	-	3,143,658	3,143,658
Property, plant and equipment	14	23,018,092,750	18,072,860,859	13,556,883,394	74,184,502	70,572,269
Goodwill	15	163,476,324	163,476,324	220,950,087	-	-
Intangible assets	15	4,213,228,830	4,068,184,786	3,074,606,387	4,928,514	4,091,404
Advance for shares subscription		-	-	180,000,000	-	-
Deposit for purchase of assets		-	362,141,578	384,815,570	-	-
Advance for land lease		215,351,112	215,440,843	209,441,988	-	-
Deferred tax assets	16	75,465,591	21,933,011	37,353,056	61,100,361	9,392,391
<b>Total non-current assets</b>		<b>30,086,152,263</b>	<b>24,744,496,229</b>	<b>19,435,247,076</b>	<b>14,275,256,700</b>	<b>13,550,317,487</b>
<b>Total assets</b>		<b>35,624,749,771</b>	<b>30,726,454,730</b>	<b>25,998,105,347</b>	<b>17,685,239,160</b>	<b>15,499,205,280</b>

The accompanying notes are and integral part of these financial statements.

Gunkul Engineering Public Company Limited and its Subsidiaries  
Statement of financial position (Continue)

Liabilities and equity	Note	Consolidated financial statements			Separate financial statements	
		31 December		1 January	31 December	
		2018	2017 (Restated)	2017 (Restated)	2018	2017
		(in Baht)				
Current liabilities						
Short-term loans from financial institutions	18	2,306,788,075	2,271,966,942	3,985,544,240	2,012,489,398	1,957,821,723
Short-term loans from related parties	5	-	-	-	483,630,656	352,121,984
Trade accounts payable	5, 19	340,646,726	770,710,822	563,545,136	246,918,703	259,998,139
Unearned revenues		104,217,170	258,756,368	232,261,387	16,166,890	14,813,972
Payable for purchases of assets	5	454,767,934	1,496,735,070	715,919,350	-	-
Revenue Department payable		59,323,015	22,799,576	15,777,028	3,310,866	1,171,368
Retention payables	5	532,589,874	274,237,683	236,479,884	9,617,538	10,113,851
Other payables	5	315,094,448	353,570,840	202,792,956	119,595,334	98,421,099
Current portion of long-term loans	18	1,546,994,980	632,315,625	528,346,274	28,443,981	-
Current portion of debentures	18	2,765,500,000	280,000,000	300,000,000	2,765,500,000	280,000,000
Current portion of finance lease liabilities	18	13,931,656	15,315,477	16,442,185	7,185,659	9,426,787
Income tax payable		64,806,817	55,027,127	23,939,764	-	-
Total current liabilities		8,504,660,695	6,431,435,530	6,821,048,204	5,692,859,025	2,983,888,923

The accompanying notes are and integral part of these financial statements.

Gunkul Engineering Public Company Limited and its Subsidiaries  
Statement of financial position (Continue)

Liabilities and equity	Note	Consolidated financial statements			Separate financial statements	
		31 December		1 January	31 December	
		2018	2017 (Restated)	2017 (Restated)	2018	2017
		(in Baht)				
Non-current liabilities						
Long-term loans	18	14,129,849,292	9,750,699,546	6,781,774,331	393,486,850	-
Debentures	18	2,819,000,000	3,765,500,000	1,780,000,000	2,819,000,000	3,765,500,000
Retention payables	5	146,051,080	280,406,769	180,967,606	133,298	170,031
Finance lease liabilities	18	18,866,326	28,233,539	39,475,883	7,615,657	14,230,162
Deferred tax liabilities	16	188,230,332	188,595,429	212,161,982	-	-
Provisions for employee benefits	20	52,889,050	45,781,071	23,326,674	34,690,365	30,038,092
Provision for decommissioning costs of power plants	21	203,979,259	5,305,520	5,125,205	-	-
Other non-current liabilities		61,175,854	46,638,128	26,251,481	25,326,970	15,285,122
Total non-current liabilities		17,620,041,193	14,111,160,002	9,049,083,162	3,280,253,140	3,825,223,407
Total liabilities		26,124,701,888	20,542,595,532	15,870,131,366	8,973,112,165	6,809,112,330

The accompanying notes are and integral part of these financial statements.

Gunkul Engineering Public Company Limited and its Subsidiaries  
Statement of financial position (Continue)

Liabilities and equity	Note	Consolidated financial statements			Separate financial statements	
		31 December		1 January	31 December	
		2018	2017 (Restated)	2017 (Restated)	2018	2017
		(in Baht)				
Equity						
Share capital	22					
Authorised share capital		1,854,655,373	1,982,967,060	1,699,686,359	1,854,655,373	1,982,967,060
Issued and paid-up share capital		1,854,655,373	1,854,655,373	1,589,693,963	1,854,655,373	1,854,655,373
Treasury shares	23	(304,674,256)	-	-	(304,674,256)	-
Additional paid in capital:						
Premium on ordinary shares	24	5,179,473,454	5,179,473,454	5,179,217,075	5,179,473,454	5,179,473,454
Retained earnings						
Appropriated						
Legal reserve	24, 34	198,300,000	198,300,000	159,000,000	198,300,000	198,300,000
Treasury shares reserve	23, 24	304,674,256	-	-	304,674,256	-
Unappropriated		2,452,439,992	2,005,777,871	2,110,804,503	1,479,522,211	1,457,643,217
Difference arising from business combination under common control	4	(464,752,542)	93,622,450	93,622,450	-	
Other components of equity		(309,604,699)	(362,631,882)	(90,160,466)	175,957	20,906
Equity attributable to owners of the parent		8,910,511,578	8,969,197,266	9,042,177,525	8,712,126,995	8,690,092,950
Former shareholder before business restructuring	4	-	616,557,891	444,503,878	-	-
Non-controlling interests	13	589,536,305	598,104,041	641,292,578	-	-
Total equity		9,500,047,883	10,183,859,198	10,127,973,981	8,712,126,995	8,690,092,950
Total liabilities and equity		35,624,749,771	30,726,454,730	25,998,105,347	17,685,239,160	15,499,205,280

The accompanying notes are and integral part of these financial statements.

Gunkul Engineering Public Company Limited and its Subsidiaries  
Statement of comprehensive income

	Note	Consolidated financial statements		Separate financial statements	
		Year ended 31 December		Year ended 31 December	
		2018	2017 (Restated)	2018	2017
		(in Baht)			
<b>Revenue</b>					
Revenue from sale	5	1,344,964,976	1,159,981,559	1,212,462,215	1,079,644,994
Revenue from sale of electricity		1,762,808,281	1,114,880,961	-	-
Revenue from rendering of services	5	68,541,412	68,088,980	28,309,677	44,485,943
Revenue from construction services		1,887,242,809	2,045,042,136	60,852,900	25,549,214
Revenue from adder		1,166,941,762	420,683,775	-	-
Dividend income	5, 11, 12	-	-	1,491,947,483	641,879,081
Net foreign exchange gain		-	7,266,458	6,380,350	-
Interest income	5	14,266,266	38,740,077	26,844,921	42,851,382
Other income	5	216,121,172	58,800,362	50,502,901	43,039,588
<b>Total revenue</b>		<b>6,460,886,678</b>	<b>4,913,484,308</b>	<b>2,877,300,447</b>	<b>1,877,450,202</b>
<b>Expenses</b>					
Cost of sale	5, 10	943,583,114	795,831,255	944,887,737	826,499,809
Cost of sale of electricity		901,674,319	490,256,740	-	-
Cost of rendering of services	5	42,241,899	64,568,671	21,251,070	33,681,167
Cost of construction services	5	1,282,474,222	1,710,546,458	47,683,757	25,744,897
Selling expenses		63,205,732	57,953,686	46,564,007	46,644,733
Administrative expenses and others	5, 26	679,832,705	592,148,697	344,421,150	325,676,108

The accompanying notes are and integral part of these financial statements.



Gunkul Engineering Public Company Limited and its Subsidiaries  
Statement of comprehensive income (Continue)

	Note	Consolidated financial statements		Separate financial statements	
		Year ended 31 December		Year ended 31 December	
		2018	2017 (Restated)	2018	2017
		(in Baht)			
Unwind foreign exchange option contracts fee	27	588,109,119	95,278,978	588,109,119	60,278,978
Net foreign exchange loss		146,810,278	-	-	13,689,898
<b>Total expenses</b>		<b>4,647,931,388</b>	<b>3,806,584,485</b>	<b>1,992,916,840</b>	<b>1,332,215,590</b>
Share of profit of associates and joint ventures	11	269,402,971	269,262,917	-	-
<b>Profit before finance costs and income tax expense</b>		<b>2,082,358,261</b>	<b>1,376,162,740</b>	<b>884,383,607</b>	<b>545,234,612</b>
Finance costs	30	800,452,148	570,284,549	275,702,662	191,465,116
<b>Profit before income tax expense</b>		<b>1,281,906,113</b>	<b>805,878,191</b>	<b>608,680,945</b>	<b>353,769,496</b>
Tax expense (income)	31	103,496,017	91,089,954	(51,707,970)	(241,807)
<b>Profit for the year</b>		<b>1,178,410,096</b>	<b>714,788,237</b>	<b>660,388,915</b>	<b>354,011,303</b>
<b>Other comprehensive income</b>					
<i>Component of other comprehensive income that will be reclassified to profit or loss</i>					
Exchange differences on translating financial statement		52,216,056	(272,491,787)	-	-

The accompanying notes are and integral part of these financial statements.

Gunkul Engineering Public Company Limited and its Subsidiaries  
Statement of comprehensive income (Continue)

	Note	Consolidated financial statements		Separate financial statements	
		Year ended 31 December		Year ended 31 December	
		2018	2017 (Restated)	2018	2017
		(in Baht)			
Net change in fair value of available-for-sale investments		826,812	20,371	155,051	20,906
<b>Total component of other comprehensive income that will be reclassified to profit or loss</b>		<b>53,042,868</b>	<b>(272,471,416)</b>	<b>155,051</b>	<b>20,906</b>
<i>Component of other comprehensive income that will not be reclassified to profit or loss</i>					
Defined benefit plan actuarial losses	20	-	(18,848,974)	-	(12,418,314)
Income tax relating to comprehensive income that will not be reclassified to profit or loss	16	-	3,768,771	-	2,483,663
<b>Total component of other comprehensive income that will not be reclassified to profit or loss</b>		<b>-</b>	<b>(15,080,203)</b>	<b>-</b>	<b>(9,934,651)</b>
<b>Other comprehensive income (loss) for the year, net of income tax</b>		<b>53,042,868</b>	<b>(287,551,619)</b>	<b>155,051</b>	<b>(9,913,745)</b>
<b>Total comprehensive income (loss) for the year</b>		<b>1,231,452,964</b>	<b>427,236,618</b>	<b>660,543,966</b>	<b>344,097,558</b>

The accompanying notes are and integral part of these financial statements.

Gunkul Engineering Public Company Limited and its Subsidiaries  
Statement of comprehensive income (Continue)

	Note	Consolidated financial statements		Separate financial statements	
		Year ended 31 December		Year ended 31 December	
		2018	2017 (Restated)	2018	2017
		(in Baht)			
<b>Profit attributable to:</b>					
Owners of parent		1,085,172,042	465,794,332	660,388,915	354,011,303
Former shareholder before business restructuring	4	5,067,117	172,800,522	-	-
Non-controlling interests	13	88,170,937	76,193,382	-	-
<b>Profit for the year</b>		<b>1,178,410,096</b>	<b>714,788,236</b>	<b>660,388,915</b>	<b>354,011,303</b>
<b>Total comprehensive income (loss) attributable to:</b>					
Owners of parent		1,138,199,225	178,989,222	660,543,966	344,097,558
Former shareholder before business restructuring	4	5,067,117	172,054,013	-	-
Non-controlling interests	13	88,186,622	76,193,382	-	-
<b>Total comprehensive income (loss) for the year</b>		<b>1,231,452,964</b>	<b>427,236,617</b>	<b>660,543,966</b>	<b>344,097,558</b>
<b>Basic earnings per share (Baht)</b>	33	<b>0.15</b>	<b>0.06</b>	<b>0.09</b>	<b>0.05</b>

The accompanying notes are and integral part of these financial statements.

Gunkul Engineering Public Company Limited and its Subsidiaries  
Statement of changes in equity

	Note	Consolidated financial statements											
		Issued and paid-up share capital	Premium on ordinary shares	Retained earnings		Difference arising from business Combination under common control	Other components of equity			Equity attributable to owners of parent	Former shareholder before business restructuring	Non-controlling interests	Total equity
				Legal reserve	Unappropriated		Exchange differences on translating financial statement	Net change in fair value of available-for-sale investments	Total other components of equity				
Year ended 31 December 2017													
Balance at 1 January 2017 - as reported		1,589,693,963	5,179,217,075	159,000,000	2,176,589,681	93,622,450	(90,160,466)	-	(90,160,466)	9,107,962,703	-	641,292,578	9,749,255,281
Impact of business restructuring	4	-	-	-	(65,785,178)	-	-	-	-	(65,785,178)	444,503,878	-	378,718,700
Balance at 1 January 2017 - restated		1,589,693,963	5,179,217,075	159,000,000	2,110,804,503	93,622,450	(90,160,466)	-	(90,160,466)	9,042,177,525	444,503,878	641,292,578	10,127,973,981
Transactions with owners, recorded directly in equity													
Contributions by and distributions to owners of the parent													
Shares options exercised		14,022	256,379	-	-	-	-	-	-	270,401	-	-	270,401
Subsidiary paid dividend		-	-	-	-	-	-	-	-	-	-	(117,270,472)	(117,270,472)
Stock dividend	22, 34	264,947,388	-	-	(264,947,388)	-	-	-	-	-	-	-	-
Dividend paid to shareholders	34	-	-	-	(254,351,329)	-	-	-	-	(254,351,329)	-	-	(254,351,329)
Total contributions by and distributions to owners of the parent		264,961,410	256,379	-	(519,298,717)	-	-	-	-	(254,080,928)	-	(117,270,472)	(371,351,400)
Changes in ownership interests in subsidiaries													
Acquisition of non-controlling interests													
without a change in control		-	-	-	2,111,447	-	-	-	-	2,111,447	-	(2,111,447)	-
Total changes in ownership interests in subsidiaries		-	-	-	2,111,447	-	-	-	-	2,111,447	-	(2,111,447)	-
Total transactions with owners, recorded directly in equity		264,961,410	256,379	-	(517,187,270)	-	-	-	-	(251,969,481)	-	(119,381,919)	(371,351,400)
Comprehensive income (loss) for the year (Restated)													
Profit		-	-	-	465,794,332	-	-	-	-	465,794,332	172,800,522	76,193,382	714,788,236
Other comprehensive income (loss)		-	-	-	(14,333,694)	-	(272,491,787)	20,371	(272,471,416)	(286,805,110)	(746,509)	-	(287,551,619)
Total comprehensive income (loss) for the year (Restated)		-	-	-	451,460,638	-	(272,491,787)	20,371	(272,471,416)	178,989,222	172,054,013	76,193,382	427,236,617
Transfer to legal reserve	34	-	-	39,300,000	(39,300,000)	-	-	-	-	-	-	-	-
Balance at 31 December 2017 (Restated)		1,854,655,373	5,179,473,454	198,300,000	2,005,777,871	93,622,450	(362,652,253)	20,371	(362,631,882)	8,969,197,266	616,557,891	598,104,041	10,183,859,198

The accompanying notes are and integral part of these financial statements.

Gunkul Engineering Public Company Limited and its Subsidiaries  
Statement of changes in equity

	Note	Consolidated financial statements														
		Issued and paid-up share capital	Treasury shares	Premium on ordinary shares	Retained earnings			Difference arising from business combination under common control	Other components of equity			Equity attributable to owners of parent	Former shareholder before business restructuring	Non-controlling interests	Total equity	
					Legal reserve	Treasury shares reserve	Unappropriated		Exchange differences on translating financial statement	Net change in fair value of available-for-sale investments	Total other components of equity					
(in Baht)																
Year ended 31 December 2018																
Balance at 1 January 2018 - as reported		1,854,655,373	-	5,179,473,454	198,300,000	-	2,241,132,095	93,622,450	(362,652,253)	20,371	(362,631,882)	9,204,551,490	-	598,104,041	9,802,655,531	
Impact of business restructuring	4	-	-	-	-	-	(235,354,224)	-	-	-	-	(235,354,224)	616,557,891	-	381,203,667	
Balance at 1 January 2018 - restated		1,854,655,373	-	5,179,473,454	198,300,000	-	2,005,777,871	93,622,450	(362,652,253)	20,371	(362,631,882)	8,969,197,266	616,557,891	598,104,041	10,183,859,198	
Transactions with owners, recorded directly in equity																
Contributions by and distributions to owners of the parent																
Treasury shares purchased	23	-	(304,674,256)	-	-	304,674,256	(304,674,256)	-	-	-	-	(304,674,256)	-	-	(304,674,256)	
Subsidiary paid dividend		-	-	-	-	-	-	-	-	-	-	-	(562,000,000)	(88,174,358)	(650,174,358)	
Dividend paid to shareholders	34	-	-	-	-	-	(333,835,665)	-	-	-	-	(333,835,665)	-	-	(333,835,665)	
Total contributions by and distributions to owners of the parent		-	(304,674,256)	-	-	304,674,256	(638,509,921)	-	-	-	-	(638,509,921)	(562,000,000)	(88,174,358)	(1,288,684,279)	
Changes in ownership interests in subsidiaries																
Reduction of ordinary shares in subsidiary		-	-	-	-	-	-	-	-	-	-	-	-	(8,580,000)	(8,580,000)	
Total changes in ownership interests in subsidiaries		-	-	-	-	-	-	-	-	-	-	-	-	(8,580,000)	(8,580,000)	
Changes in interests from business restructuring																
Impact of business restructuring	4	-	-	-	-	-	-	(558,374,992)	-	-	-	(558,374,992)	(59,625,008)	-	(618,000,000)	
Total changes in interests from business restructuring		-	-	-	-	-	-	(558,374,992)	-	-	-	(558,374,992)	(59,625,008)	-	(618,000,000)	
Total transactions with owners, recorded directly in equity		-	(304,674,256)	-	-	304,674,256	(638,509,921)	(558,374,992)	-	-	-	(1,196,884,913)	(621,625,008)	(96,754,358)	(1,915,264,279)	
Comprehensive income (loss) for the year																
Profit		-	-	-	-	-	1,085,172,042	-	-	-	-	1,085,172,042	5,067,117	88,170,937	1,178,410,096	
Other comprehensive income (loss)		-	-	-	-	-	-	-	52,216,056	811,127	53,027,183	53,027,183	-	15,685	53,042,868	
Total comprehensive income (loss) for the year		-	-	-	-	-	1,085,172,042	-	52,216,056	811,127	53,027,183	1,138,199,225	5,067,117	88,186,622	1,231,452,964	
Balance at 31 December 2018		1,854,655,373	(304,674,256)	5,179,473,454	198,300,000	304,674,256	2,452,439,992	(464,752,542)	(310,436,197)	831,498	(309,604,699)	8,910,511,578	-	589,536,305	9,500,047,883	

The accompanying notes are and integral part of these financial statements.

Gunkul Engineering Public Company Limited and its Subsidiaries  
Statement of changes in equity

	Note	Separate financial statements							
		Issued and paid-up share capital	Treasury shares	Premium on ordinary shares	Retained earnings			Other components of equity	Total equity
					Legal reserve	Treasury shares reserve	Unappropriated	Net change in fair value of available-for-sale investments	
		(in Baht)							
Year ended 31 December 2017									
Balance at 1 January 2017		1,589,693,963	-	5,179,217,075	159,000,000	-	1,672,165,282	-	8,600,076,320
Transactions with owners, recorded directly in equity									
Contributions by and distributions to owners of the parent									
Shares options exercised		14,022	-	256,379	-	-	-	-	270,401
Stock dividend	22, 34	264,947,388	-	-	-	-	(264,947,388)	-	-
Dividend paid to shareholders	34	-	-	-	-	-	(254,351,329)	-	(254,351,329)
Total contributions by and distributions to owners of the parent		264,961,410	-	256,379	-	-	(519,298,717)	-	(254,080,928)
Total transactions with owners, recorded directly in equity		264,961,410	-	256,379	-	-	(519,298,717)	-	(254,080,928)
Comprehensive income (loss) for the year									
Profit		-	-	-	-	-	354,011,303	-	354,011,303
Other comprehensive income (loss)		-	-	-	-	-	(9,934,651)	20,906	(9,913,745)
Total comprehensive income (loss) for the year		-	-	-	-	-	344,076,652	20,906	344,097,558
Transfer to legal reserve	34	-	-	-	39,300,000	-	(39,300,000)	-	-
Balance at 31 December 2017		1,854,655,373	-	5,179,473,454	198,300,000	-	1,457,643,217	20,906	8,690,092,950

The accompanying notes are and integral part of these financial statements.

Gunkul Engineering Public Company Limited and its Subsidiaries  
Statement of changes in equity (Continue)

	Note	Separate financial statements							
		Issued and paid-up share capital	Treasury shares	Premium on ordinary shares	Retained earnings			Other components of equity	Total equity
					Legal reserve	Treasury shares reserve	Unappropriated	Net change in fair value of available-for-sale investments	
(in Baht)									
Year ended 31 December 2018									
Balance at 1 January 2018		1,854,655,373	-	5,179,473,454	198,300,000	-	1,457,643,217	20,906	8,690,092,950
Transactions with owners, recorded directly in equity									
Contributions by and distributions to owners of the parent									
Treasury shares purchased	23	-	(304,674,256)	-	-	304,674,256	(304,674,256)	-	(304,674,256)
Dividend paid to shareholders	34	-	-	-	-	-	(333,835,665)	-	(333,835,665)
Total contributions by and distributions to owners of the parent		-	(304,674,256)	-	-	304,674,256	(638,509,921)	-	(638,509,921)
Total transactions with owners, recorded directly in equity		-	(304,674,256)	-	-	304,674,256	(638,509,921)	-	(638,509,921)
Comprehensive income (loss) for the year									
Profit		-	-	-	-	-	660,388,915	-	660,388,915
Other comprehensive income (loss)		-	-	-	-	-	-	155,051	155,051
Total comprehensive income (loss) for the year		-	-	-	-	-	660,388,915	155,051	660,543,966
Balance at 31 December 2018		1,854,655,373	(304,674,256)	5,179,473,454	198,300,000	304,674,256	1,479,522,211	175,957	8,712,126,995

The accompanying notes are and integral part of these financial statements.

## Gunkul Engineering Public Company Limited and its Subsidiaries

### Statement of cash flows

	Consolidated financial statements		Separate financial statements	
	Year ended 31 December		Year ended 31 December	
	2018	2017 (Restated)	2018	2017
	(in Baht)			
<b><i>Cash flows from operating activities</i></b>				
Profit for the year	1,178,410,096	714,788,237	660,388,915	354,011,303
Adjustments to reconcile profit to cash receipts (payments)				
Tax expense (income)	103,496,017	91,089,954	(51,707,970)	(241,807)
Finance costs	800,452,148	570,284,549	275,702,662	191,465,116
Depreciation and amortisation	762,809,614	472,418,121	15,090,095	13,631,544
Provisions for employee benefits	7,694,195	5,830,122	4,664,594	4,304,947
Unrealised (gain) loss on foreign exchange	2,106,223	(26,864,540)	8,309,632	18,133,716
Share of profit of associates and joint ventures	(269,402,971)	(269,262,917)	-	-
Loss on disposal of investment in subsidiary, associates and joint ventures	-	-	-	614,038
Benefit received from advance payment of machinery for investment	(34,552,697)	(41,158,080)	(34,552,697)	(41,158,080)
Dividend income	-	-	(1,491,947,483)	(641,879,081)
Reversal of doubtful debts expenses	(1,189,735)	-	-	-
(Reversal of) allowance for decline in value of inventories	1,358,873	2,801,346	2,480,263	(337,460)
(Gain) loss on disposal of property, plant and equipment	8,242,027	3,823,232	(75,454)	(1,125)
Gain on disposal of current investments	(1,974,744)	-	(1,925,655)	-
Interest income	(14,266,266)	(38,740,077)	(26,844,921)	(42,851,382)
	2,543,182,780	1,485,009,947	(640,418,019)	(144,308,271)

The accompanying notes are and integral part of these financial statements.



Gunkul Engineering Public Company Limited and its Subsidiaries  
Statement of cash flows (Continue)

	Consolidated financial statements		Separate financial statements	
	Year ended 31 December		Year ended 31 December	
	2018	2017 (Restated)	2018	2017
	(in Baht)			
<b>Changes in operating assets and liabilities</b>				
Short-term deposits from financial institution pledged as collateral	(1,098,180,584)	(372,705,349)	-	45,572,105
Trade accounts receivable	86,370,486	(441,711,503)	(165,789,666)	249,881,056
Unbilled revenue	534,434,196	(422,849,416)	12,148,598	145,590
Other receivables	(50,976,783)	(105,125,674)	7,287,378	(7,915,100)
Revenue Department receivable	(198,225,126)	248,038,373	-	-
Inventories	(132,540,514)	31,081,266	(91,908,180)	32,250,516
Other non-current receivables	113,226,714	(3,794,113)	-	57,852,724
Trade accounts payable	(429,554,738)	207,165,686	(12,741,717)	(50,907,204)
Unearned revenues	(154,539,198)	26,494,980	1,352,918	12,969,844
Revenue Department payable	36,523,439	7,022,548	2,139,498	(5,187,633)
Retention payables	140,440,649	154,529,593	(533,046)	(34,593,983)
Other payables	(115,965,624)	337,930,138	5,835,607	(10,560,966)
Provisions for employees benefits	(586,216)	(2,224,699)	(12,321)	(1,821,949)
Other non-current liabilities	14,537,726	20,566,962	(14,028,927)	(4,371,082)
Cash generated from (used in) operating activities	1,288,147,207	1,169,428,739	(896,667,877)	139,005,647
Taxes paid	(163,759,102)	(95,258,107)	(9,480,432)	(14,442,422)
<b>Net cash from (used in) operating activities</b>	<b>1,124,388,105</b>	<b>1,074,170,632</b>	<b>(906,148,309)</b>	<b>124,563,225</b>

The accompanying notes are and integral part of these financial statements.

Gunkul Engineering Public Company Limited and its Subsidiaries  
Statement of cash flows (Continue)

	Consolidated financial statements		Separate financial statements	
	Year ended 31 December		Year ended 31 December	
	2018	2017 (Restated)	2018	2017
	(in Baht)			
<b><i>Cash flows from investing activities</i></b>				
Acquisition of subsidiaries, net of cash acquired	(573,628,353)	-	-	-
Payment for incremental of capital in subsidiaries	-	-	(629,641,900)	(1,926,122,245)
Proceeds from reduction of shares in subsidiary	-	-	17,420,000	-
Payment for reduction of shares to non-controlling interests	(8,580,000)	-	-	-
Proceeds from disposal of investment in associates and joint ventures	-	717,704	-	717,704
Acquisition of non-controlling interest	-	(4,059,900)	-	(4,059,900)
Payment for interest in joint venture	(56,560,000)	-	(56,560,000)	-
Proceeds from sale of current investments	1,968,784,038	604,999,854	1,801,746,980	1,560,550,603
Payment for purchase of current investments	(1,927,051,843)	(989,668,647)	(1,779,551,843)	(1,160,881,956)
Benefit received from advance payment of machinery for investment	35,147,322	45,502,708	35,147,322	45,502,708
Payment for deposit for purchase of assets	-	22,673,992	-	-
Payment for advance for land lease	(2,105,743)	(16,978,091)	-	-
Acquisition of property, plant and equipment	(6,167,793,747)	(4,060,582,578)	(17,820,463)	(8,330,875)
Acquisition of intangible assets	(135,311,376)	(654,938,080)	(1,993,870)	(449,850)
Proceeds from sale of property, plant and equipment	713,784	414,382	288,855	6,000
Proceeds of loan to related parties	421,390,094	28,400,000	787,958,290	1,689,806,414

The accompanying notes are and integral part of these financial statements.

Gunkul Engineering Public Company Limited and its Subsidiaries  
Statement of cash flows (Continue)

	Consolidated financial statements		Separate financial statements	
	Year ended 31 December		Year ended 31 December	
	2018	2017 (Restated)	2018	2017
	(in Baht)			
Payment for short-term loans to related parties	-	(203,300,000)	(1,985,603,210)	(1,689,286,414)
Dividend received	206,986,264	177,255,128	1,491,947,483	617,475,894
Interest received	46,129,984	48,825,784	21,443,700	50,399,905
<b>Net cash used in investing activities</b>	<b>(6,191,879,576)</b>	<b>(5,000,737,744)</b>	<b>(315,218,656)</b>	<b>(824,672,012)</b>
<i><b>Cash flows from financing activities</b></i>				
Proceeds from exercise of share options	-	270,401	-	270,401
Repurchase of treasury shares	(304,674,256)	-	(304,674,256)	-
Proceeds from short-term loans	37,795,883	-	55,151,096	-
Repayment of short-term loans	-	(1,713,087,422)	-	(1,964,227,273)
Proceeds from short-term loans from related parties	-	-	134,000,000	649,060,352
Repayment of short-term loans to related parties	-	-	-	(300,000,000)
Proceeds of long-term loans	6,140,207,783	3,658,803,291	428,760,000	-
Repayment of long-term loans	(848,101,466)	(550,753,000)	(7,200,000)	-
Proceeds of debentures	1,819,000,000	2,265,500,000	1,819,000,000	2,265,500,000
Repayment of debentures	(280,000,000)	(300,000,000)	(280,000,000)	(300,000,000)
Payment by a lessee for reduction of the outstanding liability relating to a finance lease	(15,942,393)	(17,649,130)	(8,855,633)	(9,572,021)
Dividend paid	(333,793,403)	(254,320,025)	(333,793,403)	(254,320,025)
Dividend paid to non-controlling interests	(88,174,358)	(117,270,472)	-	-

The accompanying notes are and integral part of these financial statements.

Gunkul Engineering Public Company Limited and its Subsidiaries  
Statement of cash flows (Continue)

	Consolidated financial statements		Separate financial statements	
	Year ended 31 December		Year ended 31 December	
	2018	2017 (Restated)	2018	2017
	(in Baht)			
Dividend paid to former shareholder before business restructuring	(562,000,000)	-	-	-
Interest paid	(756,770,609)	(545,305,743)	(235,964,690)	(178,510,463)
<b>Net cash from (used in) financing activities</b>	<b>4,807,547,181</b>	<b>2,426,187,900</b>	<b>1,266,423,114</b>	<b>(91,799,029)</b>
<b>Net increase (decrease) in cash and cash equivalents</b>	<b>(259,944,290)</b>	<b>(1,500,379,212)</b>	<b>45,056,149</b>	<b>(791,907,816)</b>
Effect of exchange rate changes on balances held in foreign currencies	(5,420,378)	(11,706,519)	(11,622,101)	(11,706,519)
Cash and cash equivalents as at 1 January	1,158,017,322	2,670,103,053	240,328,765	1,043,943,100
<b>Cash and cash equivalents at 31 December</b>	<b>892,652,654</b>	<b>1,158,017,322</b>	<b>273,762,813</b>	<b>240,328,765</b>
<b>Non-cash transaction</b>				
Receivable for sales of property, plant and equipment	61,495	-	61,495	-
Payables for purchases of property, plant and equipment	454,767,934	1,496,735,070	-	-
Payable for share subscription	-	22,000,000	-	22,000,000
Acquisition of assets under finance lease contracts	3,608,131	5,280,080	-	4,010,921
Finance costs and front end fee capitalise as assets	92,854,035	14,691,022	-	-
Provision for decommissioning costs of power plants capitalise as assets	196,775,672	-	-	-
Stock dividend	-	264,947,389	-	264,947,389
Dividend payable	115,760	37,229	115,760	37,229

The accompanying notes are and integral part of these financial statements.

These notes form an integral part of the financial statements.

The financial statements issued for Thai statutory and regulatory reporting purposes are prepared in the Thai language. These English language financial statements have been prepared from the Thai language statutory financial statements, and were approved and authorised for issue by the Board of Directors on 20 February 2019.

## 1. General information

Gunkul Engineering Public Company Limited, the “Company”, is incorporated in Thailand and has its registered office at 1177 Pearl Bangkok Building, 8th floor, Phahonyothin Road, Phaya Thai, Bangkok.

The Company was listed on the Stock Exchange of Thailand on 15 October 2010.

The Company’s major shareholder during the year was Gunkul Group Co., Ltd. (49.79% shareholding) which was incorporated in Thailand. The principal shareholder of the Company’s major shareholder is Dhumrongpiyawut family.

The principal activities of the Company are distribution of equipments for electrical systems, construction and investing in the generating and selling electricity business. Details of the Company’s direct and indirect subsidiaries as at 31 December 2018 and 2017 were as follows:

Name of the entities	Type of business	Country of incorporation	Ownership interest (%)		
			2018	2017	
Direct subsidiaries					
G.K. Power Product Co., Ltd.	Manufacturing and selling of equipments for electrical systems	Thailand	99.99	99.99	
G.K. Assembly Co., Ltd.	Manufacturing and selling of equipments for electrical systems	Thailand	99.99	99.99	
K.N.P. Supply Co., Ltd.	Import-export and selling equipments for electrical systems	Thailand	99.99	99.99	
Greenovation Power Co., Ltd.	Generating and selling electricity	Thailand	99.99	99.99	

Name of the entities	Type of business	Country of incorporation	Ownership interest (%)	
			2018	2017
Wind Energy Development Co., Ltd.	Generating and selling electricity	Thailand	99.99	99.99
NK Power Sola Co., Ltd.	Generating and selling electricity	Thailand	99.99	99.99
Gunkul Solar Roof 1 Co., Ltd.	Generating and selling electricity	Thailand	99.99	99.99
Gunkul Training Center Co.,Ltd.	Providing training services	Thailand	99.97	99.97
Solar Energy Society Co., Ltd.	Generating and selling electricity	Thailand	99.99	99.99
Bright Green Power Co., Ltd.	Investing in companies	Thailand	99.99	99.99
Gunkul Power Development Co., Ltd	Construction	Thailand	99.99	99.99
Gunkul Solar Community Co., Ltd	Generating and selling electricity	Thailand	99.99	99.99
Siam Gunkul Solar Energy Co., Ltd	Generating and selling electricity	Thailand	99.99	99.99
Korat Wind Energy Co., Ltd.	Generating and selling electricity	Thailand	99.99	99.99
Gunkul Energy Solution and Lighting Co.,Ltd. (Formerly: Gunkul LED Lighting Co.,Ltd.)	Manufacturing and selling of energy - saving products	Thailand	99.99	99.99
GO Bioenergy Co.,Ltd.	Investing in companies	Thailand	74.90	74.90
Infinite Alternative Energy Co., Ltd.	Investing in companies	Thailand	67.00	67.00
Eco Thaienergy Co., Ltd.	Generating and selling electricity	Thailand	51.00	51.00
Gunkul Bioenergy Co.,Ltd.	Generating and selling electricity	Thailand	99.94	99.94
Gunkul International (Mauritius)	Investing in companies	Mauritius	100.00	100.00
Gunkul Solar Power Co., Ltd.	Generating and selling electricity	Thailand	99.99	99.99
BMP Solar Co., Ltd.	Generating and selling electricity	Thailand	48.98	48.98
<b>Indirect subsidiaries</b>				
Rang-Ngern Solution Co.,Ltd.	Generating and selling electricity	Thailand	67.00	67.00
Outgrow A Co.,Ltd.	Generating and selling electricity	Thailand	74.90	74.90
Outgrow B Co.,Ltd <sup>(1)</sup>	Generating and selling electricity	Thailand	-	74.90
Outgrow D Co.,Ltd.	Generating and selling electricity	Thailand	74.90	74.90

Name of the entities	Type of business	Country of incorporation	Ownership interest	
			2018	2017
Outgrow E Co.,Ltd.	Generating and selling electricity	Thailand	74.90	74.90
Outgrow Wood Supply A Co., Ltd. <sup>(1)</sup>	Wood dealer as a raw material	Thailand	-	74.90
Outgrow Wood Supply B Co., Ltd. <sup>(1)</sup>	Wood dealer as a raw material	Thailand	-	74.90
Gunkul Investment (Singapore) Pte. Ltd.	Investing in companies	Singapore	100.00	100.00
Gunkul Myanmar Power (Hlawga) Pte. Ltd.	Investing in companies	Singapore	100.00	100.00
Gunkul Myanmar Central Power 1 Company Limited	Generating and selling electricity	Myanmar	51.00	51.00
Sendai Okura GD Daiichi Godo Kaisha	Generating and selling electricity	Japan	100.00	100.00
Kimitsu Mega Solar Godo Kaisa	Generating and selling electricity	Japan	100.00	100.00
Future Asset Management Kabushiki Kaisha	Assets management	Japan	100.00	100.00
GD Solar Utsunomiya Godo Kaisha	Generating and selling electricity	Japan	100.00	100.00
East Japan Solar 13 Godo Kaisha	Generating and selling electricity	Japan	100.00	100.00
Gunkul Solar Power 1 Co., Ltd.	Generating and selling electricity	Thailand	99.99	99.99
Gunkul Solar Power 2 Co., Ltd.	Generating and selling electricity	Thailand	99.99	99.99
Gunkul Solar Power 3 Co., Ltd. <sup>(1)</sup>	Generating and selling electricity	Thailand	-	99.99
Gunkul Solar Power 4 Co., Ltd. <sup>(1)</sup>	Generating and selling electricity	Thailand	-	99.99
Gunkul Solar Power 5 Co., Ltd. <sup>(1)</sup>	Generating and selling electricity	Thailand	-	99.99
Gunkul Solar Power 6 Co., Ltd. <sup>(1)</sup>	Generating and selling electricity	Thailand	-	99.99
Future Electrical Control Co., Ltd. <sup>(2)</sup>	Construction	Thailand	99.99	-

<sup>(1)</sup>The liquidation was completed during the year 2018

<sup>(2)</sup>See note 4 to the financial statements.

