

GUNKUL
not only the energy, we care

Leading Integrated
Energy Player

**ANNUAL
REPORT**
2019





VISION

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

MISSION



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.



Sales

To procure the equipment for power systems, energy saving products distribution channels and render the service which fulfills the customers' demand.



Technology

To develop the IT system and adopt the new technology to improve management and productivity, increase work efficiency and reduce the production costs.



Return

To maximize the shareholders' and stakeholders' returns.



Personal

To increase the employees' capability to enhance the Company's competitiveness on the global scale.



Management Framework

To create a strong management structure based on the principle of good governance.

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From our Fundamental
5 Business Groups to
105 Projects on Domestic and
15 Projects on Oversea



GUNKUL
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MESSAGE FROM THE CHAIRMAN

Dear Shareholders,

GUNKUL as a business pioneer to produce, procure, supply equipment for electrical system and distribute electricity from renewable energy resources in domestic and international. Our business in supply chain is successfully manage resources in a form of clean energy use, environmental contamination, and resource depletion. Apart from our solar farm project with a generation capacity of over 157.9 megawatts, in 2019 GUNKUL has expanded its investment to develop solar farm project in Japan and Malaysia with total capacity of 237 megawatts. Wind power in Thailand amounted to an installed production capacity of 170 megawatts. In addition, GUNKUL has expanded its business opportunity through electrical system construction including transmission lines, distribution lines, grounding system, substations, etc. ALL is confident its 2019 GUNKUL hit a new record high of both revenue and income. The whole order of 8,000 million baht on hands and expand our business to serve more real demand.

GUNKUL focuses on doing business with fairness, transparency in accordance with good corporate governance principles which is a key mechanism to drive business towards sustainable development and growth. In addition, GUNKUL received the certificate of membership from the Thailand's Private Sector Collective Action Coalition against Corruption (CAC). To earn and maintain the shareholders and all stakeholders trust. Recognize the importance of business operations with social and environmental responsibility. GUNKUL focused on participation and supporting community activities and projects around the company and solar projects areas. By cooperating with the community to develop water resources, road and building work to improve the quality of life of people. In addition, the company also organized events and various occasions in the area of the solar projects, resulting in the project of the solar farm being well received within the local community.

In conclusion, I would like to thank you to all the shareholders and all stakeholders who trust and support GUNKUL operations. Board of Directors, executives and employees are committed to our mission to maintain organization growth steadily and sustainably for the future.

Thank you.



Gunkul Dhumrongpiyawut Ph.D.

Chairman

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, Dr. Chongrak Rarueysong and Assoc.Prof. Dr. Panarat Panmanee 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.

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 2019, 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 regarding the scope of inspection, the inspection plan, the completion and accuracy of financial statements including the independence of the auditor, 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 adequacy and appropriateness of 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 supervised the internal audit department to be independent in order to ensure that the internal auditing plans have efficiency and effectiveness. The Audit Committee reviewed the appropriateness and approved the annual internal audit plan which has been prepared by focusing on considering the Risk-based Approach, acknowledged the audit results report 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.

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, suitable and reasonable 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**, the Audit Committee emphasized that the Company has operations in accordance with good corporate governance, the establishment of a system for receiving complaints, including providing 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. As well as, having protection measures without disclosing the informant and also holding confidential information.
8. **In preparation for the use of revised financial reporting standards**, the Audit Committee is informed of significant changes to the revised financial reporting standards which were effective for the accounting periods beginning on or after 1st January 2020, including the preparation of the Company to ensure that the financial reporting standards can be started correctly and appropriately according to the schedule.
9. **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 2020 to consider appointing an auditor from KPMG Phoomchai Audit Ltd. to be the auditor of the Company and the subsidiary company for the year 2020 by appointing Mr. Waiyawat Kosamarnchaiyakij ,Certified Public Accountant No. 6333 and/or Mr. Charoen Phosamritlert, Certified Public Accountant No. 4068 and/or Mr. Natthaphong Tantichattanont, Certified Public Accountant No. 8829. 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

25th February 2020

Report of the Risk Management Committee

Dear Shareholders of Gunkul Engineering Public Company Limited,

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 Mr. Tarakorn Angpubate 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 5 meetings in 2019 to review important issues pertaining to risk management. Key duties are summarized as follows:

1. Risk Management Plan for 2019

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 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.



(Mr. Tarakorn Angpubate)

Chairman of the Risk Management Committee

7th February 2020

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 2 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

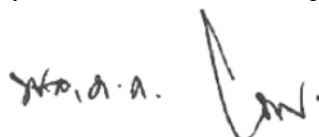
The Nomination and Remuneration Committee has considered and review policies and guidelines which relate to the implementation of the nomination and remuneration. To ensure that the operation was proceeded with efficient which comply with Good Corporate Governance's regulations and policies. As well 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 2019

- To determine the welfare adjustment

To create a motivation and maintain good and competent employees, the Nomination and Remuneration Committee has considered the criteria for determining adjust the welfare limit, increase medical expenses and provident fund, fund payment by working period and the percentage of the contributions and benefits of the company appropriately 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 2019, 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.



(Police Major General Visit Sukarasep)

Chairman of the Nomination and Remuneration Committee

28th January 2020

Report of the Good Corporate Governance Committee

Dear Shareholders of Gunkul Engineering Public Company Limited,

In 2019, the Good Corporate Governance Committee convened 5 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;

- Supervised, reviewed, revised and improved 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; as well as, in accordance with the situation and business operations of the Company.
- Reviewed the anti-corruption policy and report clues or complaints including coordinating for managing plan to educate those who involved, and had the assessment of the corruption risk for personnel in the Company.
- Supervised the directors and management to prepare and to submit the report for holding the possession as per as the implementation requires. Also, imposed to report to the Good Corporate Governance Committee regularly on a quarterly basis.
- Considered the report on compliance with good corporate governance in the Annual Report 2019 (Form 56-2) and the Annual Information Form 2019 (Form 56-1) in order to ensure the disclosure of information is complete in accordance with the supervision guidelines of good corporate governance.
- Considered and reviewed of good corporate governance charter and review the Board of Directors Charter, also follow up to review the other committee charters.
- Imposed and made policies that are beneficial to the sustainable development of the organization. This includes gave opinions on policies that made or reviewed by other committees that are responsible in order to compliance with good corporate governance practices.
- Improved the process and criteria for self-assessment of the Good Corporate Governance Committee for the year 2019 to be up-to-date and consistent with the current situation in accordance with international guidelines. Also, provided 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 forms of the Chief Executive Officer and Managing Director.
- Reported the result of evaluate from operation performance of the Good Corporate Governance Committee to the Board of Directors quarterly.

- Considered the plan to prepare the Annual General Meeting of Shareholders for the year 2019, since before the meeting, on the meeting day, and after the meeting by giving suggestions for the meeting to be transparent and effective.
- Considered the importance of the practice of the use of inside information (Inside Trading) from the level of directors, executives, employees to the operator level of the Company. The Company has stipulated that the use and disclosure of inside information must be within the framework of duties and the liability that the employee should be assigned only, including taking into account transparency.
- Considered the plan for submitting the company renewal certification to become a member of the Private Sector Collective Action Coalition Against Corruption (CAC).

The Company is committed to bring good corporate governance principles to concrete operations throughout the organization. In 2019, the Company received a Corporate Good Governance (CGR) rating of 94 points (excellent level), compared to the results that obtained in 2018, rating of 91 points (excellent level) which showing the better attention to improve corporate governance of the Company.

In 2019, the Company received the result of Annual General Shareholders' Meeting Assessment for 2019 with the excellent score of 100 points, showing that the Company has placed the highest priority on the rights of shareholders and stakeholders in the business operations of the Company. This is also including the importance of anti-corruption, which the Company has been a member of the Private Sector Collective Action Against Corruption (CAC) since 2017 which is scheduled to renew this certification in August 2020.

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. This can be seen from the operations in the past year which reflect the overall development of the Company in good corporate governance.



(Dr. Chongrak Rarueysong)

Chairman of the Good Corporate Governance Committee

18th March 2020

Report of the Executive Committee

Dear Shareholders of Gunkul Engineering Public Company Limited,

For the year 2019 is the year in which the country's economy has continuously slowed down due to the world trade is declining, the main cause is come from external factors, whether the China-US trade war affecting global export partners including Thailand, loss of GSP privileges, China's economic slowdown which affected the Thai tourism industry. From the above factors, which has resulted in the domestic economy, whether the signal of investment and purchasing power is noticeably decreased. However, the Company is still able to operate a strong business and continuously grow, which can be seen from the revenue of 7,195 million baht and a net profit of 2,222 million baht. The significant increase in revenue is primarily driven by the revenue from commercial electricity sales in other countries totally 65.3 megawatts (from Sendai solar power plant in Japan, with its capacity of 31.8 megawatts and Kimitsu solar power plant in Japan, with its capacity of 33.5 megawatts which have started commercial electricity distribution in the fourth quarter of 2018 and the second quarter of 2019, respectively), as well as an increase in revenue from the wind projects with higher productivity, compared to the same period of the previous year.

In the year 2019, the Board of Directors held 45 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;

- Considered and imposed business plans and strategies in accordance with the vision, mission, and culture of the organization for the year 2019.

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.

- Reviewed the approval authority and the budget for the Company's operations for the year 2019

The Executive Committee had reviewed and revised the approval authority table in order to be in line with the situation and business operations of the Company, including determined budgets for business operations of the Company.

- Checked and monitored 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.

- Approved 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.

- Considered the investment and participation in bidding for the new 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.

- Considered the restructuring of the Board of Directors

The Executive Committee had considered the restructuring of the Board of Directors from 10 to 12 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.

- Considered and determined 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 by considering the short-term and long-term compensation to propose to the Nomination and Remuneration Committee for consideration before presenting to the Board of Directors for approval.

- Considered the application of information technology for managing electronic document storage systems for organizations

The Executive Committee has foreseen the advancement of existing technology and considered the implementation of electronic document storage (E-Document), which is a system for managing internal digital data and documents. This is showing that the Company is ready to step into the 4.0 era as a paperless office which comply with the Company policy in order to develop sustainability.

However, the Executive Committee is confident that the Company has maintained its growth target in 2020, not less than 20%, which is a continuous growth for more than 9 years of the Company since listed in the Stock Exchange of Thailand due to 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 consideration 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

17th February 2020

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(Ms. Sopacha Dhumrongpiyawut)

Chief Executive Officer

17th February 2020

BOARD OF DIRECTORS



1. Dr. 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. Gen. Tarnchaiyan Srisuwan

- Independent Director

6. Mr. Tarakorn Angpubate

- Independent Director
- Chairman of the Risk Management Committee

7. Mr. Kris Chantanotoke

- Independent Director

8. Ms. Sopacha Dhumrongpiyawut

- Director
- Chairman of the Executive Committee / Chief Executive Officer (CEO)
- Member of the Risk Management Committee

9. Dr. Somboon Aueatchasai

- Director and Secretary of the Board of Directors
- Executive Director
- Managing Director

10. Ms. Naruechon Dhumrongpiyawut

- Director
- Executive Director

11. Mr. Chaloepon Sricharoen

- Director
- Executive Director

12. Mrs. Areewan Chaloemdan

- Director
- Executive Director

13. Ms. Chantira Jongjamareeseethong

- Company Secretary

AUDIT COMMITTEE



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

RISK MANAGEMENT COMMITTEE



1. Mr. Tarakorn Angpubate

- Chairman of the Risk Management Committee (Independent Director)

2. Mr. Somchai Trairatanapirom

- Member of the Risk Management Committee (Independent Director)

3. Ms. Sopacha Dhumrongpiyawut

- Member of the Risk Management Committee

4. Mr. Thitipong Techaratanayuenyong

- Member of the Risk Management Committee and Secretary of the Committee

NOMINATION AND REMUNERATION COMMITTEE



1. Police Major General Visit Sukarasep

- 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

GOOD CORPORATE GOVERNANCE COMMITTEE



2

3

4

1

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. Ms. Chantira Jongjamareeseethong

- Secretary of the Good Corporate Governance Committee

EXECUTIVE COMMITTEE



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1. Ms. Sopacha Dhumrongpiyawut

- Chairman of the Executive Committee

2. Dr. Somboon Aueatchasai

- Executive Director

3. Ms. Naruechon Dhumrongpiyawut

- Executive Director

4. Mr. Chaloepon Sricharoen

- Executive Director

5. Mrs. Areewan Chaloemdan

- Executive Director

MANAGEMENT TEAM



1. Ms. Sopacha Dhumrongpiyawut

- Chief Executive Officer

2. Dr. Somboon Aueatchasai

- Managing Director

3. Dr. Phongsakorn Damnoen

- Deputy Managing Director, Business Development and Strategic Planning

4. Ms. Naruechon Dhumrongpiyawut

- Assistant Managing Director, Strategic Planning and Investment

5. Mrs. Areewan Chaloemdan

- Assistant Managing Director, Production and Distribution of Electrical Equipment