## 2. Basis of preparation of the financial statements

### *(a) Statement of compliance*

The financial statements are prepared in accordance with Thai Financial Reporting Standards (TFRS); guidelines promulgated by the Federation of Accounting Professions (“FAP”); and applicable rules and regulations of the Thai Securities and Exchange Commission.

The FAP has issued new and revised TFRS effective for annual accounting periods beginning on or after 1 January 2018. The initial application of these new and revised TFRS has resulted in changes in certain of the Group’s accounting policies. These changes have no material effect on the financial statements.

In addition to the above new and revised TFRS, the FAP has issued a number of new and revised TFRS which are not yet effective for current periods. The Group has not early adopted these standards in preparing these financial statements. Those new and revised TFRS that are relevant to the Group’s operations are disclosed in note 38.

### *(b) Basis of measurement*

The financial statements have been prepared on the historical cost basis except for the following items.

Items	Measurement bases
Foreign currency forward contracts	Fair value
Available-for-sale investments	Fair value
Defined benefit liability	Present value of the defined benefit obligation as explained in Note 3 (o)

### *(c) Functional and presentation currency*

The financial statements are prepared and presented in Thai Baht, which is the Company’s functional currency. All financial information presented in Thai Baht has been rounded in the notes to the financial statements to the nearest thousand unless otherwise stated.



#### ***(d) Use of judgements and estimates***

The preparation of financial statements in conformity with TFRS requires management to make judgements, estimates and assumptions that affect the application of accounting policies and the reported amounts of assets, liabilities, income and expenses. Actual results may differ from these estimates.

Estimates and underlying assumptions are reviewed on an ongoing basis. Revisions to accounting estimates are recognised prospectively.

Information about assumption and estimation uncertainties that have a significant risk of resulting in a material adjustments to the amounts recognised in the financial statements is included in the following notes:

Note 5 and 9	Determination of stage of completion
Note 15	Impairment test: key assumptions underlying recoverable amounts;
Note 16	Recognition of deferred tax assets: availability of future taxable profit against which tax losses carried forward can be used;
Note 20	Measurement of defined benefit obligations: key actuarial assumptions; and
Note 21	Recognition and measurement of provision for decommissioning costs of power plant.

#### ***Measurement of fair values***

A number of the Group's accounting policies and disclosures require the measurement of fair values, for both financial and non-financial assets and liabilities.

The Group has an established control framework with respect to the measurement of fair values. This includes a valuation team that has overall responsibility for overseeing all significant fair value measurements, including Level 3 fair values, and reports directly to the chief financial officer.

The valuation team regularly reviews significant unobservable inputs and valuation adjustments. If third party information, such as broker quotes or pricing services, is used to measure fair values, then the valuation team assesses the evidence obtained from the third

parties to support the conclusion that such valuations meet the requirements of TFRS, including the level in the fair value hierarchy in which such valuations should be classified.

Significant valuation issues are reported to the Group Audit Committee.

When measuring the fair value of an asset or a liability, the Group uses market observable data as far as possible. Fair values are categorised into different levels in a fair value hierarchy based on the inputs used in the valuation techniques as follows:

- Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities.
- Level 2: inputs other than quoted prices included in Level 1 that are observable for the asset or liability, either directly (i.e. as prices) or indirectly (i.e. derived from prices).
- Level 3: inputs for the asset or liability that are not based on observable market data (unobservable inputs).

If the inputs used to measure the fair value of an asset or liability might be categorised in different levels of the fair value hierarchy, then the fair value measurement is categorised in its entirety in the same level of the fair value hierarchy as the lowest level input that is significant to the entire measurement.

Further information about the assumptions made in measuring fair values is included in the following notes:

- Note 35 Financial instruments.

### **3. Significant accounting policies**

The accounting policies set out below have been applied consistently to all periods presented in these financial statements.

#### ***(a) Basis of consolidation***

The consolidated financial statements relate to the Company and its subsidiaries (together referred to as the “Group”) and the Group’s interests in associates and joint ventures.

## ***Business combinations***

The Group applies the acquisition method for all business combinations when control is transferred to the Group other than those with entities under common control.

The Group controls an entity when it is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. The acquisition date is the date on which control is transferred to the acquirer. Judgment is applied in determining the acquisition date and determining whether control is transferred from one party to another.

Goodwill is measured as the fair value of the consideration transferred including the recognised amount of any non-controlling interest in the acquiree, less the net recognised amount (generally fair value) of the identifiable assets acquired and liabilities assumed, all measured as of the acquisition date. Any gain on bargain purchase is recognised in profit or loss immediately.

Consideration transferred includes the fair values of the assets transferred, liabilities incurred by the Group to the previous owners of the acquiree, and equity interests issued by the Group. Consideration transferred also includes the fair value of any contingent consideration and share-based payment awards of the acquiree that are replaced mandatorily in the business combination. If a business combination results in the termination of pre-existing relationships between the Group and the acquiree, then the lower of the termination amount, as contained in the agreement, and the value of the off-market element is deducted from the consideration transferred and recognised in other expenses.

A contingent liability of the acquiree is assumed in a business combination only if such a liability represents a present obligation and arises from a past event, and its fair value can be measured reliably.

Transaction costs that the Group incurs in connection with a business combination, such as legal fees, and other professional and consulting fees are expensed as incurred.

If the initial accounting for a business combination is incomplete by the end of the reporting period in which the combination occurs, the Group reports provisional amounts for the items for which the accounting is incomplete. Those provisional amounts are adjusted during the measurement period, or additional assets or liabilities are recognised, to reflect new

information obtained about facts and circumstances that existed at the acquisition date that, if known, would have affected the amounts recognised at that date.

### ***Acquisitions from entities under common control***

Business combination under common control are accounted for using a method similar to the pooling of interest method. Under that method the acquirer recognizes assets and liabilities of the acquired businesses at their carrying amounts in the consolidated financial statements of the ultimate parent company at the moment of the transaction. The difference between the carrying amount of the acquired net assets and the consideration transferred is recognized as surplus or discount from business combinations under common control in shareholder's equity. The surplus or discount will be transferred to retained earnings upon divestment of the businesses acquired.

The results from operations of the acquired businesses will be included in the consolidated financial statements of the acquirer from the beginning of the comparative period or the moment the businesses came under common control, whichever date is later, until control ceases.

### ***Subsidiaries***

Subsidiaries are entities controlled by the Group. The Group controls an entity when it is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. The financial statements of subsidiaries are included in the consolidated financial statements from the date on which control commences until the date on which control ceases.

### ***Non-controlling interests***

At the acquisition date, the Group measures any non-controlling interest at its proportionate interest in the identifiable net assets of the acquiree.

Changes in the Group's interest in a subsidiary that do not result in a loss of control are accounted for as equity transactions.

### ***Loss of control***

When the Group loses control over a subsidiary, it derecognises the assets and liabilities of the subsidiary, and any related non-controlling interests and other components of equity. Any resulting gain or loss is recognised in profit or loss. Any interest retained in the former subsidiary is measured at fair value when control is lost.

### ***Interests in equity-accounted investees***

The Group's interests in equity-accounted investees comprise interests in associates and joint ventures.

Associates are those entities in which the Group has significant influence, but not control or joint control, over the financial and operating policies. A joint venture is an arrangement in which the Group has joint control, whereby the Group has rights to the net assets of the arrangement, rather than rights to its assets and obligations for its liabilities.

Interests in associates and joint ventures are accounted for using the equity method. They are recognised initially at cost, which includes transaction costs. Subsequent to initial recognition, the consolidated financial statements include the Group's share of the profit or loss and other comprehensive income of equity-accounted investees, until the date on which significant influence or joint control ceases.

### ***Transactions eliminated on consolidation***

Intra-group balances and transactions, and any unrealised income or expenses arising from intra-group transactions, are eliminated. Unrealised gains arising from transactions with equity-accounted investees are eliminated against the investment to the extent of the Group's interest in the investee. Unrealised losses are eliminated in the same way as unrealised gains, but only to the extent that there is no evidence of impairment.

### ***(b) Foreign currencies***

#### ***Foreign currency transactions***

Transactions in foreign currencies are translated to the respective functional currencies of Group entities at exchange rates at the dates of the transactions.

Monetary assets and liabilities denominated in foreign currencies are translated to the functional currency at the exchange rate at the reporting date.

Non-monetary assets and liabilities measured at cost in foreign currencies are translated to the functional currency at the exchange rates at the dates of the transactions.

### ***Foreign operations***

The assets and liabilities of foreign operations, including goodwill and fair value adjustments arising on acquisition, are translated to Thai Baht at the exchange rates at the reporting date.

The revenues and expenses of foreign operation are translated to Thai Baht at rates approximating the exchange rates at the dates of the transactions.

Foreign exchange differences are recognised in other comprehensive income and accumulated in the translation reserve, except to extent that the translation difference is allocated to non-controlling interest.

When a foreign operation is disposed of in its entirety or partially such that control, significant influence or joint control is lost, the cumulative amount in the translation reserve related to that foreign operation is reclassified to profit or loss as part of the gain or loss on disposal. If the Group disposes of part of its interest in a subsidiary but retains control, then the relevant proportion of the cumulative amount is reattributed to non-controlling interests. When the Group disposes of only part of an associate or joint venture while retaining significant influence or joint control, the relevant proportion of the cumulative amount is reclassified to profit or loss.

When the settlement of a monetary item receivable from or payable to a foreign operation is neither planned nor likely in the foreseeable future, exchange gains and losses arising from such a monetary item are considered to form part of a net investment in a foreign operation and are recognised in other comprehensive income, and presented in the foreign currency translation reserve in equity until disposal of the investment.

### ***(c) Derivative***

Derivative are used to manage exposure to foreign exchange, interest rate arising from operational, financing and investment activities. Derivative are not used for trading purposes.

However, derivatives that do not qualify for hedge accounting are accounted for as trading instruments.

#### ***Foreign currency forward contracts***

Foreign currency forward contracts protect the Company from risks in fluctuation of exchange rates by establishing the future exchange rate. Derivatives are recognised initially at fair value; attributable transaction costs are recognised in profit or loss when incurred. Subsequent to initial recognition, they are remeasured at fair value. The gain or loss on remeasurement to fair value is recognised immediately in profit or loss.

#### ***Foreign exchange option contracts and Cross currency and interest rate swap contracts***

Foreign exchange option contracts and Cross currency and interest rate swap contracts protect the Company from risks in fluctuation of exchange rates by establishing the future exchange rate. This instrument is not recognised in the financial statement on inception. The differences between contracted rates and the transaction rates are recognised in profit or loss as incurred.

#### ***Interest rate swap contracts***

Interest rate swap contracts protect the Company from risks in fluctuation of interest rates. This instrument is not recognised in the financial statement on inception. The differences under interest rate swaps are recorded as adjustments to the interest expense relating to the financial obligations in profit or loss.

#### ***(d) Cash and cash equivalents***

Cash and cash equivalents in the statements of cash flows comprise cash balances, current and savings accounts, and highly liquid short-term investments. Bank overdrafts that are repayable on demand are a component of financing activities for the purpose of the statement of cash flows.

#### ***(e) Trade and other accounts receivable***

Trade and other accounts receivable are stated at their invoice value less allowance for doubtful accounts.

The allowance for doubtful accounts is assessed primarily on analysis of payment histories and future expectations of customer payments. Bad debts are written off when incurred.

#### ***(f) Inventories***

Inventories are measured at the lower of cost and net realisable value.

Cost of inventories is calculated using the first in first out principle, and comprises all costs of purchase, costs of conversion and other costs incurred in bringing the inventories to their present location and condition. In the case of manufactured inventories and work in progress, cost includes an appropriate share of production overheads based on normal operating capacity.

Net realisable value is the estimated selling price in the ordinary course of business less the estimated costs to complete and to make the sale.

#### ***(g) Unbilled revenue***

Unbilled revenue represents the gross unbilled amount expected to be collected from customers for contract work performed to date. They are measured at costs incurred plus profits recognised to date (see note 9) less progress billings and recognised losses, presented as current asset in the statement of financial position.

#### ***(h) Investments***

##### *Investments in subsidiaries, associates and joint ventures*

Investments in subsidiaries, associates and joint ventures in the separate financial statements of the Company are accounted for using the cost method. Investments in associates and joint ventures in the consolidated financial statements are accounted for using the equity method.



### *Investments in other debt and equity securities*

Debt securities and marketable equity securities held for trading are classified as current assets and are stated at fair value, with any resultant gain or loss recognised in profit or loss.

Debt securities that the Group has the positive intent and ability to hold to maturity are classified as held-to-maturity investments. Held-to-maturity investments are stated at amortised cost, less any impairment losses. The difference between the acquisition cost and redemption value of such debt securities is amortised using the effective interest rate method over the period to maturity.

Debt securities and marketable equity securities, other than those securities held for trading or intended to be held to maturity, are classified as available-for-sale investments. Available-for-sale investments are, subsequent to initial recognition, stated at fair value, and changes therein, other than impairment losses and foreign currency differences on available-for-sale monetary items, are recognised directly in equity. Impairment losses and foreign exchange differences are recognised in profit or loss. When these investments are derecognised, the cumulative gain or loss previously recognised directly in equity is recognised in profit or loss. Where these investments are interest-bearing, interest calculated using the effective interest method is recognised in profit or loss.

Equity securities which are not marketable are stated at cost less any impairment losses.

The fair value of financial instruments classified as held-for-trading and available-for-sale is determined as the quoted bid price at the reporting date.

### *Disposal of investments*

On disposal of an investment, the difference between net disposal proceeds and the carrying amount together with the associated cumulative gain or loss that was reported in equity is recognised in profit or loss.

If the Group disposes of part of its holding of a particular investment, the deemed cost of the part sold is determined using the FIFO method applied to the carrying value of the total holding of the investment.

### ***(i) Investment properties***

Investment properties are land which are held to earn rental income, for capital appreciation or for both, but not for sale in the ordinary course of business, use in the production or supply of goods or services or for administrative purposes.

Investment properties are stated at cost less impairment losses.

### ***(j) Property, plant and equipment***

#### *Recognition and measurement*

#### ***Owned assets***

Property, plant and equipment are measured at cost less accumulated depreciation and impairment losses.

Cost includes expenditure that is directly attributable to the acquisition of the asset. The cost of self-constructed assets includes the cost of materials and direct labour, any other costs directly attributable to bringing the assets to a working condition for their intended use, the costs of dismantling and removing the items and restoring the site on which they are located, and capitalised borrowing costs. Cost also may include transfers from other comprehensive income of any gain or loss on qualifying cash flow hedges of foreign currency purchases of property, plant and equipment. Purchased software that is integral to the functionality of the related equipment is capitalised as part of that equipment.

When parts of an item of property, plant and equipment have different useful lives, they are accounted for as separate items (major components) of property, plant and equipment.

Gain and losses on disposal of an item of property, plant and equipment are determined by comparing the proceeds from disposal with the carrying amount of property, plant and equipment, and are recognised net within other income or expense in profit or loss.

#### ***Leased assets***

Leases in terms of which the Group substantially assumes all the risk and rewards of ownership are classified as finance leases. Property, plant and equipment acquired by way of finance leases is capitalised at the lower of its fair value and the present value of the minimum lease payments at the inception of the lease, less accumulated depreciation and impairment

losses. Lease payments are apportioned between the finance charges and reduction of the lease liability so as to achieve a constant rate of interest on the remaining balance of the liability. Finance charges are charged directly to the profit or loss.

### ***Subsequent costs***

The cost of replacing a part of an item of property, plant and equipment is recognised in the carrying amount of the item if it is probable that the future economic benefits embodied within the part will flow to the Group, and its cost can be measured reliably. The carrying amount of the replaced part is derecognised. The costs of the day-to-day servicing of property, plant and equipment are recognised in profit or loss as incurred.

### ***Depreciation***

Depreciation is calculated based on the depreciable amount, which is the cost of an asset, or other amount substituted for cost, less its residual value.

Depreciation is charged to profit or loss on a straight-line basis over the estimated useful lives of each component of an item of plant and equipment. The estimated useful lives are as follows:

Building improvement and utility system	25-30 years
Machinery and equipment	5-25 years
Fixtures and office equipments	5 years
Vehicles	8-10 years

No depreciation is provided on freehold land or assets under construction.

Depreciation methods, useful lives and residual values are reviewed at each financial year-end and adjusted if appropriate.

## ***(k) Intangible assets***

### ***Goodwill***

Goodwill that arises upon the acquisition of subsidiaries is included in intangible assets. The measurement of goodwill at initial recognition is described in note 3(a). Subsequent to initial recognition, goodwill is measured at cost less accumulated impairment losses.

### ***Other intangible assets***

Other intangible assets that are acquired by the Group and have finite useful lives are measured at cost less accumulated amortisation and accumulated impairment losses.

### ***Subsequent expenditure***

Subsequent expenditure is capitalised only when it increases the future economic benefits embodied in the specific asset to which it relates. All other expenditure, including expenditure on internally generated goodwill and brands, is recognised in profit or loss as incurred.

### ***Amortisation***

Amortisation is based on the cost of the asset, or other amount substituted for cost, less its residual value.

Amortisation is recognised in profit or loss on a straight-line basis over the estimated useful lives of intangible assets, other than goodwill, from the date that they are available for use, since this most closely reflects the expected pattern of consumption of the future economic benefits embodied in the asset.

The estimated useful lives for the current and comparative periods are as follows:

Software licences	3-5 years
Right to use electrical transmission line	20 and 25 years
Right to power purchase agreement and right to operate	20 and 25 years

Amortisation methods, useful lives and residual values are reviewed at each financial year-end and adjusted if appropriate.

### ***(l) Impairment***

The carrying amounts of the Group's assets are reviewed at each reporting date to determine whether there is any indication of impairment. If any such indication exists, the assets' recoverable amounts are estimated. For goodwill and intangible assets that have indefinite useful lives or are not yet available for use, the recoverable amount is estimated each year at the same time.

An impairment loss is recognised if the carrying amount of an asset or its cash-generating unit exceeds its recoverable amount. The impairment loss is recognised in profit or loss.

When a decline in the fair value of an available-for-sale financial asset has been recognised directly in equity and there is objective evidence that the value of the asset is impaired, the cumulative loss that had been recognised directly in equity is recognised in profit or loss even though the financial asset has not been derecognised. The amount of the cumulative loss that is recognised in profit or loss is the difference between the acquisition cost and current fair value, less any impairment loss on that financial asset previously recognised in profit or loss.

### ***Calculation of recoverable amount***

The recoverable amount of available-for-sale financial assets is calculated by reference to the fair value.

The recoverable amount of a non-financial asset is the greater of the asset's value in use and fair value less costs to sell. In assessing value in use, the estimated future cash flows are discounted to their present value using a pre-tax discount rate that reflects current market assessments of the time value of money and the risks specific to the asset. For an asset that does not generate cash inflows largely independent of those from other assets, the recoverable amount is determined for the cash-generating unit to which the asset belongs.

### ***Reversals of impairment***

An impairment loss in respect of a financial asset is reversed if the subsequent increase in recoverable amount can be related objectively to an event occurring after the impairment loss was recognised in profit or loss. For financial assets carried at amortised cost and available-for-sale financial assets that are debt securities, the reversal is recognised in profit or loss. For available-for-sale financial assets that are equity securities, the reversal is recognised in other comprehensive income.

An impairment loss in respect of goodwill is not reversed. Impairment losses recognised in prior periods in respect of other non-financial assets are assessed at each reporting date for any indications that the loss has decreased or no longer exists. An impairment loss is reversed if there has been a change in the estimates used to determine the recoverable amount. An impairment loss is reversed only to the extent that the asset's carrying amount does not exceed the carrying amount that would have been determined, net of depreciation or amortisation, if no impairment loss had been recognised.

### ***(m) Interest-bearing liabilities***

Interest-bearing liabilities are recognised initially at fair value less attributable transaction charges. Subsequent to initial recognition, interest-bearing liabilities are stated at amortised cost with any difference between cost and redemption value being recognised in profit or loss over the period of the borrowings on an effective interest basis.

### ***(n) Trade and other accounts payable***

Trade and other accounts payable are stated at cost.

### ***(o) Employee benefits***

#### ***Defined contribution plans***

Obligations for contributions to defined contribution plans are expensed as the related service is provided.

### ***Defined benefit plans***

The Group's net obligation in respect of defined benefit plans is calculated separately for each plan by estimating the amount of future benefit that employees have earned in the current and prior periods, discounting that amount.

The calculation of defined benefit obligations is performed annually by a qualified actuary using the projected unit credit method. When the calculation results in a potential asset for the Group, the recognised asset is limited to the present value of economic benefits available in the form of any future refunds from the plan or reductions in future contributions to the plan. To calculate the present value of economic benefits, consideration is given to any application minimum funding requirements.

Remeasurements of the net defined benefit liability, actuarial gain or loss are recognised immediately in OCI. The Group determines the interest expense on the net defined benefit liability for the period by applying the discount rate used to measure the defined benefit obligation at the beginning of the annual period, taking into account any changes in the net defined benefit liability during the period as a result of contributions and benefit payments. Net interest expense and other expenses related to defined benefit plans are recognised in profit or loss.

When the benefits of a plan are changed or when a plan is curtailed, the resulting change in benefit that relates to past service or the gain or loss on curtailment is recognised immediately in profit or loss. The Group recognises gains and losses on the settlement of a defined benefit plan when the settlement occurs.

### ***Other long-term employee benefits***

The Group's net obligation in respect of long-term employee benefits is the amount of future benefit that employees have earned in return for their service in the current and prior periods. That benefit is discounted to determine its present value. Remeasurements are recognised in profit or loss in the period in which they arise.

### ***Termination benefits***

Termination benefits are expensed at the earlier of when the Group can no longer withdraw the offer of those benefits and when the Group recognizes costs for a restructuring.

If benefits are not expected to be settled wholly within 12 months of the end of the reporting period, then they are discounted.

### ***Short-term employee benefits***

Short-term employee benefits are expensed as the related service is provided. A liability is recognised for the amount expected to be paid if the Group has a present legal or constructive obligation to pay this amount as a result of past service provided by the employee and the obligation can be estimated reliably.

### ***(p) Provisions***

A provision is recognised if, as a result of a past event, the Group has a present legal or constructive obligation that can be estimated reliably, and it is probable that an outflow of economic benefits will be required to settle the obligation. Provisions are determined by discounting the expected future cash flows at a pre-tax rate that reflects current market assessments of the time value of money and the risks specific to the liability. The unwinding of the discount is recognised as finance cost.

### ***Provision for decommissioning costs of power plants***

The Group recognises provision for decommissioning costs of the buildings or structures with the present value of the estimate of the eventual costs at the lease end date. The recognised provision for decommissioning costs are based on removal cost estimates, removal period, discount rate and future inflation rate. Provision for decommissioning and restoration are discounted to be present value, and are included as part of the assets.

### ***(q) Treasury Shares***

When share capital recognised as equity is repurchased, the amount of consideration paid, including directly attributable costs, is classified as treasury shares and recognised as a deduction from equity. An equal amount is appropriated from retained earnings and taken to a reserve for treasury shares within equity. When treasury shares are sold, the amount received is recognised as an increase in equity by crediting the cost of the treasury shares sold,



calculated using the weighted average method, to the treasury shares account and transferring the equivalent amount back from reserve for treasury shares to retained earnings. Surpluses on the sale of treasury shares are taken directly to a separate category within equity, 'Surplus on treasury shares'. Net deficits on sale or cancellation of treasury shares are debited to retained earnings after setting off against any remaining balance of surplus on treasury shares.

### ***(r) Revenue***

Revenue excludes value added taxes and is arrived at after deduction of trade discounts.

#### ***Sale of goods and services rendered***

Revenue is recognised in profit or loss when the significant risks and rewards of ownership have been transferred to the buyer. No revenue is recognised if there is continuing management involvement with the goods or there are significant uncertainties regarding recovery of the consideration due, associated costs or the probable return of goods. Service income is recognised as services are provided.

#### ***Revenue from sale of electricity***

Revenue from sale of electricity is recognised in profit or loss based on the units of sales delivered at the applicable tariff rates.

#### ***Construction contracts***

Contract revenue includes the initial amount agreed in the contract plus any variations in contract work, claims and incentive payments to the extent that it is probable that they will result in revenue and can be measured reliably. As soon as the outcome of a construction contract can be estimated reliably, contract revenue and expenses are recognised in profit or loss in proportion to the stage of completion of the contract.

The stage of completion is assessed by reference to surveys of work performed. When the outcome of a construction contract cannot be estimated reliably, contract revenue is recognised only to the extent of contract costs incurred that are likely to be recoverable. An expected loss on a contract is recognised immediately in profit or loss.

### ***Rental income***

Rental income is recognised in profit or loss on a straight-line basis over the term of the lease. Lease incentives granted are recognised as an integral part of the total rental income. Contingent rentals are recognised as income in the accounting period in which they are earned.

### ***Dividend income***

Dividend income is recognised in profit or loss on the date the Group's right to receive payments is established.

### ***Interest and other income***

Interest and other income are recognised in profit or loss as it accrues.

### ***(s) Expenses***

#### ***Finance costs***

Interest expenses and similar costs are charged to profit or loss for the period in which they are incurred, except to the extent that they are capitalised as being directly attributable to the acquisition, construction or production of an asset which necessarily takes a substantial periods of time to be prepared for its intended use or sale.

#### ***Lease payments***

Payments made under operating leases are recognised in profit or loss on a straight-line basis over the term of the lease.

Contingent lease payments are accounted for by revising the minimum lease payments over the remaining term of the lease when the lease adjustment is confirmed.

#### ***Other expenses***

Other expenses are recognised in profit or loss as it accrues.

#### **(t) Income tax**

Income tax expense for the year comprises current and deferred tax. Current and deferred tax are recognised in profit or loss except to the extent that they relate to a business combination, or items recognised directly in equity or in other comprehensive income.

Current tax is the expected tax payable or receivable on the taxable income or loss for the year, using tax rates enacted or substantively enacted at the reporting date, and any adjustment to tax payable in respect of previous years.

Deferred tax is recognised in respect of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for taxation purposes. Deferred tax is not recognised for the following temporary differences: the initial recognition of goodwill; the initial recognition of assets or liabilities in a transaction that is not a business combination and that affects neither accounting nor taxable profit or loss; and differences relating to investments in subsidiaries and joint ventures to the extent that it is probable that they will not reverse in the foreseeable future.

The measurement of deferred tax reflects the tax consequences that would follow the manner in which the Group expects, at the end of the reporting period, to recover or settle the carrying amount of its assets and liabilities.

Deferred tax is measured at the tax rates that are expected to be applied to the temporary differences when they reverse, using tax rates enacted or substantively enacted at the reporting date.

In determining the amount of current and deferred tax, the Group takes into account the impact of uncertain tax positions and whether additional taxes and interest may be due. The Group believes that its accruals for tax liabilities are adequate for all open tax years based on its assessment of many factors, including interpretations of tax law and prior experience. This assessment relies on estimates and assumptions and may involve a series of judgements about future events. New information may become available that causes the Group to change its judgement regarding the adequacy of existing tax liabilities; such changes to tax liabilities will impact tax expense in the period that such a determination is made.

Deferred tax assets and liabilities are offset if there is a legally enforceable right to offset current tax liabilities and assets, and they relate to income taxes levied by the same tax authority on the same taxable entity, or on different tax entities, but they intend to settle

current tax liabilities and assets on a net basis or their tax assets and liabilities will be realised simultaneously.

A deferred tax asset is recognised to the extent that it is probable that future taxable profits will be available against which the temporary differences can be utilised. Future taxable profits are determined based on the reversal of relevant taxable temporary differences. If the amount of taxable temporary differences is insufficient to recognise a deferred tax asset in full, then future taxable profits, adjusted for reversals of existing temporary differences, are considered, based on the business plans for individual subsidiaries in the Group. Deferred tax assets are reviewed at each reporting date and reduced to the extent that it is no longer probable that the related tax benefit will be realised.

#### ***(u) Basic earnings per share***

The Group presents basic earnings per share (EPS) data for its ordinary shares. Basic earnings per share is calculated by dividing the profit or loss attributable to ordinary shareholders of the Company by the weighted average number of ordinary shares outstanding during the year.

#### ***(v) Segment reporting***

Segment results that are reported to the Group's CEO (the chief operating decision maker) include items directly attributable to a segment as well as those that can be allocated on a reasonable basis.

### **4. Business combination under common control**

On 3 July 2018, Gunkul Power Development Co., Ltd., a subsidiary, acquired 99.99 percent of ordinary share of Future Electrical Control Co., Ltd. which is common control under the same ultimate parent company before and after share purchase date amounting to Baht 618 million.

The consolidated financial statements have been prepared on the basis of a business combination under common control. The acquired net assets and interest of the share purchased are accounted for at book values as similar to pooling of interests method. The difference between the consideration paid and the carrying amount of net assets are

presented as “different arising from business combination under common control”. The details of consideration transferred for business combination under common control and net book value of the net assets acquired are as follows;

	Book value (in thousand Baht)
Cash and cash equivalents	44,372
Trade accounts receivable	27,404
Unbilled revenue	5,924
Other receivables	131,178
Revenue Department receivable	1,050
Inventories	32,189
Property, plant and equipment	14,134
Intangible assets	381
Deferred tax asset	428
Other non-current receivables	545
Short-term loans from financial institutions	(60,000)
Trade accounts payable	(32,342)
Unearned revenues	(60,588)
Retention payables	(27,012)
Other payables	(5,520)
Finance lease liabilities	(10,094)
Provisions for employee benefits	(2,424)
<b>Net identifiable asset and liabilities</b>	<b>59,625</b>

	Book value (in thousand Baht)
Add Non-controlling interests	-
<b>Net assets acquired</b>	<b>59,625</b>
Less Consideration paid	(618,000)
<b>Difference arising from business combination under common control</b>	<b>(558,375)</b>
<b>Purchase consideration transferred</b>	<b>618,000</b>
Cash acquired	(44,372)
<b>Net cash outflow</b>	<b>573,628</b>

The consolidated statements of financial position, the consolidated statement of comprehensive income and cash flows have been restated accordingly. The effects of the change from the retrospective adjustments are summarised as follows:

Statement of financial position	Consolidated financial statements					
	At 1 January 2017			At 31 December 2017		
	As previously reported	Adjustment	As restated	As previously reported	Adjustment	As restated
	(in thousand Baht)					
Cash and cash equivalents	2,468,236	201,867	2,670,103	1,048,230	109,787	1,158,017
Current investments	964,357	-	964,357	605,020	40,000	645,020
Trade accounts receivable	730,122	(17,854)	712,268	1,182,395	(28,415)	1,153,980
Other receivables	237,297	37,835	275,132	322,364	47,808	370,172

Statement of financial position	Consolidated financial statements					
	At 1 January 2017			At 31 December 2017		
	As previously reported	Adjustment	As restated	As previously reported	Adjustment	As restated
	(in thousand Baht)					
Short-term loans to related parties	-	227,490	227,490	-	402,390	402,390
Current portion of long-term loans to related party	-	-	-	-	19,000	19,000
Inventories	402,337	40,531	442,868	403,771	5,214	408,985
Long-term loan to related parties	-	19,000	19,000	-	-	-
Property, plant and equipment	13,604,875	(47,992)	13,556,883	18,124,997	(52,136)	18,072,861
Intangible assets	3,137,644	(63,036)	3,074,608	4,267,793	(199,608)	4,068,185
Others	4,050,964	4,433	4,055,397	4,422,446	5,398	4,427,844
<b>Total assets</b>	<b>25,595,832</b>	<b>402,274</b>	<b>25,998,106</b>	<b>30,377,016</b>	<b>349,438</b>	<b>30,726,454</b>
Short-term loans from financial institutions	3,980,797	4,747	3,985,544	2,231,925	40,042	2,271,967
Trade accounts payable	526,068	37,477	563,545	712,124	58,587	770,711
Unearned revenues	220,548	11,713	232,261	196,211	62,545	258,756
Payable for purchases of assets	745,730	(29,811)	715,919	1,702,854	(206,119)	1,496,735
Retention payables	451,313	(33,865)	417,448	577,745	(23,101)	554,644
Other payables	196,999	5,794	202,793	332,054	21,517	353,571
Income tax payable	5,142	18,798	23,940	33,807	21,220	55,027

Statement of financial position	Consolidated financial statements					
	At 1 January 2017			At 31 December 2017		
	As previously reported	Adjustment	As restated	As previously reported	Adjustment	As restated
	(in thousand Baht)					
Deferred tax liabilities	220,950	(8,788)	212,162	220,371	(31,776)	188,595
Others	9,499,029	17,490	9,516,519	14,567,270	25,319	14,592,589
<b>Total liabilities</b>	<b>15,846,576</b>	<b>23,555</b>	<b>15,870,131</b>	<b>20,574,361</b>	<b>(31,766)</b>	<b>20,542,595</b>
Owners of the parent	2,176,590	(65,785)	2,110,805	2,241,132	(235,354)	2,005,778
Former shareholder before business restructuring	-	444,504	444,504	-	616,558	616,558
Others	7,572,666	-	7,572,666	7,561,523	-	7,561,523
<b>Total equity</b>	<b>9,749,256</b>	<b>378,719</b>	<b>10,127,975</b>	<b>9,802,655</b>	<b>381,204</b>	<b>10,183,859</b>
<b>Total liabilities and equity</b>	<b>25,595,832</b>	<b>402,274</b>	<b>25,998,106</b>	<b>30,377,016</b>	<b>349,438</b>	<b>30,726,454</b>

Statement of comprehensive income	Consolidated financial statements		
	For the year ended 31 December 2017		
	As previously reported	Adjustment	As restated
	(in thousand Baht)		
<b>Revenue</b>			
Revenue from sale	1,201,044	(41,062)	1,159,982
Revenue from construction services	1,962,577	82,465	2,045,042
Net foreign exchange gain	6,158	1,108	7,266
Interest income	27,307	11,433	38,740



Statement of comprehensive income	Consolidated financial statements		
	For the year ended 31 December 2017		
	As previously reported	Adjustment	As restated
	(in thousand Baht)		
Other income	54,544	4,256	58,800
Other	1,603,654	-	1,603,654
<b>Total revenue</b>	<b>4,855,284</b>	<b>58,200</b>	<b>4,913,484</b>
<b>Expenses</b>			
Cost of sale	829,721	(33,890)	795,831
Cost of sale of electricity	492,987	(2,730)	490,257
Cost of construction services	1,674,096	36,450	1,710,546
Selling expenses	50,935	7,019	57,954
Administrative expenses and others	566,889	25,260	592,149
Other	159,847	-	159,847
<b>Total expenses</b>	<b>3,774,475</b>	<b>32,109</b>	<b>3,806,584</b>
Share of profit of associates and joint ventures	269,263	-	269,263
<b>Profit before finance costs and income tax expense</b>	<b>1,350,072</b>	<b>26,091</b>	<b>1,376,163</b>
Finance costs	568,735	1,550	570,285
<b>Profit before income tax expense</b>	<b>781,337</b>	<b>24,541</b>	<b>805,878</b>
Income tax expense	69,780	21,310	91,090
<b>Profit for the year</b>	<b>711,557</b>	<b>3,231</b>	<b>714,788</b>

Statement of comprehensive income	Consolidated financial statements		
	For the year ended 31 December 2017		
	As previously reported	Adjustment	As restated
	(in thousand Baht)		
Other comprehensive income (loss) for the year, net of income tax	(286,805)	(746)	(287,551)
Total comprehensive income (loss) for the year	424,752	2,485	427,237
Profit attributable to:			
Owners of parent	635,363	(169,569)	465,794
Former shareholder before business restructuring	-	172,800	172,800
Non-controlling interests	76,194	-	76,194
Profit for the year	711,557	3,231	714,788
<i>Total comprehensive income (loss) attributable to:</i>			
Owners of parent	348,558	(169,569)	178,989
Former shareholder before business restructuring	-	172,054	172,054
Non-controlling interests	76,194	-	76,194
Total comprehensive income (loss) for the year	424,752	2,485	427,237
Basic earnings per share (Baht)	0.09	(0.03)	0.06
<i>Statement of cash flows for the year ended 31 December 2017</i>			
Net cash from operating activities	929,804	144,367	1,074,171
Net cash used in investing activities	(4,734,666)	(266,072)	(5,000,738)
Net cash from financing activities	2,396,563	29,625	2,426,188

Statement of comprehensive income	Consolidated financial statements		
	For the year ended 31 December 2017		
	As previously reported	Adjustment	As restated
	(in thousand Baht)		
Net decrease in cash and cash equivalents	(1,408,299)	(92,080)	(1,500,379)
Effect of exchange rate changes on balances held in foreign currencies	(11,707)	-	(11,707)
Cash and cash equivalents as at 1 January	2,468,236	201,867	2,670,103
Cash and cash equivalents at 31 December	1,048,230	109,787	1,158,017

## 5. Related parties

For the purposes of these financial statements, parties are considered to be related to the Group if the Group has the ability, directly or indirectly, to control or joint control the party or exercise significant influence over the party in making financial and operating decisions, or vice versa, or where the Group and the party are subject to common control or common significant influence. Related parties may be individuals or other entities.