6. Mr. Chaisiri Wattanachannarong

- Assistant Managing Director, Project Construction Management

7. Mr. Theerapab Punyasakhon

- Assistant Managing Director, Office of Managing Director

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. Mr. Thitipong

Techaratanayuenyong

- Senior Vice President, Finance & Corporate Strategic Management

12. Ms. Wimol Kamjornviputh

- Chief Financial Officer

13. Mrs. Nattawan Wongchan

- Senior Vice President, Business Support (Finance, Information Technology, Property)

14. Ms. Suttirat Tangnorakul

- Vice President, Business Support (Accounting)

15. Mr. Chaloepon Sricharoen

- Vice President, Sales and Marketing

16. Mr. Janpon Ngamaroonchote

- Senior Vice President, Sales & Marketing-Energy Solution, Lighting and GRoof

17. Ms. Chandra

Jongjamareeseethong

- Senior Vice President, Office of Managing Director Company Secretary

18. Mr. Tanetsiri Farkmitr

- Vice President, Internal Audit Secretary of the Audit Committee

FINANCIAL HIGHLIGHTS

Financial Highlights for the past 5 years

(Unit : Baht)

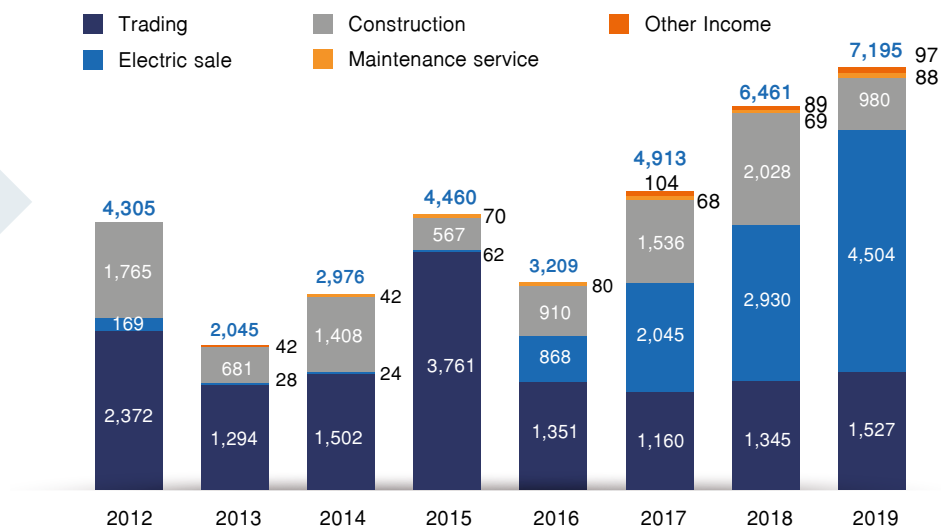
	31 Dec 2019 *	31 Dec 2018 *	31 Dec 2017* (Restated)	31 Dec 2016* (Restated)	31 Dec 2015*
Total Assets	39,041,539,734	35,624,749,771	30,726,454,730	25,998,105,347	18,815,257,874
Total Liabilities	27,708,625,895	26,124,701,888	20,542,595,532	15,870,131,366	10,225,033,199
Total Equity	11,332,913,839	9,500,047,883	10,183,859,198	10,127,973,981	8,590,224,675
Issued and Paid-Up Share Capital	2,220,632,743	1,854,655,373	1,854,655,373	1,589,693,963	1,283,245,216

	31 Dec 2019 *	31 Dec 2018 *	31 Dec 2017* (Restated)	31 Dec 2016* (Restated)	31 Dec 2015*
Total Revenues	7,195,259,291	6,460,886,678	4,913,484,308	3,366,833,901	4,590,691,752
Net Profit (Loss)	2,222,289,314	1,178,410,096	714,788,237	615,370,138	673,567,733.00
Return of Assets (%)	5.50	3.31	2.33	2.37	3.58
Return of Equity (%)	18.95	12.40	7.02	6.08	7.84
Net Profit Margin (%)	30.25	18.91	14.86	19.18	14.67

Remark : * Consolidated Financial Statements

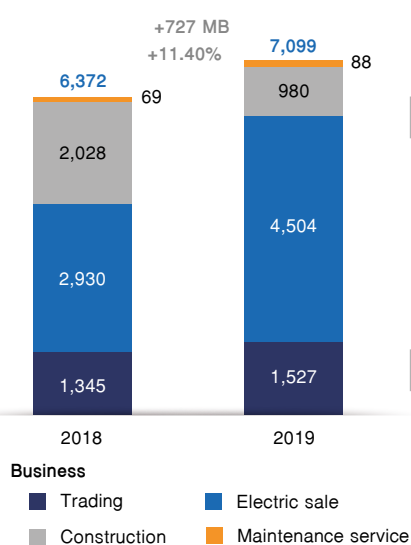


Revenue Breakdown by Business as of 31 Dec 2019

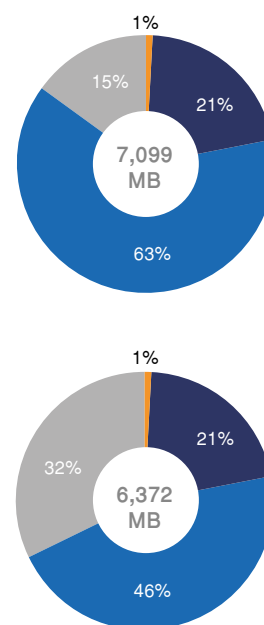


Revenue Breakdown by Business Unit (For Year ended)

Revenue Breakdown by Business Unit

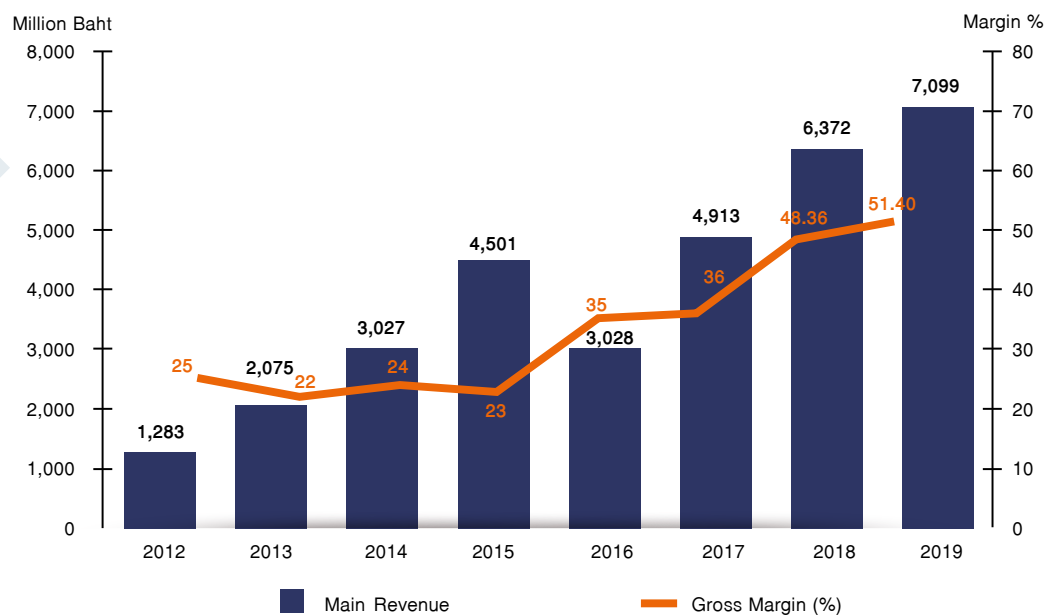


% Revenue Breakdown by Business Unit



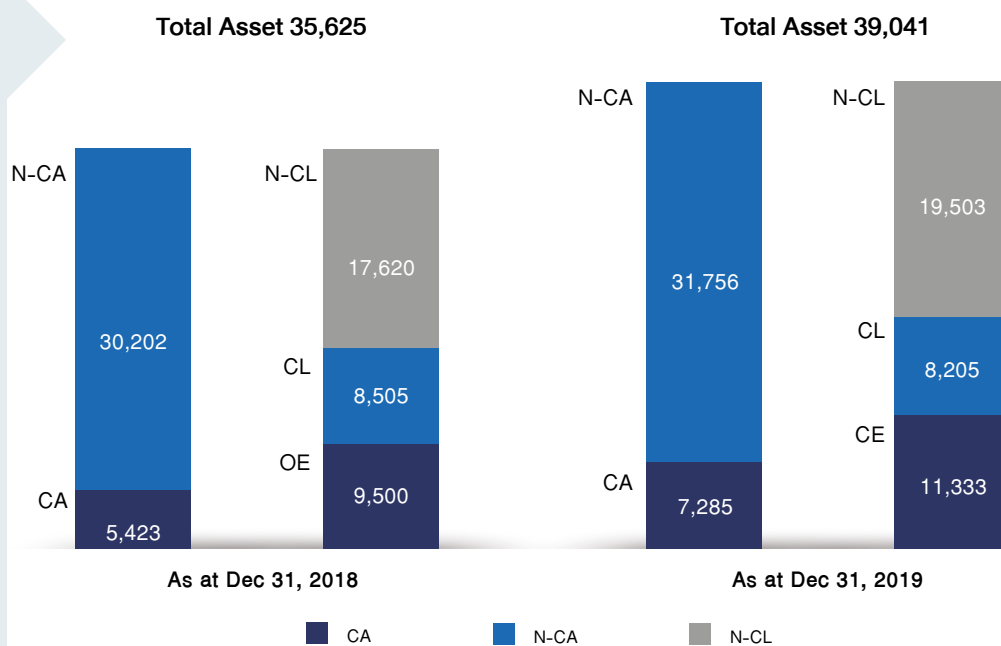
Revenue vs Overall Gross Margin

(Unit : Million Baht)



Growth of Financial Statements

(Unit : Million Baht)



General Information and Reference Person

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	:	66(2) 242-5800
Website	:	www.gunkul.com
Email	:	ir@gunkul.com
Type of Business	:	<ul style="list-style-type: none"> - Business to produce, procure and supply equipment for electrical system in domestic and international. - Business to produce, procure and supply energy-saving products including appropriate alternatives energy - Business to produce and distribute electricity from renewable energy resources in domestic and international. - Engineering Procurement and Construction - Business to provide a power plant maintenance service
Industry	:	Resources
Sector	:	Energy & Utilities
Type of Issued Shares	:	Common shares
Registered Capital	:	THB 2,225,586,448.00
Paid-up Capital	:	THB 2,220,632,743.50
Number of Shares	:	8,882,530,974 Shares
Par Value	:	THB 0.25
Annual Report Organizer	:	Ms. Chantira Jongjamareeseethong Ms. Tanawan Patana-anek Tel. 66(2) 242-5867 / 66(2) 242-5868

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	2,000,000.00	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. (Registration of capital reduction, step 1, date 20 August 2019) (Registration of capital reduction, step 2, 24 Sep 2019)	KNP	Distribution of electrical system equipment and other systems related to public sector customers directly. Acting as a contractor 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).	12,500,000.00	125,000	100.00	124,998	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
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

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
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. ¹⁾	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.	190,000,000.00	1,900,000	100.00	1,899,997	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.	40,900,000.00	409,000	100.00	408,997	99.99
15. Solar Energy Society Co., Ltd.	SES	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
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	Production and distribution of electricity from renewable energy by generating to the government entities.	20,000,000.00	200,000	100.00	199,997	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 21 February 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. ²⁾	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	10,478,999	67.00
22. Rang Ngern Solution Co., Ltd. ²⁾	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. Registration of liquidation 14 June 2019	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. Registration of liquidation 18 July 2019	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

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
31. Gunkul Infinite Group Co., Ltd. (As before: Gunkul Bio Energy Co., Ltd.) (Registered name change on 21 Oct 2019)	GIG	Business for rent, sublease and manage property, Producing and distributing electricity from renewable energy or other energy in all respects including operating a power plant business for selling to private and state agencies.	2,000,000.00	20,000	100.00	14,997	74.99
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	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	999,997	Shares holding by GSP 99.99
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. ⁸⁾	FEC	Construction	100,000,000.00	10,000,000	10	999,998	Shares holding by GPD 99.99
36. GKE & GPD Joint Venture Co., Ltd.	JV GKE&GPD	Electrical system work service and computer systems, Construction, production and distribution of electricity from renewable energy	80,000,000	800,000	100	799,998	Shares holding by GUNKUL 50.00 GPD 49.99
37. GKE & FEC Joint Venture	JV GKE&FEC	Electrical system work service and construction of underground electrical wiring	5,000,000	-	-	-	Shares holding by GUNKUL 60.00 GPD 40.00
38. Gunkul International (Mauritius) ³⁾	GIM	Oversea Investment	USD 134,825,624.00	134,825,624	USD 1.00	134,825,624	100.00
39. Gunkul Investment (Singapore) Pte. Ltd. (GIS) ³⁾	GIS	Oversea Investment	The company had been dissolved on 4 June 2019.				
40. Gunkul International Investment (Singapore) Pte. Ltd. ³⁾	GII	Oversea Investment	SGD 284,829.00	284,829	SGD 1.00	284,829	Invested by GIM 100.00

Company Name	Symbol	Type of Business	Registered Capital (THB)	Total Amount of Shares (Shares)	Par Value (THB)	Amount of Shares holding by GUNKUL (Shares)	% of Holding
41. Gunkul Myanmar Central Power 1 Co., Ltd. ⁴⁾	GKMCP-1	Production and distribution of electricity from Gas Engine by generating to the government in Myanmar.	USD 100,000.00	50,000	USD 1.00	25,500	Shares holding by GII 51.00
42. Sendai Okura GD Daiichi Godo Kaisha ⁵⁾	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 2,721,800,000.00				
43. Kimitsu Mega Solar Godo Kaisha ⁵⁾	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 5,016,338,970.00				
44. GD Solar Utsunomiya Godo Kaisha ⁶⁾	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 3,360,050,000.00				
45. East Japan Solar 13 Godo Kaisha ⁷⁾	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 2,920,026,495.00				
46. Future Asset Management Kabushiki Kaisha	FAM	Investment in renewable energy business	JPY 446,510,000.00	44,651	JPY 10,000	44,651	Shares holding by BGP 100.00

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.

On 19th December 2019, the Board of Directors Meeting No. 7/2562 passed the approval resolution to acquire 33% of the additional shares in IAE which held 99.99% of the RNS.

⁽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⁾ GIMP 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.

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. ¹⁾	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
3. Siam Wind Energy Co., Ltd. - Registration of dissolution: On 19 June 2017 - Registration of liquidation: On 2 August 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. ²⁾	Kenyir	Produces and sells electricity from solar panels installed on the ground of 29.99 MW in Malaysia	RM 37,500,001.00	38,316,444	RM 1.00	(Ordinary shares) 500,000 (Preferred shares) 28,223,687	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 19 June 2017 - Registration of liquidation: On 2 August 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

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
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
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

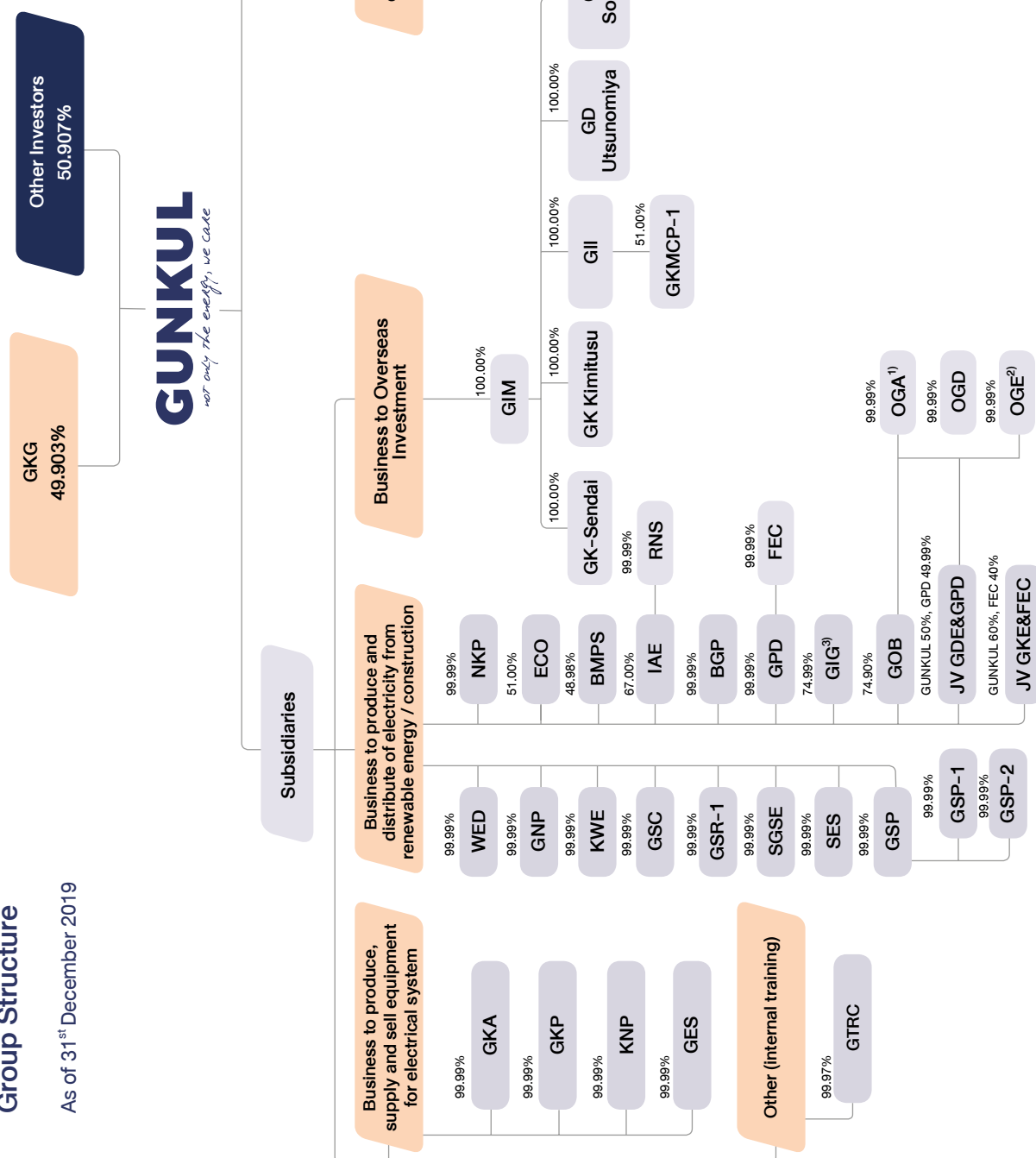
Company Name	Symbol	Type of Business	Registered Capital (THB)	Total Amount of Shares (Shares)	Par Value (THB)	Amount of Shares holding by GUNKUL (Shares)	Joint Venture	% of Holding
13. WHA Gunkul Green Solar Roof 10 Co., Ltd. - Registration of dissolution: On 12 SEP 2017 - Registration of liquidation: 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
16. SPI & GPD Joint Venture	JV SPI&GPD	Cleaning service and Shipping goods from the boat.	500,000	-	-	-	SP International Engineering Co., Ltd.	50.00

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

²⁾ On 21st 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.

Group Structure

As of 31st December 2019



1) OGA: Registration of liquidation on 14 June 2019

2) OGE: Registration of liquidation on 18 July 2019

3) GIG: As before: Gunkul Bio Energy Co., Ltd., Registered name & shares proportion change on 21 Oct 2019

Other References

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

Policy and Overall Business Operations

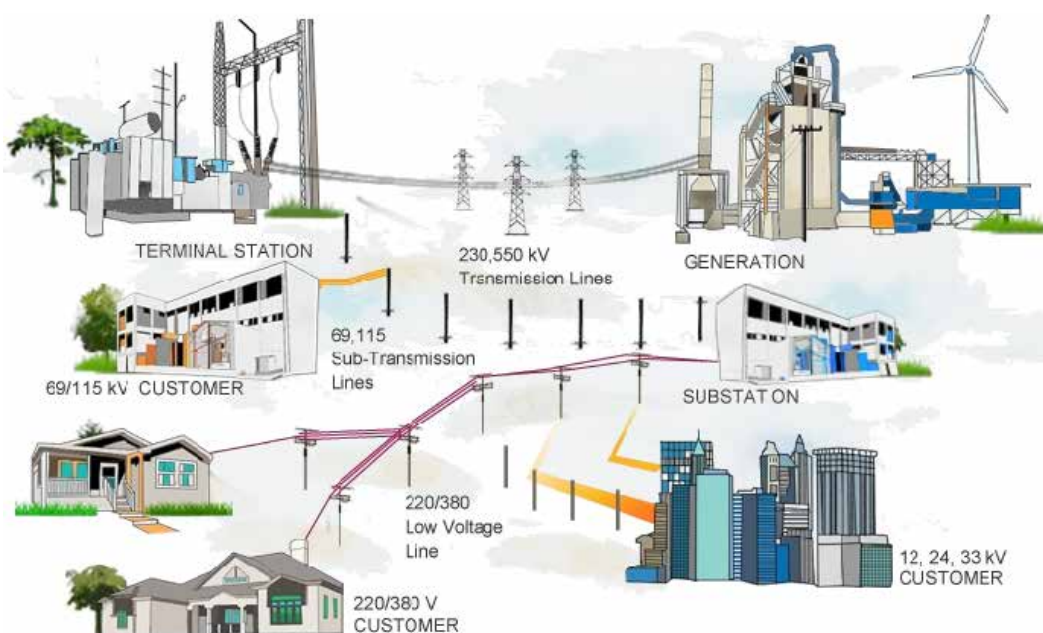
Perspective of the group business structures

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
 - 1.1 Equipment for transmission lines, Protect and cut the electrical system size 22kV, 33kV and 115kV such as Load Break Switch SF6, Surge Arrester, Disconnecting Switch, Drop Out Fuse etc.
 - 1.2 Equipment for Grounding System, Lightning Rod (LPS System)
 - 1.3 Lighting and electric energy meter such as Smart Meter, Street Lighting etc.
 - 1.4 115kV Power Station Structure (Substation)
 - 1.5 Tools and Personal Safety

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 and Solar Ground
 - 3.2 Solar PV Rooftop
 - 3.2.1 Production for distribution to the Electricity Authority (PEA / MEA)
 - 3.2.2 Production for distribution to the Private PPA
 - 3.2.3 For Residential and Small Scale Business
 - 3.3 Floating Solar Farm
 - 3.4 Wind Farm
 - 3.5 Biomass Energy including the procurement of raw materials for biomass power plants
4. Engineering Procurement and Construction
 - 4.1 Renewable Energy Power Plant Construction
 - 4.2 Construction of Electricity Station, Transmission System and Underground System
 - 4.3 Procurement and service of underwater cable installation and equipment that related to all types of underwater cables
 - 4.4 Design, procurement and installation of micro-grid systems, energy storage system and intelligent electrical equipment that involved.
5. Business of Power Plant Maintenance Services

Business Goals.

In 2019, 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 the domestic and international customer base to be more extensive 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 business of alternative energy equipment
 - Construction business
 - 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 the investment in biomass and biological power plants or alternative energy, both 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. Promote corporate social responsibility (CSR) and sustainable growth 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 and continuously growing in 2019.

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 has started the investment and studied the feasibility of investing in renewable energy power plants since the end of 2014 especially in Japan. Currently, the Company has invested in 4 solar power plants in Japan, totaling 207.03 MW and sold 65.25 MW of commercial electricity, including investing in solar power plants in Malaysia of 29.99 MW. For the solar power plant project in Vietnam is under study for investment of 60 MW and is expected to be able to invest in early 2020.

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.

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

Year 1982	<ul style="list-style-type: none"> ● Establishment of Gunkul Engineering Co., Ltd. with registered capital of 1,000,000 baht. (At present, the registered capital is 2,225,586,448 bath and paid-up capital is 2,220,632,743.50 bath)
Year 1992	<ul style="list-style-type: none"> ● 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%) ● 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%)
Year 1993	<ul style="list-style-type: none"> ● Establishment of K.N.P. Supply Co., Ltd. with registered capital of 1,000,000 baht. (Current registered capital: 12,500,000 baht and the Company holding shares in the ratio of 99.99%)
Year 2009	<ul style="list-style-type: none"> ● 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. ● The Company is transformed into a public limited company and changed its name to “Gunkul Engineering Public Company Limited”. ● 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. (Current registered capital: 992,000,000 baht and the Company holding shares in the ratio of 51%)
Year 2010	<ul style="list-style-type: none"> ● 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. ● On October 15, 2010, the Stock Exchange of Thailand added GUNKUL securities as new securities on the Stock Exchange of Thailand. ● On October 19, 2010. GUNKUL securities traded on the Stock Exchange of Thailand for the first day (First Day Trade).