Relationships with subsidiaries, associates, joint ventures, key management and other related parties were as follows:

Name of entities	Country of Incorporation/ Nationality	Nature of relationships
Gunkul Group Co., Ltd.	Thailand	Major shareholder
G.K. Power Product Co., Ltd.	Thailand	Subsidiary and/or common directors
G.K. Assembly Co., Ltd.	Thailand	Subsidiary and/or common directors
K.N.P Supply Co., Ltd.	Thailand	Subsidiary and/or common directors
Greenovation Power Co., Ltd.	Thailand	Subsidiary and/or common directors

Name of entities	Country of Incorporation/ Nationality	Nature of relationships
Wind Energy Development Co., Ltd.	Thailand	Subsidiary and/or common directors
NK Power Sola Co., Ltd.	Thailand	Subsidiary and/or common directors
Gunkul Solar Roof 1 Co., Ltd.	Thailand	Subsidiary and/or common directors
Gunkul Training Center Co., Ltd.	Thailand	Subsidiary and/or common directors
Solar Energy Society Co., Ltd.	Thailand	Subsidiary and/or common directors
Bright Green Power Co., Ltd.	Thailand	Subsidiary and/or common directors
Gunkul Power Development Co., Ltd.	Thailand	Subsidiary and/or common directors
Gunkul Solar Community Co., Ltd.	Thailand	Subsidiary and/or common directors
Siam Gunkul Solar Energy Co., Ltd.	Thailand	Subsidiary and/or common directors
Korat Wind Energy Co., Ltd.	Thailand	Subsidiary and/or common directors
Gunkul Energy Solution and Lighting Co.,Ltd. (Formerly: Gunkul LED Lighting Co., Ltd.)	Thailand	Subsidiary and/or common directors
GO Bioenergy Co., Ltd.	Thailand	Subsidiary and/or common directors
Infinite Alternative Energy Co., Ltd.	Thailand	Subsidiary and/or common directors
Eco Thaienergy Co., Ltd.	Thailand	Subsidiary and/or common directors
Gunkul Bioenergy Co., Ltd.	Thailand	Subsidiary and/or common directors
Gunkul International (Mauritius)	Mauritius	Subsidiary and/or common directors
Gunkul Solar Power Co., Ltd.	Thailand	Subsidiary and/or common directors
BMP Solar Co., Ltd.	Thailand	Subsidiary and/or common directors
Rang-Ngern Solution Co., Ltd.	Thailand	Indirect subsidiary and/or common directors
Outgrow A Co.,Ltd.	Thailand	Indirect subsidiary and/or common directors
Outgrow B Co.,Ltd. <sup>(2)</sup>	Thailand	Indirect subsidiary and/or common directors
Outgrow D Co.,Ltd.	Thailand	Indirect subsidiary and/or common directors

Name of entities	Country of Incorporation/ Nationality	Nature of relationships
Outgrow E Co.,Ltd.	Thailand	Indirect subsidiary and/or common directors
Outgrow Wood Supply A Co.,Ltd. <sup>(2)</sup>	Thailand	Indirect subsidiary and/or common directors
Outgrow Wood Supply B Co.,Ltd. <sup>(2)</sup>	Thailand	Indirect subsidiary and/or common directors
Gunkul Investment (Singapore) Pte. Ltd.	Singapore	Indirect subsidiary and/or common directors
Gunkul Myanmar Power (Hlawga) Pte. Ltd.	Singapore	Indirect subsidiary and/or common directors
Gunkul Myanmar Central Power 1 Company Limited	Myanmar	Indirect subsidiary and/or common directors
Sendai Okura GD Daiichi Godo Kaisha	Japan	Indirect subsidiary
Kimitsu Mega Solar Godo Kaisha	Japan	Indirect subsidiary
Future Asset Management Kabushiki Kaisha	Japan	Indirect subsidiary
GD Solar Utsunomiya Godo Kaisha	Japan	Indirect subsidiary
East Japan Solar 13 Godo Kaisha	Japan	Indirect subsidiary
Gunkul Solar Power 1 Co., Ltd.	Thailand	Indirect subsidiary and/or common directors
Gunkul Solar Power 2 Co., Ltd.	Thailand	Indirect subsidiary and/or common directors
Gunkul Solar Power 3 Co., Ltd. <sup>(2)</sup>	Thailand	Indirect subsidiary and/or common directors
Gunkul Solar Power 4 Co., Ltd. <sup>(2)</sup>	Thailand	Indirect subsidiary and/or common directors
Gunkul Solar Power 5 Co., Ltd. <sup>(2)</sup>	Thailand	Indirect subsidiary and/or common directors
Gunkul Solar Power 6 Co., Ltd. <sup>(2)</sup>	Thailand	Indirect subsidiary and/or common directors
Future Electrical Control Co., Ltd.	Thailand	Indirect subsidiary and/or common directors
G-Power Source Co., Ltd.	Thailand	Associate and/or common directors
Siam Wind Energy Co., Ltd. <sup>(1)</sup>	Thailand	Associate and/or common directors
Gunkul Chubu Powergen Co., Ltd.	Thailand	Joint venture
WHA Gunkul Green Solar Roof 1 Co., Ltd.	Thailand	Joint venture
WHA Gunkul Green Solar Roof 2 Co., Ltd. <sup>(1)</sup>	Thailand	Joint venture

Name of entities	Country of Incorporation/ Nationality	Nature of relationships
WHA Gunkul Green Solar Roof 3 Co., Ltd.	Thailand	Joint venture
WHA Gunkul Green Solar Roof 4 Co., Ltd. <sup>(1)</sup>	Thailand	Joint venture
WHA Gunkul Green Solar Roof 5 Co., Ltd. <sup>(1)</sup>	Thailand	Joint venture
WHA Gunkul Green Solar Roof 6 Co., Ltd.	Thailand	Joint venture
WHA Gunkul Green Solar Roof 8 Co., Ltd. <sup>(1)</sup>	Thailand	Joint venture
WHA Gunkul Green Solar Roof 9 Co., Ltd. <sup>(1)</sup>	Thailand	Joint venture
WHA Gunkul Green Solar Roof 10 Co., Ltd. <sup>(1)</sup>	Thailand	Joint venture
WHA Gunkul Green Solar Roof 16 Co., Ltd. <sup>(1)</sup>	Thailand	Joint venture
WHA Gunkul Green Solar Roof 17 Co., Ltd.	Thailand	Joint venture
Kenyir Gunkul Solar Sdn Bhd.	Malaysia	Joint venture
Gunkul Trading and Agency Co., Ltd.	Thailand	Common directors
FEC & SAC Joint venture	Thailand	Common directors
G.M.Supply and Construction Co., Ltd.	Thailand	Common directors
Gunkul Engineering(2000) Co., Ltd.	Thailand	Common directors
Great Miracle Asset Co., Ltd.	Thailand	Common directors
Great Miracle Asset 2 Co., Ltd.	Thailand	Common directors
Great Miracle Asset 3 Co., Ltd.	Thailand	Common directors
Great Miracle Asset 4 Co., Ltd.	Thailand	Common directors
Great Miracle Asset 5 Co., Ltd.	Thailand	Common directors
Great Miracle Asset 7 Co., Ltd.	Thailand	Common directors
Great Miracle Asset 8 Co., Ltd.	Thailand	Common directors
Great Miracle Asset 9 Co., Ltd.	Thailand	Common directors
Great Miracle Asset 10 Co., Ltd.	Thailand	Common directors

Name of entities	Country of Incorporation/ Nationality	Nature of relationships
Great Miracle Asset 11 Co., Ltd.	Thailand	Common directors
Great Miracle Asset 13 Co., Ltd.	Thailand	Common directors
Great Miracle Asset 14 Co., Ltd.	Thailand	Common directors
Pranburi Boulevard Co., Ltd.	Thailand	Common directors
Gunkul Tech Co., Ltd. <sup>(1)</sup>	Thailand	Holding by major shareholder
Noprakul Co., Ltd.	Thailand	Holding by the director
Gunkul Marine Line Co., Ltd.	Thailand	Holding by the director
Siam Gunkul Power Co., Ltd. <sup>(1)</sup>	Thailand	Holding by the director
Thonglor 9 Co., Ltd.	Thailand	Holding by major shareholder
Kulnatee Co., Ltd.	Thailand	Holding by close relative of a director
Green Filed Energy Co., Ltd.	Thailand	Holding by close relative of a director
P.M. Building Group Co., Ltd.	Thailand	Holding by close relative of a director
Tech-Green Co., Ltd.	Thailand	Holding by major shareholder
Siam Future Co., Ltd	Thailand	Holding by major shareholder
Entirety Sap Co., Ltd.	Thailand	Holding by major shareholder
Happy Green 2558 Co., Ltd.	Thailand	Holding by major shareholder
Key management personnel	Thailand	Persons having authority and responsibility for planning, directing and controlling the activities of the entity, directly or indirectly, including any director (whether executive or otherwise) of the Group

<sup>(1)</sup> The liquidation was completed during the year 2017

<sup>(2)</sup> The liquidation was completed during the year 2018

The pricing policies for particular types of transactions are explained further below:

Transactions	Pricing policies
Purchase and sale of goods	Cost price plus 5% to 30%
Services fee	Contractually agreed prices
Interest income and expense	Interest rate equal to interest rate of loan from financial institution
Rental	Nearby the appraisal value by independent appraiser
Purchase and sales of assets	Net book value
Construction expense	Contractually agreed prices

Significant transactions for the years ended 31 December with related parties were as follows:

Year ended 31 December	Consolidated financial statements		Separate financial statements	
	2018	2017 (Restated)	2018	2017 (Restated)
	(in thousand Baht)			
Subsidiaries				
Revenue from sale	-	-	148,862	18,968
Revenue from rendering of services	-	-	1,575	1,575
Management service income	-	-	5,414	5,400
Rental income	-	-	255	255
Interest income	-	-	24,721	21,971
Dividend income	-	-	1,284,961	464,654
Purchase of goods and services	-	-	521,746	410,871
Cost of construction services	-	-	-	130



Year ended 31 December	Consolidated financial statements		Separate financial statements	
	2018	2017 (Restated)	2018	2017 (Restated)
	(in thousand Baht)			
Interest expenses	-	-	1,820	1,154
Training expense	-	-	1,160	162
Purchase of assets	-	-	170	200
Sale of assets	-	-	197	-
<b>Associates</b>				
Revenue from rendering of services	27,337	29,246	507	9,101
Dividend income	-	-	50,406	70,122
<b>Joint ventures</b>				
Revenue from rendering of services	28,423	33,345	8,555	26,250
Management service income	5,110	4,913	5,110	4,913
Dividend income	-	-	156,580	107,103
<b>Other related parties</b>				
Revenue from sale	10	44	10	10,528
Revenue from rendering of services	55	-	-	-
Interest income	3,162	-	-	-
Office and warehouse rental fee	9,492	11,518	7,299	8,439
Sale of assets	34	6	34	6

### ***Key management personnel compensation***

Key management personnel compensation are benefits paid to directors and executives of the Company. They comprise of management compensation such as salaries, related benefit, included post-employment benefits and directors' remuneration.

Year ended 31 December	Consolidated financial statements		Separate financial statements	
	2018	2017 (Restated)	2018	2017 (Restated)
	(in thousand Baht)			
Short-term employee benefit	141,252	101,476	113,325	86,516
Post-employment benefits	2,596	2,012	2,220	1,705
<b>Total</b>	<b>143,848</b>	<b>103,488</b>	<b>115,545</b>	<b>88,221</b>

Balances as at 31 December with related parties were as follows:

Year ended 31 December	Consolidated financial statements		Separate financial statements	
	2018	2017 (Restated)	2018	2017 (Restated)
	(in thousand Baht)			
Trade accounts receivable - related parties				
Subsidiaries				
G.K. Assembly Co., Ltd.	-	-	953	-
K.N.P Supply Co., Ltd.	-	-	-	1,436
NK Power Sola Co., Ltd.	-	-	211	-
Gunkul Power Development Co., Ltd	-	-	133,271	1,181
Rang-Ngern Solution Co., Ltd.	-	-	-	1,441
Gunkul Solar Roof 1 Co., Ltd.	-	-	-	4
Solar Energy Society Co., Ltd.	-	-	3,328	-
Gunkul Solar Community	-	-	3,205	-
Eco Thaienergy Co., Ltd.	-	-	-	64

Year ended 31 December	Consolidated financial statements		Separate financial statements	
	2018	2017 (Restated)	2018	2017 (Restated)
	(in thousand Baht)			
Future Electrical Control Co., Ltd.	-	-	2,799	7,655
<b>Associate</b>				
G-Power Source Co., Ltd.	1,586	1,189	-	-
<b>Joint ventures</b>				
Gunkul Chubu Powergen Co., Ltd.	3,424	4,932	-	4,932
WHA Gunkul Green Solar Roof 1 Co., Ltd.	52	50	-	-
WHA Gunkul Green Solar Roof 3 Co., Ltd.	68	66	-	-
WHA Gunkul Green Solar Roof 6 Co., Ltd.	68	66	-	-
WHA Gunkul Green Solar Roof 17 Co., Ltd.	82	79	-	-
<b>Other related party</b>				
Kulnatee Co., Ltd.	-	15	-	15
<b>Total</b>	<b>5,280</b>	<b>6,397</b>	<b>143,767</b>	<b>16,728</b>
<i>Other receivables - related parties</i>				
<b>Subsidiaries</b>				
G.K. Assembly Co., Ltd.	-	-	28	487
K.N.P Supply Co., Ltd.	-	-	1	8
Gunkul Power Development Co., Ltd.	-	-	362	2,303
Gunkul Energy Solution and Lighting Co.,Ltd.	-	-	3,853	2,318
Rang-Ngern Solution Co., Ltd.	-	-	449	15
Eco Thaienergy Co., Ltd.	-	-	33	778
NK Power Sola Co., Ltd.	-	-	203	164

Year ended 31 December	Consolidated financial statements		Separate financial statements	
	2018	2017 (Restated)	2018	2017 (Restated)
	(in thousand Baht)			
Gunkul Solar Power Co., Ltd.	-	-	-	9
Gunkul Solar Power 5 Co., Ltd.	-	-	-	27
BMP Solar Co., Ltd.	-	-	7,328	7,862
Korat Wind Energy Co., Ltd.	-	-	5,437	23
Solar Energy Society Co., Ltd.	-	-	39	407
Gunkul Solar Roof 1 Co., Ltd.	-	-	2	-
G.K. Power Product Co., Ltd.	-	-	876	-
Bright Green Power Co., Ltd.	-	-	1	-
Future Electrical Control Co., Ltd.	-	-	23	-
Greenovation Power Co., Ltd.	-	-	108	-
<b>Associates</b>				
G-Power Source Co., Ltd.	115,804	115,804	115,804	115,804
<b>Joint venture</b>				
Gunkul Chubu Powergen Co., Ltd.	456	10	456	10
<b>Other related parties</b>				
Gunkul Trading and Agency Co., Ltd.	32	-	32	-
<b>Total</b>	<b>116,292</b>	<b>115,814</b>	<b>135,035</b>	<b>130,215</b>

### Loans to related parties

	Interest rate		Consolidated financial statements	
	2018	2017 (Restated)	2018	2017 (Restated)
	%		(in thousand Baht)	
Other related parties				
Short-term loans				
Director	-	1.50 - 4.85	-	392,390
Kulnatee Co., Ltd.	-	1.50	-	10,000
Current portion of long-term loan				
Kulnatee Co., Ltd.	-	4.55	-	19,000
Total			-	421,390

Movements during the years ended 31 December of short-term loans to related parties were as follows:

### Short-term loans to related parties

	Consolidated financial statements	
	2018	2017 (Restated)
	(in thousand Baht)	
As at 1 January	421,390	246,490
Increase	-	203,300
Decrease	(421,390)	(28,400)
<b>As at 31 December</b>	<b>-</b>	<b>421,390</b>

	Interest rate		Separate financial statements	
	2018	2017	2018	2017
	(%)		(in thousand Baht)	
Subsidiaries				
Bright Green Power Co., Ltd.	3.00	-	43,828	40,328
Gunkul Energy Solution and Lighting Co., Ltd.	2.62 - 3.13	2.65 - 3.13	54,000	44,000
Gunkul Solar Power Co., Ltd.	-	2.97	-	500
BMP Solar Co., Ltd.	3.73	2.69 - 3.01	388,483	440,980
Solar Energy Society Co., Ltd.	-	2.77	-	31,000
Korat Wind Energy Co., Ltd.	2.57 - 2.98	-	1,069,067	-
Future Electrical Control Co., Ltd.	2.51	-	10,000	-
Gunkul Power Development Co., Ltd.	2.57	-	57,075	-
Greenovation Power Co., Ltd.	2.49	-	132,000	-
Total			1,754,453	556,808

Movements during the years ended 31 December of short-term loans to related parties were as follows:

### Short-term loans to related parties

	Separate financial statements	
	2018	2017
	(in thousand Baht)	
As at 1 January	556,808	557,328
Increase	1,985,603	1,689,286
Decrease	(787,958)	(1,689,806)
As at 31 December	1,754,453	556,808

### Trade accounts payable - related parties

	Consolidated financial statements		Separate financial statements	
	2018	2017 (Restated)	2018	2017 (Restated)
	(in thousand Baht)			
Subsidiaries				
G.K. Assembly Co., Ltd.	-	-	50,967	119,586
G.K. Power Product Co., Ltd.	-	-	127,692	58,511
K.N.P Supply Co., Ltd.	-	-	-	1,508
Gunkul Energy Solution and Lighting Co., Ltd.	-	-	13	2,214
Total	-	-	178,672	181,819

### Other payable - related parties

	Consolidated financial statements		Separate financial statements	
	2018	2017 (Restated)	2018	2017 (Restated)
	(in thousand Baht)			
Subsidiaries				
Gunkul Power Development Co.,Ltd.	-	-	-	1,505
Gunkul Solar Power 5 Co., Ltd.	-	-	-	98
Solar Energy Society Co., Ltd.	-	-	808	-
Gunkul Solar Power Co., Ltd.	-	-	1,012	-
Joint venture				
Gunkul Chubu Powergen Co., Ltd.	6,133	8,555	-	8,555
Other related parties				
P.M. Building Group Co., Ltd.	-	58	-	-
Great Miracle Asset Co., Ltd.	-	145	-	145
Great Miracle Asset 2 Co., Ltd.	-	168	-	168
Great Miracle Asset 3 Co., Ltd.	-	148	-	148
Great Miracle Asset 4 Co., Ltd.	-	92	-	-
Great Miracle Asset 5 Co., Ltd.	-	67	-	67
Great Miracle Asset 7 Co., Ltd.	-	51	-	-
Great Miracle Asset 9 Co., Ltd.	-	64	-	-
Total	6,133	9,348	1,820	10,686



	Consolidated financial statements		Separate financial statements	
	2018	2017 (Restated)	2018	2017 (Restated)
	(in thousand Baht)			
Retention payables - Subsidiary				
Future Electrical Control Co., Ltd.	-	-	1,763	2,362

*Short-term loans from related parties*

	Interest rate		Separate financial statements	
	2018	2017	2018	2017
	(%)		(in thousand Baht)	
Subsidiaries				
Gunkul International (Mauritius)	-	-	349,631	352,122
Solar Energy Society Co., Ltd.	2.73	-	54,000	-
Gunkul Solar Power Co., Ltd.	2.85	-	80,000	-
Total			483,631	352,122

Movements during the years ended 31 December of short-term loans from related parties were as follows:

### *Short-term loans from related parties*

	Separate financial statements	
	2018	2017
	(in thousand Baht)	
As at 1 January	352,122	-
Increase	134,000	652,122
Decrease	(2,491)	(300,000)
As at 31 December	483,631	352,122

### *Significant agreements with related parties*

As at 31 December 2018, the Group had agreements with related parties as follows:

#### **Land building and properties lease/sublease agreements**

The Company has land lease agreement for power plants construction with a subsidiary for the period of 26 years expiring in June 2039. The subsidiary has committed to pay rental fee as stipulated in the agreement.

The Company and certain subsidiaries have land lease, sublease land building and properties with certain related parties. The agreements are for period of 2-3 years and shall be renewable. The Company and subsidiaries have committed to pay rental fee as stipulated in the agreements.

The Company and certain subsidiaries have lease/sublease land building property and rooftop space with its subsidiaries in the Group. The agreements are for period of 2 to 26 years and shall be renewable. The Company and subsidiaries has committed to pay rental fee as stipulated in the agreements.

### ***Operation and maintenance agreements***

The Company and a subsidiary had several operation and maintenance agreements with subsidiaries, associate and joint ventures whereby the service fees are stipulated in the agreements. These agreements expire in June 2023.

### ***Service agreements***

Joint ventures and subsidiaries had several service agreements with the company whereby the agreements is for a period of 5 years and shall be renewable. The service fees are stipulated in the agreements. These agreements expire in December 2020 to December 2022.

### ***Construction service agreements***

The certain subsidiaries had several construction service agreements with its subsidiaries in the Group. The subsidiaries have committed to pay services fee as stipulated in the agreements.

### ***Asset management service agreements***

Four subsidiaries in Japan have asset management service agreements with a subsidiary in Japan. These agreements have a period of 20 years commencing from commercial operation date. The agreements expire during April 2038 to December 2041. The services fee are stipulated in the agreements.

### ***Security***

At 31 December 2018, the Company has pledged promissory notes of loan to related party with a book value of Baht 388.48 million as collateral to secure long-term loan received from a commercial bank (See note 18).

## 6. Cash and cash equivalents

	Consolidated financial statements		Separate financial statements	
	2018	2017 (Restated)	2018	2017
	(in thousand Baht)			
Cash on hand	946	2,447	200	205
Cash at banks-current accounts	242,860	89,582	12,772	87,908
Cash at banks-savings accounts	462,418	1,001,617	188,728	141,484
Highly liquid short-term investments	535	516	25	25
Cheques on hand	185,894	63,855	72,038	10,707
<b>Cash and cash equivalents in the statement of financial position</b>	<b>892,653</b>	<b>1,158,017</b>	<b>273,763</b>	<b>240,329</b>

## 7. Current investments

	Consolidated financial statements		Separate financial statements	
	2018	2017 (Restated)	2018	2017
	(in thousand Baht)			
Bill of exchange	79,551	-	79,552	-
Equity and debt securities available-for-sale	526,538	645,020	450,354	550,021
<b>Total</b>	<b>606,089</b>	<b>645,020</b>	<b>529,906</b>	<b>550,021</b>

As at 31 December 2018, the Group has current investments in bill of exchange, the period is 3 months and interest bearing at the rate between 3.3% to 6% per annum.

Movements during the years ended 31 December of marketable equity and debt securities were as follows:

	Consolidated financial statements		Separate financial statements	
	2018	2017 (Restated)	2018	2017
	(in thousand Baht)			
Current investment				
Available-for-sale securities				
At 1 January	645,020	-	550,021	-
Purchases during the year	1,855,000	645,000	1,700,000	550,000
Sales during the year	(1,974,309)	-	(1,799,822)	-
Valuation adjustment	827	20	155	21
At 31 December	526,538	645,020	450,354	550,021

## 8. Trade accounts receivable

	Note	Consolidated financial statements		Separate financial statements	
		2018	2017 (Restated)	2018	2017
		(in thousand Baht)			
Related parties	4	5,280	6,397	143,767	16,728
Other parties		1,064,415	1,149,668	246,015	207,264
<b>Total</b>		<b>1,069,695</b>	<b>1,156,065</b>	<b>389,782</b>	<b>223,992</b>

	Note	Consolidated financial statements		Separate financial statements	
		2018	2017 (Restated)	2018	2017
		(in thousand Baht)			
Less allowance for doubtful accounts		(896)	(2,085)	(896)	(896)
<b>Net</b>		<b>1,068,799</b>	<b>1,153,980</b>	<b>388,886</b>	<b>223,096</b>
(Reversal of) bad and doubtful debts expense for the year		(1,189)	-	-	-

Aging analyses for trade accounts receivable were as follows:

	Consolidated financial statements		Separate financial statements	
	2018	2017 (Restated)	2018	2017
	(in thousand Baht)			
Related parties				
Within credit terms	5,280	6,382	74,971	14,555
Overdue:				
Less than 3 months	-	12	68,796	1,178
3-6 months	-	3	-	3
6-12 months	-	-	-	992
	5,280	6,397	143,767	16,728

	Consolidated financial statements		Separate financial statements	
	2018	2017 (Restated)	2018	2017
	(in thousand Baht)			
Other parties				
Within credit terms	858,189	666,029	194,164	143,476
Overdue:				
Less than 3 months	161,077	457,557	37,880	43,009
3-6 months	31,679	8,964	994	8,258
6-12 months	773	3,516	487	205
Over 12 months	12,697	13,602	12,490	12,316
	1,064,415	1,149,668	246,015	207,264
Less allowance for doubtful accounts	(896)	(2,085)	(896)	(896)
	1,063,519	1,147,583	245,119	206,368
Net	1,068,799	1,153,980	388,886	223,096

The normal credit term granted by the Group ranges from 30 days to 90 days.

## 9. Unbilled revenue

	Consolidated financial statements		Separate financial statements	
	2018	2017 (Restated)	2018	2017
	(in thousand Baht)			
Cost attributable profit	4,146,369	2,525,954	90,116	28,649
Progress billings	(3,921,193)	(1,766,344)	(90,116)	(16,500)
<b>Net</b>	<b>225,176</b>	<b>759,610</b>	<b>-</b>	<b>12,149</b>

## 10. Inventories

	Consolidated financial statements		Separate financial statements	
	2018	2017 (Restated)	2018	2017
	(in thousand Baht)			
Finished goods	374,653	244,642	287,621	186,195
Work in progress	714	43,880	-	-
Raw materials	146,082	85,470	-	-
Factory supplies	1,713	1,009	-	-
Construction in progress	11,343	30,352	-	11
Goods in transit	28,566	25,177	6,284	15,791
<b>Total</b>	<b>563,071</b>	<b>430,530</b>	<b>293,905</b>	<b>201,997</b>
Less allowance for declining in value of inventories	(22,904)	(21,545)	(9,572)	(7,092)
<b>Net</b>	<b>540,167</b>	<b>408,985</b>	<b>284,333</b>	<b>194,905</b>



	Consolidated financial statements		Separate financial statements	
	2018	2017 (Restated)	2018	2017
	(in thousand Baht)			
Inventories recognised as an expense in 'cost of sales of goods':				
- Cost	942,224	793,030	942,408	826,837
- Write-down to net realisable value	2,913	10,750	2,480	2,411
- Reversal of write-down	(1,554)	(7,949)	-	(2,748)
<b>Net</b>	<b>943,583</b>	<b>795,831</b>	<b>944,888</b>	<b>826,500</b>

## 11. Investments in associates and joint ventures

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in thousand Baht)			
At 1 January	1,386,640	1,295,934	917,645	918,977
Share of net profit of associates and joint ventures	269,403	269,263	-	-
Acquisition	56,560	-	56,560	-
Dividend income	(206,986)	(177,225)	-	-
Disposals	-	(1,332)	-	(1,332)
<b>At 31 December</b>	<b>1,505,617</b>	<b>1,386,640</b>	<b>974,205</b>	<b>917,645</b>

### ***Investment in Kenyir Gunkul Solar Sdn Bhd.***

On 27 April 2018, the Company entered into a Joint Venture Agreement to established Kenyir Gunkul Solar Sdn Bhd., a joint venture, in order to invest in solar ground in Terengganu, Malaysia with the capacity of 29.99 MW, totalling investment amount of Malaysian Ringgit 26.11 million. The Company held 49% of total authorised ordinary share and 70% of total amount of preferred share. The Company has the right to vote at 49% and receive dividend at 70% from the joint venture. Shareholder agreements assigned the structure of the business operation and the strategic, operating and financing decisions which required unanimous consent from all parties. On 4 May 2018, the Company paid for the first share subscription amounting to Malaysian Ringgit 7 million or equivalents to Baht 56.56 million.

*Investment in associates and joint ventures as at 31 December 2018 and 2017, and dividend income for the years then ended were as follows:*

	Consolidated financial statements									
	Ownership interest		Paid-up capital		Cost		Equity		Dividend income	
	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017
	(%)		(in thousand Baht)							
Associate										
G-Power Source Co., Ltd.	40.00	40.00	930,000	930,000	397,595	397,595	426,853	381,407	50,406	70,122
					397,595	397,595	426,853	381,407	50,406	70,122
Joint ventures										
Gunkul Chubu Powergen Co., Ltd.	51.00	51.00	992,000	992,000	505,920	505,920	1,014,184	997,010	155,317	107,103
WHA Gunkul Green Solar Roof 1 Co., Ltd.	25.01	25.01	11,500	11,500	2,876	2,876	1,720	1,318	13	-
WHA Gunkul Green Solar Roof 3 Co., Ltd.	25.01	25.01	14,500	14,500	3,626	3,626	2,745	2,220	125	-
WHA Gunkul Green Solar Roof 6 Co., Ltd.	25.01	25.01	14,500	14,500	3,626	3,626	2,721	2,151	125	-
WHA Gunkul Green Solar Roof 17 Co., Ltd.	25.01	25.01	16,000	16,000	4,002	4,002	2,125	2,534	1,000	-
Kenyir Gunkul Solar Sdn Bhd.	49.00	-	4,035	-	56,560	-	55,269	-	-	-
					576,610	520,050	1,078,764	1,005,233	156,580	107,103
Total					974,205	917,645	1,505,617	1,386,640	206,986	177,225

None of the Group's associate and joint ventures are publicly listed and consequently do not have published price quotations.

	Separate financial statements											
	Ownership interest		Paid-up capital		Cost		Impairment		At cost - net		Dividend income	
	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017
	(%)		(in thousand Baht)									
Associate												
G-Power Source Co., Ltd.	40.00	40.00	930,000	930,000	397,595	397,595	-	-	397,595	397,595	50,406	70,122
					397,595	397,595	-	-	397,595	397,595	50,406	70,122
Joint ventures												
Gunkul Chubu Powergen Co., Ltd.	51.00	51.00	992,000	992,000	505,920	505,920	-	-	505,920	505,920	155,317	107,103
WHA Gunkul Green Solar Roof 1 Co., Ltd.	25.01	25.01	11,500	11,500	2,876	2,876	-	-	2,876	2,876	13	-
WHA Gunkul Green Solar Roof 3 Co., Ltd.	25.01	25.01	14,500	14,500	3,626	3,626	-	-	3,626	3,626	125	-
WHA Gunkul Green Solar Roof 6 Co., Ltd.	25.01	25.01	14,500	14,500	3,626	3,626	-	-	3,626	3,626	125	-
WHA Gunkul Green Solar Roof 17 Co., Ltd.	25.01	25.01	16,000	16,000	4,002	4,002	-	-	4,002	4,002	1,000	-
Kenyir Gunkul Solar Sdn Bhd.	49.00	-	4,305	-	56,560	-	-	-	56,560	-	-	-
					576,610	520,050	-	-	576,610	520,050	156,580	107,103
Total					974,205	917,645	-	-	974,205	917,645	206,986	177,225

None of the Company's associate and joint ventures are publicly listed and consequently do not have published price quotations.

### Associates and joint ventures

The following table summarises the financial information of the associates and joint ventures as included in their own financial statements, adjusted for fair value adjustments at acquisition and differences in accounting policies. The table also reconciles the summarised financial information to the carrying amount of the Group's interest in these companies.

	Associates		Joint ventures	
	G-Power Source Co., Ltd.		Gunkul Chubu Powergen Co., Ltd.	
	2018	2017	2018	2017
	(in thousand Baht)			
Revenue	446,557	475,825	576,784	590,980
Profit	230,239	227,288	346,342	345,267
Other comprehensive income (loss)	-	-	-	(21)
Total comprehensive income (100%)	230,239	227,288	346,342	345,246
Total comprehensive income (40% and 51% hold)	92,096	90,916	176,634	176,075
Elimination of unrealised profit on sales of assets	8,140	8,134	7,251	7,256
Power purchase agreement	(4,384)	(4,384)	(11,394)	(11,394)
<b>Group's share of total comprehensive income</b>	<b>95,852</b>	<b>94,666</b>	<b>172,491</b>	<b>171,937</b>
Current assets	121,165	126,322	283,079	367,082
Non-current assets	2,284,348	2,404,433	2,422,482	2,548,880

	Associates		Joint ventures	
	G-Power Source Co., Ltd.		Gunkul Chubu Powergen Co., Ltd.	
	2018	2017	2018	2017
	(in thousand Baht)			
Current liabilities	(531,810)	(241,749)	(258,975)	(265,626)
Non-current liabilities	(631,691)	(1,151,218)	(609,626)	(855,174)
Net assets (100%)	1,242,012	1,137,788	1,836,960	1,795,162
Group's share of net assets (40% and 51% hold)	496,805	455,115	936,850	915,533
Elimination of unrealised profit on sales of assets	(150,629)	(158,769)	(142,273)	(149,524)
Power purchase agreement	80,677	85,061	219,607	231,001
<b>Carrying amount of interest in associate/joint ventures</b>	<b>426,853</b>	<b>381,407</b>	<b>1,014,184</b>	<b>997,010</b>
The Group's interests in net asset-accounted investee at 1 January	381,407	356,863	997,010	932,176
Other comprehensive income of the Group	95,852	94,666	172,491	171,937
Dividend during the year	(50,406)	(70,122)	(155,317)	(107,103)
<b>Carrying value of equity-accounted investee at 31 December</b>	<b>426,853</b>	<b>381,407</b>	<b>1,014,184</b>	<b>997,010</b>

### *Immaterial associates and joint ventures*

The following is summarised financial information for the Group's interest in immaterial associates and joint ventures based on the amounts reported in the Group's consolidated financial statements:

	Immaterial Associates		Immaterial Joint ventures	
	2018	2017	2018	2017
	(in thousand Baht)			
Carrying amount of interests in immaterial associates and joint ventures	-	-	64,580	8,223
Group's share of:				
- Profit (loss) from continuing operations	-	73	240	2,588
- Other comprehensive income (loss)	-	-	-	-
- Total comprehensive income (loss)	-	73	240	2,588

## 12. Investment in subsidiaries

	Separate financial statements	
	2018	2017
	(in thousand Baht)	
At 1 January	12,272,402	10,135,282
Increase in share capital of subsidiaries	629,642	1,926,122
Acquisition of subsidiary	-	206,938
Acquisition of Non-controlling interests	-	4,060
Decrease in share capital	(17,420)	-
At 31 December	12,884,624	12,272,402

### *Increase in share capital of subsidiaries*

#### *Gunkul Training Center Co.,Ltd.*

During the year ended 31 December 2018, the Company paid for the additional share capital amounting to Baht 0.75 million, totalling paid-up share capital amount of Baht 1 million.

#### ***Solar Energy Society Co., Ltd.***

During the year ended 31 December 2018, the Company paid for the additional share capital amounting to Baht 119.9 million, totalling paid-up share capital amount of Baht 140.3 million.

#### ***Bright Green Power Co., Ltd.***

During the year ended 31 December 2018, the Company paid for the additional share capital amounting to Baht 17.15 million, totalling paid-up share capital amount of Baht 120 million.

#### ***Gunkul Power Development Co., Ltd***

During the year ended 31 December 2018, the Company paid for the additional share capital amounting to Baht 276.25 million, totalling paid-up share capital amount of Baht 300 million.

#### ***Korat Wind Energy Co., Ltd.***

During the year ended 31 December 2018, the Company paid for the additional share capital amounting to Baht 207.97 million, totalling paid-up share capital amount of Baht 1,017.14 million.

#### ***Gunkul Bioenergy Co.,Ltd.***

During the year ended 31 December 2018, the Company paid for the additional share capital amounting to Baht 0.375 million, totalling paid-up share capital amount of Baht 0.5 million.

#### ***Gunkul Solar Community Co., Ltd.***

During the year ended 31 December 2018, the Company paid for the additional share capital amounting to Baht 7.25 million, totalling paid-up share capital amount of Baht 10 million.

#### ***Decrease in share capital of subsidiaries***

##### ***Infinite Alternative Energy Co., Ltd.***

During the year ended 31 December 2018, the Company decrease its registered capital from Baht 1,590 million to Baht 1,564 million by reduction of 0.26 million shares at par value of Baht 100 per share which is own by the parent company in the amount of Baht 17.42 million.



Investments in subsidiaries as at 31 December 2018 and 2017, and dividend income for the years then ended were as follows;

	Separate financial statements											
	Ownership interest		Paid-up capital		Cost		Impairment		At cost - net		Dividend income	
	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017
	(%)		(in thousand Baht)									
Subsidiaries												
G.K. Power Product Co., Ltd.	100.00	100.00	100,000	100,000	80,425	80,425	-	-	80,425	80,425	14,540	14,488
G.K. Assembly Co., Ltd.	100.00	100.00	200,000	200,000	163,188	163,188	-	-	163,188	163,188	50,000	-
K.N.P Supply Co., Ltd.	100.00	100.00	50,000	50,000	41,408	41,408	-	-	41,408	41,408	-	10,000
Greenovation Power Co., Ltd.	100.00	100.00	1,485,000	1,485,000	1,916,500	1,916,500	-	-	1,916,500	1,916,500	-	-
Wind Energy Development Co., Ltd.	100.00	100.00	1,575,000	1,575,000	2,226,150	2,226,150	-	-	2,226,150	2,226,150	389,025	-
NK Power Sola Co., Ltd.	100.00	100.00	2,600	2,600	40,854	40,854	-	-	40,854	40,854	12,000	20,000
Gunkul Solar Roof 1 Co., Ltd.	100.00	100.00	21,000	21,000	21,000	21,000	-	-	21,000	21,000	-	-
Gunkul Training Center Co., Ltd.	100.00	100.00	1,000	250	1,000	250	-	-	1,000	250	-	-
Solar Energy Society Co., Ltd.	100.00	100.00	140,300	20,400	140,300	20,400	-	-	140,300	20,400	-	2,040
Bright Green Power Co., Ltd.	100.00	100.00	120,000	102,850	120,000	102,850	-	-	120,000	102,850	-	-
Gunkul Power Development Co., Ltd	100.00	100.00	300,000	23,750	300,000	23,749	-	-	300,000	23,749	619,999	172,799
Gunkul Solar Community Co., Ltd.	100.00	100.00	10,000	2,750	10,000	2,750	-	-	10,000	2,750	-	-
Siam Gunkul Solar Energy Co., Ltd	100.00	100.00	40,900	40,900	40,899	40,899	-	-	40,899	40,899	-	6,033

	Separate financial statements											
	Ownership interest		Paid-up capital		Cost		Impairment		At cost - net		Dividend income	
	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017
	(%)		(in thousand Baht)									
Korat Wind Energy Co., Ltd.	100.00	100.00	1,017,138	809,170	1,448,887	1,240,920	-	-	1,448,887	1,240,920	-	-
Gunkul Energy Solution and Lighting Co., Ltd.	100.00	100.00	40,600	40,600	40,600	40,600	-	-	40,600	40,600	-	-
GO Bioenergy Co., Ltd.	74.90	74.90	34,300	34,300	25,690	25,690	-	-	25,690	25,690	-	-
Infinite Alternative Energy Co., Ltd.	67.00	67.00	1,564,000	1,590,000	1,088,576	1,105,996	-	-	1,088,576	1,105,996	165,436	238,094
Eco Thaienergy Co., Ltd.	51.00	51.00	76,500	76,500	42,015	42,015	-	-	42,015	42,015	6,964	-
Gunkul Bioenergy Co.,Ltd.	100.00	100.00	499	125	499	125	-	-	499	125	-	-
Gunkul International (Mauritius)	100.00	100.00	4,740,445	4,740,445	4,740,445	4,740,445	-	-	4,740,445	4,740,445	-	-
Gunkul Solar Power Co., Ltd.	100.00	100.00	179,250	179,250	179,250	179,250	-	-	179,250	179,250	-	-
Gunkul Solar Power 2 Co., Ltd.*	-	-	-	-	-	-	-	-	-	-	-	1,200
BMP Solar Co Ltd.	100.00	100.00	980	980	216,938	216,938	-	-	216,938	216,938	26,997	-
<b>Total</b>					<b>12,884,624</b>	<b>12,272,402</b>	<b>-</b>	<b>-</b>	<b>12,884,624</b>	<b>12,272,402</b>	<b>1,284,961</b>	<b>464,654</b>

None of the Company's subsidiaries are publicly listed and consequently do not have published price quotations.

\*In May 2017, the Company transferred the Company's shareholding in such companies to Gunkul Solar Power Co., Ltd. instead of paying by cash.

### 13. Non-controlling interests

The following table summarises the information relating to each of the Group's subsidiaries that has a material non-controlling interest, before any intra-group eliminations:

	Infinite Alternative Energy Co., Ltd.	
	2018	2017
	(in thousand Baht)	
Non-controlling interest percentage	33%	33%
Current assets	363,568	410,247
Non-current assets	4,971,616	5,134,846
Current liabilities	(273,026)	(267,166)
Non-current liabilities	(3,409,101)	(3,624,263)
<b>Net assets</b>	<b>1,653,057</b>	<b>1,653,664</b>
Carrying amount of non-controlling interest	544,119	549,048
Revenue	752,092	712,176
Profit	257,976	206,449
Other comprehensive income	6	-
<b>Total comprehensive income</b>	<b>257,982</b>	<b>206,449</b>
Profit allocated to non-controlling interest	85,132	68,128
Other comprehensive income allocated to non-controlling interest	2	68,128
Cash flows from operating activities	491,226	573,177
Cash flows from investing activities	(35,537)	(2,487)
Cash flows from financing activities	(481,894)	(547,262)
<b>Net increase (decrease) in cash and cash equivalents</b>	<b>(26,205)</b>	<b>23,428</b>

## 14. Property, plant and equipment

	Consolidated financial statements						
	Land	Building improve- ment and utility system	Machinery and equipment	Furniture, fixtures and office equipment	Vehicles	Assets under construc- tion	Total
	(in thousand Baht)						
Cost							
At 1 January 2017 (Restated)	1,000,380	742,129	8,410,982	61,118	144,670	3,714,198	14,073,477
Additions	30,601	1,731	41,540	3,297	6,162	4,619,760	4,703,091
Acquisition of subsidiary	35,000	21,000	320,084	-	-	-	376,084
Transfers	-	78,440	250,652	(12)	(24,253)	(304,827)	-
Disposals	-	(2,033)	(9,268)	(170)	(3,410)	-	(14,881)
Effect of movements in exchange rates	-	-	(3)	(86)	-	(141,607)	(141,696)
At 31 December 2017 and 1 January 2018 (Restated)	1,065,981	841,267	9,013,987	64,147	123,169	7,887,524	18,996,075
Additions	-	215	114,989	16,139	3,357	5,550,401	5,685,101
Transfers	-	218,187	10,962,601	13,000	-	(11,193,788)	-
Disposals	-	-	(10,676)	(2,325)	(188)	(107,170)	(120,359)
Effect of movements in exchange rates	-	-	-	18	-	30,966	30,984
At 31 December 2018	1,065,981	1,059,669	20,080,901	90,979	126,338	2,167,933	24,591,801
Accumulated depreciation and impairment losses							
At 1 January 2017 (Restated)	-	(82,239)	(326,676)	(40,771)	(66,586)	(322)	(516,594)
Depreciation charge for the year	-	(32,534)	(359,198)	(7,612)	(9,485)	-	(408,829)
Impairment losses	-	-	(160)	-	-	-	(160)
Transfer	-	4	(22,410)	-	22,406	-	-

	Consolidated financial statements						
	Land	Building improve- ment and utility system	Machinery and equipment	Furniture, fixtures and office equipment	Vehicles	Assets under construc- tion	Total
	(in thousand Baht)						
Disposals	-	-	292	120	1,907	-	2,319
Effect of movements in exchange rates	-	-	1	49	-	-	50
<b>At 31 December 2017 and 1 January 2018 (Restated)</b>	-	(114,769)	(708,151)	(48,214)	(51,758)	(322)	(923,214)
Depreciation charge for the year	-	(38,582)	(593,759)	(11,164)	(9,808)	-	(653,313)
Transfer	-	-	-	-	-	-	-
Disposals	-	-	1,340	1,391	141	-	2,872
Effect of movements in exchange rates	-	-	(51)	(2)	-	-	(53)
<b>At 31 December 2018</b>	-	(153,351)	(1,300,621)	(57,989)	(61,425)	(322)	(1,573,708)
<b>Net book value At 1 January 2017 (Restated)</b>							
Owned assets	1,000,380	659,890	8,080,923	20,347	13,953	3,713,876	13,489,369
Assets under finance leases	-	-	3,383	-	64,131	-	67,514
	<b>1,000,380</b>	<b>659,890</b>	<b>8,084,306</b>	<b>20,347</b>	<b>78,084</b>	<b>3,713,876</b>	<b>13,556,883</b>
<b>At 31 December 2017 and 1 January 2018 (Restated)</b>							
Owned assets	1,065,981	726,498	8,302,901	15,933	14,272	7,887,202	18,012,787
Assets under finance leases	-	-	2,935	-	57,139	-	60,074
	<b>1,065,981</b>	<b>726,498</b>	<b>8,305,836</b>	<b>15,933</b>	<b>71,411</b>	<b>7,887,202</b>	<b>18,072,861</b>
<b>At 31 December 2018</b>							
Owned assets	1,065,981	906,318	18,778,679	32,990	16,911	2,167,611	22,968,490
Assets under finance leases	-	-	1,601	-	48,002	-	49,603
	<b>1,065,981</b>	<b>906,318</b>	<b>18,780,280</b>	<b>32,990</b>	<b>64,913</b>	<b>2,167,611</b>	<b>23,018,093</b>

	Separate financial statements					
	Building and improve- ment	Machinery and equipment	Furniture, fixtures and office equipment	Vehicles	Assets under construc- tion	Total
	(in thousand Baht)					
<i>Cost</i>						
At 1 January 2017	32,608	21,076	33,316	74,595	-	161,595
Additions	-	26	745	4,876	6,678	12,325
Disposals	-	-	(8)	-	-	(8)
At 31 December 2017 and 1 January 2018	32,608	21,102	34,053	79,471	6,678	173,912
Additions	-	670	7,959	91	9,100	17,820
Transfer	-	-	13,000	-	(13,000)	-
Disposals	-	-	(1,255)	(188)	-	(1,443)
At 31 December 2018	32,608	21,772	53,757	79,374	2,778	190,289
<i>Accumulated depreciation</i>						
At 1 January 2017	(28,306)	(13,475)	(22,716)	(26,236)	-	(90,733)
Depreciation charge for the year	(486)	(3,022)	(3,812)	(5,290)	-	(12,610)
Disposals	-	-	4	-	-	4
At 31 December 2017 and 1 January 2018	(28,792)	(16,497)	(26,524)	(31,526)	-	(103,339)
Depreciation charge for the year	(487)	(935)	(6,996)	(5,515)	-	(13,933)
Disposals	-	-	1,027	141	-	1,168
At 31 December 2018	(29,279)	(17,432)	(32,493)	(36,900)	-	(116,104)
<i>Net book value At 1 January 2017</i>						
Owned assets	4,302	7,601	10,600	3,297	-	25,800
Assets under finance leases	-	-	-	45,062	-	45,062
	4,302	7,601	10,600	48,359	-	70,862

	Separate financial statements					
	Building and improve- ment	Machinery and equipment	Furniture, fixtures and office equipment	Vehicles	Assets under construc- tion	Total
	(in thousand Baht)					
At 31 December 2017 and 1 January 2018						
Owned assets	3,816	4,605	7,529	12,965	6,678	35,593
Assets under finance leases	-	-	-	34,980	-	34,980
	3,816	4,605	7,529	47,945	6,678	70,573
At 31 December 2018						
Owned assets	3,329	4,340	21,264	15,391	2,778	47,102
Assets under finance leases	-	-	-	27,083	-	27,083
	3,329	4,340	21,264	42,474	2,778	74,185

The gross amount of the Group's fully depreciated plant and equipment that was still in use as at 31 December 2018 amounting to Baht 177.19 million (2017: Baht 146.17 million).

### *Security*

At 31 December 2018, the Group has pledged land, building and machinery with a net book value of Baht 20,757 million as collateral to secure long-term loans (31 December 2017: Baht 13,529 million) (See note 18).

Capitalised borrowing costs relating to the power plant under construction amounted to Baht 92.85 million (2017: 54.59 million), with a capitalization rate of 2.35% – 4.60% (2017: 2.62% - 3.11%).

## 15. Intangible assets and goodwill

	Consolidated financial statements					
	Software licences	Right to use electrical transmission line	Right to power purchase agreement and right to operate	Goodwill	Software under installation	Total
	(in thousand Baht)					
<b>Cost</b>						
At 1 January 2017 (Restated)	10,471	421,656	2,667,094	220,950	-	3,320,171
Additions	1,702	464,805	305,356	-	-	771,863
Acquisitions of subsidiary	-	-	209,687	49,235	-	258,922
Reclassification of account	-	-	123,211	(106,709)	-	16,502
Effect of movements in exchange rates	-	-	(47,593)	-	-	(47,593)
<b>At 31 December 2017 and 1 January 2018 (Restated)</b>	<b>12,173</b>	<b>886,461</b>	<b>3,257,755</b>	<b>163,476</b>	<b>-</b>	<b>4,319,865</b>
Additions	2,554	1,736	237,412	-	780	242,482
Effect of movements in exchange rates	-	-	12,058	-	-	12,058
<b>At 31 December 2018</b>	<b>14,727</b>	<b>888,197</b>	<b>3,507,225</b>	<b>163,476</b>	<b>780</b>	<b>4,574,405</b>
<b>Accumulated amortisation and impairment losses</b>						
At 1 January 2017 (Restated)	(4,145)	(2,035)	(18,435)	-	-	(24,615)
Amortisation charge for the year	(1,399)	(14,224)	(47,966)	-	-	(63,589)
<b>At 31 December 2017 and 1 January 2018 (Restated)</b>	<b>(5,544)</b>	<b>(16,259)</b>	<b>(66,401)</b>	<b>-</b>	<b>-</b>	<b>(88,204)</b>
Amortisation charge for the year	(1,629)	(28,268)	(79,559)	-	-	(109,496)
<b>At 31 December 2018</b>	<b>(7,173)</b>	<b>(44,527)</b>	<b>(146,000)</b>	<b>-</b>	<b>-</b>	<b>(197,700)</b>



	Consolidated financial statements					
	Software licences	Right to use electrical transmission line	Right to power purchase agreement and right to operate	Goodwill	Software under installation	Total
	(in thousand Baht)					
Net book value						
At 1 January 2017 (Restated)	6,326	419,621	2,648,659	220,950	-	3,295,556
At 31 December 2017 and 1 January 2018 (Restated)	6,629	870,202	3,191,354	163,476	-	4,231,661
At 31 December 2018	7,554	843,670	3,361,225	163,476	780	4,376,705

In 2017, the Company obtained additional information related to business acquisitions in the past and made reallocation between goodwill and power purchase agreements, including relates deferred taxes. The Company's management considered the reclassification is considered necessary to disclose appropriate amounts of the acquired assets. The result of this reallocation has no impact to the Group's financial position or performance for the year ended 31 December 2017 due to the immaterial in nature of the transactions.

#### ***Impairment testing for cash-generating units containing goodwill***

The recoverable amounts of the power plant asset containing goodwill have been determined using the value in use models. The key assumptions used in the estimation of the recoverable amount included the discount rate which was a post-tax measure estimated based on 25 years government bond rate as a proxy for the risk free rate with debt leveraging of 75% for Solar power station and 70% - 75% for Wind Farm power station. The cash flow projections were prepared using the external information, which included sales volumes, prices, operating costs, inflation rate and long-term growth rates for the period over the remaining of the power purchase agreements.

The key assumptions used in the estimation of the recoverable amount are set out below. The values assigned to the key assumptions represent management's assessment of future trends in the relevant industries and have been based on historical data from both external and internal sources.

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(%)			
Discount rate-Solar power stations	7.26 – 8.25	8.37 - 9.48	-	-
Discount rate-Wind Farm power stations	8.18 – 8.26	9.44 - 9.85	-	-

The discount rate was a post-tax measure based on the rate of 25 years government bonds issued by the government in the relevant market and in the same currency as the cash flows, adjusted for a risk premium to reflect both the increased risk of investing in equities generally and the systematic risk of the specific CGU.

#### *Revenue projection*

Projections of all revenues for each power plant assets have been made as stated in the Power Purchase Agreements while applying the projections of revenue from external information for the post power purchase agreement periods. Assumptions included tariff from solar power plants and wind farms, inflation and other related factors.

The impairment test has been prepared by the management from information of the contracts entered with the counterparties while forecasting revenue and expenses from the external source and the possible together with systematic parameters and conservative approaches are used for its calculation and no impairment charges are required for goodwill.

Management believes that any reasonably possible change in the key assumptions such as discounted rates, adder and growth rate on which recoverable amount is based would not cause the carrying amount to exceed its recoverable amount.

Separate financial  
statements  
Software licences  
(in thousand Baht)

<i>Cost</i>	
At 1 January 2017	5,526
Additions	450
<b>At 31 December 2017 and 1 January 2018</b>	<b>5,976</b>
Additions	1,993
<b>At 31 December 2018</b>	<b>7,969</b>
<i>Accumulated amortisation</i>	
At 1 January 2017	(862)
Amortisation charge for the year	(1,022)
<b>At 31 December 2017 and at 1 January 2018</b>	<b>(1,884)</b>
Amortisation charge for the year	(1,157)
<b>At 31 December 2018</b>	<b>(3,041)</b>
<i>Net book value</i>	
At 1 January 2017	4,664
<b>At 31 December 2017 and at 1 January 2018</b>	<b>4,092</b>
<b>At 31 December 2018</b>	<b>4,928</b>

## 16. Deferred tax

Deferred tax assets and liabilities as at 31 December 2018 and 2017 were as follows:

	Consolidated financial statements			
	Assets		Liabilities	
	2018	2017 (Restated)	2018	2017 (Restated)
	(in thousand Baht)			
Total	157,482	102,782	(270,247)	(269,445)
Set off of tax	(82,017)	(80,849)	82,017	80,849
Net deferred tax assets (liabilities)	75,465	21,933	(188,230)	(188,596)

	Separate financial statements			
	Assets		Liabilities	
	2018	2017	2018	2017
	(in thousand Baht)			
Total	63,557	11,657	(2,457)	(2,265)
Set off of tax	(2,457)	(2,265)	2,457	2,265
Net deferred tax assets	61,100	9,392	-	-

Movements in total deferred tax assets and liabilities during the year were as follows:

	Consolidated financial statements			
	At 1 January 2018 (Restated)	(Charged) / credited to		At 31 December 2018
		Profit or loss	Other comprehen- sive income	
	(in thousand Baht)			
<i>Deferred tax assets</i>				
Trade account receivable and other receivables	208	608	-	816
Inventories	3,779	758	-	4,537
Provisions	11,304	168	-	11,472
Provisions for employee benefit	9,018	1,423	-	10,441
Profit in inventories	2,885	246	-	3,131
Profit in property, plant and equipment	22,476	-	-	22,476
Profit in intangible assets	23,334	-	-	23,334
Property, plant and equipment	27,479	-	-	27,479
Finance leases liabilities	-	5	-	5
Loss carry forward	2,299	51,492	-	53,791
<b>Total</b>	<b>102,782</b>	<b>54,700</b>	<b>-</b>	<b>157,482</b>
<i>Deferred tax liabilities</i>				
Property, plant and equipment	(2,418)	(545)	-	(2,963)
Right to power purchase agreement and right to operate (See note 15)	(264,263)	-	-	(264,263)
Finance leases liabilities	(2,764)	(257)	-	(3,021)
<b>Total</b>	<b>(269,445)</b>	<b>(802)</b>	<b>-</b>	<b>(270,247)</b>
<b>Net</b>	<b>(166,663)</b>	<b>53,898</b>	<b>-</b>	<b>(112,765)</b>

	Consolidated financial statements (Restated)				
	At 1 January 2017	(Charged) / credited to:			At 31 December 2017
		Profit or loss	Other compre- hensive income	Acquired in business combina- tion	
	(in thousand Baht)				
<i>Deferred tax assets</i>					
Trade account receivable and other receivables	167	41	-	-	208
Inventories	3,327	452	-	-	3,779
Provisions	5,580	5,724	-	-	11,304
Provisions for employee benefit	4,375	875	3,768	-	9,018
Profit in inventories	3,756	(871)	-	-	2,885
Profit in property, plant and equipment	25,645	(3,169)	-	-	22,476
Profit in intangible assets	1,098	22,236	-	-	23,334
Property, plant and equipment	-	-	-	27,479	27,479
Loss carry forward	68,514	(66,215)	-	-	2,299
<b>Total</b>	<b>112,462</b>	<b>(40,927)</b>	<b>3,768</b>	<b>27,479</b>	<b>102,782</b>

	Consolidated financial statements (Restated)				
	At 1 January 2017	(Charged) / credited to:			At 31 December 2017
		Profit or loss	Other compre- hensive income	Acquired in business combina- tion	
	(in thousand Baht)				
<i>Deferred tax liabilities</i>					
Property, plant and equipment	(1,719)	(699)	-	-	(2,418)
Right to power purchase agreement and right to operate (See note 15)	(220,950)	-	-	(43,313)	(264,263)
Right to use electrical transmission line	(58,462)	58,462	-	-	-
Finance leases liabilities	(2,603)	(161)	-	-	(2,764)
Long-term loans	(3,537)	3,537	-	-	-
<b>Total</b>	<b>(287,271)</b>	<b>61,139</b>	<b>-</b>	<b>(43,313)</b>	<b>(269,445)</b>
<b>Net</b>	<b>(174,809)</b>	<b>20,212</b>	<b>3,768</b>	<b>(15,834)</b>	<b>(166,663)</b>

	Separate financial statements			
	At 1 January 2018	(Charged)/ credited to:		At 31 December 2018
		Profit or loss	Other comprehensive income	
	(in thousand Baht)			
Deferred tax assets				
Trade account receivable and other receivables	179	-	-	179
Inventories	1,418	496	-	1,914
Provisions	4,052	(1,076)	-	2,976
Provisions for employee benefit	6,008	931	-	6,939
Loss carry forward	-	51,549	-	51,549
Total	11,657	51,900	-	63,557
Deferred tax liabilities				
Finance leases liabilities	(2,265)	(192)	-	(2,457)
Total	(2,265)	(192)	-	(2,457)
Net	9,392	51,708	-	61,100



	Separate financial statements			
	At 1 January 2017	(Charged)/ credited to:		At 31 December 2017
		Profit or loss	Other comprehensive income	
	(in thousand Baht)			
Deferred tax assets				
Trade account receivable and other receivables	139	40	-	179
Inventories	1,486	(68)	-	1,418
Provisions	4,089	(37)	-	4,052
Provisions for employee benefit	3,027	497	2,484	6,008
Total	8,741	432	2,484	11,657
Deferred tax liabilities				
Finance leases liabilities	(2,074)	(191)	-	(2,265)
Total	(2,074)	(191)	-	(2,265)
Net	6,667	241	2,484	9,392

Deferred tax assets have not been recognised in respect of the following items:

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in thousand Baht)			
Temporary differences	839	984	-	-
Loss carry forward	210,374	83,458	180,014	55,500
<b>Total</b>	<b>211,213</b>	<b>84,442</b>	<b>180,014</b>	<b>55,500</b>

During the year 2018, the Company has recognised the deferred tax assets of Baht 51.5 million because management considered it is probable that the future taxable profits would be available against which such loss can be utilised. The deferred tax assets from loss carry forward will expire in the year 2022.

## 17. Other non-current assets

	Consolidated financial statements		Separate financial statements	
	2018	2017 (Restat- ed)	2018	2017
	(in thousand Baht)			
Advance payment of machinery for investment	268,345	268,345	268,345	268,345
Retention receivable	4,582	82,395	-	-
Prepaid front end fee – undrawdown credit facilities	15,468	37,756	-	-
Others	14,522	24,552	4,726	4,726
<b>Total</b>	<b>302,917</b>	<b>413,048</b>	<b>273,071</b>	<b>273,071</b>

### ***Compliance with Equity Contribution Agreement***

In 2013, the Company entered into a letter of undertaking of equity contribution agreement with a company in Myanmar to set up a joint venture. The joint venture's activities are generating and selling electricity to local's entities according to power purchase agreements whereby the Company will receive interest in the amount of 51% of the agreed operating income. In 2013, the Counterparty had received and the Company had delivered of the machines in amount of Baht 268 million which the Company recorded as the advance payment of machinery for investment in the financial statements. This was the partially paid by the Company for its shareholders. However, the counterparty could not transfer the shares of the joint venture to the Company as stipulated in the agreement as at 31 December 2018. If, however, they fails to successfully set up the joint venture pursuant to the agreed capital structure, the counterparty shall compensate all obligation to the Company.

As of 31 December 2018, the management believe that no impairment need to be recognized since no any dispute or defaults payment, however the Company has an obligation to pay addition investment for the joint venture in Myanmar according to the agreement in amount of USD 4.88 million. (2017: USD 4.88 million)

During the year ended 31 December 2018, the Company has received the return on such investment in amount of Baht 34.73 million (2017: Baht 41.28 million) The accumulative return has been obtained until now in amount baht 233.53 million.

## 18. Interest-bearing liabilities

	Consolidated financial statements		Separate financial statements	
	2018	2017 (Restated)	2018	2017
	(in thousand Baht)			
<i>Current</i>				
Short-term loans from financial institutions - unsecured	2,309,304	2,275,549	2,015,006	1,961,404
<i>Less</i> unamortised discount	(2,516)	(3,582)	(2,516)	(3,582)
	2,306,788	2,271,967	2,012,490	1,957,822
Current portion of long-term loans from financial institutions				
- secured	1,575,314	657,578	28,800	-
<i>Less</i> unamortised deferred financing fees	(28,319)	(25,262)	(356)	-
	1,546,995	632,316	28,444	-
Current portion of debentures				
- unsecured	2,765,500	280,000	2,765,500	280,000
Current portion of finance lease liabilities	13,932	15,316	7,186	9,427
<b>Total current interest-bearing liabilities</b>	<b>6,633,215</b>	<b>3,199,599</b>	<b>4,813,620</b>	<b>2,247,249</b>

	Consolidated financial statements		Separate financial statements	
	2018	2017 (Restated)	2018	2017
	(in thousand Baht)			
<i>Non-current</i>				
Long-term loans from financial institutions - secured	14,283,463	9,898,436	396,000	-
Less unamortised deferred financing fees	(153,614)	(147,737)	(2,513)	-
	14,129,849	9,750,699	393,487	-
Debentures - unsecured	2,819,000	3,765,500	2,819,000	3,765,500
Financial lease liabilities	18,866	28,233	7,615	14,230
<b>Total non-current interest-bearing liabilities</b>	<b>16,967,715</b>	<b>13,544,432</b>	<b>3,220,102</b>	<b>3,779,730</b>
<b>Total</b>	<b>23,600,930</b>	<b>16,744,031</b>	<b>8,033,722</b>	<b>6,026,979</b>

The periods to maturity of interest-bearing liabilities net of deferred financing fees, excluding finance lease liabilities, as at 31 December were as follows:

	Consolidated financial statements		Separate financial statements	
	2018	2017 (Restated)	2018	2017
	(in thousand Baht)			
Within one year	6,619,283	3,184,283	4,806,434	2,237,822
After one year but within five years	8,611,863	7,625,487	2,933,017	3,765,500
After five years	8,336,986	5,890,712	279,470	-
<b>Total</b>	<b>23,568,132</b>	<b>16,700,482</b>	<b>8,018,921</b>	<b>6,003,322</b>

As at 31 December 2018, The Company has pledged ordinary shares of certain subsidiaries and a joint venture, together with land and buildings, machinery and equipment, promissory notes and deposits of the said subsidiaries and joint venture, including the right of the Power Purchase Agreement and the right of power plant project agreement in Japan as collateral against the credit facilities those entities received from commercial banks in amount of Baht 18,479.45 million, U.S. Dollars 220 million and JPY 11,699 million (31 December 2017: Baht 18,095.45 million, U.S. Dollars 220 million and JPY 11,773 million).

The currency denomination of interest-bearing liabilities net of deferred financing fees, excluding finance lease liabilities, as at 31 December was as follows:

	Consolidated financial statements		Separate financial statements	
	2018	2017 (Restated)	2018	2017
	(in thousand Baht)			
Thai Baht (THB)	20,023,264	15,736,847	7,983,915	5,648,796
United States Dollar (USD)	206,139	445,433	31,841	354,526
Euro (EUR)	3,165	-	3,165	-
Japanese Yen (JPY)	3,335,564	518,202	-	-
<b>Total</b>	<b>23,568,132</b>	<b>16,700,482</b>	<b>8,018,921</b>	<b>6,003,322</b>

Interest-bearing liabilities as at 31 December 2018 and 2017 were as follows:

	Consolidated financial statements		Separate financial statements	
	2018	2017 (Restated)	2018	2017
	(in thousand Baht)			
Short-term borrowings	2,306,788	2,271,967	2,012,490	1,957,822
Finance lease liabilities	32,798	43,549	14,801	23,657
Long-term borrowings	15,676,844	10,383,015	421,931	-
Debentures	5,584,500	4,045,500	5,584,500	4,045,500
<b>Total</b>	<b>23,600,930</b>	<b>16,744,031</b>	<b>8,033,722</b>	<b>6,026,979</b>

As at 31 December 2018, the Group had outstanding short-term loans with local financial institutions amount of Baht 2,306.79 million, which bear interests at the rate of 2.20 % to 4.50 % per annum (2017 (Restated): Baht 2,271.97 million which bear interest at the rate of 2.20% to 4.60% per annum).

### *Finance lease liabilities*

Finance lease liabilities as at 31 December were payable as follows:

	Consolidated financial statements					
	2018			2017 (Restated)		
	Future minimum lease payments	Interest	Present value of minimum lease payments	Future minimum lease payments	Interest	Present value of minimum lease payments
	(in thousand Baht)					
Within one year	15,078	(1,146)	13,932	16,966	(1,650)	15,316
After one year but within five years	19,681	(814)	18,866	29,678	(1,445)	28,233
<b>Total</b>	<b>34,758</b>	<b>(1,960)</b>	<b>32,798</b>	<b>46,644</b>	<b>(3,095)</b>	<b>43,549</b>

	Separate financial statements					
	2018			2017 (Restated)		
	Future minimum lease payments	Interest	Present value of minimum lease payments	Future minimum lease payments	Interest	Present value of minimum lease payments
	(in thousand Baht)					
Within one year	7,703	(517)	7,186	10,384	(957)	9,427
After one year but within five years	7,884	(269)	7,615	15,012	(782)	14,230
<b>Total</b>	<b>15,587</b>	<b>(786)</b>	<b>14,801</b>	<b>25,396</b>	<b>(1,739)</b>	<b>23,657</b>

### Long-term borrowings

Details of principal features of the Group's long-term borrowings as at 31 December 2018 and 2017 were as follows:

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in thousand Baht)			
<i>Subsidiaries</i>				
1) Baht 3,730 million and Dollars 81 million Loan Facility Agreement at interest BIBOR 3M plus a margin, payable in four-month installments commencing in February 2017	2,962,133	3,272,997	-	-
2) Baht 48 million Loan Facility Agreement at interest MLR less a discount, payable in monthly installments commencing in March 2015	-	4,586	-	-



	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in thousand Baht)			
3) Baht 4,080 million Loan Facility Agreement at interest THBFIX 6M plus a margin, payable in three-months installments commencing in November 2016	3,596,154	3,805,129	-	-
4) JPY 11,007 million Loan Facility Agreement at interest TIBOR 6M plus a margin, payable in six-months installments commencing in December 2018	3,133,282	509,833	-	-
5) JPY 692 million Loan Facility Agreement at interest TIBOR 3M plus a margin, payable once within December 2019	202,282	8,369	-	-
6) Baht 4,522 million and U.S. Dollars 82 million Loan Facility Agreement at interest THBFIX 6M plus a margin, payable in three-months installments commencing in August 2018	3,709,305	2,590,948	-	-
7) Baht 207 million Loan Facility Agreement at interest rate 4.43%, payable in three-months installments commencing in September 2017	178,059	191,153	-	-
8) Baht 3,048 million Loan Facility Agreement at interest rate THBFIX 6M plus a margin, payable in three-months installments commencing in December 2018	1,474,698	-	-	-
9) Baht 432 million Loan Facility Agreement at interest MLR less a discount, payable in monthly installments commencing in October 2018	421,931	-	421,931	-
<b>Total</b>	<b>15,676,844</b>	<b>10,383,015</b>	<b>421,931</b>	

## Debentures

Details of the Company's debentures as at 31 December 2018 and 2017 were as follows:

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in thousand Baht)			
Debentures	5,584,500	4,045,500	5,584,500	4,045,500
<b>Total</b>	<b>5,584,500</b>	<b>4,045,500</b>	<b>5,584,500</b>	<b>4,045,500</b>

As at 31 December 2018, the Company has outstanding balances of issued unsecured, name registered, unsubordinated debentures. The details of issuance of debentures were as below:

Debenture issued on	7 October 2016
Unit and value	1,500,000 units at par value of Baht 1,000 each.
Total debenture value	Baht 1,500 million
Period and maturity date	3 years will mature on 7 October 2019
Interest rate	Fixed rate of 3.50% per annum
Interest payment due	Every 3 months

Debenture issued on	30 May 2017
Unit and value	1,000,000 units at par value of Baht 1,000 each
Total debenture value	Baht 1,000 million
Period and maturity date	3 years 1 day will mature on 30 May 2020
Interest rate	Fixed rate of 3.50% per annum
Interest payment due	Every 6 months
Debenture issued on	20 October 2017
Unit and value	1,265,500 units at par value of Baht 1,000 each
Total debenture value	Baht 1,265.5 million
Period and maturity date	2 years 1 day will mature on 20 October 2019
Interest rate	Fixed rate of 3.50% per annum
Interest payment due	Every 6 months
Debenture issued on	27 April 2018
Unit and value	1,819,000 units at par value of Baht 1,000 each
Total debenture value	Baht 1,819 million
Period and maturity date	3 years will mature on 27 April 2021
Interest rate	Fixed rate of 4.50% per annum
Interest payment due	Every 3 months

As at 31 December 2018, the Group had unutilised credit facilities totalling Baht 4,622.17 million (31 December 2017 (Restated): Baht 5,877.5 million and JPY 9,984.9 million).

The Group has to comply with certain conditions in accordance with those agreements including maintaining certain key financial ratios.

## 19. Trade account payables

	Note	Consolidated financial statements		Separate financial statements	
		2018	2017 (Restated)	2018	2017
		(in thousand Baht)			
Related parties	5	-	-	178,672	181,819
Other parties		340,647	770,711	68,247	78,179
<b>Total</b>		<b>340,647</b>	<b>770,711</b>	<b>246,919</b>	<b>259,998</b>

## 20. Provisions for employee benefits

Movement in the present value of the defined benefit obligations:

	Consolidated financial statements		Separate financial statements	
	2018	2017 (Restated)	2018	2017
	(in thousand Baht)			
At 1 January	45,781	23,327	30,038	15,137
<i>Include in profit or loss:</i>				
Current service cost	6,301	5,798	3,744	3,507
Interest on obligation	1,393	1,207	920	798
Other	-	(1,175)	-	-
	<b>7,694</b>	<b>5,830</b>	<b>4,664</b>	<b>4,305</b>
<i>Included in other comprehensive income</i>				
Actuarial loss recognised in the year	-	18,849	-	12,418
	<b>-</b>	<b>18,849</b>	<b>-</b>	<b>12,418</b>

	Consolidated financial statements		Separate financial statements	
	2018	2017 (Restated)	2018	2017
	(in thousand Baht)			
Others				
Benefits paid	(586)	(2,225)	(12)	(1,822)
	(586)	(2,225)	(12)	(1,822)
At 31 December	52,889	45,781	34,690	30,038

Actuarial loss recognised in other comprehensive income arising from:

	Consolidated financial statements		Separate financial statements	
	2018	2017 (Restated)	2018	2017
	(in thousand Baht)			
Demographic assumption	-	9,656	-	5,354
Financial assumptions	-	3,651	-	2,206
Experience adjustment	-	5,542	-	4,858
<b>Total</b>	-	<b>18,849</b>	-	<b>12,418</b>

Principal actuarial assumptions as at 31 December 2018 and 2017 were the following:

	Consolidated financial statements and Separate financial statements	
	2018	2017
	(%)	
Discount rate	3.07	3.07
Future salary growth	4.0 – 8.0	4.0 – 8.0
Turnover rate	0.0 – 30.0	0.0 – 30.0

Assumptions regarding future mortality have been based on published statistics and mortality tables.

At 31 December 2018, the weighted-average duration of the defined benefit obligation was 9.9 years (2017: 10.9 years)

### ***Sensitivity analysis***

Reasonably possible changes at the reporting date to one of the relevant actuarial assumptions, holding other assumptions constant, would have affected the employee benefit obligations by the amounts shown below.

	Consolidated financial statements		Separate financial statements	
	Increase	Decrease	Increase	Decrease
	(in thousand Baht)			
At 31 December 2018				
Discount rate (1% movement)	(4,543)	5,227	(2,710)	3,099
Future salary growth (1% movement)	6,055	(5,327)	3,657	(3,240)

	Consolidated financial statements		Separate financial statements	
	Increase	Decrease	Increase	Decrease
	(in thousand Baht)			
At 31 December 2017 (Restated)				
Discount rate (1% movement)	(4,157)	4,789	(2,530)	2,896
Future salary growth (1% movement)	5,039	(4,453)	3,072	(2,733)

Although the analysis does not take account of the full distribution of cash flows expected under the plan, it does provide an approximation of the sensitivity of the assumptions shown.

### ***The increasing of provisions for employee benefits***

On 13 December 2018, the National Legislative Assembly passed a bill amending the Labor Protection Act to include a requirement that an employee who is terminated after having been employed by the same employer for an uninterrupted period of twenty years or more, receives severance payment of 400 days of wages at the most recent rate. The Group will amend its retirement plan in the period in which the amendment will have become law and is announced in the Royal Gazette. As a result of this change, the provision for retirement benefits as at that future period end as well as past service cost recognised during that period in the consolidated and the separate financial statements are estimated to increase by an amount of approximately Baht 10.65 million and Baht 5.63 million, respectively.