	<ul style="list-style-type: none"> 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, holding 98.98% of the registered capital of 1,000,000 baht (Current registered capitals: 930,000,000 baht and the Company holding shares in the ratio of 40%) 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 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).
Year 2012	<ul style="list-style-type: none"> On March 30, 2012, the Company sold shares of G-Power Source Co., Ltd. to The Electricity Generating Public Company Limited of 4,500,000 shares, 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%) On May 15, 2012, the Company acquired the shares of Wind Energy Development Co., Ltd. from Impact Energy Asia Co., Ltd., which operates production and distribution of electricity from wind energy. This is a power purchase agreement with the Electricity Generating Authority of Thailand, in the amount of 1 contract of 50 MW and the Provincial Electricity Authority of 2 contracts of 8 MW and 2 MW, totaling 60 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, representing a stake of 70% of the registered capital 78,000,000 baht. (Current registered capital 1,575,000,000 baht and the Company holding shares in the ratio of 99.99%)
Year 2013	<ul style="list-style-type: none"> 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%) On February 25, 2013, the Company sold common shares in Gunkul Powergen Co., Ltd. to Chubu Electric Power Gem B.V., Japan in the amount of 4,860,800 shares, equivalent to 49.00% of the registered capital of 992,000,000 baht. (The current registered capital is 992,000,000 baht and the Company holds 51.00% of the shares.) 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. (This company registered the dissolution of the company on June 19, 2017 and the liquidation was completed on August 2, 2017.)

- 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 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, and GIS held a stake of 100% of the 14,000-SGD registered capital in GMP with the objective of expanding investment in foreign companies.

(GIS registered the dissolution of the company on June 4, 2019, and GMP changed the company name to Gunkul International Investment (Singapore) Pte. Ltd. ("GII") in which GIM holds shares directly in GII.) (Currently, GIM has a registered capital of 134,825,624 USD and GII has a registered capital of 284,829-SGD.)

- On July 1, 2013, Gunkul Powergen Co., Ltd., changed name into Gunkul Chubu Powergen Co., Ltd.

- 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, registered capital 1,000,000 baht, with a par value of 100 baht. (Current registered capital 40,900,000.00 baht and the Company holding shares in the ratio of 99.99%)

- 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) in order to operate the production and distribution of electricity from power plants that installed on the roof, in which the Company holds 99.97% of the registered capital of 1,000,000 baht

- BGP has expanded the business to invest in companies that related to the renewable energy business.

- On March 16, 2017, Gunkul Solar Roof 2 Co., Ltd. ("GSR-2") changed name into Gunkul Training Center Co., Ltd. ("GTRC") with the purpose of education services, management of seminars, training management and other related to education.

(The current registered capital of GSR-1 is 21,000,000 baht, GTRC is 1,000,000 baht, GSP-1 is 100,000,000 baht, GSP-2 is 100,000,000 baht, BGP is 190,000,000 baht and SES is 500,000,000 baht. The Company held stakes in GSR-1, GSP-1, GSP-2, BGP, SES as 99.99% and in GTRC as 99.97%).

- 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 300,000,000 baht and the Company holding shares in the ratio of 99.99%).

- 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 and 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).

	<ul style="list-style-type: none"> ● 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 and 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-16 completed liquidated the companies).
Year 2014	<ul style="list-style-type: none"> ● On February 13, 2014, the Company had acquired common shares in Greenovation Power Co., Ltd. ("GNP") from Impact Energy Asia Limited ("IEA") which 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 MW. The Company purchased 199,998 ordinary shares, which is 99.99% of the total 200,000 registered shares, 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%). ● On April 17, 2014, The Company established a subsidiary company, Gunkul LED Lighting Co., Ltd., to operate the production and distribution of LED lighting products (LED) which the Company held stakes of 74.79% of their respective 10,000,000 baht, registered capitals. (On February 21, 2018, Gunkul LED Lighting Co., Ltd. changed its name to Gunkul Energy Solution and Lighting Co., Ltd., by expanding the objectives to conduct a full range of electrical system services). (Current registered capital is 100,000,000 baht and the Company holding shares in the ratio of 99.99%). ● On June 2, 2014, the Company had acquired additional ordinary shares in the amount of 31,563,000 shares, equivalent to 30% of the total registered capital of 1,052,100,000 shares of Wind Energy Development Co., Ltd. from Impact Energy Asia Co., Ltd., which operates in the production and distribution of electricity from wind power. (current capital: 1,575,000,000 baht and the Company holding shares in the ratio of 99.99%). ● 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 20,000,000 baht and the Company holding shares in the ratio of 99.99%). ● On December 17, 2014, Gunkul International (Mauritius) (GIM), a subsidiary of the Company, purchased 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 which the Company invests in the ratio of 100%. (Changed name into "Sendai Okura GD Daiichi Godo Kaisha")
Year 2015	<ul style="list-style-type: none"> ● On February 23, 2015, the Company has purchased the ordinary shares of Korat Wind Energy Co., Ltd. ("KWE") from Quantitus Engineering Co., Ltd. ("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. (Current registered capital 1,107,000,000 baht and the Company holding shares in the ratio of 99.99%).

- On March 9, 2015, Wind Energy Development Co., Ltd. ("WED"), which is the one of the Company's subsidiaries, has invested in the wind turbine power plant project. WED has signed the contract in PPA in the capacity of 50 MW of wind turbine power plant from Electricity Generating Authority of Thailand ("EGAT") as well as the capacity of 8+2 MW with 3.50 baht, adder from Provincial Electricity Authority ("PEA") for the period of 10 years.
- On June 23, 2015, the Company has informed the information technology of investment in the wind turbine power plant of Greenovation Power Co., Ltd. ("GNP"), with a power purchase agreement between GNP and EGAT. 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.
- On August 19, 2015, the Extraordinary General Meeting of Shareholders No. 1/2015 passed the following resolutions:
 - Ratified the Company in investing in the capacity of 60 MW wind turbine power plant with Greenovation Power Co., Ltd.
 - 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 into "Sendai Okura GD Daiichi Godo Kaisha") in Japan.
 - Approved the Company in purchasing 67% of ordinary shares of Infinite Alternative Energy Co., Ltd. ("IAE") which is a shareholder of Rang Ngern Solution Co., Ltd. ("RNS"). RNS is the counterparty in the power transaction of the solar cell power plant and the capacity of 87 MW. (Current registered capital of IAE is 1,564,000,000 baht and RNS is 1,355,000,000 baht)
 - 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 into "Kimitsu Mega Solar Godo Kaisha") in Japan by production and distribution of electricity from solar power to the Tokyo Electric Power Company (TEPCO) in Japan.
 - 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:
 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.
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.
 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.

	<ul style="list-style-type: none"> On November 4, 2015, the Company informed the information of the establishment of GO Bioenergy Co., Ltd. to conduct electricity business from biomass which the Company holds 74.90% of the shares and Outgrow Energy Consult Co., Ltd. holds 25.10% of the registered capital of 34,300,000 baht. (Current registered capital is 34,300,000 baht) The above company has acquired 99.99% of the shares in 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.
	<ul style="list-style-type: none"> On November 12, 2015, the Company has made a purchase transaction of 150,000 ordinary shares in Gunkul LED Lighting Co., Ltd. (Current name: Gunkul Energy Solution and Lighting Co., Ltd.) from the original shareholders, equivalent to 15% of the registered capital. In total, the Company holds 899,999 shares, representing 90% of the total shares. (Current registered capital is 100,000,000 baht and the Company holding shares in the ratio of 99.99%). In December, the Company has made a purchase transaction of 255,000 ordinary shares in Eco Thai Energy Co., Ltd., representing 51% of the 500,000 registered shares or registered capital of 50,000,000 baht. (Current registered capital is 76,500,000 baht and the Company holding shares in the ratio of 51%).
Year 2016	<ul style="list-style-type: none"> 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. On April 26, 2016, Annual General Meeting of Shareholders for 2016 resolved to: <ul style="list-style-type: none"> Approve the change of the par value per share of the Company from 1.00 baht per share to be 0.25 baht per share Approve an increase in the registered capital of the Company in order to 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 new ordinary shares amount 1,133,123,080 shares at par value of 0.25 baht per share. Approve 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. Approve the increase in the amount of issuance and offering of debentures in the amount of 2,000 million baht. Thus, from the original limit not exceeding 1,000 million baht, adjusted to a new limit not exceeding 3,000 million baht, not more than 7 years old. 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. On August 10, 2016, the Company informed the information of the establishment of 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 2,000,000 baht) (October 21, 2019, Gunkul Bio Energy Co., Ltd. changed its name to Gunkul Infinite Group Co., Ltd. in order to support the expansion of the rental, sublease and property management business, production and distribution of electricity from alternative energy or other energy in all respects, including the power plant business for distribution to private and state agencies)

	<ul style="list-style-type: none"> On August 25, 2016, the Board of Directors Meeting No. 6/2016 resolved to approve Gunkul International (Mauritius) ("GIM"), a subsidiary of the Company, to enter into the investment transaction in the GD Utsunomiya solar power plant project. (Changed name into "GD Solar Utsunomiya Godo Kaisha" "GK Utsunomiya"), which locates in Utsunomiya City, Tochigi Province, Japan. The capacity under power purchase of 66.78 MW, Installed of 72.80 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.
	<ul style="list-style-type: none"> On October 12, 2016, the Board of Directors Meeting No. 7/2016 resolved to approve the Company to acquire preferred shares in BMP Solar Co., Ltd. ("BMPS"), which operates the solar power plant business with the capacity of 8.0 MW, at the amount of 48,000 shares, equivalent to 48.98% of the paid-up registered capital, totaling 98,000 shares. (Consisting of 50,000 ordinary shares and 48,000 preferred shares) The Company has the right to receive dividends from operations and voting rights in the proportion of 99.99%. This power plant is located Tha Carter, Watthana Nakhon district, Srakaew Province by receiving the power purchase rate of Feed-in-Tariff (FiT) is 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%).
	<ul style="list-style-type: none"> On November 29, 2016, the Extraordinary General Meeting of Shareholders No. 2/2016 passed a resolution as details: <ul style="list-style-type: none"> Approved Gunkul International (Mauritius) ("GIM"), a subsidiary of the Company, to entered into an investment in solar power plant projects in East Japan Solar 13 Godo Kaisha ("GK Iwakuni") Iwakuni City, Yamanguchi Province, Japan. The production capacity of the project under the Power Purchase Agreement is 75.0 MW (installed capacity 90.0 MW), which has received a concession to sell electricity to Chugoku Electric Power for a period of 20 years at the rate of purchase of feed-in Tariff (FiT) 32 yen per unit. Approve the increase in the amount of issuance and offering of debentures in the amount of 3,000 million baht. Thus, from the original limit not exceeding 3,000 million baht, adjusted to a new limit not exceeding 6,000 million baht, not more than 7 years old.
Year 2017	<ul style="list-style-type: none"> 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"> Approved 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. Approved 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. 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, adjusted to a new limit not exceeding 9,000,000,000 baht, not more than 7 years old. 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. (Registered for liquidation) 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%).

	<ul style="list-style-type: none"> 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 MW 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%). 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 factory. On August 16, 2017, the Company acquired additional 99,999 common shares in Gunkul LED Lighting Co., Ltd. (New name: Gunkul Energy Solution and Lighting Co., Ltd.) from the existing shareholders or equivalent to 9.99% of the current registered capital, total holding 999,998 shares or equivalent to 99.99% of total shares. (Current registered capital is 100,000,000 baht). 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. 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.
Year 2018	<ul style="list-style-type: none"> 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%. On March 27, 2018, Greenovation Power Co., Ltd. ("GNP"), a subsidiary of the Company which operates wind power plant business. 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. On April 10, 2018, the Board of Directors of Gunkul Engineering Public Company Limited No. 2/2018 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 304,674,256.00 baht.

- On April 20, 2018, the Annual General Meeting of Shareholders for the year 2018 resolved to approve as follows:
 - 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 or original registered capital of 1,982,967,060.25 baht at the par value of 0.25 baht to be new registered shares of 7,418,621,493 shares at the par value of 0.25 baht or new registered capital of 1,854,655,373.25 baht at the par value of 0.25 baht.
 - 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.
 - Approval of the amendment of the Company's Articles of Association Chapter 4 'Shareholders' Meeting' Article 24.
- 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 3.50 baht per KW for 10 years started from the commercial operation date.
- On June 28, 2018, the Extraordinary General Meeting of Shareholders No.1/2018 resolved to approve as follows:
 - Approved 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.
 - Approved an amendment of the Articles of Association of the Company, Article 45. "The Company's Seal".
- 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.
- 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 which has started its commercial operation already.