## 21. Provisions for decommissioning costs of power plants

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in thousand Baht)			
At 1 January	5,306	5,125	-	-
Additions	198,673	181	-	-
Disposals	-	-	-	-
At 31 December	203,979	5,306	-	-

## 22. Share capital

	Par value per share (in Baht)	2018		2017	
		Number	Baht	Number	Baht
		(thousand shares / thousand Baht)			
<i>Authorised</i>					
At 1 January					
- ordinary shares	0.25	7,931,870	1,982,967	6,798,747	1,699,686
Increase of new shares					
- ordinary shares	0.25	-	-	1,133,124	283,281
Reduction of shares	0.25	(513,250)	(128,312)	(1)	-
At 31 December					
- ordinary shares	0.25	7,418,620	1,854,655	7,931,870	1,982,967
<i>Issued and paid-up</i>					
At 1 January					
- ordinary shares	0.25	7,418,620	1,854,655	6,358,776	1,589,694
Issue of new shares					



	Par value per share (in Baht)	2018		2017	
		Number	Baht	Number	Baht
		(thousand shares / thousand Baht)			
- ordinary shares	0.25	-	-	1,059,789	264,947
Reduction of shares	0.25	-	-	(1)	-
Exercise of warrants	0.25	-	-	56	14
<b>At 31 December</b>					
<b>- ordinary shares</b>	<b>0.25</b>	<b>7,418,620</b>	<b>1,854,655</b>	<b>7,418,620</b>	<b>1,854,655</b>

At the annual general meeting of the shareholders of the Company held on 20 April 2018, the shareholders approved to decrease the Company's registered capital in the amount of Baht 128.31 million from the existing registered capital of Baht 1,982.97 million to Baht 1,854.66 million, by cancelling the unissued registered ordinary shares in the amount of 513.25 million shares at a par value of Baht 0.25 per share.

At the annual general meeting of the shareholders of the Company held on 21 April 2017, the shareholders approved as follows;

- Approved the decrease of the Company's registered capital by cancelling 1,449 at a par value of Baht 0.25 per share of the ordinary shares that were unable to be allocated as stock dividend.
- Approved the increase of the Company's registered capital by issuing ordinary shares in the number of 1,133.12 million shares at a par value of Baht 0.25 per share from the existing registered capital of Baht 1,699.69 million to Baht 1,982.97 million to be reserved for the stock dividend payment and 2nd adjusting right of purchasing for the exercise of warrant No.1 (GUNKUL-W).

## 23. Treasury shares

At the Board of Directors' meeting of the Company held on 10 April 2018, the Board approved the Share Repurchase Program (Treasury stock) for financial management purpose. The maximum amount for the share repurchase is not exceeding Baht 1,000 million. Number

of shares repurchase is not exceeding 300 million shares at the par value of Baht 0.25 per share which is equal to 4.04% of total paid-up capital. The repurchase period will be started from 24 April 2018 to 22 October 2018. The shares purchased may be resold after 6 months from the date of purchase but must not exceed 3 years from such completion.

As at 31 December 2018, the Company has repurchased the shares under the program totalling 99.04 million units at a total cost of Baht 304.67 million is presented as a separate category within equity and recognised as a deduction from equity in the consolidated financial statements with an equivalent amount had been appropriated from retained earnings to treasury shares reserve.

## **24. Additional paid-in capital and reserves**

### ***Share premium***

Section 51 of the Public Companies Act B.E. 2535 requires companies to set aside share subscription monies received in excess of the par value of the shares issued to a reserve account (“share premium”). Share premium is not available for dividend distribution.

### ***Legal reserve***

Section 116 of the Public Companies Act B.E. 2535 requires that a public company shall allocate not less than 5% of its annual net profit, less any accumulated losses brought forward, to a reserve account (“legal reserve”), until this account reaches an amount not less than 10% of the registered authorised capital. The legal reserve is not available for dividend distribution.

### ***Treasury shares reserve***

The treasury shares reserve represents the amount appropriated from retained earnings equal to the cost of the Company’s own shares held by the Group. The treasury shares reserve is not available for dividend distribution.

### ***Currency translation differences***

The currency translation differences account within equity comprises all foreign currency differences arising from the translation of the financial statements of foreign operations

and shall be reclassified from equity to profit or loss when the gain or loss on disposal in a foreign operation is recognised.

### ***Fair value changes in available-for-sale investments***

The fair value changes in available-for-sale investments account within equity comprises the cumulative net change in the fair value of available-for-sale investments until the investments are derecognised or impaired.

## **25. Segment information**

The Group has four reportable segments, as described below, which are the Group's strategic divisions. The strategic divisions offer different products and services, and are managed separately because they require different technology and marketing strategies. For each of the strategic divisions, the chief operating decision maker (CODM) reviews internal management reports on at least a quarterly basis. The following summary describes the operations in each of the Group's reportable segments.

- Segment 1    Manufacturing and selling of equipments for electrical systems
- Segment 2    Generating and selling electricity
- Segment 3    Construction service
- Segment 4    Maintenance service

Information regarding the results of each reportable segment is included below. Performance is measured based on segment gross profit, as included in the internal management reports that are reviewed by the Group's CODM. Segment gross profit is used to measure performance as management believes that such information is the most relevant in evaluating the results of certain segments relative to other entities that operate within these industries.

Total asset, revenue and results, based on business segments, in the consolidated financial statements for the year ended 31 December 2018 and 2017 were as follows:

	Manufacturing and selling of equipments for electrical systems	Generating and selling electricity	Construction service	Maintenance service	Eliminations	Total
(in thousand Baht)						
<i>For the year ended 31 December 2018</i>						
Revenue from sale of goods and rendering of services						
- External	1,344,965	2,929,750	1,887,243	68,541	-	6,230,499
- Inter-segment	736,538	-	66,546	71,992	(875,076)	-
<b>Total</b>	<b>2,081,503</b>	<b>2,929,750</b>	<b>1,953,789</b>	<b>140,533</b>	<b>(875,076)</b>	<b>6,230,499</b>
<b>Segment gross profit</b>	<b>403,784</b>	<b>2,038,194</b>	<b>611,721</b>	<b>67,924</b>	<b>(61,097)</b>	<b>3,060,526</b>
<i>For the year ended 31 December 2017 (Restated)</i>						
Revenue from sale of goods and rendering of services						
- External	1,159,982	1,535,565	2,045,042	68,089	-	4,808,678
- Inter-segment	549,957	-	717,344	58,775	(1,326,076)	-
<b>Total</b>	<b>1,709,939</b>	<b>1,535,565</b>	<b>2,762,386</b>	<b>126,864</b>	<b>(1,326,076)</b>	<b>4,808,678</b>
<b>Segment gross profit</b>	<b>370,782</b>	<b>1,014,609</b>	<b>518,486</b>	<b>62,295</b>	<b>(218,698)</b>	<b>1,747,474</b>
<b>Total assets by segment</b>						
<b>At 31 December 2018</b>	<b>18,474,631</b>	<b>29,878,770</b>	<b>1,514,293</b>	<b>-</b>	<b>(14,242,944)</b>	<b>35,624,750</b>
<b>At 31 December 2017 (Restated)</b>	<b>16,298,930</b>	<b>23,885,896</b>	<b>2,452,014</b>	<b>-</b>	<b>(11,910,385)</b>	<b>30,726,455</b>

## Reconciliation of reportable segment profit or loss

	Consolidated financial statements	
	2018	2017 (Restated)
	(in thousand Baht)	
<i>Profit or loss</i>		
Total gross profit for reportable segments	3,060,526	1,747,474
Unallocated amounts	(1,778,620)	(941,596)
Profit before income tax	1,281,906	805,878

## Geographical segments

In presenting information on the basis of geographical segments, segment revenue is based on the geographical location of customers. Segment assets are based on the geographical location of the assets.

## Geographical information

	Revenues		Assets	
	2018	2017 (Restated)	2018	2017 (Restated)
	(in thousand Baht)			
Thailand	6,173,551	4,771,526	27,706,136	25,773,320
Japan	44,630	-	7,700,146	4,704,158
Other countries	12,318	37,152	218,468	248,977
<b>Total</b>	<b>6,230,499</b>	<b>4,808,678</b>	<b>35,624,750</b>	<b>30,726,455</b>

### Major customer

Revenue from three customers of the Group's manufacturing and selling of equipments for electrical systems, generating and selling electricity and domestic construction service segments represent approximately Baht 4,652.5 million of the Group's total revenues (2017: three customers, amount Baht 3,809 million).

## 26. Administrative expenses and other expenses

	Consolidated financial statements		Separate financial statements	
	2018	2017 (Restated)	2018	2017
	(in thousand Baht)			
Personnel expense	321,286	279,524	220,297	214,192
Bank charge	18,477	27,141	7,190	15,234
Consulting and professional fees	91,655	90,745	24,006	30,936
Others service fee	38,395	35,376	15,435	6,856
Rental fee and insurance premium	45,268	35,933	26,019	11,907
Depreciation and amortisation	29,559	26,859	15,090	13,578
Travelling and delivery expense	26,208	17,973	12,361	10,806
Utility expense and supplies used	17,100	14,452	8,024	7,750
Entertainment expense	16,146	9,753	8,159	5,114
Penalty	14,516	6,468	1,792	-
Others	61,223	47,925	6,048	9,303
<b>Total</b>	<b>679,833</b>	<b>592,149</b>	<b>344,421</b>	<b>325,676</b>

## 27. Unwind foreign exchange option contracts fee

During the year 2018, the Company had the outstanding foreign exchange option contracts (Sell USD Put THB call), as at the termination date amounting to U.S. Dollars 192.28 million to mitigate the exposure of foreign exchange rate arise out of the construction of Wind Farm power stations. Because of the recent substantial fluctuation in foreign exchange, the management decided to early terminate the foreign exchange option contracts before the maturity date and partial changed to cross currency and interest rate swap contracts (See note 36). The Company paid the cancellation fee of foreign exchange option contracts before the maturity date amounting to Baht 588.11 million and recorded as unwind foreign exchange option contracts fee in profit or loss for the year ended 31 December 2018 (2017: The Group and the Company recorded unwind foreign exchange option contracts fee in the amount of Baht 95.28 million and Baht 60.28 million, respectively).

## 28. Employee benefit expenses

	Consolidated financial statements		Separate financial statements	
	2018	2017 (Restated)	2018	2017
	(in thousand Baht)			
<i>Management</i>				
Wages and salaries	71,577	51,699	48,660	42,712
Bonus	54,429	26,000	45,561	21,924
Defined contribution plans	4,507	4,486	3,456	3,915
Contribution to defined post-benefit plans	2,596	2,012	2,220	1,705
Others	10,739	19,291	15,648	17,965
	143,848	103,488	115,545	88,221

	Consolidated financial statements		Separate financial statements	
	2018	2017 (Restated)	2018	2017
	(in thousand Baht)			
<i>Other employees</i>				
Wages and salaries	234,022	227,074	130,460	136,815
Bonus	29,546	28,562	7,302	17,714
Defined contribution plans	6,904	6,739	4,259	3,772
Contribution to defined post-benefit plans	4,579	3,818	2,445	2,600
Others	28,007	25,833	12,074	12,843
	303,058	292,026	156,540	173,744
Total	446,906	395,514	272,085	261,965

### *Defined contribution plans*

The defined contribution plans comprise provident funds established by the Group for its employees. Membership to the funds is on a voluntary basis. Contributions are made monthly by the employees at rates ranging from 3% to 15% of their basic salaries and by the Group at rates ranging from 3% to 7% of the employees' basic salaries. The provident funds are registered with the Ministry of Finance as juristic entities and are managed by a licensed Fund Manager.

## **29. Expenses by nature**

The statements of comprehensive income include an analysis of expenses by function. Expenses by nature disclosed in accordance with the requirements of various TFRS were as follows:



	Consolidated financial statements		Separate financial statements	
	2018	2017 (Restated)	2018	2017
	(in thousand Baht)			
Changes in inventories of finished goods and work in progress	(153,899)	16,505	(91,908)	32,260
Raw materials and consumables used	1,028,640	661,062	1,034,148	794,550
Construction cost	1,282,474	1,710,547	47,684	25,745
Operation and maintenance service fee	57,703	38,904	3,267	10,245
Employee benefit expenses	446,906	395,514	272,085	261,965
Depreciation and amortisation	762,810	472,418	15,090	13,632
Bank charge and others service fee	54,590	66,091	22,625	24,635
Consulting fees	92,565	91,212	24,006	30,936
Utility expense and supplies used	60,752	30,759	8,169	9,281
Rental fee	47,458	30,758	22,632	9,861
Insurance premium	39,010	24,522	3,412	2,456
Others	194,002	173,013	43,598	42,681
<b>Total cost of sales, cost of sale of electricity, cost of rendering of services, cost of construction services, distribution costs and administrative expenses</b>	<b>3,913,011</b>	<b>3,711,305</b>	<b>1,404,808</b>	<b>1,258,247</b>

### 30. Finance costs

	Note	Consolidated financial statements		Separate financial statements	
		2018	2017 (Restated)	2018	2017
		(in thousand Baht)			
Interest expense					
Related parties	5	-	-	1,820	1,153
Other parties		675,300	501,841	76,299	92,670
Total		675,300	501,841	78,119	93,823
Debenture		196,247	94,903	196,247	94,903
Amortisation of financing fees		18,012	23,938	242	-
Others		3,747	4,196	1,095	2,739
Total		893,306	624,878	197,584	191,465
Less amounts included in the cost of qualifying assets:					
Property, plant and equipment under construction	14	(92,854)	(54,593)	-	-
		(92,854)	(54,593)	-	-
Net		800,452	570,285	275,703	191,465

### 31. Income tax expense

*Income tax recognised in profit or loss*

	Note	Consolidated financial statements		Separate financial statements	
		2018	2017 (Restated)	2018	2017
		(in thousand Baht)			
<i>Current tax expense</i>					
Current year		157,394	113,302	-	-
Under (over) provided in prior years		-	-	-	-
		157,394	113,302	-	-
<i>Deferred tax expense</i>					
Movements in temporary differences	16	(53,898)	(20,212)	(51,708)	(241)
<b>Total income tax expense</b>		<b>103,496</b>	<b>91,090</b>	<b>(51,708)</b>	<b>(241)</b>

### Reconciliation of effective tax rate

	Consolidated financial statements			
	2018		2017 (Restated)	
	Rate (%)	(in thousand Baht)	Rate (%)	(in thousand Baht)
Profit before income tax expense		1,281,906		805,878
Income tax using the Thai corporation tax rate	20.0	256,381	20.0	161,176
Income not subject to tax		(319,329)		(171,569)
Expenses not deductible for tax purposes		30,904		22,694
Addition deductible expense for tax purpose		(5,181)		(2,221)
Current year losses for which no deferred tax asset was recognised		128,092		68,525
Effect of different tax rates in foreign jurisdictions		12,629		12,485
<b>Total</b>	<b>8.0</b>	<b>103,496</b>	<b>11.3</b>	<b>91,090</b>

	Separate financial statements			
	2018		2017 (Restated)	
	Rate (%)	(in thousand Baht)	Rate (%)	(in thousand Baht)
Profit before income tax expense		608,681		353,769
Income tax using the Thai corporation tax rate	20.0	121,736	20.0	70,754
Income not subject to tax		(298,389)		(128,602)
Expenses not deductible for tax purposes		431		2,107
Current year losses for which no deferred tax asset was recognised		124,514		55,500
<b>Total</b>	<b>(8.0)</b>	<b>(51,708)</b>	<b>(0.1)</b>	<b>(241)</b>

### 32. Promotional privileges

By virtue of the provisions of the Industrial Investment Promotion Act of B.E. 2520, the subsidiaries have been granted privileges by the Board of Investment relating to generate electricity from wind energy, solar energy and solar rooftop energy. The privileges granted include:

- (a) exemption from payment of import duty on machinery and equipment approved by the Board;
- (b) exemption from payment of income tax for certain operations for a period of 8 years from the date on which the income is first derived from such operation;
- (c) a 50% reduction in the normal income tax rate on the net profit derived from certain operations for a period of five years, commencing from the expiry date in (b) above.

As promoted companies, the subsidiaries must comply with certain terms and conditions prescribed in the promotional certificates.

Summary of revenue from promoted and non-promoted businesses:

	Consolidated financial statements					
	2018			2017 (Restated)		
	Promoted busi- nesses	Non-pro- moted businesses	Total	Promoted busi- nesses	Non-pro- moted businesses	Total
	(in thousand Baht)					
Export sales	-	56,948	56,948	-	37,152	37,152
Local sales	2,885,120	41,163,507	7,048,627	1,533,227	4,564,376	6,097,603
Eliminations	-	(875,076)	(875,076)	-	(1,326,077)	(1,326,077)
<b>Total revenue</b>			<b>6,230,499</b>			<b>4,808,678</b>

### 33. Basic earnings per share

The calculations of basic earnings per share for the year ended 31 December 2018 and 2017 were based on the profit for the year attributable to ordinary shareholders of the Company and the weighted average number of ordinary shares outstanding during the year, after adjusting the number of ordinary shares in proportion to the change in the number of shares as a result of the distribution of stock dividend during the year 2017 as disclosed in note 22 and 34. For the benefit of comparasion, the number of ordinary shares used in the

calculations of earnings per share for the year ended 31 December 2017 are adjusted as if such change had occurred at the beginning of the earliest reporting period as follows:

	Consolidated financial statements		Separate financial statements	
	2018	2017 (Restated)	2018	2017
	(in thousand Baht/ thousand shares)			
Profit for the period attributable to ordinary shareholders of the Company	1,085,172	465,794	660,389	354,011
Number of ordinary shares outstanding as at 1 January				
- ordinary shares of Baht 0.25 each	7,418,620	7,418,565	7,418,620	7,418,565
Effect of shares issue during the year	-	15	-	15
Effect of treasury shares	(99,044)	-	(99,044)	-
Weighted average number of ordinary shares outstanding	7,360,442	7,418,580	7,360,442	7,418,580
Earnings per share (basic) (in Baht)	0.15	0.06	0.09	0.05

### 34. Dividend

At the annual general meeting of the shareholders of the Company held on 20 April 2018, the shareholders approved the appropriation of profit from the results of operations for the year ended 31 December 2017 and 2016 under the exemption of corporate income tax from promotional privilege for a legal reserve amount to Baht 22.30 million and to be dividends of Baht 0.045 per share amounting to Baht 333.84 million. The dividend was paid to shareholders during 2018.

At the annual general meeting of the shareholders of the Company held on 21 April 2017, the shareholders approved the profit allocation from the results of operations for the year ended 31 December 2016 after 20% of corporate income tax rate to be

a legal reserve of Baht 17 million and cash dividend payment at the rate of Baht 0.040 per share, amounting to Baht 254 million. In addition, the shareholders approved the appropriation of profit after 20% of corporate income tax rate from the results of operations for the year ended 31 December 2014 and 2015 respectively to be stock dividend payment at the par value of Baht 0.25 to the Company's existing shareholders at the ratio of 6 existing shares to receive stock of 1 share equivalent to the dividend of Baht 0.0417 per share, amounting to Baht 265 million. The dividend was paid to shareholders during 2017.

### **35. Financial instruments**

#### ***Financial risk management policies***

The Group is exposed to normal business risks from changes in market interest rates and currency exchange rates and from non-performance of contractual obligations by counterparties. The Group does not hold or issue derivatives for speculative or trading purposes.

Risk management is integral to the whole business of the Group. The Group has a system of controls in place to create an acceptable balance between the cost of risks occurring and the cost of managing the risks. The management continually monitors the Group's risk management process to ensure that an appropriate balance between risk and control is achieved.

#### ***Capital management***

The Board of Directors' policy is to maintain a strong capital base so as to maintain investor, creditor and market confidence and to sustain future development of the business. The Board monitors the return on capital, which the Group defines as result from operating activities divided by total shareholders' equity, excluding non-controlling interests and also monitors the level of dividends to ordinary shareholders.

#### ***Interest rate risk***

Interest rate risk is the risk that future movements in market interest rates will affect the results of the Group's operations and its cash flows because loan interest rates are mainly floated. The Group mitigates this risk by ensuring that the majority of its borrowings are at fixed interest rates and uses derivatives, principally interest rate swaps, to manage exposure to fluctuations in interest rates on specific borrowings.



The effective interest rates of loans from financial institutions and debentures as at 31 December 2018 and 2017 and the periods in which loans from financial institutions and debentures mature are disclosed in note 18.

### **Foreign currency risk**

The Group is exposed to foreign currency risk relating to purchases material, purchases of assets, costs of operation and maintenance of power plant and long-term loans which are denominated in foreign currencies. However, the Group entered into cross currency and interest rate swap contracts to mitigate the exposure of foreign exchange rate. At 31 December, the Group and the Company were exposed to foreign currency risk in respect of financial assets and liabilities denominated in the following currencies:

	Note	Consolidated financial statements		Separate financial statements	
		2018	2017 (Restated)	2018	2017
		(in thousand Baht)			
United States Dollars					
Cash and cash equivalents		306,240	123,989	82,928	36,642
Trade accounts receivable		-	512	-	512
Other receivables		-	3,768	-	3,644
Interest-bearing liabilities	18	(206,139)	(93,311)	(31,841)	(2,404)
Trade accounts payable		(52,140)	(118,100)	(20,820)	(17,459)
Other payables		(1,583)	(1,685)	-	-
Payable for purchases of assets		(712)	(1,078,182)	-	-
Retention payables		(360,600)	(324,397)	-	-
		(314,934)	(1,487,406)	30,267	20,935

	Note	Consolidated financial statements		Separate financial statements	
		2018	2017 (Restated)	2018	2017
		(in thousand Baht)			
Japanese Yen					
Cash and cash equivalents		263,660	543,469	-	-
Trade accounts receivable		17,982	-	-	-
Other receivables		13,194	405,678	-	-
Revenue department receivable		246,754	-	-	-
Deposits from financial institution pledge as collateral		590,584	-	-	-
Other non-current asset		1,668	42,594	-	-
Interest-bearing liabilities	18	(3,335,564)	(518,202)	-	-
Trade accounts payable		(1,103)	(599)	(1,103)	(599)
Other payables		(17,991)	(11,227)	-	-
Payable for purchases of assets		(452,295)	-	-	-
Other non-current liabilities		(108,139)	(262)	-	-
		(2,781,250)	461,451	(1,103)	(599)
Others currency					
Cash and cash equivalents		1,584	1,807	265	279
Other receivables		-	147	-	-
Other non-current asset		-	796	-	-
Interest-bearing liabilities	18	(3,165)	-	(3,165)	-
Trade accounts payable		(2,174)	(174)	-	(174)

	Note	Consolidated financial statements		Separate financial statements	
		2018	2017 (Restated)	2018	2017
		(in thousand Baht)			
Other payables		(891)	(1,139)	-	(76)
		(4,646)	1,437	(2,900)	29
<b>Gross balance sheet exposure</b>		<b>(3,100,830)</b>	<b>(1,024,518)</b>	<b>(34,270)</b>	<b>20,365</b>
Estimated forecast payable for contracts purchases of assets		-	(1,612,313)	-	-
Estimated forecast payable for operation and maintenance service fee of power plants		(1,167,807)	-	-	-
<b>Gross exposure</b>		<b>(4,268,637)</b>	<b>(2,636,831)</b>	<b>(34,270)</b>	<b>20,365</b>
Foreign currency forwards		-	213,534	-	213,534
Foreign exchange option contracts		-	11,548,500	-	11,548,500
Cross currency and interest rate swap contracts		1,357,054	-	1,357,054	-
<b>Net exposure</b>		<b>(2,911,583)</b>	<b>9,125,203</b>	<b>1,322,784</b>	<b>11,782,399</b>

### *Credit risk*

Credit risk is the potential financial loss resulting from the failure of a customer or counterparty to settle its financial and contractual obligations to the Group as and when they fall due. The Group has concentrations of credit risk since most of its revenues are contracted under long-term agreements with a small number of parties. However counterparties are generally government authorities and large public or private corporations and the risk perceived is low.

### *Liquidity risk*

The Group monitors its liquidity risk and maintains a level of cash and cash equivalents deemed adequate by management to finance the Group's operations and to mitigate the effects of fluctuations in cash flows. In addition, the Group has policy to maintain the credit line of debentures to not exceed the amount which was approved at the annual general meeting of Baht 9,000 million and plan to issue the debentures to replace the current portion of debentures which will due within one year. Moreover, the Group retains the amount of credit facilities received from financial institutions, in order to comply with certain financial ratios and maintain a good relationship with the financial institutions.

### *Carrying amounts and fair values*

The fair value of current portion of financial assets and liabilities are taken to approximate the carrying value due to the relatively short-term maturity of these financial instruments.

The fair value of long-term loans and borrowings carrying a floating rate, which is considered to be market rate, are taken to approximate their fair values.

Other financial assets and liabilities not stated above had the fair and carrying value as at 31 December 2018 and 2017 were as following:

	Note	Carrying amount	Consolidated financial statements			
			Fair value			
			Level 1	Level 2	Level 3	Total
			(In thousand Baht)			
31 December 2018						
Financial assets measured at fair value						
Equity and debt securities available-for-sale	7	526,538	-	526,538	-	526,538
Financial liabilities not measured at fair value						
Long-term loans	18	178,059	-	162,500	-	162,500
Debentures	18	5,584,500	-	5,577,669	-	5,577,669

	Note	Carrying amount	Consolidated financial statements			
			Fair value			
			Level 1	Level 2	Level 3	Total
			(in thousand Baht)			
Interest rate swap contracts	36	-	-	174,631	-	174,631
Cross currency and interest rate swap contracts	36	-	-	188,293	-	188,293
<b>31 December 2017 (Restated)</b>						
<i>Financial assets and Financial liabilities measured at fair value</i>						
Equity securities available-for-sale	7	645,020	-	645,020	-	645,020
Foreign currency forward contracts		(3,478)	-	(3,478)	-	(3,478)
<i>Financial liabilities not measured at fair value</i>						
Long-term loans	18	191,153	-	173,550	-	173,550
Debentures	18	4,045,500	-	4,060,788	-	4,060,788
Foreign exchange option contracts	27	-	-	666,520	-	666,520
Interest rate swap contracts	36	-	-	217,829	-	217,829

	Note	Carrying amount	Separate financial statements			
			Fair value			
			Level 1	Level 2	Level 3	Total
			(in thousand Baht)			
31 December 2018						
Financial assets measured at fair value						
Equity and debt securities available-for-sale	7	450,354	-	450,354	-	450,354

	Note	Carrying amount	Separate financial statements			
			Fair value			
			Level 1	Level 2	Level 3	Total
			(in thousand Baht)			
<i>Financial liabilities not measured at fair value</i>						
Debentures	18	5,584,500	-	5,577,669	-	5,577,669
Cross currency and interest rate swap contracts	36	-	-	188,293	-	188,293
<i>31 December 2017</i>						
<i>Financial assets and Financial liabilities measured at fair value</i>						
Equity securities available-for-sale	7	550,021	-	550,021	-	550,021
Foreign currency forward contracts		(3,478)	-	(3,478)	-	(3,478)
<i>Financial liabilities not measured at fair value</i>						
Debentures	18	4,045,500	-	4,060,788	-	4,060,788
Foreign exchange option contracts	27	-	-	666,520	-	666,520

## Measurement of fair values

### *Valuation techniques and significant unobservable inputs*

The following tables show the valuation techniques used in measuring Level 2 fair values, as well as the significant unobservable inputs used.

Type	Valuation technique
Equity and debt securities -available-for-sale	Net asset as the reporting date.
Debentures	A valuation technique incorporating observable market data which is adjusted with counterparty credit risk (excluding own credit risk) and other risks to reflect true economic value.

Type	Valuation technique
Forward exchange contracts/ Interest rate swap contracts/ Cross currency and interest rate swap contracts	Market comparison technique: The fair values are based on broker quotes. Similar contracts are traded in an active market and the quotes reflect the actual transactions in similar instruments.
Foreign exchange option contracts	Valuation at their current market values, which are obtained from quoted market prices or other widely accepted valuation techniques and guideline.
Long-term loans	Discounted cash flow

### 36. Commitments with non-related parties

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	(in thousand Baht)			
<i>Capital commitment</i>				
Design, construction and installment for project under construction	2,597,092	6,487,640	1,273	-
<b>Total</b>	<b>2,597,092</b>	<b>6,487,640</b>	<b>1,273</b>	<b>-</b>
<i>Non-cancellable operating lease commitments</i>				
Within one year	26,290	4,192	18,116	-
After one year but within five years	63,552	44,592	20,346	-
After five years	198,462	205,720	-	-
<b>Total</b>	<b>288,304</b>	<b>254,504</b>	<b>38,462</b>	<b>-</b>

### ***Interest Rate Swap Agreements (See note 35)***

As at 31 December 2018, the Group has outstanding interest rate swap agreements as follow:

<b>Loan facility and outstanding principal</b>	<b>Interest Receive Rate Swap agreements</b>	<b>Interest Pay Rate Swap agreements</b>	<b>Termination date</b>
Loan facility of Baht 3,730 million and U.S. dollar 81 million and the outstanding principal in interest rate swap agreement of Baht 2,780.4 million.	Floating rate BIBOR 3M +2.65% per annum	Fixed coupon rate 5.80% per annum	30 April 2021
Loan facility of Baht 4,080 million and the outstanding principal in interest rate swap agreement of Baht 1,813.97 million.	Floating rate THBFIX 6M +2.7% per annum	Fixed coupon rate 4.96% per annum	29 October 2026
Loan facility of JPY 11,699 million and the outstanding principal in interest rate swap agreement of JPY 8,731.37 million.	Floating rate TIBOR 6M +1.3% per annum	Fixed coupon rate 2.125% per annum	30 June 2036

### ***Cross currency and interest rate swap contracts (See note 35)***

As at 31 December 2018, the Group has outstanding cross currency and interest rate swap contracts as follow:

<b>Currency and Interest Receive Rate Swap agreements</b>	<b>Currency and Interest Pay Rate Swap agreements</b>	<b>Termination date</b>
U.S. dollar 5.78 million at the rate 0.00%	Baht 203.32 million at the rate 0.64%	25 November 2022
U.S. dollar 6.95 million at the rate 0.00%	Baht 244.17 million at the rate 0.65%	15 November 2022



Currency and Interest Receive Rate Swap agreements	Currency and Interest Pay Rate Swap agreements	Termination date
U.S. dollar 7.29 million at the rate 0.00%	Baht 254.35 million at the rate 3.35%	15 January 2020
U.S. dollar 7.45 million at the rate 0.00%	Baht 260.82 million at the rate 0.65%	24 February 2027
U.S. dollar 11.27 million at the rate 0.00%	Baht 394.38 million at the rate 0.65%	15 November 2027

### 37. Events after the reporting period

At the Board of Directors' meeting of the Company held on 20 February 2019, the Board approved to submit for approval at the annual general meeting of the shareholders of the Company on 18 April 2019 as following;

- The appropriation of the profit allocation from the results of operations for the year ended 31 December 2018 under the exemption of corporate income tax from promotional privilege to be stock dividend payment at the par value of Baht 0.25 to the Company's existing shareholders at the ratio of 5 existing shares to receive stock of 1 share equivalent to the stock dividend of Baht 0.05 per share, total amount does not exceed Baht 370.93 million. In addition, cash dividend will be paid at the rate of Baht 0.01 per share, total amount does not exceed Baht 75 million. The balance of dividend is subject to the approval of the shareholders at the annual general meeting on 18 April 2019.
- Approved the increase of the Company's registered capital by issuing ordinary shares in the number of 1,483.72 million shares at a par value of Baht 0.25 per share from the existing registered capital of Baht 1,854.66 million to Baht 2,225.59 million to be reserved for the stock dividend payment.

### 38. Thai Financial Reporting Standards (TFRS) not yet adopted

A number of new and revised TFRS which relevant to the Group's operations are expected to have significant impact on the consolidated and separate financial statements on

the date of initial application. Those TFRS become effective for annual financial reporting periods beginning on or after 1 January of the following years.

TFRS	Topic	Effective
TFRS 7*	Financial Instruments: Disclosures	2020
TFRS 9*	Financial Instruments	2020
TFRS 15	Revenue from Contracts with Customers	2019
TAS 32*	Financial Instruments: Presentation	2020
TFRIC 16*	Hedges of a Net Investment in a Foreign Operation	2020
TFRIC 19*	Extinguishing Financial Liabilities with Equity Instruments	2020

\* TFRS - Financial instruments standards

#### ***(a) TFRS 15 Revenue from Contracts with Customers***

TFRS 15 establishes a comprehensive framework for determining whether, how much and when revenue is recognised. Revenue should be recognised when (or as) an entity transfers control over goods or services to a customer, measured at the amount to which the entity expects to be entitled. It replaces existing revenue recognition standards as follows:

#### ***Power Purchase Agreement***

The Group has the power purchase agreements for 25 years, 5 years and renew 5 years automatically with the Electricity Generating Authority of Thailand, Provincial Electricity Authority and Metropolitan Electricity Authority whereby the Group will supply the electric energy at the agreed quantity and price. The Group must comply with conditions and restrictions provided for in the agreement.

#### ***Letters of Guarantee***

The Group and the Company had commitment to local banks and Thailand office of foreign financial institutions for letter of guarantee issued for sales and purchase of electricity,

electricity used, purchase of machinery and rental agreements to certain government sector and private sectors. As at 31 December 2018, the Group had outstanding commitments being amount of Baht 1,393.53 million and Malaysian Ringgit 10.00 million (31 December 2017 (Restated): Baht 1,494.68 million and U.S. Dollars 31.08 million).

### ***Consultant Agreement***

The Group was committed the consultant fee to prepare environmental impact reports, consultant fee of project development and engineering feasibility studies. As at 31 December 2018, the Group had outstanding commitments being amount of Baht 16.59 million and JPY 503.52 million (31 December 2017: Baht 7.44 million, U.S. Dollars 0.37 million and JPY 1,052.70 million).

### ***Service Agreement***

The Group had obligation commitment in operation and maintenance service of power plant contracts in amount of Baht 90.21 million, EUR 12.00 million, U.S. Dollars 25.37 million and JPY 2,279.19 million. As at 31 December 2018, the Group outstanding obligation remains at Baht 64.55 million, EUR 9.60 million, U.S. Dollars 24.77 million and JPY 2,266.00 million (31 December 2017: Baht 82.09 million, EUR 9.60 million, U.S. Dollars 22.83 million and JPY 2,189.24 million).

### ***Long-Term Land Lease Agreement***

The Group had non-cancellable land lease agreements with Japanese companies, using for power plant operation for the period of 20 - 25 years commencing from commercial operation date. As at 31 December 2018, the Group had outstanding commitments being amount of JPY 877.44 million (31 December 2017: JPY 894.40 million).

### ***Construction service agreements***

The certain subsidiary had power plant construction service agreement in Japan. The subsidiary have committed to pay services fee as stipulated in the agreements. As at 31 December 2018, the subsidiary had outstanding commitments being amount of JPY 7,925.50 million or equivalents to Baht 2,353.58 million which will due within the year 2019.

- TAS 11 (revised 2017) Construction Contracts,
- TAS 18 (revised 2017) Revenue,
- TSIC 31 (revised 2017) Revenue-Barter Transactions Involving Advertising Services,
- TFRIC 13 (revised 2017) Customer Loyalty Programmes,
- TFRIC 15 (revised 2017) Agreements for the Construction of Real Estate, and
- TFRIC 18 (revised 2017) Transfers of Assets from Customers.

Management has considered the potential impact of adopting and initially applying TFRS 15 on the consolidated and separate financial statements and found that there is no material impact on the financial statements in the period of initial application.

#### ***(b) TFRS - Financial instruments standards***

These TFRS establish requirements related to definition, recognition, measurement, impairment and derecognition of financial assets and financial liabilities, including accounting for derivatives and hedge accounting.

Management is presently considering the potential impact of adopting and initially applying TFRS – Financial instruments standards on the consolidated and separate financial statements.

### **39. Reclassification of accounts**

Certain accounts in the 2017 financial statements, which are included in the 2018 financial statements for comparative purposes, have been reclassified to conform to the presentation in the 2018 financial statements as follows:

	2017						
	Consolidated financial statements				Separate financial statements		
	Before reclass.	Reclass.	Adjust -ment (note 4)	After reclass.	Before reclass.	Reclass.	After reclass.
	(in thousand Baht)						

*Statement of financial position as at 31 December 2017*

Intangible assets and goodwill	4,431,269	(4,431,269)	-	-	-	-	-
Goodwill	-	163,476	-	163,476	-	-	-
Intangible assets	-	4,267,793	(199,608)	4,068,185	-	-	-
Other non-current assets	408,079	(408,079)	-	-	273,071	(273,071)	-
Other non-current receivables	-	408,079	4,969	413,048	-	273,071	273,071
Other non-current liabilities	51,944	(5,306)	-	46,638	-	-	-
Provision for decommissioning costs of power plants	-	5,306	-	5,306	-	-	-
		-				-	

*Statement of comprehensive income for the year ended 31 December 2017*

Administration and other expenses	662,168	(95,279)	25,260	592,149	385,955	(60,279)	325,676
Unwind foreign exchange option contracts fee	-	95,279	-	95,279	-	60,279	60,279
		-				-	

The reclassifications have been made in the opinion of management, the new classification is more appropriate to the Group's business.



Part II

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Corporate Social  
Responsibility Report

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2018



# Policy in Corporate Social Responsibility for Sustainability Management

## 1.1 Key Strategies for Driving the Organization to Sustainability

Gunkul Engineering Public Company Limited (hereinafter referred to as “GUNKUL”), went through “36 Years of Trust” Why we change? Years of faith in change, expanding business opportunities and the goal of growing through business strategies both domestically and internationally to aim to be a leader in the complete energy business and stepping forward to the next year firmly with the concept of the Chairman of the Board of Directors on the occasion of the 36th anniversary, “Do you feel that today around us is changing, causing a disruptive change in our daily lives? GUNKUL must change... as well.” This is to show the Company’s major changes with the concept of “Not Only the Energy, We Care”



**36**  
YEARS OF  
TRUST

**GUNKUL**  
*not only the energy, we care*

## “อย่ากลัว การเปลี่ยนแปลง”

นางสาวศุภชา ดำรงปิยวุฒิ  
ประธานกรรมการบริหาร

**GUNKUL**  
ผ่านมา 36 ปี  
เราต้องสร้าง  
การเปลี่ยนแปลง

นายกฤษฎา ดำรงปิยะวุฒิ  
ประธานกรรมการบริษัท



โฉมใหม่ ก้าวใหม่  
**GUNKUL**





- Rebranding the Company's brand under the concept of "Not Only the Energy, We Care" to prepare for changes in technology.
- The Company has a strong capital base, ready to have more investment and seek for business partners including increasing the international market to reach 1,000 MW within 1,000 days or within 2020.
- Increasing distribution channels by being open to finding partners to join new businesses under rapidly changing technology.
- Additional business to foreign countries which the Company currently have Myanmar, Laos, Japan, Malaysia and is continuously expanding to other countries in Asia.

Throughout the past year, all of them are proud of the trust and confidence of customers and partners. GUNKUL's operations have never stopped. We continue to think and develop in every step by taking into account the needs of stakeholders and increasing business opportunities under the social responsibility policy and sustainable development. GUNKUL is ready to open for new business partners in order to create a real business.

At present, GUNKUL's business includes manufacturing, supplying and selling electrical equipment, which covers every step of the power transmission and distribution system to end-users, construction, installation of power generation systems and power plant maintenance services, operation of alternative energy power plants, including wind power plants and solar-powered farm, solar PV Rooftop for using within self-consumption including the new product "GROOF", solar electric power at household level that will create a new dimension of energy saving which every household can tangible.

## 1.2 Social Responsibility Policy for Sustainable Development

With commitment and caring from the Board of Directors to oversee good corporate governance with good governance and transparency to achieve the objectives according to the vision and mission. In order to aim to be a leader in the complete energy business and stepping forward to the next year firmly under the concept of "Not Only the Energy, We Care", with responsibility to stakeholders and society. The Company therefore strives to develop employees to grow together with the growth of the organization and living with society and the environment in a sustainable manner by taking into account the needs of stakeholders and

increasing business opportunities under the social responsibility policy and sustainable development. Also, with the confidence that “people” are the main resources to drive business to meet the needs of stakeholders in a balanced manner and can live happily and sustainably with society.

Gunkul Engineering Public Company Limited (“GUNKUL”) concentrates in reporting the advancement and operations performance which is relevant both directly and indirectly to all groups of stakeholders through the Corporate Social Responsibility or Sustainability Report which was presented on a yearly basis.

The Company is committed well manage the CSR in parallel with business operations as “Be a leader in the integrated renewable energy and electrical systems business, implementing state of the art technology for sustainable infrastructure development”. Moreover, the Company is strongly confident that the success in business operations does not derive only from management and human resources development, but along with the appropriate equilibrium in 3 dimensions of CSR which consist of economic, social and environment under the good corporate governance in order to reach the sustainable business operations as well as create a well-being society to Thailand. GUNKUL’s CSR policies and sustainable development are as follows:

**GUNKUL**  
*not only the energy, we care*

**WE** Care People  
Care Business  
Care Social

1. We care People: Developing Human to be Smart and Good People. The development of personnel potential which is considered an important resource of the Company for providing personnel with potential, by focusing on flexible work, support for technological changes and respond to the highest satisfaction of stakeholders, by aiming to create opportunities for progress, compensation, appointment for promotion, supporting potential development together with moral development, maintaining the environment, safety and organizing a working system; as well as, promoting skills and learning throughout the work period, by aiming for the employees to be smart and good people with the skills and potential that the organization expects ,to be a driving force and to meet the needs of stakeholders in a balanced manner and be able to live happily and sustainably with society.
2. We care Business: Creating Innovation and Develop Business. Produce quality products, create business value based on good governance and increase business value through innovation in the extension of the production and distribution of electrical equipment, by alternative energy production from solar and wind energy to enhance environment friendly approaches and trust among stakeholders with required quality and safety standards and reduction of environmental impacts to create value and respond to stakeholders.
3. We care Social: Sustainably Creating and Developing Good Things for Society. This is to create good relationship and inter-dependency as being “good neighbor” with the surrounding community while enhancing people participation to follow up any possible apportion impacts toward environment conditions. The Company also focusses on knowledges and experiences sharing among relevant persons and agencies to promote appropriate localized development.

The social responsibility policy for sustainable development, the Company has communicated and conveyed to employees at all levels to acknowledge thoroughly in each company in the GUNKUL’s group. All employees have the duty and responsibility to operate as shown in the Sustainable Development Master Plan. All employees must adhere strictly to and continuously under the supervision of the management of the Company.

### 1.3 Sustainable Development Master Plan

In 2018, the Company established a sustainable development master plan on the occasion of the GUNKUL's 36th anniversary "36 Years of Trust" Why we change?, which is considered as a year of faith in the development of change, expanding business opportunities and the goal of growing through business strategies both domestically and internationally. To aim to a leader in the integrated energy business and stepping forward to the next year firmly and to show the Company's major changes with the concept of "Not Only the Energy, We Care".



**“ไม่รู้จะเรียกว่า วิสัยทัศน์  
หรือเปล่า?  
แต่ผู้ชายคนนี้  
มักจะมองอะไร ไกลเสมอ  
และมองเห็น โอกาสรอบตัว  
ตลอดเวลา”**

นายทศกุล ดำรงปิยะวุฒิ  
ประธานกรรมการบริษัท



2

With the leader of the Company that has a far-reaching vision, “Always look far ahead and see the opportunities that are around all the time” since the establishment of the company in 1982 onwards.

The Company is constantly developing and growing. The success is due to the power of the personnel that the Company is confident that the development of people is progressing. This is one of the successes and growth of the business continuously by setting direction, goals

and indicators according to the strategic framework, caring for personnel, caring for business development and caring for society and community, continuous monitoring and evaluation of results. This is in order to improve and develop personnel, innovation and continuous business to reduce impacts and create value for businesses and stakeholders.

#### **We care People**

Developing Human  
to be Smart People  
and Good People

1. Create and develop an appropriate organizational culture model and support the agency's strategy.
2. Enhance skills for supervisors to be the main role in driving and enhance appropriate behavior for subordinates.
3. Develop co-behavior of personnel to be changed into new corporate culture.
4. Improve the human resource management system to facilitate the creation of good behavior for personnel.
5. Encourage personnel to progress in their careers.

#### **We care Business**

Creating Innovation  
and Develop  
Business

1. The complete expansion of electrical system products.
2. Further strengthening capital by expanding the energy business to more foreign countries
3. Procurement of modern technology to hope that all sectors can use renewable energy to be most efficient, both from self-development, as well as hand-in-hand with Startup business to continue business expansion.
4. Focus on construction business both electrical systems and related equipment, including ground and underground transmission lines and getting more submarine cable work in order to achieve sustainable growth in all parts.

#### **We care Social**

Sustainably  
Creating and  
Developing Good  
Things for Society

1. Create renewable energy power plants as a source of learning for society and communities.
2. Create employee participation and community network for development, continue the local culture and support community activities to create a strong society and live together in a balanced way.
3. Create a network with educational institutions to be a source of learning and career development for students in order to develop skills, knowledge, and abilities to be able to work effectively.



## Business Operations

### with Stakeholders and Sustainable Management

The Company recognizes the importance of conducting business with regard to stakeholders, with adherence to the principles of fair competition and fairness under the legal framework and the code of conduct by definition Stakeholders are individuals, groups or organizations that can make an impact and / or affected and benefits. It must also be responsible for the business or activities related to the organization by creating acceptance for stakeholders in order to share and achieve business results both directly and indirectly

The Company conducts sustainable management with recognition of how stakeholders are vital to drive for business prosperity based on our announced vision and mission. We have categorized stakeholders with required participation and balancing economic, social and environmental factors according to our business goals and direction as follows.

## Vision

*“Be a leader in the integrated renewable energy and electrical systems business, implementing state of the art technology for sustainable infrastructure development.”*

Mission	Electricity Generation from Renewable Energy	To operate the business of the renewable energy power plants under the highest efficiency standards with the emphasis on the society and environment.
	1. Distribution	Providing electrical components and distribution channels with efficient and complete service to customers.
	2. Technology	Developing and applying new technologies in production process for efficient performance and cost saving.
	3. Remuneration	Generating the highest returns to shareholders and all parties concerned.
	4. Human Resources	Developing and increasing employees’ capabilities for international competition.
	5. Management	Organizing management structure to be incorporated with good corporate governance.

*“Not only the Energy, we care”*

### We care People

Developing Human to be Smart  
People and Good People

### We care Business

Creating Innovation and Develop  
Business

### We care Social

Sustainably Creating and  
Developing Good Things for  
Society

The Company provides various communication channels among each group of stakeholders which shall enable the Company to understand the stakeholders’ expectations. Management procedures, communication channels, operational guidelines together with process revision shall be performed continuously in order to fulfill the Company’s mission and endure the organizational growth. The Company’s stakeholders can be categorized as follows:





		Communication Channel	Challenge / Guideline
1. Employees	<ul style="list-style-type: none"> <li>Fair salary and benefit other than stated by the laws</li> <li>Equal opportunity in competence development</li> <li>Promote advancement and security</li> <li>Provide favorable working environment</li> <li>Fair and equal treatment</li> <li>Promote engagement between families, employees and organizations</li> </ul>	<ul style="list-style-type: none"> <li>HR Committee Meeting</li> <li>Welfare Committee</li> <li>Vocational Training courses</li> <li>GUNKUL Training Plan</li> <li>Employee opinion survey</li> <li>Comments and suggestions channels</li> <li>Intranet, Line and Announcement Board</li> <li>Daily Morning Meeting, Walking Public Relations</li> <li>Create a corporate welfare policy that reinforces organizational commitment</li> <li>Annual report, Sustainability Report</li> </ul>	<ul style="list-style-type: none"> <li>Fair treatment by using fair and measurable performance evaluation process</li> <li>Develop / improve proper benefit arrangement</li> <li>Concern in human rights, hygienic and safety in workplace</li> <li>Develop and maintain valuable employees as well as promote employee ethics</li> <li>Engage employees, families and organizations through child welfare scholarships. Benefits from financial institutions</li> </ul>
2. Business Partners	<ul style="list-style-type: none"> <li>Fair and transparent procurement and auction</li> <li>Compliance with the terms and conditions of the contract</li> <li>Complete and on-time payment</li> <li>Long-term business relationships</li> <li>Growth and sustainable progress along with the Company</li> <li>Transfer and exchange of technology knowledge and experience</li> <li>Respect the rights and intellectual property of those who involved</li> </ul>	<ul style="list-style-type: none"> <li>Organize meeting / discussion for mutual agreement and objective</li> <li>Arrange for expertise and the Company's team to transmit specific business aspect</li> <li>Visit the business partners to learn about their comments and suggestions</li> </ul>	<ul style="list-style-type: none"> <li>Treat all business partners fairly and equally</li> <li>Stand firmly on contract agreements as well as business ethics</li> <li>Inform business partners of process in payment, purchasing, requisition, selection and appraisal. Arrange audit report, follow up and conclude the results for all parties concerned</li> <li>Organize strict control system in confidential information to prevent misuse or illegal disclosure</li> </ul>
3. Clients	<ul style="list-style-type: none"> <li>Quality / standardized products and service with fair and competitive price</li> <li>Product and service delivery under agreed condition and in timeframe</li> </ul>	<ul style="list-style-type: none"> <li>Customer satisfaction survey</li> <li>Customer visit</li> <li>Create company website <a href="http://www.gunkul.com">www.gunkul.com</a></li> <li>Comments and Complaints Center</li> </ul>	<ul style="list-style-type: none"> <li>Offer quality product and service with proper, safety and competitive price</li> <li>Create guarantee process in all supply chain from raw materials to customer's hand</li> </ul>

		Communication Channel	Challenge / Guideline
	<ul style="list-style-type: none"> <li>• Offer before sales service such as product usage manual and after sales service as well as other assistance</li> <li>• Compliance with the terms and conditions of the contract</li> </ul>	<ul style="list-style-type: none"> <li>• Print necessary information on product label or organize a seminar upon request</li> <li>• Arrange product booth for sales promotion with recommendations</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect and control the production and service process as certified and recommended</li> <li>• Continuously research and develop quality product with competitive price</li> <li>• Well-communicate and strictly comply with agreements signed with customers such as product delivery, service and etc.</li> </ul>
4. Competitors	<ul style="list-style-type: none"> <li>• Operate business fairly and ethically</li> <li>• Compete fairly according to the laws</li> <li>• Non-infringement of intellectual property</li> </ul>	<ul style="list-style-type: none"> <li>• Receive news from the media, public forum, website and sales staff</li> <li>• Join in Central Business Agency</li> </ul>	<ul style="list-style-type: none"> <li>• Treat competitors fairly and legally</li> </ul>
5. Creditors	<ul style="list-style-type: none"> <li>• Repay the debt on schedule and compliance with the terms and conditions of the contract</li> <li>• Arrange proper Risk Management</li> </ul>	<ul style="list-style-type: none"> <li>• Set meeting for mutual agreement</li> </ul>	<ul style="list-style-type: none"> <li>• Set strict debt control with great concern to the Company's reputation</li> </ul>
6. Community / Society	<ul style="list-style-type: none"> <li>• Supervise the affect on environment and safety of community</li> <li>• Coordinate in economic, social and environmental development of community</li> <li>• Participation in community and social development</li> <li>• Environmentally friendly and healthy production processes</li> <li>• Employment of disabled people</li> </ul>	<ul style="list-style-type: none"> <li>• Organize public hearing before the business operations to enhance the community with necessary knowledge and impact together with arranging a community satisfaction survey</li> <li>• Listen to comments, suggestions and complaints</li> <li>• Continuously support the community's activities</li> <li>• Cooperate with the government sectors in complying with all rules, regulations and public benefit activities</li> </ul>	<ul style="list-style-type: none"> <li>• Operate business ethically</li> <li>• Coordinate with the community in education, cultural and local festivals conservation and restoration projects</li> <li>• Follow up and preserve safety and quality of environment</li> <li>• Support employees in sharing their knowledge and capabilities to the community such as being electrical volunteer and joining the community's activities</li> </ul>
7. Shareholders and investors	<ul style="list-style-type: none"> <li>• Remuneration (dividend and capital gain) from good and sustainable operations</li> <li>• Good corporate governance and risk management</li> <li>• Success business operations</li> <li>• Being treated equally and fairly</li> </ul>	<ul style="list-style-type: none"> <li>• Submit quarterly and annual report</li> <li>• Arrange Annual General Meeting / Extraordinary General Meeting of Shareholders</li> <li>• Communicate information and comments through various channels</li> <li>• Appoint Company Secretary and Investor Relations to be the contact center for shareholders and investors</li> </ul>	<ul style="list-style-type: none"> <li>• Gain investment returns from transparent operation and continuous business growth</li> <li>• Treat shareholders according to the Company's policies as well as SEC and SET rules and regulations</li> </ul>

		Communication Channel	Challenge / Guideline
	<ul style="list-style-type: none"> <li>• Disclose the Company's information in accordance with the facts, accurate, complete, up-to-date and transparent</li> </ul>	<ul style="list-style-type: none"> <li>• Arrange quarterly Opportunity Day for shareholders and investors at SET</li> <li>• Annual report, Sustainability Report</li> <li>• Organize visit to alternative energy power plant</li> </ul>	
8. Press	<ul style="list-style-type: none"> <li>• Receive correct, fair, beneficial and timely information</li> </ul>	<ul style="list-style-type: none"> <li>• Arrange regular communication activities to support the Company's good image by presenting beneficial information through various channels such as Opportunity day, press conference, special interview, company visit and press releases</li> <li>• Support press activities which are beneficial to society and country</li> </ul>	<ul style="list-style-type: none"> <li>• Set high priority to news and update report by focusing on the correct and useful and timely information</li> <li>• Arrange regular activities to promote relationship with press.</li> </ul>
9. Government Agencies	<ul style="list-style-type: none"> <li>• Strictly abide to the related laws and regulations</li> <li>• Act against the demand for benefit and corruption</li> <li>• Full payment of taxes and fees as prescribed</li> <li>• Cooperation and support in various areas</li> </ul>	<ul style="list-style-type: none"> <li>• Meeting</li> <li>• Annual Report</li> <li>• Welcome visit from government sectors</li> <li>• Submit correct and timely information to related parties</li> </ul>	<ul style="list-style-type: none"> <li>• Conduct fair and transparent business as per the good corporate governance, related to laws, rules and regulations</li> <li>• Cooperate in both academic aspect and activity support to the government sectors</li> <li>• Control the environmental condition as prescribed by the laws</li> </ul>





## Report Preparation

### 3.1 Scope of Report

The Company concentrates on how to submit sustainable management report of GUNKUL and the subsidiaries for 2018 as of January 1, 2018 to December 31, 2018, which related to sustainable management, covering economic, social and environment strategies with guidelines for the implementation of the SD Roadman Master Plan, with content and material that focus on the implementation of the strategic plan to achieve the organization's vision and mission based on good governance under the good corporate governance policy, risk management including in the care of employees, creating employees to be smart and good people, creating added value for the business and creating opportunities for society and communities in the ways of sustainable communities, by referring to the preparation of reports to be consistent with the index of Global Reporting Initiative Version 4.0 (GRI G4).

The Corporate Social Responsibility Report or Sustainability Report 2018 reports the operations covering all departments of the of GUNKUL and subsidiaries as the following:

Business Category	Company name	
GUNKUL Engineering PCL.		
· Conducting business related to investment in other companies both in domestic and oversea	Bright Green Power Company Limited	BGP
· Electrical equipment	G.K. Assembly Company Limited	GKA
	G.K. Power Products Company Limited	GKP
· LED production and distribution	Gunkul Energy Solution and Lighting Company Limited	GES
· Electrical equipment and systems for public sectors.	K.N.P. Supply Company Limited	KNP
· Power plant construction with systems and equipment	Gunkul Power Development Company Limited	GPD

Business Category	Company name	
· Construction of a power plant, Construction of a transmission line system, Underground cable and Equipment distribution business for electrical systems and systems related to power plant construction and transmission systems both on the ground and underground	Future Electrical Control Company Limited	FEC
· Production and distribution of alternative energy (solar energy)	Gunkul Chubu Powergen Company Limited	GCPG
	Gunkul Solar Power 2 Company Limited	GSP2
	Gunkul Solar Roof 1 Company Limited	GSR1
	Rang Ngern Solution Company Limited	RNS
	N.K. Power Solar Company Limited	NKP
	Gunkul Solar Community Company Limited	GSC
· Production and distribution. od alternative energy (wind power)	Wind Energy Development Company Limited	WED
	Greenovation Power Company Limited	GNP
	Bright Green Power Company Limited	BGP
	Korat Wind Energy Company Limited	KWE

### 3.2 Materiality Effects to Business Sustainability

In 2018, the sustainable Management Committee identified risk assessment provided by the Risk Management Committee based on Common Risk Matrix comparing to the annual business goals and analysis of stakeholders' expectation through various channels i.e. community public hearing forum, meeting with local community, complaints, questionnaires on consumers satisfaction, employees and visiting/ checking suppliers.

Found that there are issues that affect the sustainability that are significant to the organization and in accordance with the relationship with stakeholders. Prioritizing by bringing

significant issues to the Company and stakeholders to analyze and compare with the consistency of issues and indicators according to the GRI G4 guidelines. Then, prioritize and select the content, information that contained in the expectations and interests of Stakeholders in the Materiality Matrix format. The horizontal axis shows the level of impact on the organization in terms of society, economy and environment and the vertical axis shows the level of impact on the interest of stakeholders according to the following table and images;

Economic issues	Social Issues	Environment issues
1. Good Corporate Governance	1. Competency development to enhance “smart and good people”	1. Observation of environment laws
2. Fair business practices	2. Labour and human rights practices	2. Inter balancing with community living
3. Anti-corruption	3. Occupational health and safety	3. Environment management and energy
4. Taxation Procedure	4. Education opportunity for youth	
5. Risk management	5. Participation in quality living and environment development of the community	
6. Consumer responsibility	6. Buddhism and local culture upholding	
7. Innovation for sustainable business procedure	7. Trading partnership enhancement	
8. Creating engagement and development with customers		
9. Responsibility to consumers		

Materiality Matrix						
Level of an impact on the interests of stakeholder groups	Very Important	1.3      2.1      1.6			1.5      1.7	
		1.1			3.1      1.9	
		1.2			1.8	
		2.2			3.3	
					1.4      2.3      3.2	
	Important				2.4	
					2.5	
		2.6			2.7	
		Important		Very Important		
		Level of an impact on the organization in social, economic and environmental aspects				

## 04.

## We care People

### Developing Human to be Smart People and Good People

The Company is well aware that “employees” are the starting point of driving business to the goal, an important driving force to lead the organization to sustainability. The Company has therefore developed human resource management based on fair treatment of personnel and respecting human rights by aiming to create opportunities for progress, compensation, appointment to adjust positions, potential development along with moral development, maintaining the environment, safety and organizing a working system; as well as, promoting skills and learning throughout the work period by aiming to create employees to be smart and good people with qualifications , skills and potential as expected by the organization to be a driving force and meet the needs of stakeholders in a balanced manner in order to achieve the vision and mission of the Company effectively. Also, aims to create opportunities, progress and an atmosphere of participatory work; as well as, promoting skills and learning throughout the work period with the following aims;



- Create employees to be smart and good people With qualifications, skills and potential as expected by the organization and linking employee behavior with corporate culture “The organization grows, Employees grow “ (“G” We GROWTH Together). GUNKUL will grow with the organization and grow together as a result of creating strong organizational culture as the following;

## **GUNKUL** *not only the energy, we care* **"G" We GROWTH Together**



- Develop employees to prepare for the growth of the organization by preparing an annual training plan and knowledge management sharing to promote and develop knowledge skills.
  - Average training hours per person / per year
  - Professional training courses throughout the year
  - Budget for personnel development



- Create a plan for succession of important positions of the organization through the policy of job promotion
  - Number of employees who have been promoted

## Number of employees

As of December 31, 2018, the Company consisted of 796 employees working in the following categories and levels.

Total Employees	Number of Employee				
	2014	2015	2016	2017	2018
Total Employees	552	635	709	728	796
Full time	415	526	583	598	667
Daily	137	109	126	130	129
Total Employees by Category					
Permanent	482	553	599	611	663
Contracted	70	82	110	117	133
Total Employees by Gender					
Male	331	390	350	448	509
Female	221	245	359	280	287
Total Employees by Rank					
Management Executive	17	25	25	26	28
Department Manager	34	48	56	53	57
Chief / Specialists	74	77	78	75	97
Primary –intermediate employees	195	291	312	345	376
Operation employee	232	194	238	229	238

#### 4.1 Personnel Development to Support Business Growth



From past to present, the Company's employees grow continuously which derived from the consecutive growth of the business. Therefore, the Company's human resources development structure relates and conforms to competency and KPIs. These measures are the database in the research for creating human resources development courses to be relevant with the Company's vision, mission and strategic plans in order to be the strong and sustainable organization. To prepare for personnel development in accordance with business growth by use the flowing training:

1. Training need survey: required from department and personnel need appropriately
2. On the job training: identify personnel competency and evaluation process both in practice and written test
3. Off the job training: such as special training or simulation and study case
4. Knowledge Management Sharing: Transferring knowledge of the organization to promote the development of skills, knowledge, ability and application to work effectively

In 2018, the Company still focuses in the competency plan and position qualifications which are relevant to the Company's vision, mission and direction plan. The courses are specified for capability improvement, decent and talented employees and can be utilized in both working and day to day living happily. Length of training courses can be categorized as follows:

Employee Level	Ave. training hour /level				
	2014	2015	2016	2017	2018
1. Operation	15	6	4	11	10
2. Primary-immediate	23	8	13	26	16
3. Chief / Specialists	39	36	22	8	28
4. Department Manager	34	43	23	51	35
5. Management Executive	36	32	23	38	37

Incubate the talents with the development of the potential for employee advancement  
“We care People”



In 2018 The Company gives importance and encourages the development of employees with skills, knowledge, and ability to work together with morality and ethics as a “We care People” by focusing on developing employees, creating value for themselves, organizations and society by encouraging employees at all levels to be aware of their duties and have social responsibility. In order to lay the foundation for the development of the potential of employees to be effective and lead to the creation of strength that is the foundation of the organization. The Company has allocated the budget for the development of staff potential so that employees can be a “smart and good people” with a budget of 4.95 million baht. The training programs have 186 courses. The average training hours for employees is 17.18 hours per person per year. The details are as follows;

Detail	2014	2015	2016	2017	2018
Training budget (million baht)	2.54	2.02	1.11	1.71	4.95
Number of courses	134	160	180	160	186
Number of employees	1,614	1,782	1,363	2,128	2,087
Average hours of training per person	22.86	14.37	12.11	21.67	17.18

Details of training courses in 2018, separated by staff level -

Training Course Data for the Year 2018				
Level / Course	Quality System Course	Personnel Development Course ( Core Competencies )	Management Course	Productivity / Technical / Safety Environment Course
Executive		<ul style="list-style-type: none"> <li>- Writing Job Description / Competency Techniques</li> <li>- Goal Setting</li> <li>- Excellent Communication Skills</li> <li>- Excellent Communication Skills</li> <li>- Train the Trainers</li> </ul>	<ul style="list-style-type: none"> <li>- Ultra Wealth Group Class4</li> <li>- Project Risk Management of Project Controls</li> <li>- Advanced Security Management Program Class 10</li> <li>- Contemporary Management: CROSS-FUNCTIONAL ALIGNMENT</li> <li>- Economic Valued Driver Workshop</li> <li>- Development of advanced communication potential for senior management</li> <li>- Public consultation of the stakeholders on the draft Act of Industrial Product Standards</li> </ul>	<ul style="list-style-type: none"> <li>- SETPortal system Training</li> <li>- Smart Disclosure Program</li> <li>- Corporate income tax updates: preparation before standing in PND 50 (2017) in 2018</li> <li>- TFRs TALK 2018</li> <li>- Draft of TFRS 15: Revenue from contracts that made with customers</li> <li>- Discussion exchange learning, Technology changes the world</li> <li>- The Land Tax Act Draft and the Revenue Tax Risk</li> <li>- How to Manage Intellectual Property for Maximum Benefit</li> </ul>
Manager	<ul style="list-style-type: none"> <li>- Introduction &amp; Requirement ISO 14001:2015</li> <li>- Internal Audit ISO 14001:2015</li> <li>- Internal Auditing Techniques (Auditor) ISO 9001</li> <li>- OHSAS18001 Professionally</li> </ul>	<ul style="list-style-type: none"> <li>- Writing Job Description / Competency Techniques</li> <li>- Goal Setting</li> <li>- Excellent Communication Skills</li> <li>- Excellent Communication Skills</li> <li>- Train the Trainers</li> </ul>	<ul style="list-style-type: none"> <li>- Contemporary Management: CROSS-FUNCTIONAL ALIGNMENT</li> <li>- Economic Valued Driver Workshop</li> </ul>	<ul style="list-style-type: none"> <li>- Solar power generation system (Solar Rooftop)</li> <li>- Safety in Electrical Works ( E.EE )</li> <li>- Safety in Working at Height ( S.P )</li> <li>- Underground electrical systems, design, construction, installation, testing and maintenance</li> </ul>

Training Course Data for the Year 2018

Level / Course	Quality System Course	Personnel Development Course ( Core Competencies )	Management Course	Productivity / Technical / Safety Environment Course
				<ul style="list-style-type: none"> <li>- Corporate income tax updates: preparation before standing in PND 50 (2017) in 2018</li> <li>- Understand the rules regarding tax invoices precisely to prepare to receive an alternative for the E-tax system</li> <li>- Testing of high voltage equipment in the production, transmission and distribution of electricity</li> <li>- Effective for Selling Skills</li> <li>- Microsoft Power BI Desktop for Business Analysis</li> <li>- Cost reduction strategy with lean production system</li> <li>- Superior Supplier Management Strategy</li> <li>- Advanced Warehouse Management in the 4.0 Era</li> <li>- Draft of Financial Reporting Standards - Financial Instruments 2018</li> <li>- Discussion exchange learning, Technology changes the world</li> <li>- Confederate organization Bright Productivity with TPM</li> </ul>
Head of the Department / Department Head	<ul style="list-style-type: none"> <li>- Introduction &amp; Requirement ISO 14001:2015</li> <li>- Internal Audit ISO 14001:2015</li> <li>- Internal Auditing Techniques (Auditor) ISO 9001</li> <li>- OHSAS18001 Professionally</li> <li>- Step towards success in cost reduction with QCC</li> </ul>	<ul style="list-style-type: none"> <li>- Writing Job Description / Competency Techniques</li> <li>- Goal Setting</li> <li>- Excellent Communication Skills</li> <li>- Excellent Communication Skills</li> <li>- Train the Trainers</li> </ul>	<ul style="list-style-type: none"> <li>- Strategic HR BP Seminar</li> <li>- Contemporary Management: CROSS-FUNCTIONAL ALIGNMENT</li> <li>- Economic Valued Driver Workshop</li> <li>- 33 daily leadership activities</li> </ul>	<ul style="list-style-type: none"> <li>- Safety in work for Tesco Lotus contractors ( G )</li> <li>- Safety in Electrical Works ( E.EE )</li> <li>- Safety in Working at Height ( S.P )</li> <li>- Corporate income tax updates: preparation before standing in PND 50 (2017) in 2018</li> <li>- Safety Officer for Supervisor Level</li> <li>- Testing of high voltage equipment in the production, transmission and distribution of electricity</li> <li>- Effective for Selling Skills</li> <li>- Basic fire fighting and fire escape training in 2018</li> <li>- Microsoft Power BI Desktop for Business Analysis</li> </ul>

Training Course Data for the Year 2018

Level / Course	Quality System Course	Personnel Development Course ( Core Competencies )	Management Course	Productivity / Technical / Safety Environment Course
				<ul style="list-style-type: none"> <li>- Survey, design, installation, maintenance for solar power generation system on the roof</li> <li>- Solid Plant</li> <li>- Cost reduction strategy with lean production system</li> <li>- Public consultation of the stakeholders on the draft Act of Industrial Product Standards</li> <li>- Prevent errors with Visual Control and POKA YOKE</li> <li>- Complement of recruitment story</li> <li>- Superior supply management strategy</li> <li>- Creating a test for selecting people to work</li> <li>- Using a new communication system to increase work efficiency</li> <li>- Advanced Warehouse Management in the 4.0 Era</li> <li>- Draft of Financial Reporting Standards - Financial Instruments 2018</li> <li>- Confederate organization Bright Productivity with TPM</li> <li>- Adaptation to the changing direction of accountants</li> </ul>
Staff	<ul style="list-style-type: none"> <li>- Introduction &amp; Requirement ISO 14001:2015</li> <li>- Internal Audit ISO 14001:2015</li> <li>- Internal Auditing Techniques (Auditor) ISO 9001</li> <li>- OHSAS18001 Professionally</li> <li>- Step towards success in cost reduction with QCC</li> </ul>	<ul style="list-style-type: none"> <li>- Writing Job Description / Competency Techniques</li> </ul>		<ul style="list-style-type: none"> <li>- Safety in work for Tesco Lotus contractors ( G )</li> <li>- Safety in Electrical Works ( E.EE )</li> <li>- Safety in Working at Height ( S.P )</li> <li>- Underground electrical systems, design, construction, installation, testing and maintenance</li> <li>- Corporate income tax updates: preparation before standing in PND 50 (2017) in 2018</li> <li>- Solar power generation system on the roof (Solar Rooftop) 2018</li> <li>- Safety Officer for Supervisor Level</li> <li>- Effective for Selling Skills</li> </ul>

Training Course Data for the Year 2018

Level / Course	Quality System Course	Personnel Development Course ( Core Competencies )	Management Course	Productivity / Technical / Safety Environment Course
				<ul style="list-style-type: none"> <li>- Basic fire fighting and fire escape training in 2018</li> <li>- Microsoft Power BI Desktop for Business Analysis</li> <li>- TISI 4.0 : E-LICENSE</li> <li>- Solid Plant</li> <li>- Cost reduction strategy with lean production system</li> <li>- Prevent errors with Visual Control and POKA YOKE</li> <li>- Superior Supplier Management Strategy</li> <li>- Using a new communication system to increase work efficiency</li> <li>- Advanced Warehouse Management in the 4.0 Era</li> <li>- Draft of Financial Reporting Standards - Financial Instruments 2018</li> <li>- Labor Social Responsibility Development Project</li> <li>- Preparation for the assessment of sustainability for selecting “ ”sustainable stocks” ”</li> <li>- Confederate organization Bright Productivity with TPM</li> </ul>
Operational Level Staff	<ul style="list-style-type: none"> <li>- Introduction &amp; Requirement ISO 14001:2015</li> <li>- Internal Audit ISO 14001:2015</li> <li>- Internal Auditing Techniques (Auditor) ISO 9001</li> <li>- OHSAS18001 Professionally</li> </ul>			<ul style="list-style-type: none"> <li>- Basic fire fighting and fire escape training in 2018</li> <li>- Driver Development for professional service</li> </ul>



In addition to the training course, the Company recognizes the importance of personnel who have started work by focusing on staff growth together with an organization, also pay attention on the first day of work. The new staff will be introduced to understand and learn the corporate culture by creating a mentor system for new employees to understand the system, culture, policy guidelines, occupational health and safety operation and to balance between the staff and the organization to understand and work together as a team.

In addition to the business training courses, the Company also provides a course on “Investment plan for tax benefit and savings for retirement” in order for the employees to well-balance their lives before retiring as well as prepare the retiring employees in planning their counterbalance of future life, health and property.

#### **4.2 Capacity Development and Career Advancement**

The Company has set up personnel screening criteria under the policy principles of promotion procedure as an incentive to maintain our qualified employees who can foresee their career advancement. When a person if of required qualification to fill or replace certain vacancy that person shall be nominated through a fair screening procedure by the authorized committee of executive directors with the Managing Director who acts as the Chairman of the HR Committee. Following are their duties and responsibility.

- Considering whether the nominee for promotion is of qualification specified by the position succeeding plan.
- Deciding if there is any possible problem regarding human resources management.
- Approving policy on problem solving within the authorized scope given by the Company.
- Suggesting possible solution for certain problems or principles of personnel development or management in line with specific company’s policy.
- HR Committee appointed by the top executive and HR manager shall serve as a director and the secretary, approved by the Managing Director.

### *Statistic Number of Promoted Employees*

Level of Promoted Employees	Number of Promoted Employee				
	2014	2015	2016	2017	2018
• Management	7	2	2	9	1
• Assistant Management and Sale Manager	7	8	5	2	9
• Chief Department	12	13	8	2	5
<b>Total number of promoted employees in each year</b>	<b>26</b>	<b>23</b>	<b>15</b>	<b>13</b>	<b>15</b>

- Setting up system or standard on personnel development to meet the Company's expectation for all divisions so that the working system shall be more effective.
- Appointing appropriate persons to different positions suitable for their ability and responsibility.
- Persuading outside persons to work with the organization while having the present employees realized of their job security and career prospect or being promoted to the higher position.
- Having well developed personnel to support growing organization.

### **4.3 Promoting Good Practices, Participation and Social Contribution among Employees**

The Company is not only promoting “smart persons” among employees but they are as well expected to be “good persons” who regularly practice social contribution by their own capacity and skills whenever opportunity comes for them. Social awareness has been promoted by participating in doing good deeds and joining the community through volunteering activities or making merit as a service as detail below;



1. “GUNKUL Buddy Blood for Life” is the joint activity for both management and employees for blood donation to the Thai Red Cross. This activity is an activity that the Company has done for 8 consecutive years, with friends from GUNKUL together to continue the great giving by helping people to donate blood to an endless life.



2. Voluntary activities carried out by the 5 S group and cleaning staff who helped cleaning the temple ground and rest room facility at Wat Sawatwarisimaram prior to the ending date of the Buddhist Lent as a public contribution to the temple community on the traditional food presenting to Buddhist priest day. This practice started in 2002 and continues until today as a part of community relationship. New Year and Songkran days contribution by employees engaged them to the community road and surrounding areas clean-up including Wat Tanode ground and rest-room facility cleaning continually.





3. Making merit by volunteering or making merit as a service by making merit to offer food to the monks on important Buddhist days such as Makha Bucha Day, Visakha Bucha Day, Asalha Bucha Day, Mother's Day, Father's Day and New Year's Day which the Company has organized Buddhist activities for employees to make merit and volunteer continuously in every year, so that employees can have activities to join together.
4. "GUNKUL good people project" organized as appreciation for employees who "found and returning to the owners" of certain lost objects as they have been praised as the role model of contribution for happy living society.





## We care Business

### Creating Innovation and Develop Business

The Company focusses on quality production based on good governance with top up business value of electrical equipment distribution by our innovation and management of alternative energy project produced by solar energy and wind power; covering construction of power plants and energy distribution which are environmental friendly to enhance confidence of stakeholders who care for safety and quality standards and minimum environmental impacts.