Year 2019	<ul style="list-style-type: none"> On April 1, 2019, Kimitsu Power Plant project which is located in Kimitsu, Chiba Prefecture, Japan, with total capacity of 33.50 MW. (40.41 MW: Installed Capacity). This is a project that produces and sells solar power to TEPCO Energy Partner, Inc. ("TEPCO Energy Partner") at JPY 36 per unit in feed-in tariff scheme, with 20-year concession period starts from the commercial operation date which has started its commercial operation already.
	<ul style="list-style-type: none"> On April 18, 2019, the Annual General Meeting of Shareholders for the year 2019 resolved to approve as follows: <ul style="list-style-type: none"> Approval of the increase of the registered capital of the Company totaling 1,483,724,299 shares, or 370,931,074.75 baht, to support the stock dividend payment; therefore, from the original registered shares of 7,418,621,493 shares or existing registered capital of 1,854,655,373.25 baht at the par value of 0.25 baht, to a new registered share of 8,902,345,792 shares or new registered capital equal of 2,225,586,448.00 baht at the par value of 0.25 baht, by proceeding with the registered capital with the Department of Business Development on April 23, 2019. (On May 7, 2019, the Company registered the change in paid-up capital with the Department of Business Development after the allocation of stock dividend has been completed as a current paid up shares of 8,882,530,974 shares and current paid-up capital of 2,220,632,743.50 baht). Approval of the reorganization of the Board of Directors from 10 to 12 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. Approval of the amendment to the objectives of the company in order to cover and support the increased business expansion. Approval of the amendment of the Articles of Association of the Company, Article 45. "The Company's Seal". On May 14, 2019, Krungthep Thanakom Co., Ltd. has entered into an agreement with GKE & FEC Joint venture, which is a joint venture between the Company and Future Electric Control Co., Ltd. ("FEC") (held by Gunkul Power Development Co., Ltd. ("GPD") which is a subsidiary company of the Company. The joint venture is constructing the underground communication project in Bangkok for area 3, the value of work includes VAT of approximately 5,142 million baht, with a total distance of approximately 605 kilometers. On September 26, 2019, the Company has signed a contract to construct a solar PV Rooftop with Lohakij Rung Chareon Sub Co.,Ltd. with an installed capacity of 4.68 MW. On September 30, 2019, the Company offered to sell the Company's debentures No. 1/2019, in an amount not exceeding 2,500,000,000 baht, divided into the amount offered for sale 2,000,000,000 baht and additional reserve debentures 500,000,000 baht, with a period of 2.9 years and due for redemption in the year 2022, bearing interest at a fixed rate of 4.50% per annum, paid interest every 3 months throughout the term of the debentures. The objective is to take money from this offering of debentures to repay the debentures that are due in October 2019 and/ or to support the Company's business expansion and/ or use as working capital. On October 28, 2019, Gunkul Power Development Co., Ltd. ("GPD"), a subsidiary of the Company have signed a contract with Electricity Generating Authority (EGAT) by procuring and installing solar power generation systems (Solar Rooftop), with a total installed capacity of not less than 580 kW and Battery Energy Storage System (BESS) on the EGAT central office area of approximately 300 rai, divided into a building area of approximately 350,000 square meters and an office area of approximately 200,000 square meters, to be a Smart City project in accordance with Energy 4.0 Policy, totaling 48,501,458.44 baht (VAT included).

- On October 31, 2019, Solar Energy Society Co., Ltd. ("SES"), a subsidiary of the Company, has signed a contract for the construction of a solar PV Rooftop system with Murata Electronics (Thailand) Co., Ltd. with a total installed capacity of 3.99 MW, located at the Northern Industrial Estate, Lamphun Province. The contract period is 15 years.
- On November 18, 2019, Solar Energy Society Co., Ltd. ("SES"), a subsidiary of the Company has signed a contract for the construction of a solar PV Rooftop with Home Product Center Public Company Limited (HOMEPRO) in order to use in department stores of 18 branches nationwide, a total installed power of 8.29 MW, 15 years contract period.
- On November 28, 2019, Gunkul Power Development Co., Ltd. ("GPD"), a subsidiary of the Company, has jointly signed a contract with Provincial Electricity Authority (PEA), a contract for improving the efficiency of the computerized station control system (CSCS) Phase 3, consisting of 8 power stations with a work value of 144.4 million baht.
- On December 18, 2019, "Consortium GPD & FEC" Joint venture, has signed the confirmation letter with the Provincial Electricity Authority (PEA) for employment and construction at Sikhio 2 Power Station, Nakhon Ratchasima Province and the employment of constructing the Sung Noen Power Station, Nakhon Ratchasima Province and Sisaket 2 Power Station, Sisaket Province, with a total construction contract value of 501,500,000.00 baht.
- In December 2019, "Consortium SKY & FEC" joint venture (See Sang Karn Yotah (1979) Co., Ltd. and Future Electrical Control Co., Ltd., a subsidiary of the Company, has carried out the project to change the aerial electrical system to underground electricity line in order to support being the ASEAN metropolis. This is the inner space project at a distance of 11.7 kilometers, with a total construction contract value of 3,114 million baht (including VAT).

Nature of Business

17.1 Nature of Product and Service

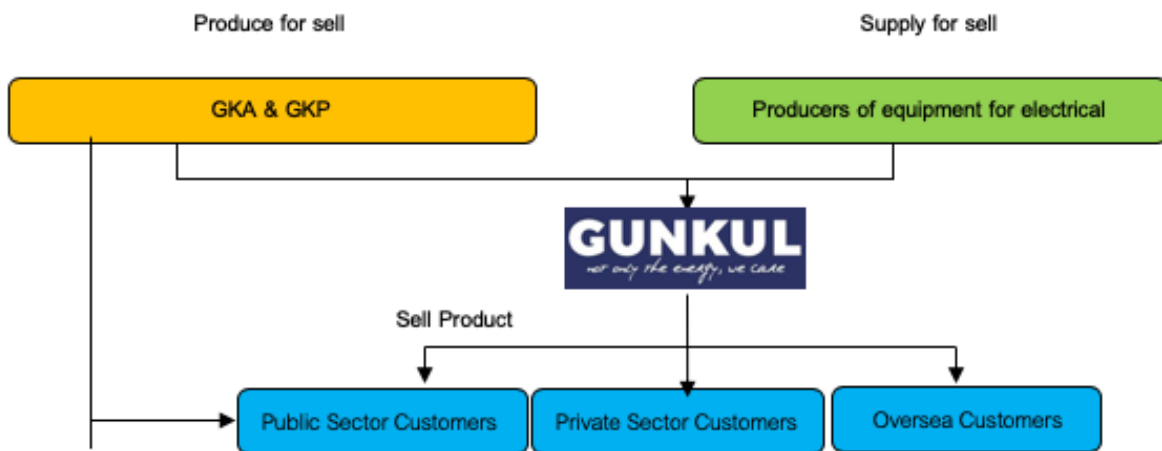
Details of the business operations of the Company and its subsidiaries as follows:

1. Business to produce, procure and supply equipment for electrical system in domestic and international
 - 1.1 Equipment for transmission lines, Protect and cut the electrical system size 22kV, 33kV and 115kV such as Load Break Switch SF6, Surge Arrester, Disconnecting Switch, Drop Out Fuse etc.
 - 1.2 Equipment for Grounding System, Lightning Rod (LPS System)
 - 1.3 Lighting and electric energy meter such as Smart Meter, Street Lighting etc.
 - 1.4 115kV Power Station Structure (Substation)
 - 1.5 Tools and Personal Safety
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. Engineering Procurement and Construction Business
 - 4.1 Renewable Energy Power Plant Construction
 - 4.2 Construction of Electricity Station, Transmission System and Underground System
 - 4.3 Procurement and service of underwater cable installation and equipment that related to all types of underwater cables
 - 4.4 Design, procurement and installation of micro-grid systems, energy storage system and intelligent electrical equipment that involved.
5. Operating and maintenance Business

Diagram shows business conduct structure of the group of companies

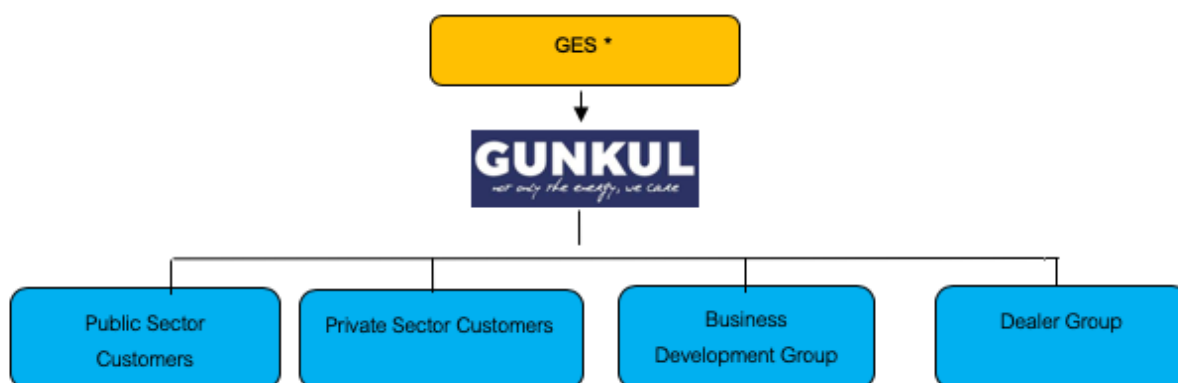
1) Business to produce, procure and supply equipment for electrical system in domestic and international

- To manufacture and distribute products of 22kV, 33kV and 115kV transmission line installation equipment which used for maintenance or the extension of the power transmission system in order to allow electricity to reach consumers, such as lightning welding equipment, connecting devices, devices for covering electrical live parts, etc.
- To manufacture and distribute grounding system equipment and lightning arresting products in order to protect the safety from electrical leakage or voltage from natural electricity access to general electric systems such as Air Terminal, Exothermic Welding, etc.
- Protection and editing equipment for power distribution systems in order to prevent damage to equipment throughout the system causing extensive damage such as Surge Arrester, Load Break Switch SF6, Smart Meter, etc.
- To manufacture and distribute products of 115kV power station equipment, designed by professional engineers; as well as, considering the safety of use for various power stations.
- To distribute of hand tools products and various personal protective equipment for helping performer to work conveniently, quickly and safely.

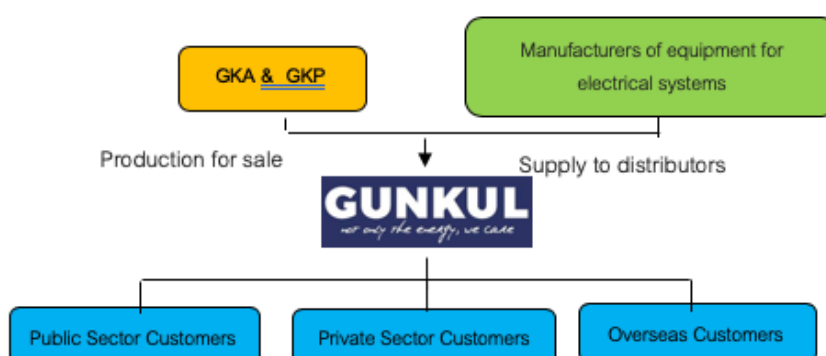


2) Business to produce, procure and supply energy-saving products including appropriate alternative energy

- To manufacture and distribute 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.