- Carbon dioxide reduction from renewable energy power projects
- Business partners that jointly declare their intention to fight against corruption with GUNKUL
- Overall customer satisfaction level
- Create value in response to stakeholders
  - Create a green business, Renewable energy power plant
  - Create green culture in the Company
  - improve suggestion activity and develop into QCC projects since 2016

#### 5.1 Good Corporate Governance Policy

has been launched by the Company's Board with a strong intention to enhance business efficiency based on good governance and transparency to enhance credibility among stakeholders and in line with counter balancing of business, social and environmental impacts while promoting alternative energy production with recognition of consumers' safety, added value returns for stakeholders in the long run as well as company's competitiveness and the corporate sustainable growth. The Company Board, sub-committees and all employees shall as well the enterprise good governance procedure which bring returns of added value to shareholders while creating confidence among all stakeholders. This policy enhances sustainable growing for the Company with increasing competitive capacity. Main objectives are as followings.

- Serving as management policy for supervising and control by the authorized officers who shall manage effective resource utilization with required efficiency to meet the set goals.
- Providing the fair maximum returns to all stakeholders.
- Regularly review this policy and procedure each year.

### *The results of the assessment of corporate governance levels of Thai listed companies*

The Company was evaluated by the Corporate Governance Report of Thai Listed Companies to be a listed company that is rated as “Excellent” for year 2017-2018 from Thai Institute of Directors for the second year, with an average score of the Company equal to or higher than the average score of all surveying companies as following;

#### *• Average Rating*

Year	Overall Listed Company	SET100 Index	SET50 Index	GUNKUL
2018	81%	88%	91%	91%
2017	80%	87%	90%	91%

#### *• Category Rating*

Category	Rating	
	2018	2017
Rights of Shareholders	98%	97%
Equitable Treatment of Shareholders	88%	98%
Roles of Stakeholders	89%	84%
Disclosure and Transparency	96%	93%
Board Responsibilities	89%	89%
Overall	91%	91%

ตารางที่ 1 : ผลคะแนนภาพรวมและรายหมวดของ GUNKUL ปี 2561

หมวด	คะแนน	ตราสัญลักษณ์	ความหมาย
สิทธิของผู้ถือหุ้น	98		ดีเลิศ
การปฏิบัติต่อผู้ถือหุ้นอย่างเท่าเทียมกัน	88		ดีมาก
การคำนึงถึงบทบาทของผู้มีส่วนได้เสีย	89		ดีมาก
การเปิดเผยข้อมูลและความโปร่งใส	96		ดีเลิศ
ความรับผิดชอบต่อคณะกรรมการ	89		ดีมาก
ภาพรวม	91		ดีเลิศ

ตารางที่ 2 : เปรียบเทียบผลคะแนนภาพรวมและรายหมวดของ GUNKUL ปี 2560 และ 2561

หมวด	2560	2561
สิทธิของผู้ถือหุ้น	97	98
การปฏิบัติต่อผู้ถือหุ้นอย่างเท่าเทียมกัน	98	88
การคำนึงถึงบทบาทของผู้มีส่วนได้เสีย	84	89
การเปิดเผยข้อมูลและความโปร่งใส	93	96
ความรับผิดชอบต่อคณะกรรมการ	89	89
ภาพรวม	91	91



## 5.2 Being of Fair Enterprise Practices

The Company promotes good governance practices and ethical operations with responsibility toward both internal and external stakeholders, among board members, executives and all employees who shall continually observe the business ethics policy regarding for responsibility to the stakeholders, by taking into account the responsibility to stakeholders, from shareholders, employees, customers, partners, communities, society and environment. Not only as specified by law, but also includes not taking any actions that violate/ deprive the rights of stakeholders by defining business ethics guidelines as follows;

- **Reporting of stakeholders and related persons**

The Board of Directors has set the criteria for directors of the Company, its subsidiaries and executive to disclose the reports of their own interests and related persons under Section 89/14 of Securities and Exchange Act BE 2551 and require the review of reports within January of each year, and/ or every time there is a change of information by submitting a report through the company secretary and the secretary of the audit committee within 7 working days. In the year 2018, there were 9 reports. The transaction uses the appraisal value of the independent appraiser to compare prices before entering the transaction. The registration and summary of the report are submitted to the Chairman of the Audit Committee to inform the Board of Directors of the meeting.

- **The whistleblowing process**

The Company has set up channels for reporting complaints and suggestions on various matters, including reporting clues to illegal actions, by giving opportunities for employees and stakeholders to express their opinions freely. In order to lead to the improvement of the management system and can directly file complaints via email of independent directors or send a complaint letter through the company secretary. Moreover, the Company has protection measures for whistleblowers by communicating to employees at all levels to acknowledge and practice, in case of finding an ethical offense or being unfair. It is considered to be the duty of employees to be treated.

### 5.3 Anti-Corruption Practices

The Company is committed in performing its business in accordance with the principles of ethical business practice and good corporate governance by arranging the guidelines for ethical business practice and good corporate governance in writing. These guidelines shall assist the Company's Committees, management executives, employees and all stakeholders in conducting transparent and legal practices such as prohibition in demanding, receiving or paying dishonest payment with the Company's business partners and/or creditors. In addition, valid report of changes in the Company, directors' and management executives' securities holding as well as report of the stakeholders in accordance with the relevant laws and regulations of SET and SEC needs to be conducted clearly. Moreover, purchasing procedures, finance and accounting, sales, human resources, etc. are required to be performed as per the stated authorization. Furthermore, the Company also arranges the internal audit control so as to be confident that all operations are conducted effectively and efficiently with the checks and balances of assets for the benefit of the Company. The Board of Directors appoints the Audit Committee in regular reviewing and evaluating the risk concerning the internal audit control under the stated Audit Committee Charter.

The Company arranges the complaint and trace channels for any suspicious / violated practices as follows:

1. Direct or indirect organizational fraud such as corruption acknowledgement with private or government sectors.
2. Misconduct practices from the Company's rules and regulations which could lead to fraud.
3. Practices which cause the Company to lose benefit or impact the Company's reputation.
4. Illegal, immoral and unethical business practices.
5. Violation of Good Corporate Governance procedures.
6. Injustice in performing one's duties.

The Company has signed for the Private Sector Announcement on Anti-Corruption issued by corporation with the Anti-corruption Organization (Thailand) focussing on policies to anti-bribery and all forms of corruption. Public relation campaign has been launched to assure that all personnel shall not ask for bribes on take actions based on given rewards or any interests for benefits gaining, for themselves and the Company, offered directly by concerned parties.

Communication channel for informant: any suspicious actions for undesired corruption shall be informed for required acknowledgement as follows:

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#### Communication channel for informant for anti-corruption

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1. Audit committee email: [audit\\_committee@gunkul.com](mailto:audit_committee@gunkul.com)
2. GUNKUL Website [www.gunkul.com](http://www.gunkul.com) subject “Whistle Blowing Channel”
3. Seal Postal Mail to  
Chairman of Audit Committee  
GUNKUL ENGINEERING PUBLIC CO., LTD.  
Pearl Bangkok Building, 8th Floor,  
1177, Phaholyothin Road, Phayathai,  
Phayathai, Bangkok, 10400 Thailand
4. Anti-corruption Whistle Blowing Box (in-house : only audit committee and / or secretary of audit committee can open the box)

#### *Internal activities to support anti-corruption campaign*

- Training course on Anti-corruption Policy” for full coverage of employee at every level.
- Provide a training topic that new employees must follow when having an orientation.

The Thailand’s Private Sector Collective Action against Corruption (CAC) is a project supported by the Government and government’s National Anti-Corruption Commission (NACC) approved the Company to become a member of the Private Sector Collective Action Against Corruption through the self-assessment process, which shows that the Company’s policies and guidelines to prevent corruption within the organization in accordance with the criteria set by the CAC since 2017.

## 5.4 Taxation Procedure

The Company cooperated with the Revenue Department on taxation with honest, complete and transparent committed payment on the required schedule. Also, the management of the Company have senior management who are highly qualified and ready to give an advice and transfer knowledge in accounting and taxation, served as a President of the Tax Auditor Association of Thailand. In 2018 the Company's total revenue was of 6,460.89 million baht for which the paid taxation was of 103.50 million baht.

*Remark:* information from consolidated financial statement of GUNKUL and Subsidiaries for financial year ended at December 31, 2018

## 5.5 Risk Management

The Company, by the authorized Board, has appointed the Risk Management Committee with a strong commitment to continue driving sustainable growth. The said Committee is responsible to set up the risk management policy to direct business operation under the Law of Security Exchange of Thailand and other related rules and regulations, plus anti-corruption measures and procedure. The Committee also follow up and support successful risk management practices at both organization and project levels based on certain risky situations. It has to evaluate if the set procedure is of efficient coverage to enhance risk management at each operation step comparing to the international standards and propose appropriate improvement, if it is so required, to the attention of the Board. It shall as well assess its own operation outcomes followed by improving suggestions, if so required. The Board shall be then reported accordingly as a basis to consider adoption of the organization development policy, continually.

In addition, the Company received a certification "ISO 9001: 2015" which is an international standard that businesses around the world value. For being excellence in quality and efficiency of operations within the organization, ISO 9001 is an international quality management system. An important concept of ISO 9001 is the management system for quality assurance. It is a system that ensures that various processes are controlled and can be checked, through the system that identifies the steps and methods of work to ensure that personnel in the organization know the duties, responsibilities and procedures in the operation. These requires training to provide knowledge and skills in working. There is a record of information as well as performance audits and correcting errors including guidelines for preventing the same errors.



At present, ISO 9001: 2015 has added requirements for the understanding of organization and the organization's context, Understanding the needs and expectations of stakeholders for using in conducting risk assessments, risk rating and an action plan to close the risk, which is one of the foundation that will help the organization to move towards sustainable development.

## 5.6 Labour and Human Rights Practices

The Company committedly follows the constitution organic laws on human rights i.e. the labour laws and the Company ethical codes focusing on respect for basic rights and freedom of stakeholders, fair and equal treatment which are the key supporting factors to drive business operation.

Operation procedure adopted by the Company are all in line with relevant laws which include human rights principles aiming to guide how employees, business partners, suppliers, shareholders and stakeholders be properly treated as apparent in the following conclusion.

1. Respect for human rights and basic rights in line with the related organic laws, including safety for life and assets of the Company's stakeholders.
2. Promote equality by fair treatment for all workforce since every employee holds the right to career advancement with proper remuneration and welfare services competable with other operators in the same industry KPIs shall be applied for working outcome in figures. The Company equally provide career advancement for all employees by training and skills development.
3. Respect for different opinions, freedom of faith and religion, personal privacy and/or confidentiality of other concerned persons.
4. Fair practices for human resources management, without-discrimination, strictly follow minimum legal prescription regarding employment (prohibition for child labour and forced labour), sexual harassment by verbal aggression and physical action for which the Company has prescribed appropriate punishment regulations.

5. Direct communication with stakeholders, available channels for complaints and/or grievances submission including procedure to ensure effective and fair handling with transparency and possible checking.
  - Telephone: 02 242 5834 with provided stamping on vouchers of good sending and receiving and taxation document.
  - website : [www.gunkul.com](http://www.gunkul.com)
  - Corporate Governance Committee
  - Investor Relations Section : [ir@gunkul.com](mailto:ir@gunkul.com)
  - Intranet, Top Executive, Meeting with Employees, Morning Talk, Opinion Box for Employees.
  - Annual shareholders meeting/special meeting for shareholders.
  - Shareholders enterprise visits.
6. Strongly hold ethical conducts and professional practices in line with corporate operation.
7. Environmental system to enhance effective practices of the set standard to protect community life and social living against pollution impacts.

This procedure is based on corporate management basis determined by the Board as basic responsibility toward company's stakeholders under supervision of the Office of Managing Director to assure strict implementation to secure confidence among employees, shareholders, partners, customers and the society at large which has ensured good company image and reputation until today.

Employment for disable persons: At present the Company has 2 permanent disable employees who have registered with the Department of Disable Persons Development. In 2017 the Company is still on a survey of disable persons with an attempt to hire more disable persons with an attempt to hire more disable persons so that they can take care of themselves and their family, and living a life equally and similarly to other people.

## 5.7 Standards of Safety, Occupational Health and Environment

### ISO 14001 มาตรฐานระบบการจัดการ สิ่งแวดล้อม

The Company promotes practices recognized by the international standard for environmental conditions at various solar power plants in the group of Gunkul Engineering Public Company Limited, certified by ISO 14001: 2015 and rewarded for the CSR-DIW Awards from the Department of Industrial Works as follows;

*Summary of project activity data, Green Industry, Department of Industrial Works*



Power plant / Factory	Type Of Industry		2017		2018	
	Electrical equipment factory	Solar power plant	Electrical equipment factory	Solar power plant	Electrical equipment factory	Solar power plant
Green Culture Level 1 (Green Commitment)	2	30	2	30	2	2
Green Culture Level 2 (Green Activity)	2	30	2	30	2	2
Green Culture Level 3 (Green System)	2	30	1	7	1	7
Green Culture Level 4 (Green Culture)	2	30	0	0	0	0
Green Culture Level 5 (Green Network)	2	30	0	0	0	0

Remark: 1. Total number of participating factories are 32. (30 renewable solar power plants, 2 electrical equipment manufacturing factory)

2. The Green Culture certificate, Level 1-2, with a valid for 3 years from the date of receipt.
3. The Green Culture certificate, Level 3-4, with a valid for 3 years from the date of receipt.
4. Wind power plant / and Solar Rooftop is not considered to be a factory according to the Factory Act.

Occupational health and safety activities in 2018: Preparation for safety at work

- “Operation and wearing of protective equipment for safety at work” is a topic in the orientation training for all new employees who started working with the Company and / or employees who have been transferred duties must be aware of and acknowledge how to work and wearing personal safety protection equipment for safety at work including promote basic safety behavior for new employees.
- Organize safety activities through 5s activities: Sort - Set in Order - Shine - Standardize – Sustain. This is a systematic process with appropriate guidelines that can be used to improve work and to preserve the environment in the workplace for



better both in production work and service which is used to increase the performance of the organization. Organizing activities for each department of the company that has followed the 5S principles. This is including switching the 5s committee members in the Company's group, to allow employees within the Group to have both internal and external perspectives for developing sustainable 5S for the benefit of employees and the organization.



- Morning Talk Activity: Each department / department will have a morning meeting to communicate information and share actual safety experiences through the JSA activity (Job Safety Analyst). Job analysis before working for safety according to the principles of Plan-Do-Check-Act (PDCA) in order to prevent potential hazards from unsafe actions, including unsafe conditions. Also, to promote basic safety behaviors for fellow employees to be aware of how to work safely and without repeated accidents and the continuous development. Including create a good working

atmosphere by engaging employees at all levels and continuing to operate as a safety culture.

- Preparation for emergency situations, the Company has prepared for the emergency situation in various cases such as fire drills and fire evacuation training every year.



- Safety and Environment Week, the Company focuses on creating safety standards, the working process, wearing personal safety protection equipment by organizing the exhibition, safety event screening, safety area contest to create a culture of safety culture, also by stopping the behavior that is at risk of accidents Including compliance with the rules and regulations. The Company has organized activities during the month of November with 100% of employees attending the event.

The Company trusts that the standardization in safety, occupational health and environment are one of the key roles in effective and efficient business operations. Therefore, the Company developed the standardization in safety, occupational health and environment in accordance with the stated laws, international standard and other relevant regulations to ensure the safety of both employees and company visitors. Safety Factory Exhibition was conducted with a continuous campaign for employees to realize and participate for the continuous and sustainable safety, occupational health and environment.

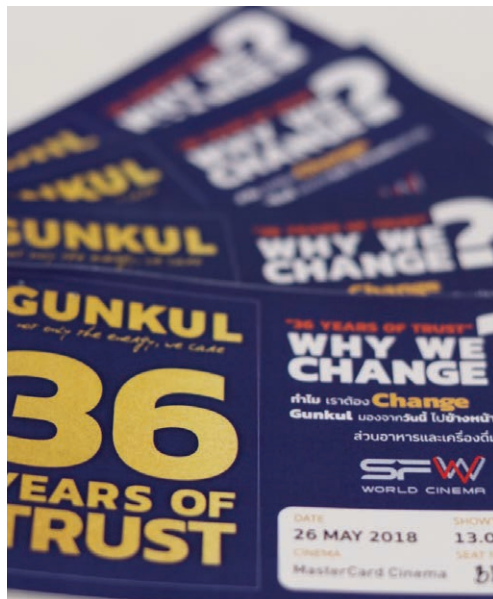
*Table of No. of Accidents and Safety Days during 2015 - 2018*

Company	2015		2016		2017		2018	
	Accident which caused day off (more than 3 days)	Number of continuous accident-free days	Accident which caused day off (more than 3 days)	Number of continuous accident-free days	Accident which caused day off (more than 3 days)	Number of continuous accident-free days	Accident which caused day off (more than 3 days)	Number of continuous accident-free days
GKA	0	381	0	681	0	978	0	1,275
GKP	0	732	0	1,032	0	1,329	0	1,626

## 5.8 Employee Engagement with Welfare and Productivity Enhancement Activities

Gunkul steps forward into the year of 36th, by encouraging our employee engagement through the big event named “36 Years of Trust”, Why we change? Involve all employees to participate in our business transformation, create excitement about upcoming business expansion opportunities and coming up with improvement ideas for growth strategic planning both domestic business and international business. To be the leader in renewable energy sector and stepping forward to upcoming year of trust. Moreover, clearly define the key points of change, why do we need to change and also align the business goals. Establish a trust relationship with employee and make the employees feel that they are the key factor to

business success. Keep employees happy and productive are one part of our visions and also implement an effective employees training program to booth our company growth. Our organization can't move forward without an effective employees. There are over 700 employees participates in the event through the following activities:



- Recognize changes, rebranding under the concept of “Not Only the Energy, We Care ... People, Business & Social” to prepare for Digital Transformation.
- Create employees engagement, Booth employees morale, takes photo and sing company’s songs “True Friends, Gunkul” and watch inspiration movie “Brother of the Year” together.
- For the company’s 36th anniversary interview with employees, to express how they really feels and their expectation towards the company. We believe that the Better Employee Feedback Equals Better Business Results.

### *Employees Feedback*

- “The company and management assign a challenging position that utilize my skills and experience in a company for growth and advancement. Management gives me the opportunity to speak up and manage”.
- “Works at Gunkul is like being my second home”.
- “So Impressed and warm”.
- “I am very proud to work at Gunkul”
- “I am represent all employees to express the feeling of warm and happiness. The company gives us more growing both in duty and challenging assignments”.

### *Expectation with Gunkul*

- “Wishing the company to grow continuously. Gunkul is well-known and successful company among all energy sector. Also, one of the top company in the world.”
- “I wish the company every success in the future and Energy Sector.”
- “I wish the company to be the top leader in Energy Sector and electrical equipments. CSR is a valuable way for the company to demonstrate a dedication to improving communities through CSR programs are much more likely to attract valuable and engaged employees.
- “Helping the company achieve its objective, teamwork is important. It might be happy, stressful and fun but if everyone has the same direction. Everything can be successful.

The company intends to improve personal development. With the confidence that the foundation for driving the success of the organization comes from human resource development. The organization plans to move forward with the business direction. To encourage the employees to work and develop themselves together with the organization continuously. In order to ensure that the company has good manpower knowledgeable and sufficient skills for the organization. Create a relationship between managements and employees. To be in the same family “Gunkul Family” through welfare and activities to create engagement for employees as follows:





## Welfare and Engagement Activities for Employees and Families

Monetary Welfare and Facilities	Health and Safety	Family Welfare
<ul style="list-style-type: none"> <li>• Uniforms</li> <li>• The provident fund</li> <li>• Staff canteen</li> <li>• Flexible Working Hours</li> <li>• Increase annual leave day per year worked</li> </ul>	<ul style="list-style-type: none"> <li>• Annual physical checkup</li> <li>• Group insurance and travel insurance in case of overseas travel</li> <li>• Annual sports day</li> </ul>	<ul style="list-style-type: none"> <li>• Scholarship for employees' children</li> <li>• Financial aid in case of disaster</li> <li>• Compassionate funds for employees' parents and children</li> </ul>

	<ul style="list-style-type: none"> <li>• Morning Talk – JSA: Job Safety Analyst, encouraging the employees to analyze the job based on Plan-Do-Check-Act (PDCA) principle before working</li> <li>• Annual Health Check-up</li> <li>• Health promotion and disease prevention with the Public Health Service Center 38 under the Bangkok Health Office by a team of doctors and nurses providing advice to employees such as obesity assessment, oral health examination by dentists and breast cancer examination etc.</li> </ul>	
Moral Support and Participation	Religion, Culture and Tradition	Volunteer Activities
<ul style="list-style-type: none"> <li>• Celebrating employees' birthday by having meal together, presenting birthday gifts, and/or giving offerings to Buddhist monks and listening to dharma</li> <li>• 5S and QCC, which encourage the employees to take part in improving the way of work or work environment</li> </ul>	<ul style="list-style-type: none"> <li>• Offering food in the monks' alms bowls and joining religious activities with surrounding communities on religious days. Holding an annual event to offer food to the monks.</li> <li>• Water-pouring ceremony to ask a blessing from the management in "Maha Songkran Ban GUNKUL Festival"</li> </ul>	<ul style="list-style-type: none"> <li>• Community service <ul style="list-style-type: none"> <li>- Cleaning toilets and sweeping temple court</li> <li>- Collecting garbage around the company and communities</li> </ul> </li> <li>• Knowledge transfer <ul style="list-style-type: none"> <li>- Installing Solar cell</li> <li>- Installing and changing LED lights</li> </ul> </li> </ul>

- |  |   |  |
|--|---|--|
| <ul style="list-style-type: none"> <li>Employee organization activities<br/>Because all employees in the department contributed to support the sales according to the quarterly target</li> <li>The management visit solar or wind farm to give the employees moral support and talk to them to learn about their well-being.</li> </ul> | <ul style="list-style-type: none"> <li>Giving oranges as traditional Chinese blessing during Chinese New Year</li> <li>Giving the “Red Envelope” to the employees and the surrounding community</li> <li>Holding an annual event to offer food to the monks.</li> </ul> |  |
|--|---|--|





### *Creation of engagement through productivity activities*

Productivity activities aimed to promote the collaborative atmosphere for employees and enhance their skills, abilities, experience, and learning throughout their work period to ensure that they feel they are part of, love and cherish, and have ties with, the organization. The objectives of the activities are as follows:

1. To encourage all employees to be involved in work and work quality improvement, work as a team in a systematic manner, learn how to solve immediate problems on their own, and learn how to do self-improvement.
2. To create collaboration to achieve the quality target, by identifying weaknesses and root causes to make improvements and carrying out systematic planning.
3. To create motivation, by providing compensation and/or certificates to employees who participate in activities that are useful and create value for the organization.
4. To jointly take care of the environment and create good things for stakeholders.

Hence, the Company has focused on all employees' participation in all productivity activities to encourage corporate objectives and expectations to be achieved through the activities, as follows:

#### **1. 5S**

The 5S activities aim to improve employees' work based on the principles: "Sort (Seiri), Set in Order (Seiton), Shine (Seiso), Standardize (Seiketsu), and Sustain (Shitsuke)" in the workplace. They will provide the Company with employees equipped with self-discipline derived from their own consciousness; the clean, tidy, beautiful, and safe workplace environment, with suitable recyclable solid waste sorting management; environmental balance; and income generation per activity to improve the 5S activities. In 2017, the value of sorted recyclable solid waste amounted to 24,033.50 baht.

In addition, the Company provided motivation by giving compensation and certificates to departments with top-three scores in the 5S activities. This aimed to promote the disciplines: "Sort (Seiri), Set in Order (Seiton), Shine (Seiso), Standardize (Seiketsu), and Sustain (Shitsuke)" among employees in each department and their application in everyday life.

## 2. QCC Quality Improvement

The Company has introduced the QCC (Quality Control Cycle) quality improvement activities to promote a collaborative atmosphere for the development and improvement of work quality, quality of life, and environmental quality. These activities are also aimed at enhancing employees' skills, abilities, experience, and learning throughout their work period to ensure their participation in different internal operations, e.g. cost reduction, waste reduction, productivity enhancement, workflow reduction, productivity improvement, sales increase, and/or work time improvement.

In 2018, there were 46 QCC quality improvement groups, and the following categories were proposed for improvement:

- Workflow reduction: 19 topics
- Work time reduction: 11 topics
- Performance improvement: 16 topics

Statistics of QCC Quality Improvement Activities and Quantitative Outcomes

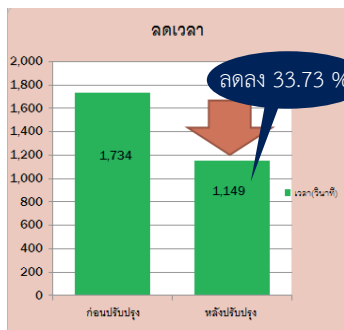
Year	Number of topics/year	Quantitative outcomes Cost Reduction / Year
2015	50	203,447 Baht
2016	50	931,884.62 Baht
2017	48	2,788,747.75 Baht
2018	46	2,841,562.53 Baht

To boost the morale of all groups of QCC employees, who systematically worked as a team to present work pertaining to enhanced performance and reduced workflow, which passed criteria and were approved by the Board of Directors, the Company gave a financial reward to topics based on their value with the “Valuable Achievement Prize” and gave a financial reward based on their quantitative outcomes with the “Outstanding Achievement Award.” In addition, the Company provided certificates to reinforce their pride and the feeling that they are part of the organization, who were involved themselves in performance improvement.

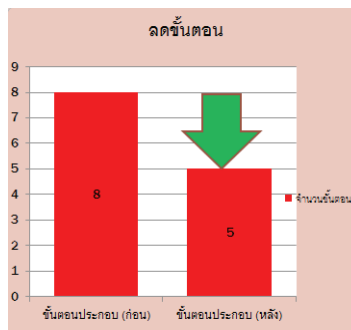
## 2.1 Title: Reducing assembly time for meter cabinet SCB 041

- Modification and summary results

ลดเวลา	
ก่อนปรับปรุง	1,734 วินาที
หลังปรับปรุง	1,149 วินาที



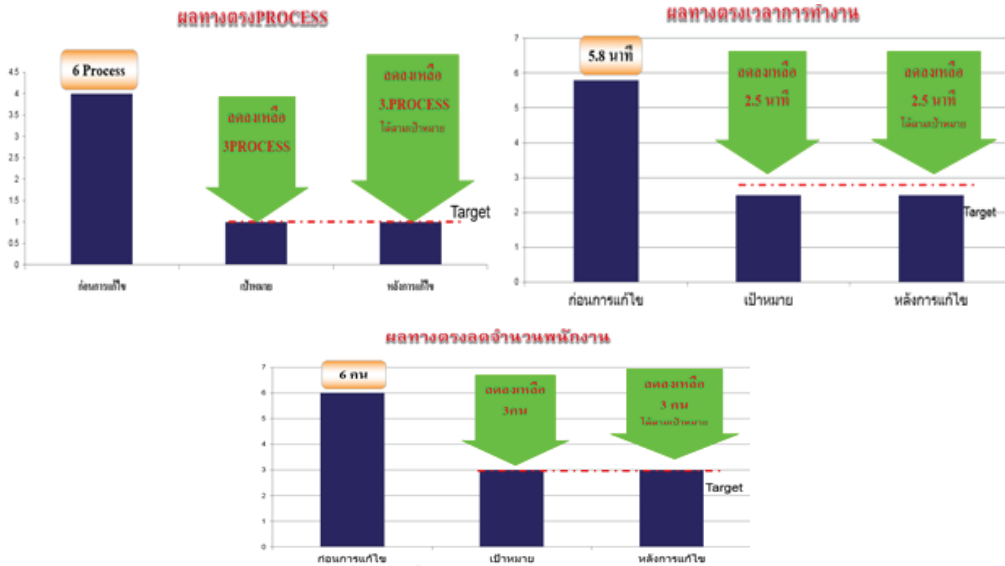
ลดขั้นตอน	
ขั้นตอนประกอบ (ก่อน)	8 ขั้นตอน
ขั้นตอนประกอบ (หลัง)	5 ขั้นตอน



## 2.2 Title topic: Reducing the work process

### Modification and summary results





2. Activities to join the SME promotion project With application software (software) or hardware tools in logistics

### Logistics and Supply Chain Management Development Project



To improve the efficiency of logistics and supply chain management of enterprises By reducing logistics costs and increasing time efficiency and logistics reliability at least 15%, including inventory management Warehouse management Transportation management And other activities Related to reducing logistics costs

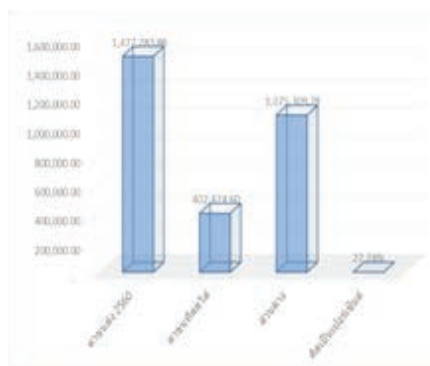
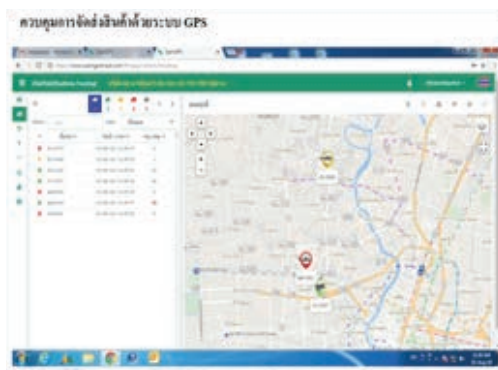
### 3. Software program for GPS system

#### *Condition before improvement*

There is no GPS system used and there is no transportation information such as feeding rate.

Km oil per liter or baht per km, making it impossible to analyze data for development and improvement

#### *Guidelines for improvement and conclusion*



ค่าขนส่ง 2560	1,477,783.88
ค่าขนส่งที่ลดได้	402,474.60
ส่วนต่าง	1,075,309.28
คิดเป็นเปอร์เซ็นต์	27.24%

## 5.9 Responsibility for Consumers

The Company has attached great importance to manufacturing and selecting equipment or products that meet safety standards in order to prevent risks. It has produced power system equipment with international standard certifications and uses products with quality warranty and safety standards.

No.	Standard highlight topics
1.	Internal product tests, to ensure compliance with required standards (LPS/EGAT)
2.	International standard certifications (UL + IEC)
3.	TISI Standard registration for new equipment.
4.	ISO 9001:2008 – Requirements for a quality management system.
5.	ISO 14001:2004 – Requirements for an environmental management system.



### *Management of environmental impacts of the production process*

Taking into account potential impacts of its products on local communities, GUNKUL has a policy to manage its production processes to ensure their friendliness to the environment and local communities, with preventive measures, as follows:

1. Complying with environmental laws and requirements and other relevant laws and requirements, as well as environmental impact corrective, preventive, and management measures.
2. Studying and analyzing environmental impacts of projects during the construction and operation phases, which will provide effective impact prevention and reduction.

3. Applying an international standard-based environmental management system to better monitor environmental quality management.
4. Selecting good equipment for the power production process, which is another way of handling environmental impacts – Wind and solar energy has no or minimal impacts on the environment and local communities.

### *Activities for consumers*

GUNKUL has committed to understanding customers and encouraging them to engage in learning beyond transactions between the customer and the Company. Furthermore, it promotes customers' understanding about the value of sustainable development and social responsibility. It has a mission to deliver the best products and services to customers along with a sense of social responsibility, in terms of quality and safety. It has committed to focusing on the safety standards for production and services and the inspection of product and service origins, for the construction of renewable energy-based power plants and high-voltage equipment. It offers work experiences with responsibility for, and knowledge and understanding about, customers' actual needs and delivers socio-economically valuable products and services for customers through different activities, as follows:

Summarize the external customer satisfaction questionnaire for 2015-2017

Topics Surveyed / Year	2015	2016	2017	2018
1. Job Tracking	86.60%	84.61%	86.19%	85.80%
2. Product information	86.18%	84.40%	86.72%	85.77%
3. Troubleshooting	83.74%	83.46%	85.53%	84.25%
4. The speed of the bid	84.43%	84.27%	86.52%	85.07%
5. The accuracy of the number of products	86.97%	86.15%	89.22%	87.48%
<b>average</b>	<b>85.58%</b>	<b>84.58%</b>	<b>86.84%</b>	<b>85.67%</b>

## 5.10 Supply Chain Management

GUNKUL has a policy to treat its partners and creditors on an equal and fair basis, based on fair returns to all involved parties, to avoid situations that trigger the conflict of interests. It has complied with its obligations under the partner treatment policy, as follows:

1. Fairness and equality – Providing equal opportunities for all partners under fair consideration and selection criteria.
2. No intellectual property infringement – Using copyrighted and trademarked services and products and supporting no products or acts that violate intellectual property laws.
3. Anti-corruption – Requesting no gifts or benefits from clients or partners, strictly complying with the policy towards its business code of ethics.
4. Strict legal compliance – Lawfully conducting business, complying with standard, environmental quality, safety and occupational health systems, and having responsibility for local community ways of life and society as a whole, in a strict manner.

## 5.11 Environmental Management and Energy Conservation

### *Environmental protection*

The company emphasizes the importance of conducting business together with the continuous care and management of the environment. The company has expanded investment. Renewable energy Both solar and wind energy which contribute to reducing pollution caused by energy from fossil fuels for electricity generation Which is air pollution The main cause of PM 2.5 is small dust and is one of the causes of the global warming phenomenon.

In addition, the company manufactures electrical equipment and renewable energy equipment for the company. Has given importance to the environment by conducting production according to the ISO 14001 quality system, which emphasizes the importance of the environment as well.





## Environmental management

The company is aware of the importance of the environment. And strictly comply with relevant laws. By having preventive and corrective measures Including monitoring environmental quality For solar power projects with a size of 1 MW or more In order to reduce the impact on the environment of renewable energy power plants that are currently being implemented. By studying the effects of the production process of the project Both direct and indirect Which preventive and corrective measures to reduce the impact Show details as in the following table

- Preventive and corrective measures to reduce impacts: solar power plants and wind power

Resource	Level	Solar Power Plant O&M Optimization	Wind Power Plant O&M Optimization
1. Air Quality	Low	<p>There is no effect, but proceed to maintain the environment as follows</p> <ol style="list-style-type: none"><li>1. Injection of prom water in the spot that causes dust to spread in the air.</li><li>2. Prohibit workers to burn solid waste or others In the project area</li><li>3. Increase the green area around the project to prevent dust from spreading into the air.</li><li>4. Take care and maintain the engine, machinery or tools that have combustion of fuel and cause exhaust or dust. Always good</li></ol>	<p>There is no impact and action to protect the environment like the solar power plant.</p>

Resource	Level	Solar Power Plant O&M Optimization	Wind Power Plant O&M Optimization
2. Noise	Low	<ol style="list-style-type: none"> <li>1. Do not perform any activities. That produces sound, apart from the working time 8.00-17.00 hrs.</li> <li>2. Avoid using machines for maintenance work that is a high source sound source simultaneously.</li> <li>3. Take care of maintenance of tools and maintenance machinery to be in good condition always</li> <li>4. Provide sound pollution prevention equipment such as Ear plug for employees and workers to wear while working.</li> <li>5. Provide a rotation of workers who work in areas with high sound sources according to law.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check and maintain the machine according to the time specified in the requirements of various devices to prevent noise caused by the machine.</li> <li>2. Create Noise Contour Map after the project is opened. By applying the results of the study to manage the sound environment</li> <li>3. Implement the solar power plant No. 1-5</li> </ol>
3. Water Quality	Low	<ol style="list-style-type: none"> <li>1. Establish a toilet that is hygienic and sufficient for the number of workers.</li> <li>2. Arrange to have a retention pond to collect rainwater from the soil in the construction area into the pond.</li> <li>3. Bring water in the retention pond to re-use, such as spraying the carpet, the entrance road to the project. And construction area</li> </ol>	Perform the same tasks as solar power plants

Resource	Level	Solar Power Plant O&M Optimization	Wind Power Plant O&M Optimization
4. Management of solid waste from offices and workers' activities	Low	<ol style="list-style-type: none"> <li>1. Arrange to have 3 types of waste tanks, namely general waste Recyclable waste And hazardous waste stored in containers that clearly specify the type of waste With a closed lid</li> <li>2. Recyclable general waste Keep collecting for recycling.</li> <li>3. Hazardous waste must be collected separately in a closed storage facility and when there is a large amount of quantity, carry out the delivery to the company or agency that is authorized to service. Get rid of the hazardous waste that is legitimate.</li> </ol>	Perform the same tasks as solar power plants
5. Water drainage	Low	<ol style="list-style-type: none"> <li>1. There is a sediment trap before drainage to the outside of the project.</li> <li>2. The project must regularly clean the waterways around the project regularly.</li> <li>3. All rain water in the project area Must be drained into the waterway around the project quickly and retain rainwater as raw water for use within the project Or to delay water before entering the project</li> </ol>	Perform the same tasks as solar power plants

Resource	Level	Solar Power Plant O&M Optimization	Wind Power Plant O&M Optimization
		4. Must regularly check the drainage system. Raceway around the project And sediment trap	
6. Waste management	Low	1. Training how to store and collect Broken solar cell panel 2. Provide a safe and secure room to store damaged solar panels. And sent to the waste disposal company to perform the removal in accordance with the standards	Perform the same tasks as solar power plants

### ***Management, efficient resource use, and global warming mitigation***

Global warming is a global problem, for which many countries have developed mitigation measures. The major causes of global warming are excessive use of natural resources, which results in a loss of original environmental conditions. Its common causes include electricity generation with combustion of fossil fuels, e.g. oil, natural gas and coal. Combustion contributes to greenhouse gases and air pollution, which leads to global warming, a major global issue that should be tackled.