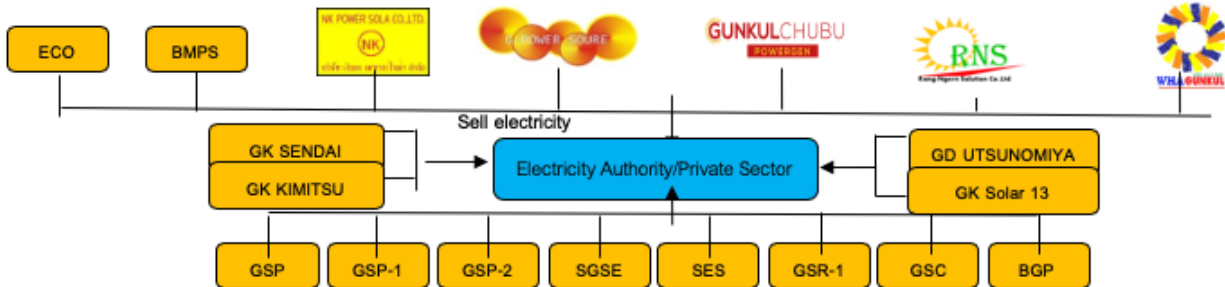


- * In 2018, Gunkul Lighting LED Co., Ltd. changed its name to “Gunkul Energy Solutions and Lighting Co., Ltd.” to expand its business of integrated power system services.
- To manufacture and distribute solar cell module including supplying equipment related to the electricity production system of solar energy



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

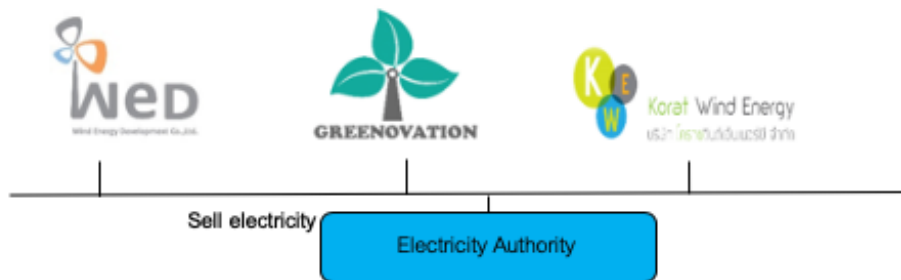
- Solar Farm & Solar PV Rooftop



- Solar for Residential and Small Scale Business 200 kilowatt

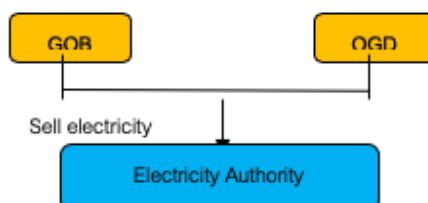


- Wind Farm

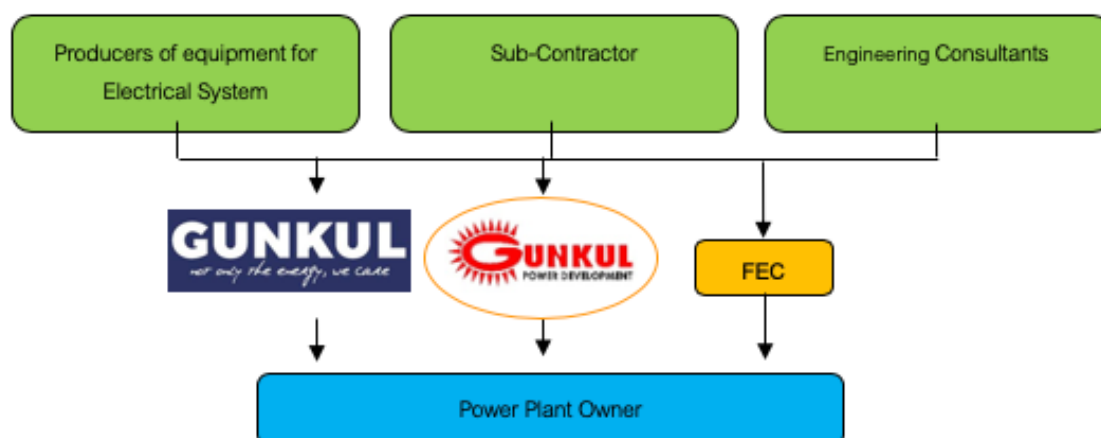


- Biomass Energy and Supply of raw materials for biomass power plants

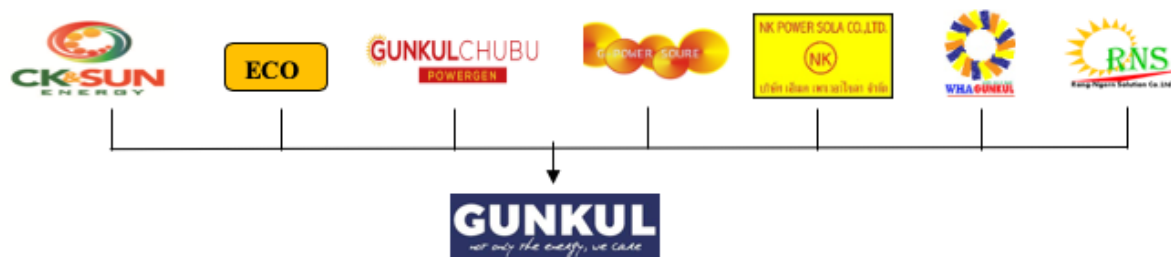
- o Biomass Power Plant



4) Engineering Procurement and Construction Business



5) Operating and maintenance Business



1. Business to produce, supply and sell equipment for electrical system in domestic and international





The Group operates in the business of manufacturing, procuring and distributing equipment for electrical systems covering all stages of the electricity transmission and distribution system, from power plants to power users. (See diagram showing electricity transmission and distribution systems in the topic of Policy and Business Overview) The Group is regarded as one of the leaders in the said business, especially in the variety of product categories. This can be seen from the fact that the Group has more than 5,000 products which distributed to meet the needs and different usage of various groups of customers, including products manufactured from the Group's factories and products that the Group procures from manufacturers that are recognized for quality and standards of products from both domestic and foreign countries such as the United States, Germany, Sweden, Japan and the People's Republic of China and etc.

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

- 1) Transmission and distribution system protection and control equipment including Disconnecting switches, Load break switch, SF6 Gas Load Break Switch or Remote Controlled Switch, Air Break Switch, Transformer, Fuse, Fuse Cutout, 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 Co., Ltd. (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.



With the manufacturing products that meet international standards and high quality. That is why it has been well received from project clients such as sugar mills factory group, steel production group, hospital group, bank group and warehousing service providers group including public sector customers, universities and dealer in Bangkok and provinces across the country.



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:

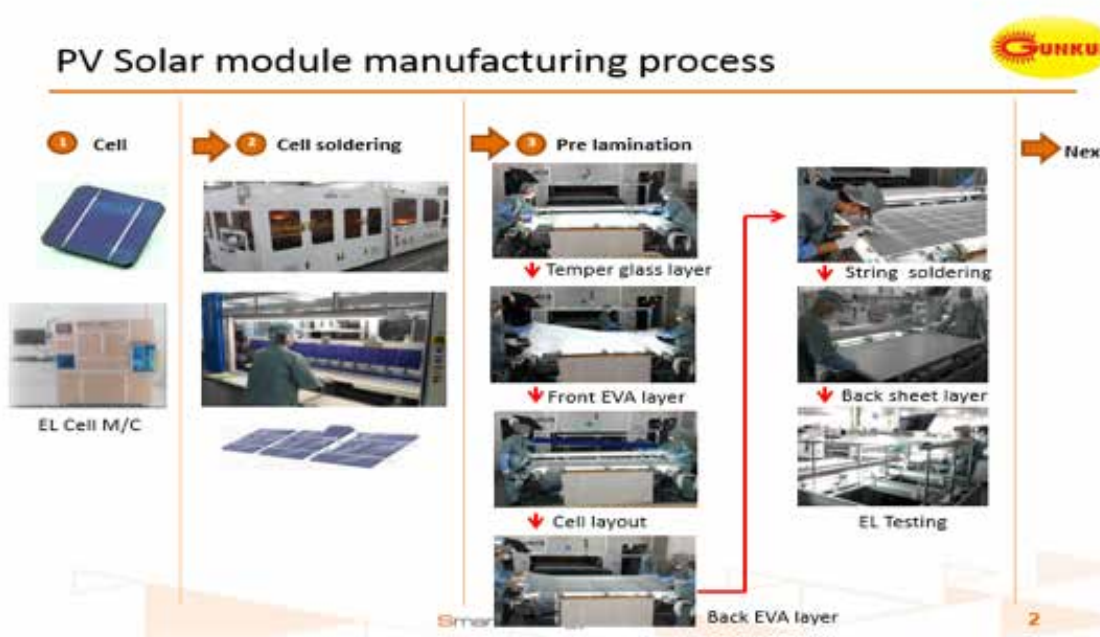
1. Registration of Factory Testing Department and Price Performance Criteria with Provincial Electricity Authority





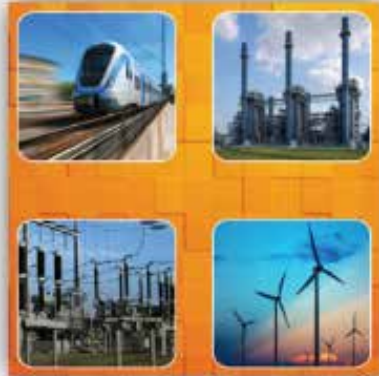
The companies have filed for standard certification of testing room within the company to the standard control of PEA for being a part of the guideline to control the factory standard that is acceptable to customer of PEA. The company is one of only three approved manufacturers with a testing rooms certify 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 61215 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 (QCC Project)

5.



In order to reduce costs in production within the Company by bringing QCC activities for employees to participate in activities with the search of new methods for working and by using the technology and machinery capital in production, it can reduce the cost more than 3.5 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 joint venture companies including NK Power Solar Co., Ltd. and BMP Solar Co., Ltd, subsidiaries of the Company including investments in solar power projects in Japan, such as GK Sendai project, GK Kimitsu project, GK Utsunomiya project and GK Solar 13 project, also in Malaysia namely, Kenyir Gunkul Solar project. In addition, the Company has a target on investment in other countries with investing potential in order to increase business opportunities and in 2019, the Company aims to invest in solar power plants in neighboring countries which is currently studying investment in Vietnam and Taiwan. In Vietnam, it is under study to invest in 60 MW and is expected to be able to invest in early 2020.



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, Thailand that could be summarized as follows:-

Project	Capacity (MW)	Project Site (according to application)	Commencement of Output Sale
Gunkul Chubu Powergen Co., Ltd. "GCPG" (A joint venture, the Company holds 51% of the registered capital)			
1	3.0	Tambon Bannklui, Amphoe Chondaen, Phetchabun	January 2011
	4.4	Tambon Bannklui, Amphoe Chondaen, Phetchabun	October 2011
2	8.0	Tambon Srichula Amphoe Sichula, Nakhon Nayok	June 2013
3	8.0	Tambon Samyaek, Amphoe Wichianburi, Phetchabun	March 2013
4	4.5	Tambon Noenpor, Amphoe Sam-ngam, Phichit	March 2013
5	3.0	Tambon Subsamortod, Amphoe Buengsamphan, Phetchabun	May 2013
	30.9	The proportion of GUNKUL is 51% = 15.759 MW.	
G-Power Source Co., Ltd. "GPS" (A joint venture, the Company holds 40% of the registered capital)			
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
	26.0	The proportion of GUNKUL is 40% = 10.4 MW.	
NK Powersolar Co., Ltd. "NKP" (A subsidiary, the Company holds 99.99% of the registered capital)			
10	1.0	Tambon Nongkum, Amphoe Bo-phloi, Kanchanaburi	November 2013
	1.0	The proportion of GUNKUL is 99.99% = 1.0 MW.	
Rang Ngern Solution Co.,Ltd. "RNS" (A joint venture, the Company holds 67% of the registered capital)			
11	0.8	Tambon Donsalam, Amphoe Huaykrajao, Kanchanaburi	December 2015
12	0.8	Tambon Lumrang, Amphoe Bo-phloi, Kanchanaburi	December 2015
13	0.8	Tambon Pangtru, Amphoe Tamuang, Kanchanaburi	November 2015
14	0.8	Tambon Yangnamklad, Amphoe Nongyaplong, Phetchaburi	December 2015
15	0.8	Tambon Nongchumpon, Amphoe Kaoyoi, Phetchaburi	April 2016
16	0.8	Tambon Kludluang, Amphoe Tayang, Phetchaburi	December 2015
17	0.8	Tambon Angthong, Amphoe Tubsakae, Prachuapkhirikhan	December 2015
18	0.8	Tambon Angthong, Amphoe Tubsakae, Prachuapkhirikhan	December 2015
19	0.8	Tambon Agnthong, Amphoe Tubsakae, Prachuapkhirikhan	December 2015
20	7.0	Tambon Tungkwang, Amphoe Muangpan, Lampang province	December 2015
21	8.0	Tambon Taopoon, Amphoe Song, Phrae province	April 2016
	87.0	The proportion of GUNKUL is 67% = 58.29 MW.	
BMP Solar Co., Ltd. "BMP" ⁽¹⁾ (A joint venture, the Company holds 99.99% of the registered capital)			
22	8.0	Tambon Takwien, Amphoe Watthana Nakhon, Srakaew	April 2016
	8.0	The proportion of GUNKUL is 99.99% = 8.0 MW.	
Eco Thai Energy Co., Ltd. "ECO" (A joint venture, the Company holds 51% of the registered capital)			
23	50.	Tambon Bangkrachua, Amphoe Mueang Samut Sakhon, Samut Sakhon	December 2016
	5.0	The proportion of GUNKUL is 51% = 2.55 MW.	
Total	157.9	The total proportion of GUNKUL is = 96.0 MW.	

⁽¹⁾ 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% 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
1 st - 8 th years	100%	0%
9 th - 13 th years	50%	10%
13 th 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
1 st - 8 th years	100%	0%
8 th 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 (Requested Permission)	Feed-in-Tariff (FIT)	Commercial Operation Date Expectation
GK Sendai Okura Mega Solar Co., .Ltd. ("GK Sendai Okura Mega Solar") (Investment proportion 100.00%)				
1	31.75	Sendai, Miyaki	36.00 Yen per Kilowatt per hour	Q4/2018
Kimitsu Mega Solar Godo Kaisha Co., .Ltd ("Kimitsu Mega Solar Godo Kaisha") (Investment proportion 100.00%)				
2	33.50	Kimitsu, Chiba	36.00 Yen per Kilowatt per hour	Q2/2019
GK Solar Utsunomiya Co., .Ltd ("GK Solar Utsunomiya Godo Kaisha") (Investment proportion 100.00%)				
3	66.78	Utsunomiya, Tshiki	36.00 Yen per Kilowatt per hour	Q1/2023
East Japan Solar 13 Co., .Ltd ("Godo Kaisha East Japan Solar 13") (Investment proportion 100.00%)				
4	75.00	Iwakuni, Yamakuji	32.00 Yen per Kilowatt per hour	Q3/2023
Total	207.03			

For Malaysia, the Company has invested in 1 solar power plant project by submitting the request to sell electricity to Tenaga Nasional Berhad (TNB) which is the electricity of Malaysia with the power purchase rate of Feed-in-Tariff (FiT) at 0.38 Malaysian ringgit per kilowatt hour which can be summarized as follows;

Project	Capacity (MW)	Project Site (Requested Permission)	Feed-in-Tariff (FiT)	Commercial Operation Date Expectation
Kenyir Gunkul Solar SDN BHD (A joint venture, the Company holds 70% of the registered capital)				
1	29.99	Paka, Terengganu	0.38 MYR per kilowatt hour	Q2/2020
Total	29.99			

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
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:

Number	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	480.00	Electric Power Distribution	April 2019
10	KCG Corporation Co., Ltd.	1,107.48	Electric Power Distribution	April 2019
11	Prachinburi Glass Industry Co., Ltd. (Factory)	998.30	Power Plant Construction	April 2019
12	Bangkok Hospital Chanthaburi	482.40	Power Plant Construction	April 2019
13	Charoen Pokphand Foods PCL. (Factory)	21,279.60	Electric Power Distribution	In 2019 - 2020
14	Unicord PCL	1,926.23	Power Plant Construction	October 2019
15	Krok Somboon Agriculture Co., Ltd. (Factory)	120.96	Power Plant Construction	May 2019
16	Golder Farm Holding Ltd. (Factory)	362.88	Power Plant Construction	May 2019
17	Toyota Motor Thailand (Factory)	3,398.00	Power Plant Construction	April 2019
18	Murata Electronics (Thailand), Ltd. (Factory)	466.20	Power Plant Construction	September 2019
19	Z.Kuroda (Thailand) Co.,Ltd. (Factory)	594.00	Power Plant Construction	September 2019
20	Pacific Containerbag Co.,Ltd (Factory)	890.60	Power Plant Construction	July 2019
21	Lohakij Rung Chareon Sub Co., Ltd (Factory)	4,677.75	Power Plant Construction	July 2020
22	Murata Electronics (Thailand), Ltd. (Phase 2) (Factory)	3,900.00	Electric Power Distribution	July 2020
23	C.P. Poly-Industry Co., Ltd. (Factory)	4,455.00	Electric Power Distribution	May 2020
24	Asia Golden Rice Co.,Ltd.	1,506.60	Electric Power Distribution	May 2020
25	Toyota Motor Thailand (Phase 2) (Factory)	4,417.74	Power Plant Construction	April 2020
26	HomePro Department Store, 18 branches	8,286.30	Electric Power Distribution	April 2020
Total		<u>70,424.17</u>		



Tesco Lotus Department Store, Mahasarakham



Robinson Department Store, Phetchaburi



Ayutthaya glass Industry Co., Ltd, Ayutthaya



Central Department Store, Chiang Rai

In the year 2019, Gunkul Engineering Public Company Limited (“GUNKUL”) foresaw the growing demand of Residential Solar Rooftop market, causing GUNKUL to establish a new company under the GRoof brand specifically for Residential Solar Rooftop. There are packages for those who interested to choose to install from 2 kilowatts or more, which has both On-grid and Hybrid models that have installed a battery system for those who are interested to save energy or want to install electricity generation systems from house renewable energy, and with the decrease in investment in solar energy systems and increased understanding of the Solar Rooftop system, GUNKUL sees that the Residential Solar Rooftop market is a good market with high growth potential.

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

Number	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		<u>952.80</u>	

Central Department Store, Chiang Rai



Solar Floating Power Plant Project at Sirinahorn dam with a size of 256 kw.



Solar Floating at Paachinburi 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
Wind Energy Development Co., Ltd. "WED" (A subsidiary of the Company holds 99.99% of the share capital)			
1	2.0	Tambon Huabong, Amphoe Dankhunthot Nakhon Ratchasima	March 2016
	8.0	Tambon Huabong, Amphoe Dankhunthot Nakhon Ratchasima	March 2016
2	50.0	Tambon Huabong, Amphoe Dankhunthot Nakhon Ratchasima	December 2016
	60.0		
Greenovation Power Co., Ltd. "GNP" (A subsidiary of the Company holds 99.99% of the share capital)			
3	60.0	Tambon Huabong, Amphoe Dankhunthot Nakhon Ratchasima	March 2018
	60.0		
Korat Wind Energy Co. Ltd. "KWE" (A subsidiary of the Company holds 99.99% of the share capital)			
4	50.0	Tambon Nongnamsai, Amphoe Sikhio Ratchasima province	June 2018
	50.0		
Total	170.0		

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 st - 8 th years	100%	0%
9 th - 13 th years	50%	10%
13 th 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. Engineering Procurement and Construction Business

4.1 Renewable Energy Power Plant Construction



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	26.00	Completed
3) Gunkul Chubu Powergen Co., Ltd.	5	30.90	Completed
3) NK Powersola Co., Ltd.	1	1.00	Completed
4) C.K. and Son Energy (Thailand) Co., Ltd.	1	8.00	Completed
5) Solarta Co., Ltd.	1	8.00	Completed
6) Bangchak Solar Energy (Nakhon Ratchasima) Co., Ltd.	1	12.50	Completed
7) Bangchak Solar Energy (Chaiyaphum 1) Co., Ltd.	1	12.50	Completed
8) Solar PV Rooftop Power Plant Project to sell electricity	13	8.80	Completed
9) Wind Energy Development Co., Ltd.	3	60.00	Completed
10) Eco Thai Energy Co., Ltd.	1	5.00	Completed
11) BMP Solar Co., Ltd.	1	8.00	Completed
12) Greenovation Power Co., Ltd.	1	60.00	Completed
13) Korat Wind Energy Co. Ltd.	1	50.00	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
Total		335.82	

4.2 Construction of Electricity Station, Transmission System and Underground System

Gunkul Power Development Co., Ltd. ("GPD") and Future Electrical Control Co., Ltd. ("FEC"), subsidiaries of Gunkul Engineering Company Limited PCL ("the Company"). The Company holds 99.99% of the shares in GPD and GPD holds 99.99% of the shares in FEC. Both companies operate the electrical system construction business. GPD and FEC provide services as shown in the dashed line in the diagram below. In this regard, GPD also focuses on the construction of solar PV rooftop for using in the customer's business.



Transmission line structure and power distribution system structure

In the year 2019, Gunkul Power Development Co., Ltd. built a total of 37 solar PV rooftop projects for customers in the private sector and Future Electrical Control Co., Ltd. constructed the Transmission Line, Sub-Station and Grounding system work for the Provincial Electricity Authority and the Metropolitan Electricity Authority, totaling 13 projects.

4.3 Procurement and service of underwater cable installation and equipment that related to all types of underwater cables

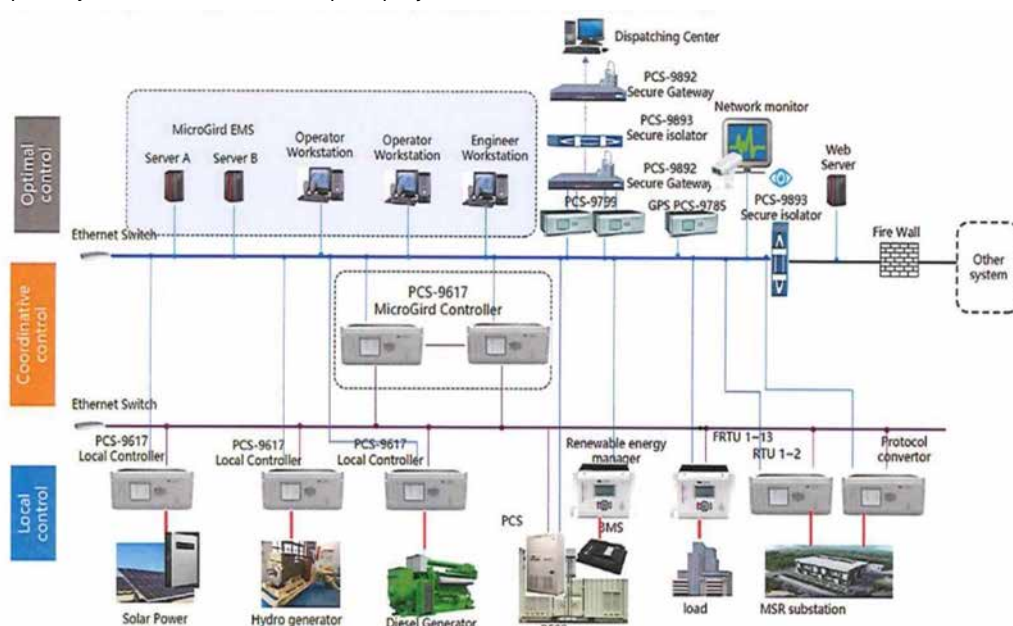
Due to the government and the Provincial Electricity Authority policy, they have plans to implement various projects to distribute prosperity to the region in order to have a well-being and a good quality of life. As for the electrical system development on the island areas where there are 61 people living and have used electricity, by installing diesel power plants in the amount of 5 islands in order to connect the electricity system from the mainland, by fixing the pole across the electric wires of 13 islands for connecting with the submarine cable of 23 islands because the electricity service in some islands still have inadequacy problems. PEA is aware of this electrical system development in order to provide areas throughout the country with sufficient electricity systems.

The submarine cable construction project is one of the projects that the agency has undertaken to replace and increase the ability to provide electricity to various islands in order to solve the power failure problems of the island's power supply system and to develop electrical systems to increase capacity; as well as, to increase stability in electricity distribution including to support the increasing electricity demand of various islands which is an important tourist destination that has a relatively high rate of economic growth. Currently, the Company completed 2 construction projects, namely the 22KV submarine cable maintenance project at Ko Si Chang, Chonburi province and the 33KV submarine cable construction project at Koh Phra Thong, Phang Nga province.

Currently, the Company still has 2 submarine cable construction projects which are under consideration for bidding from the PEA, which is the 115 KV submarine cable construction project at Koh Samui, Surat Thani and the 33 KV submarine cable project at Koh Panyee, Phang Nga Province.

4.4 Design, procurement and installation of micro-grid systems, energy storage system and intelligent electrical equipment that involved.

Due to the government policy and energy network development plan which is in line with the 11th National Economic and Social Development Plan which focuses on creating energy security together with the strategy of growth on the quality of life that is friendly to the environment (Green Growth). The Company won the bidding and participated in the development of a Microgrid power system development project of the PEA at Mae Sariang District, Mae Hong Son Province, with a work value of 132.90 million baht, the construction period of 360 days. This project is considered as a project to extend the alternative energy business of the Company in terms of the management of alternative energy appropriately which is also the first pilot project in Thailand.