The Company has realized that power generation projects using other forms of energy that is clean and naturally available, e.g. solar and wind energy, should be developed in order to ensure power conservation, conscious resource use, and reduced carbon dioxide emissions.

The Company's power plants are natural energy-based projects, including solar, wind, and biomass power plant projects (the biomass power plant projects are being developed). Producing no pollution, e.g. air and water pollution, all these forms of energy reduce greenhouse gas emissions.

The Reduction Amount of CO2 Emission of the Company in 2018

No.	Project	Energy Types	Year of Implementation	Production capacity (MW)	Amount of CO2 Reduction (tCO2/y)
1	Ban Klual 1	Solar Farm	2554	3.300	2,814.05
2	Ban Klual 2		2554	5.300	3,970.60
3	Wichianburi		2556	9.800	8,302.42
4	Si-Chula		2556	9.800	7,883.64
5	Noen Po		2556	5.600	4,520.85
6	Buengsamphan 2		2556	3.600	2,542.63
7	Ta Khit		2556	7.600	5,410.88
8	Ta Sang		2556	7.600	5,605.70
9	Dong Korn		2556	7.600	5,822.45
10	Buengsamphan 1		2556	7.600	6,494.61
11	Bo Phloi		2556	1.200	972.81
12	RNS Phang Tru		2558	8.000	7,234.82
13	RNS Don Slap		2558	8.000	7,368.50
14	RNS Lum Rang		2558	8.000	6,942.32
15	RNS Ang Thong 1		2558	8.000	6,173.46
16	RNS Ang Thong 2		2558	8.000	6,196.20
17	RNS Ang Thong 3		2558	8.000	6,523.92
18	RNS Yang Nam Klat Tai		2558	8.000	6,947.62
19	RNS Klat Luang		2558	8.000	6,882.20
20	RNS Nong Chumpol		2558	8.000	7,009.34
21	RNS Thung Kwao		2558	7.000	6,281.14
22	RNS Tao Pun		2559	8.000	7,157.55
23	Sa kaeo		2559	8.000	6,952.01
24	Bang Ka Chao		2559	5.000	4,773.11
25	WHA GUNKUL GSR 1	Solar Rooftop	2554	0.640	492.89
26	WHA GUNKUL GSR 3		2554	0.830	656.56
27	WHA GUNKUL GSR 6		2554	0.830	660.13
28	WHA GUNKUL GSR 17		2554	0.998	749.09
29	Pichai		2556	0.022	17.48
30	GKA		2556	0.250	133.22
31	TPARK		2556	0.539	397.48
32	SGSE		2558	0.873	585.37
33	SES		2558	0.499	337.21
34	Robinson, Phetchaburi		2560	0.999	574.59
35	WAYU	Wind Power	2559	50.000	47,853.00
36	SUBPLU 1		2559	8.000	8,491.00
37	SUBPLU 2		2559	2.000	2,422.00
38	Saranlom		2561	67.500	58,672.00
39	Mittraphap		2561	50.000	39,513.00
			<b>Totol</b>	<b>352.980</b>	<b>302,337.83</b>

## 5.12 Innovation in the Business Process for Sustainability

### *Technological innovation*

- The Company has prioritized using and providing equipment that has high quality and standard certifications granted by different agencies to ensure maximum performance and that is safe for health and protects the environment.
- To make decisions about purchasing any equipment, equipment performance is taken into account and quality comparison is conducted on different brands. This aims to ensure greater benefits and worthwhileness.
- The Company has supported and involved itself in environmental protection, by sorting certain types of materials with the recycling symbol for recycling. Also, it has provided sedimentation tanks to recycle water, which lessens the problem of wasteful use of water resources.
- Providing and selecting materials having minimal environmental impacts.
- Selecting materials that are worth money throughout their lifetime.
- Materials used must reduce or minimize environmental impacts throughout their lifetime.

### **1. Robot design for cleaning solar panels to reduce costs Reduce human resource usage, time saving, save energy - water. And increase electricity production**

#### *Design goals:*

- 1.1 Clean all types of panels
- 1.2 Light weight to reduce the pressure applied to the panel or distribute the weight on the panel to reduce the pressure applied to the panel.
- 1.3 Work automatically Reduce human labor in control
- 1.4 Clean the panel clean and save water for washing
- 1.5 Automatically check and report the results of clearing the panel and sending data in real-time via a network system
- 1.6 Wash the panel a high number per day
- 1.7 Reasonable price for cleaning the panel Compared to conventional cleaners



## 2. Design and development of structures on the ground

For the Provincial Electricity Authority By designing according to international standards and the Provincial Electricity Authority. The structure is weight-bearing and resistant to the environment by using the steel material coated. According to the standard which is resistant to corrosion of rust, is accepted for use and passed the examination of the Provincial Electricity Authority



### 3. Implement and develop electrical cable clamps and electrical equipment,

the current peripherals with the improvement of the clamping products (preformed) that can hold the electrical wire 50 sq.mm and 185 sq.mm in both 22kV and 33kV systems, tested and accepted by the Provincial Electricity Authority and the company first Which has passed all tests for Hot Line Protective Clamp products that the company has developed and improved so well that it can be easily used and accepted by the operator for installation and also makes it safe for users.



### 4. Develop and improve the Reforms production process,

by using control technology in the work from the original, controlled by people Change to semi-automatic control (Semi Auto) can reduce labor cost by 50% and can still control the quality of product production more accurately and efficiently.







## We care Social

to create and develop a good thing to sustainable society

The company is committed to promote coexistence with communities by creating friendship and support as “Good Neighbors” to develop and strengthen the community with a good quality of life and a sustainable society. Promote the community participation process for information And enhancing a better understanding of each other Manage the impact that may occur from the operations of the company. And giving importance to the exchange of knowledge and experiences between individuals, various agencies to develop the environment appropriately and continuously

The company recognizes the importance to develop community and society by cooperating educational institutions in organizing activities that are beneficial to the community and society every year both to support the budget. In organizing activities including support employees to participate in various activities which the community held.

### ***Community and social development***

In 2018, GUNKUL has implemented projects through activities that are beneficial to society continuously. With realizing that it is the duty of the company which need to responsible to society with a contributor to the waste garden related to the company. In business Activities conducted in the past year, summarizing the results of operations through various projects as follows.

Social and environmental policy of the company supports community participation and give importance to creating educational opportunities, support sports community, local culture and traditions, community living as well as conserving and restoring environmental quality to achieve natural balance and sustainable life.



## 1.1 Creating Educational Opportunities for Students from Schools near the Local Communities and Employees' Children

*Creating educational opportunities for young students to have a chance to learn the real work experience*

The company supports and creates educational opportunities for young students. By encouraging learning experiences in real work with the development of various skills that are fundamental to sustainable growth. By establishing a network with educational institutions since 2017, the company has implemented a cooperation program with educational institutions. The company has a policy to be a learning organization. And participate in creating quality human resources to society By providing opportunities for students Study, learn from real work experience Therefore agreed to enter into a cooperation agreement with the educational

institution (MOU) to allow students the opportunity to work in the company Together for a period of 2 years in 2017-2018, there are 9 students enrolled in vocational training while studying in the company under the Cooperative Education Program from Rajamangala University of Technology Phra Nakhon.

Department	Amount/Person	University
Accounting	7	Rajamangala University of Technology Phra Nakhon
Finance	1	Rajamangala University of Technology Phra Nakhon
Assets	1	Rajamangala University of Technology Phra Nakhon

1. General Internship Program: There are 6 students who join these program from the following institution

Department	Amount/Person	University
HR	1	Rajamangala University of Technology Tawan-Ok, Chakrabongse Buvarath Campus
ฝ่ายบริหารโครงการก่อสร้าง	1	Kasetsart University Kamphaengsaen Campus
Engineer (Head Office)	1	Chulalongkorn University
Engineer (Factory)	3	Rajamangala University of Technology ISAN

It gives students the opportunity to learn and gain real life experience, to prepare themselves before graduate and get to work including to know to adjust to organizational culture and apply with a real work. The company aims to become a learning organization and contributes to the development of sustainable human resources.

## *Promoting education for students in schools around the community*



The Company recognizes the importance of equal opportunity for education. It found that there was a lack of funds for youth in schools around the community, to spend on education. The Company has provided scholarships to young people in the community that are good kids but lack of fund for studying.

Every year, GUNKUL grants 50 scholarships to Anuban (kindergarten level)-Prathom 6 (primary level) students from Wat Sawatwarisimaram School and some scholarships to Mattha-yom 1-6 (secondary level) students from Wat Noi Nopphakhun School (Phet GUNKUL Scholarship). The total value of the scholarships is 100,000 baht. Students with good class performance and good conduct but with inadequate financial support are selected to receive the scholarships. The Company also continually grants scholarships to its employees' children. This aims to promote education and improve the quality of life of local youth.

Number of Anuban and Prathom Students from Wat Sawatwarisimaram School  
Receiving a Scholarship from GUNKUL Engineering Public Co., Ltd.

Anuban-Prathom	Number of students					
	2013	2014	2015	2016	2017	2018
Anuban 1	2	7	4	4	6	5
Anuban 2	6	7	4	4	5	5
Prathom 1	5	8	5	5	7	5
Prathom 2	11	4	7	7	5	8
Prathom 3	7	4	6	6	9	7
Prathom 4	8	8	6	6	10	17
Prathom 5	8	6	7	7	6	8
Prathom 6	3	6	11	11	12	5
<b>Total</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>50</b>	<b>60</b>	<b>50</b>





Number of Matthayom Students from Wat Noi Noppakhun School Receiving the “Phet GUNKUL Scholarship”  
from GUNKUL Engineering Public Co., Ltd.

Matthayom	Number of students					
	2013	2014	2015	2016	2017	2018
1	13	17	10	16	16	16
2	-	-	6	7	7	7
3	-	-	8	7	7	7
4	4	-	-	2	2	2
5	-	-	7	4	4	4
6	-	-	11	4	4	4
Total	17	17	42	40	40	40



### *Promote the education of employees' children*

The Company recognizes the importance of the employees including their family to build relationships between employees' family and organizations. The scholarship is provided to the employee's children "Good children, Excellent children, the GUNKUL's family" has given scholarships from kindergarten to bachelor's degree. The scholarship has been provided to the employees' children for a period of 10 years. There are 523 scholarships offered to their children with a total amount of 2,065,000 Baht.

## **6.2 Providing Financial Support and Improving the Condition of Educational Institutes and Communities**



### *Support the anti-drug sport competition project*

For the community around our wind power plant "Huay Bong Games #17/2561", "Ban Noi Pattana Cup #1 at Ban Noi School, the community surrounding the solar power plant "Klat Luang Subdistrict Administrative Organization, Lum Rang Subdistrict Administrative Organization, Ban Kluai Subdistrict Administrative Organization" Wat Sawat Wari Simaram School. Exercise and sports are a part of everyday activities of everyone because it causes strength Complete physical, mental, emotional, social and intellectual. As well as building all youth to be a sportsman. Help to reduce and eliminate drug problems. Morality and discipline is able to improve the quality of life, national human resources, promote sports for good health. To support all youths to participate in sport for recreation and avoid from drugs and encourage to be a good youth for society and nation.



### *Support the Dharmarak Foundation Phrabat Nampu Temple*

Executives and employees share factors and donate rice, dried food, consumer goods. And medical supplies For use in caring for AIDS patients (HIV), aging people, and orphans for the abbot of Phrabat Nampu Temple, Lopburi. To use with patient and AIDS patients.





### *Support activities for the community,*

Including holistic health care for people in the community such as Nakhon Chaisri community, Wat Sawat community, Wareimaram, Wat Noi Nopphakun community, Rajabhat community And communities surrounding the Vayawind Farm Power Plant And Saran Lom Wind Farm Power Plant, Huai Bong Subdistrict, Dan Khun Thot District, Nakhon Rachaisa Province, including solar power plantssuch as activities for high-shy days Watering activities for Songkran festival Elderly sports activities by supporting sports shirts And activities for villagers To demonstrate the brainstorming of creating a career, income for the household.



### *Support the Pracharat state project to plant trees for the land.*

Participate in the activity of planting the Rajapruek tree (Koon) on Huai Bong Road - Ban Sap Nam Yen Pracharat state project to plant trees for the land To honor His Majesty the King Clay On the occasion of the 66th birthday of the King, with civil servants and people sharing good activities for society.



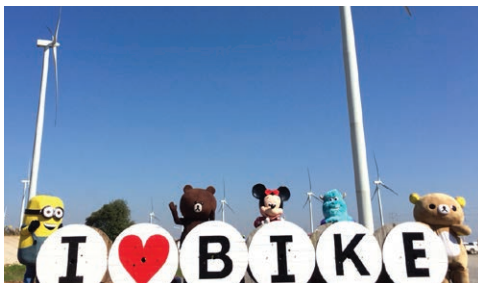
***Support the National Children's Day by giving the gifts to the surrounding community.***

Supporting National Children's Day by giving the gift to Wat Sawat Wari Simaram School, Wat Noi Noppakun School, Khae Community, Wat Noi Noppakun Community, Nakornchaisri Community, Samsen Police Station, Early Childhood Development Center, The 11th Military District Community together with community and family of police officers, military officers and nearby residents, jointly offered gifts for National Children's Day for the children's happiness and joyfulness since the founding of the Company up until now in order to be a part of creating smiles, fun and happiness for the youth of the nation.

*Supporting the various donations to the community around renewable energy plants*

Renewable Energy Power Plant	Date/Month/Year	Activity
Wind Power Plant		
Vayay Wind Farm Power Plant Huai Bong Sub-district, Dan Khun Thot District Nakhon Ratchasima Province	13-14 Jan, 18	Winter Activities “Wind Turbine Winding at Huay Bong No. 2” at the High School, Luang Por Khun Pritsuttho Subdistrict, Huai Bong Subdistrict, Dan Khun Thot District, Nakhon Ratchasima Province Meeting to clarify the progress of the project and listen to the opinions of the community No. 1
Saran Lom Wind Farm Power Plant Huai Bong Sub-district, Dan Khun Thot District Nakhon Ratchasima Province	29 Jan – 7 Feb, 18	Meeting to clarify the progress of the project and listen to the opinions of the community No. 1 The target of 4 villages in the project area is Moo 1, Ban Huay Bong, Moo 5, Ban Noi Phatthana, Moo 15, Ban Sap Somboon, Moo 17, Ban Tao Tao, to clarify the progress of the project and meet, exchange ideas and build relationships Good with the community. Wind Energy Development Co., Ltd. The target of 6 villages in the project area is Moo 15, Baan Sat Five, Moo 4 Sila Ruam Samakkhi House, Moo 6, Ban Sap Plu, Moo 14, Ban Sap Phlu Noi, Moo 23 Ban Sap Sonun, Moo 24 Ban Huai Prong To clarify the progress of the project and meet and exchange ideas and create good relations with the community. Greenovation Power Company Limited
	26 Apr.-19 May, 18	Meeting to clarify the progress of the project and listen to the opinions of the community No. 2 The target of 4 villages in the project area is Moo 5, Ban Noi Pattana Village, Moo 1, Ban Huai Bong, Moo

Renewable Energy Power Plant	Date/Month/Year	Activity
Wind Power Plant		
		<p>14, Tham Tao Village, Moo 1, Ban Sap Somboon To clarify the progress of the project and meet and exchange ideas and create good relations with the community by the Wind Energy Development vCompany Limited</p> <p>6 villages in the project area are Moo 12, Ban Sat Five, Moo 4, Sila Ruam Samakkhi Village, Moo 6, Ban Sap Phlu, Moo 14, Ban Sap Phlu Noi, Moo 23, Ban San Son, and Moo 24, Ban Huai Prong To clarify the progress of the project and meet and exchange ideas and create good relations with the community by Greenovation Power Company Limited</p>
	16 Sep, 18	Supporting activities for cycling PEA Bike for Life 2018 Tour of DANKHUNTHOT in order to raise money to raise funds to build Luang Por Koon Hospital, Dan Khun Thot District, Nakhon Ratchasima Province.





6.3 Join to maintain Buddhism, Local Culture and Traditions with the community around the head office, communities surrounding the solar power plant And wind power plants as follows:



### *Devo-rice bowl, dry food*

Management team and staff of Gunkul Group together with villagers around the company, Wat Khae community (Wat Sawat Wari Simaram) joined the merit-making ceremony of Devo-rice, dried food and factors for monks on the eve of Buddhist Lent. Devotional work is a job that helps build bond, unity and harmony for the employees and villagers around the company.



### *Making merit and offering Kathin,*

The company is a co-host of the Buddhist Lent Ceremony (Wan, candles, light bulbs, including money for making merit) and Kathin (offering clothes, tri-robe and robes) and Senasana monks to Wat Sawat, Wari Simaram, including the temple around the wind power plant. To promote and inherit the good culture of Thailand continuously. Including supporting the community to have love, unity and support more.



• *Support And continuing the local culture and traditions together with the surround communities*

such as Songkran Day activities elderly club activities, activities for watering people and asking for blessings from the elderly Loy Krathong Day. To carry on the good traditions, participated in the Prapee culture that gave rise to unity, create a good relationships between the community and the company.



## *Opening Renewable Power Plants as a Learning Source for Educational Institutes and Surrounding Communities*



Recognizing the importance of education and knowledge enhancement, GUNKUL opens the solar and wind farms to interested educational institutes, students, teachers, organizations, and surrounding communities. The visitors may expand knowledge and gain inspiration to develop renewable energy, which can be applied in everyday life. In 2018, GUNKUL welcomed the following educational institutes and organization totaling 452 persons:



## 2018 Visiting the Renewable Energy Power Plant

Renewable Energy Power Plant	Date	Organizations, schools and educational institutions	Amount (person)
<b>Solar Power Plant</b>			
Bang Ka Chao Branch, Samut Sakhon Province	22-Mar-61	Mr.Wirat and the Faculty of Skill Development Department, Samutsa	60
	25-May-61	Mr.Wirat and the Faculty of Skill Development Department, Samutsa	40
Ta Khit Branch, Nakhon Sawan Province	19-Jul-61	Nakhon Sawan Industry, Military Circle 31	4
Ta Sang Branch, Nakhon Sawan Province	21-Aug-61	King Mongkut's University of Technology Thonburi	5
	3-Dec-61	Wat Ban Phai School	30
Noen Po Branch, Phichit Province	21-Nov-61	Student at Naresuan University, Phitsanulok	4
Ban Kluai 1 Branch, Phetchabun Province	8-Feb-61	Ban Kluai Sub District Administration Organization	4
Si Chula Branch, Nakhon Nayok Province	9-Aug-61	Nakhon Nayok Technical College	40
Tao Pun Branch, Phrae Province	25-Jun-61	Ministry of Energy, Phrae Province	20
Klat Luang Branch, Phetchaburi Province	14-Apr-61	Thanee Thongpian, Regent Hotel, Cha-Am	1
Ang Thong 3 Branch, Prachuap Khiri Khan Province	14-Feb-61	Phia Ram Sub District Administrative Organization, Surin Province	40
<b>Wind Power Plant</b>			
SUBPLU 1, 2 & Wayu Wind Farm Project	25-Feb-18	Student from National Defense College, Class 60, Falcon	15
	8-Mar-18	Visitors from the System Control Division, North East Operations Department, the Electricity Generating Authority of Thailand	6
	18-Mar-18	Graduated team team from Medical Governance for Executives certificate Class 6	7
	9-Apr-18	Students and parents from the International School, England	15
	6-Jun-18	Visitors from Provincial Electricity Authority Communication System Division 2, Central Region, Chonburi Province	13
	17-Jul-18	Visitors from Internal Security Operations Command, Nakhon Ratchasima Province and Ban Huai Bong School	100
	21-Jul-18	Alumni from Thamuang Rajbunrung School, Kanchanaburi Province	12
	6-Nov-18	Visitors from Power Plant Maintenance Department, the Electricity Generating Authority of Thailand	8
	24-Nov-18	Investors from HoonInside team	28

## 6.5 Promotion of Community Participation and Community Income Generation



GUNKUL has attached great importance to environmental management in all phases and steps of implementation – during the pre-construction phase, the construction phase, and the renewable energy-based power production phase, under the legal framework, government policies, and management systems with international standards. This aims to control and prevent environmental impacts of the renewable energy-based power production process and to rehabilitate and conserve natural resources and the environment, by enhancing community knowledge and understanding through different processes, as follows:

#### Pre-construction phase for solar power projects and wind turbine projects

1. Studying basic technical data, data on socio-economic conditions, cultures and traditions, and data on local community lifestyles.
2. Developing community participation plans and different data for communicating and creating an understanding about the Company's projects and preparing data on vacancies for local people.
3. Organizing activities that promote an understanding about projects and participating in "community" meetings to hear local communities' voice, under the legal framework and government policies.
  - Organizing community meetings to listen to community opinions – The Community conducted site visits to present details pertaining to project implementation to local people, gathering to have discussions and consultations and share ideas concerning local communities, environmental conditions, and society as a whole. This aimed to ensure problem-solving and/or improvements to achieve the ultimate goal – sustainable development, whereby local people are involved in, and have ownership of, development. In addition, the Company prepared questionnaires to survey local communities' opinions to reinforce its relationships with them. Project-based activities in 2016 are as follows:

#### ***Construction period***

1. Promoting jobs, incomes, and knowledge for local communities, by recruiting labor from local people, in order to encourage local communities' participation in all

- steps of implementation and provide them with a correct understanding and knowledge about the Company's operations and policies on a regular basis.
2. Providing channels for receiving recommendations and complaints (if any), with a function clearly assigned to be in charge of this.

***Renewable energy-based production period***

1. Monitoring the implementation of the measures for preventing and mitigating social and environmental impacts, as indicated in the EIA report.
2. Listening to recommendations to improve activities in line with local needs.
3. Promoting and generating incomes for local communities, e.g. through hiring local people.

## 07. Achievements



GKE: Honorary plaque from Rajamangala Institute of Technology Phra Nakhon, Phra Nakhon District due to the company has established there project.



GKA: Honorable Mention Award for Outstanding Workplace on Skill Development



GKP: Announcement of the project to promote potential SME by application of equipment of logistics



GKA / GKP: Certificate of Establishment Standards for preventing and solving drug problems in the workplace



WED: Certificate of honor from the Internal Security Administration Division, Nakhon Ratchasima Province Coordination project for prevention and correction of environmental resources, energy and food in Nakhon Ratchasima province.



WED: Certificate of honor from Hin Dat Police Station.



WED / GNP / KWE: Certificate of honor from the Provincial Electricity Authority Club Project to support the charity activities of the public bicycle “PEA BIKE FOR LIFE 2018” to create a tourist attraction and enhance income for the surrounding communities.



# 08. Global Reporting

Initiative Content Index  
(GRI Content Index)

G4 Indicator	Descriptions	Page Number	
Strategy and Analysis		AR	SR
G4-1	Provide a statement from the most senior decision-maker of the organization	A1-3	533
G4-2	Provide a description of key impacts, risks, and opportunities	70-87, 113-133	541-543
<b>Organizational Profile</b>			
G4-3	Report the name of the organization	28	528,541
G4-4	Report the primary brands, products, and services	28,39	528,531
G4-5	Report the location of the organization's headquarters	28	564
G4-6	Report the number of countries where the organization operates	29-36	
G4-7	Report the nature of ownership and legal form	37	
G4-8	Report the markets served including geographic breakdown, sectors served, and types of customers and beneficiaries	59-64	
G4-9	Report the scale of the organization	28	
G4-10	Report types of employees and their classification (such as gender, permanent employee, region, substantial portion and significant variations)	163-164	546
G4-11	The percentage of total employees covered by collective bargaining agreements		
G4-12	Describe the organization's supply chain	59-64	538-540
G4-13	Report any significant changes during the reporting period regarding the organization's size, structure, ownership, or its supply chain	37, 43-58	

G4 Indicator	Descriptions	Page Number	
Strategy and Analysis		AR	SR
G4-14	Report whether and how the precautionary approach or principle is addressed by the organization		528-533
G4-15	List externally developed economic, environmental and social charters, principles,or other initiatives to which the organization subscribes or which it endorses		560-561
G4-16	List memberships of associations (such as industry associations) and national orinternational advocacy organizations in which the organization participates in as strategic member	68	613-615
Identified Material Aspects and Boundaries			
G4-17	Organizational consolidated financial statements or equivalent documents status	359-361	
G4-18	The process for defining the report content and the Aspect Boundaries, and how the organization has implemented the Reporting Principles for Definnig Report Content		541-542
G4-19	List all the material Aspects identified in the process for defining report content		542-543
G4-20	For each material Aspect, report the Aspect Boundary within the organization		542-543
G4-21	For each material Aspect, report the Aspect Boundary outside the organization		542-543
G4-22	The effect and the reasons of any restatements of information provided in previous reports		541
G4-23	Significant changes from previous reporting periods in the Scope and Aspect Boundaries		541
Stakeholder Engagement			
G4-24	A list of stakeholder groups engaged by the organization		



G4 Indicator	Descriptions	Page Number	
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G4-25	The basis for identification and selection of stakeholders with whom to engage		535-540
G4-26	The organizational approach to stakeholder engagement		538-540
G4-27	The key topics and concerns raised through stakeholder engagement and how the organization has responded to those key topics and concerns		538-540
<b>Report Profile</b>			
G4-28	Reporting period (such as fiscal or calendar year) for information provided		541
G4-29	Date of most recent previous report (if any)		541
G4-30	Reporting cycle (such as annual, biennial)		28
G4-31	The contact point for questions regarding the report or its contents		541
G4-32	The organizational performance “in accordance” with GRI content Index, or the reference to the External Assurance Report		
G4-33	The organizational policy and current practice regarding external assurance for the report		
<b>Governance</b>			
G4-34	The governance structure of the organization, including committees of the highest governance body	137-148	559-560
<b>Ethics and Integrity</b>			
G4-56	The organizational values, principles, standards and norms of behavior such as codes of conduct and codes of ethics	259-264	559-562
<b>SPECIFIC STANDARD DISCLOSURE</b>			
<b>Category : Economic</b>			
<b>Economic Aspect : Economic Performance</b>			
G4-EC1	Direct economic value generated and distributed		

G4 Indicator	Descriptions	Page Number	
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G4-EC2	Financial implications and other risks and opportunities for the organizational activities due to climate change	123-125	585-589
G4-EC3	Coverage of the organizational defined benefit plan obligations		590-591
G4-EC9	Financial assistance received from government		
<b>G4 Indicator</b>			
G4-EC5	Ratios of standard entry level wage by gender compared to local minimum wage at significant locations of operation		
G4-EC6	Proportion of senior management hired from the local community at significant locations of operation		
<b>Economic Aspect : Indirect Economic Impact</b>			
G4-EC7	Development and impact of infrastructure investments and services supported	119-120	594-599
G4-EC8	Significant indirect economic impacts, including the extent of impacts	120-123	
<b>Economic Aspect : Procurement Practices</b>			
G4-EC9	Proportion of spending on local suppliers at significant locations of operation		583-585
<b>Category : Environmental</b>			
<b>Environmental Aspect : Materials</b>			
G4-EN1	Materials used by weight or volume		
G4-EN2	Percentage of materials used that are recycled input materials		586-589
<b>Environmental Aspect : Energy</b>			
G4-EN3	Energy consumption within the organization		
G4-EN4	Energy consumption outside of the organization		
G4-EN5	Energy intensity		

G4 Indicator	Descriptions	Page Number	
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G4-EN6	Reduction of energy consumption		
G4-EN7	Reduction in energy requirements of products and services		
<i>Environmental Aspect : Water</i>			
G4-EN8	Total water withdrawal by source		
G4-EN9	Water sources significantly affected by withdrawal of water		
G4-EN10	Percentage and total volume of water recycled and reused		
<i>Environmental Aspect : Emissions</i>			
G4-EN15	Direct greenhouse gas (GHG) emissions (Scope 1)	125	590
G4-EN16	Energy indirect greenhouse gas (GHG) emissions (Scope 2)		
G4-EN17	Other indirect greenhouse gas (GHG) emissions (Scope 3)		
G4-EN18	Greenhouse gas (GHG) emissions intensity		
G4-EN19	Reduction of greenhouse gas (GHG) emissions		
G4-EN20	Emissions of ozone-depleting substances (ODS)		
G4-EN21	NOx, SOx, and other significant air emissions		
<i>Environmental Aspect : Effluents and Waste</i>			
G4-EN22	Total water discharge by quality and destination		585-589
G4-EN23	Total weight of waste by type and disposal method		
G4-EN24	Total number of volume of significant spills		
G4-EN25	Weight of transported, imported, exported, or treated waste deemed hazardous under the terms of the basel convention Annex I, II, III, and VIII, and percentage of transported waste shipped internationally		
G4-EN26	Identity, size, protected status, and biodiversity value of water bodies and related habitats significantly affected by the organizational discharges of water and run off		

G4 Indicator	Descriptions	Page Number	
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<i>Environmental Aspect : Products and Services</i>			
G4-EN27	Extent of impact mitigation of environmental impacts of products and services		583-585
G4-EN28	Percentage of products sold and their packaging materials that are reclaimed by category		
<i>Environmental Aspect : Compliance</i>			
G4-EN29	Monetary value of significant fines and total number of nonmonetary sanctions for no-compliance with environmental laws and regulations		
<i>Environmental Aspect : Transport</i>			
G4-EN30	Significant environmental impacts of transporting products and other goods and materials for the organizational operations, and transporting members of the workforce		585
<i>Environmental Aspect : Overall</i>			
G4-EN31	Total environmental protection expenditures and investments by type		585-590
<i>Environmental Aspect : Supplier Environment Assessment</i>			
G4-EN32	Percentage of new suppliers that were screened using environmental criteria		585-590
G4-EN33	Significant actual and potential negative environmental impacts in the supply chain and actions taken		585-590
<i>Environmental Aspect : Environmental Grievance Mechanisms</i>			
G4-EN34	Number of grievances about environmental impacts filed, addressed, and resolved through formal grievance mechanisms		
<i>Category : Social</i>			
<i>Sub-category : Labor Practices and Decent Work</i>			
<i>Labor Practices and Decent Work Aspect : Employment</i>			

G4 Indicator	Descriptions	Page Number	
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G4-LA1	Total number and rates of new employee hires and employee turnover by age group, gender and region	163-164	546
G4-LA2	Benefits provided to full - time employees that are not provided to temporary or part-time employees, by		573-577
G4-LA3	Return to work and retention rates after parental leave, by gender		573-577
<b><i>Labor Practices and Decent Work Aspect : Labor / Management Relations</i></b>			
G4-LA4	Minimum notice periods regarding operational changes, including whether these are specified in collective agreements		
<b><i>Labor Practices and Decent Work Aspect : Occupational Health and Safety</i></b>			
G4-LA5	Percentage of total workforce represented in formal joint management worker health and safety committees that help monitor and advise on occupational health and safety programs		568-572
G4-LA6	Type of injury and rates of injury, occupational diseases rete, lost days and absenteeism and total number of work - related fatalities, by region and by gender		572
G4-LA7	Workers with high incidence or high risk of diseases related to their occupation		572
G4-LA8	Health and safety topics covered in formal agreements with trade unions		
<b><i>Labor Practices and Decent Work Aspect : Training and Education</i></b>			
G4-LA9	Average hours of training per year per employee by gender, and by employee category		548-549
G4-LA10	Programs for skills management and lifelong learning that support the continued employability of employees and assist them managing career endings		550-553
G4-LA11	Percentage of employees receiving regular performance and career development reviews, by gender and by employee category		555

G4 Indicator	Descriptions	Page Number	
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<i>Labor Practices and Decent Work Aspect : Diversity and Equal Opportunity</i>			
G4-LA12	Composition of governance bodies and breakdown of employees per membership, and other indicators of diversity Labor Practices and Decent Work Aspect : Equal Remuneration for Woman and Men		546
G4-LA13	Ratio of basic salary remuneration of women to men by employee category,by significant locations of operation		
<i>Labor Practices and Decent Work Aspect : Supplier Assessment for Labor Practices</i>			
G4-LA14	Percentage of new suppliers that were screened using labor practices criteria		
G4-LA15	Significant actual and potential negative impacts for labor practices in the supply chain and actions taken		585
<i>Labor Practices and Decent Work Aspect : Labor Practices Grievance Mechanisms</i>			
G4-LA16	Number of grievances about labor practices filed, addressed, and resolved through formal grievance mechanisms		
<i>Category : Social</i>			
<i>Sub-category : Human Rights</i>			
<i>Human Rights Aspect : Investment</i>			
G4-HR1	Total number and percentage of significant investment agreements and contracts that include human rights clauses or that underwent human rights screening		
G4-HR2	Total hours of employee training on human rights policies or procedures concerning aspects of human rights that are relevant to operations, including the percentage of employees trained		548-549
<i>Human Rights : Non-discrimination</i>			
G4-HR3	Total number of incidents of discrimination and corrective actions taken		

G4 Indicator	Descriptions	Page Number	
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<i>Human Rights Aspect : Freedom of Association and Collective Bargaining</i>			
G4-HR4	Operations and suppliers identified in which the right to exercise freedom of association and collective bargaining may be violated or at significant risk, and measures taken to support these rights		585
<i>Human Rights Aspect : Child Labor</i>			
G4-HR5	Operations and suppliers identified as having significant risk for incidents of child labor, and measures taken to contribute to the effective abolition of child labor		
<i>Human Rights Aspect : Forced or Compulsory Labor</i>			
G4-HR6	Operations and suppliers identified as having significant risk for incidents of forced or compulsory labor, and measures to contribute to the elimination of all forms of forced or compulsory labor		566-579, 585
<i>Human Rights Aspect : Security Practices</i>			
G4-HR7	Percentage of security personnel trained in the organizational human rights policies or procedures that are relevant to operations		548-549
<i>Human Rights Aspect : Indigenous Rights</i>			
G4-HR8	Total number of incidents of violations involving rights of indigenous peoples and actions taken		
<i>Human Rights Aspect : Assessment</i>			
G4-HR9	Total number of percentage of operations that have been subject to human rights reviews or impact assessments		566-579
<i>Human Rights Aspect : Supplier Human Rights Assessment</i>			
G4-HR10	Percentage of new suppliers that were screened using human rights criteria		585

G4 Indicator	Descriptions	Page Number	
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G4-HR11	Significant actual and potential negative human rights impacts in the supply chain and actions taken		585
<i>Human Rights Aspect : Human Rights Grievance Mechanisms</i>			
G4-HR12	Number of grievances about human rights impacts filed, addressed, and resolved through formal grievance mechanisms		
<i>Category : Social</i>			
<i>Sub-category : Society</i>			
<i>Society Aspect : Local Communities</i>			
G4-SO1	Percentage of operations with implemented local community engagement, impact assessments, and development programs		595-612
G4-SO2	Operations with significant actual and potential negative impacts on local communities		
<i>Society Aspect : Anti-corruption</i>			
G4-SO3	Total number and percentage of operations assessed for risks related to corruption and the significant risks identified		563-564
G4-SO4	Communication and training on anti-corruption policies and procedures		564
G4-SO5	Confirmed incidents of corruption and actions taken		563-564
<i>Society Aspect : Public Policy</i>			
G4-SO6	Total value of political contributions by country and recipient / beneficiary		
G4 Indicator			
G4-SO7	Total number of legal actions for anti-competitive behavior, antitrust, and monopoly practices and their outcomes		
<i>Society Aspect : Compliance</i>			



G4 Indicator	Descriptions	Page Number	
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G4-SO8	Monetary value of significant fines and total number of nonmonetary sanctions for non-compliance with laws and regulations		
Society Aspect : Supplier Assessment for Impacts on Society			
G4-SO9	Percentage of new suppliers that were screened using criteria for impacts on society		583-585
G4-SO10	Significant actual and potential negative impacts on society in the supply chain and actions taken		583-585
Society Aspect : Grievance Mechanisms for Impacts on Society			
G4-SO11	Number of grievances about impacts on society filed, addressed, and resolved through formal grievance mechanisms		
Category : Social			
Sub-category : Product Responsibility			
Product Responsibility Aspect : Customer Health and Safety			
G4-PR1	Percentage of significant product and service categories for which health and safety impacts are assessed for improvement		583
G4-PR2	Total number of incidents of non-compliance with regulations and voluntary codes concerning the health and safety impacts of products and services during their life cycle, by type of outcomes		
Product Responsibility Aspect : Product and Service Labeling			
G4-PR3	Type of product and service information required by the organizational procedures for product and service information and labeling, and percentage of significant product and service categories subject to such information requirements		
G4-PR4	Total number of incidents of non-compliance with regulations and voluntary codes concerning product and services information and labeling, by type of outcomes		

G4 Indicator	Descriptions	Page Number	
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G4-PR5	Results of surveys measuring customer satisfaction		583
<i>Product Responsibility Aspect : Marketing Communications</i>			
G4-PR6	Sale of banned or disputed products		
G4-PR7	Total number of incidents of non-compliance with regulations and voluntary codes concerning marketing communications, including advertising, promotion, and sponsorship, by type of outcomes		
<i>Product Responsibility Aspect : Customer Privacy</i>			
G4-PR8	Total number of substantiated complaints regarding breaches of customer privacy and losses of customer data		
<i>Product Responsibility Aspect : Compliance</i>			
G4-PR9	Monetary value of significant fines for non-compliance with laws and regulations concerning the provision and use of products and services		



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