PEA: The layout of the intelligent electrical control system, Microgrid at Mae Sariang District, Mae Hong Son Province



PEA: The intelligent electrical system control building, Microgrid at Mae Sariang District, Mae Hong Son Province



PEA: Microgrid controller at Mae Sariang District, Mae Hong Son Province (1)



PEA: Microgrid controller at Mae Sariang District, Mae Hong Son Province (2)



Battery Energy Storage system, size 3MW/2.2 MWh, Microgrid at Mae Sariang District, Mae Hong Son Province

5. Operating and maintenance Business

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 said supervision will control the operation of the production and oversee the efficiency of the electricity distribution of the solar power plants that installed on the roof and the ground. At present, the Company renders maintenance services for 16 companies 37 power plant projects of a total capacity of 183.06 MW.



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

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

Revenue Type	2017		2018		2019	
	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	480.68	10.00	573.03	9.20	1,017.92	14.34
1.2 Production for Distribution	679.30	14.13	771.93	12.39	508.58	7.16
2. Revenue from electricity generation and distribuion business from renewable energy						
- Produce and sell electricity from solar energy	1,535.56	31.93	2,929.75	47.02	4,504.40	63.46
3. Revenue from construction of renewable energy power plants	2,045.04	42.53	1,887.24	30.29	979.95	13.80
4. Service Revenue	68.09	1.42	68.54	1.10	87.72	1.24
Total Revenue	4,808.67	100.00	6,230.49	100.00	7,098.57	100.00

Revenue	2017		2018		2019	
	THB mln	%	THB mln	%	THB mln	%
Public Sector Customer						
- Revenue from the sale of equipment for electrical and renewable energy systems and revenue from rendering of services	683.81	14.22	768.44	12.33	1,087.69	15.32
- Revenue from electricity distribution	1,535.56	31.93	2,929.75	47.02	4,504.40	63.46
Private Sector Customer						
- Revenue from the sale of equipment for electrical and renewable energy systems	507.11	10.55	620.46	9.96	515.42	7.26
- Revenue from construction of power plants	2,045.04	42.53	1,887.24	30.29	979.95	13.80
Foreign customers	37.15	0.77	24.60	0.39	11.11	0.16
Total Revenue	4,808.67	100.00	6,230.49	100.00	7,098.57	100.00

17.3 Industry Overview and Competition

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

Since 2017, the increased 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 2019 was at 31,377 Megawatts (MW) increased from last year around 4.70% equal to 1,408 MW (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 add more energy efficiency policies and resource management to match with the economic growth, by expecting the electricity demands will be increased around 4.32% in 2020. 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.

However, the industry situation and competition in the renewable energy sector in the country since 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 Power Development Plan of Thailand B.E. 2561 - 2580: (PDP 2018 - April 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

Since 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 that provided to all shareholders. Currently, more than 80% of the construction has been completed. The electricity is expected to be distributed within the second quarter of 2020.

Source: www.bot.or.th, www.eppo.go.th, 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.

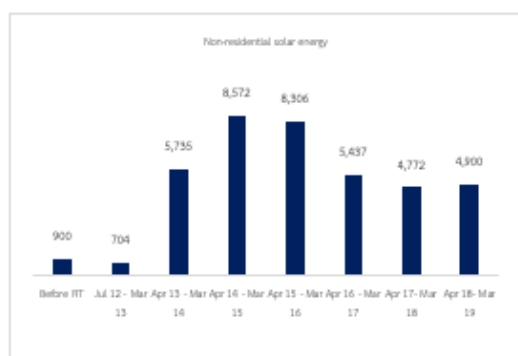
Overview of the electrical system of Japan

From one of the three energy targets as shown in the energy plan by 2020, 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 39,326 megawatts within 6 years and 8 months.

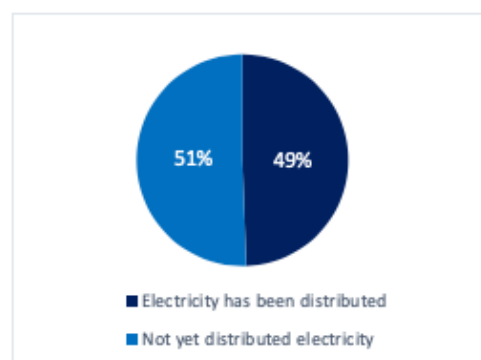
However, the growth in the volume of approved project does not correspond to the actual solar power generation condition as shown in Graph 2, 51% of the approved projects are still under development. This is causing the government to issue measures to stimulate the development of the project, while also increasing strictness in approving new projects, for example, the applicant for the project must first enter into a contract to connect the electricity to the Electricity Authority as evidence in the project approval. This process causes more complex in solar energy project investment than before.

Graph 1: Amount of power production under distribution by license



Source: Status of domestic and foreign energy reports, September

Graph 2: Power plant status classified by



Source: Energy White Paper 2019

Outlook for power generation industry and electrical system in Thailand

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 stimulate projects that are still in development level, despite having already been approved for a considerable time

In other words, the Japanese government has reduced the price of FiT continuously since the fiscal year 2012 as in Table 1 below, due to the cost of solar panel production and construction expenses decreasing each year, the purchase price should be decreased to be consistent. Especially since the fiscal year 2017, the government has changed the method of determining the purchase price from the government to the price that the auctioneer, causing the Company considers that the FiT price is likely to decrease from the target price from the government. Also, the increased price competition from entrepreneurs, resulting in new projects will not get the appropriate purchase price according to the Company's investment policy.

	FY12	FY13	FY14	FY15	FY16	FY17 *	FY18*
FIT (Yen / kilowatt hour)	40	36	32	28	24	17.2-21.0 (Bid price)	14.3-15.5 (Bid price)

* FIT pricing method changed from the government set to the price that is according to the auction of entrepreneurs

Table 1: Power purchase prices for approved power plants in each fiscal year

In addition, from stimulus measures for projects which are still under development, especially those that have been licensed before the fiscal year B.E. 2015, causing the company to 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.

Overview of the electrical system of Malaysia

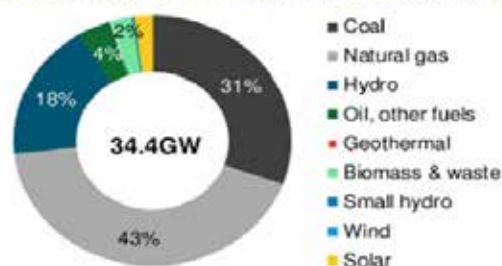
The economy of Malaysia during the past year has grown steadily in accordance with the driving force of consumer consumption. As a result, there are many industrial factories in Malaysia over the years, causing the demand for electricity in the past year increased by 2.6 percent, according to the report of the Electricity Authority of Malaysia, known as Tenaga Nasional Bhd (TNB).

In 2018, the total installed capacity in Malaysia is 34.4 gigawatts, consisting of %74.0 of the electricity used from coal and gas from the total electricity generating capacity in 2018.

However, electricity that produced from fossil fuels has continuously decreased since 2010, at that time, representing 94.0% of the total electricity generating capacity and reduced to only 83.0%, with electricity from water power to replace 4 gigawatts as shown in the chart below.

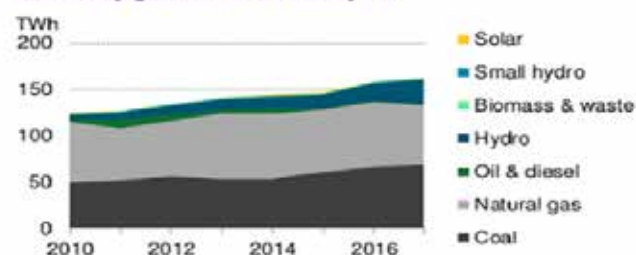
As mentioned above, due to the high demand for electricity in Malaysia, resulting in the year 2018, the installed capacity of electricity in Malaysia has increased by 546 MW from 2017, with an increase of 81.0 percent. This is the increase of production capacity from renewable energy power plants or equivalent to an additional 441 MW of total installed capacity. The chart below shows the additional installed capacity in 2018 for the additional installed capacity from renewable energy power plants.

Installed power generation capacity in Malaysia, 2018



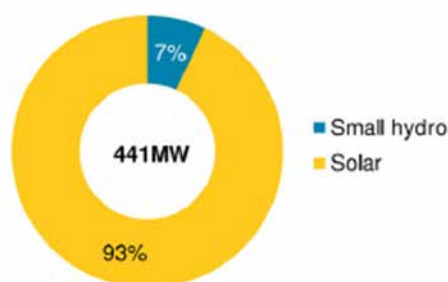
Source: Energy Commission, Malaysia, Sustainable Energy Development Authority, Bloomberg NEF

Electricity generation in Malaysia



Source: Energy Commission, Malaysia, Sustainable Energy Development Authority, Bloomberg NEF

Renewable energy capacity addition in 2018



Source: Energy Commission, Malaysia, Sustainable Energy Development Authority, BloombergNEF

In addition, in order to support renewable energy power plants, the Malaysian government has allowed the private sector to participate in the ownership of solar power plants in the Large Scale Solar Power Plant (LSS) project by participating in the auction according to the conditions that set by government agencies which currently consists of the LSS1, LSS2 and LSS3 projects. For the LSS1 and LSS2 projects, some power plants have started to distribute electricity around 300 MW. (Source: BloombergNEF) As for the LSS3 project, the Malaysian government has opened for bidding more than 500 MW by the end of 2019. The lowest electricity price per unit announced by the government for the private sector that won the bidding is 0.178 Malaysian ringgit per kilowatt hour which is expected to start commercial distribution in 2021.

In terms of supporting other alternative energy sources, the government has supported the production of solar electricity on the rooftop. The government has set a goal since 2020 to increase the installed capacity in this part to 50-100 MW per year. In the year 2018, the government approved another 50 MW of installed capacity for small hydro power plants, bio-power plant and biomass power plants.

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 April, 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 preparation of the country's electricity demand forecast, the Office of the National Economic and Social Development Board (NESDB) has prepared an estimate of the long-term economic growth trend (GPD) between 2037 - 2017, with an average of %3.8 per year, the average population growth rate is %0.02- per year.

As for the forecast of electricity demand used in the PDP2018 plan during the year 2037 - 2018, it is found that the forecast value of net total electrical energy demand of the 3 Electricity Authorities' system and the net peak power in the year 2037 is approximately 367,458 million units and 53,997 MW respectively.

Year	PDP 2015		PDP 2018		Change	
	Maximum power (MW)	Electric power (million units)	Maximum power (MW)	Electric power (million units)	Maximum power (MW)	Electric power (million units)
2018	32,429	212,515	29,969	203,203	-2,460	-9,312
2022	36,776	241,273	35,213	236,488	-1,563	-4,785
2027	41,693	273,440	41,079	277,302	-614	3,862
2032	46,296	303,856	47,303	320,761	1,007	16,905
2037	-	-	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 2037 - 2018

- Power generation as of December 2017	46,090	megawatts
- New power generation capacity during 2037 - 2018	56,431	megawatts
- Power generation that was discharged from the system during 2037 - 2018	(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
Total	56,431	megawatts

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.

(Unit: MW)

Renewable Energy / Energy Conservation	Contract Manufacturing Capacity	Reliable Manufacturing Capacity
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
Total as of 2037	18,176	12,244

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)
(1) Compulsory strategy	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
(2) Support strategy	256
- Combined heat energy (Combined Heat and Power)	226
- Financial measures	30
(3) Promotion strategy	-
- 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	-
Total	4,001

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 (B.E.2561 - 2580), 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, including the electrical system development project under the master plan for the development of smart grid network in Thailand (Smart Grid), 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 (B.E.2560 - 2564).

- **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.

In addition, in the year 2019, Gunkul Engineering Public Company Limited ("the Company") foresaw the growing demand of Residential Solar Rooftop market, causing the Company to establish a new company under the GRoof brand to do Residential Solar Rooftop. There are packages for those who interested in choosing to install from 2 kilowatts or more, both On-grid and Hybrid models with battery systems installed for those interested in saving energy or want to install electricity generation systems from alternative energy. Moreover, with the reduced investment in solar energy systems and an increased understanding of the Solar Rooftop system, the Company foresaw that the Residential Solar Rooftop market is a good market with high growth opportunities under the GRoof brand. Currently, the Company is trying to develop the Plat Form to expand the alternative energy business, which is expected to have more growth opportunities in the future.

- **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.

As for the competition in the Residential Solar Rooftop market, since the Solar Rooftop system has been able to produce electricity for up to 25 years, most buyers are looking for companies that have long experience in the Solar Rooftop system and have high stability and can provide services like One-Stop-Service has made the Company feel that the competition is still limited.

- **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, causing the Company to have an advantage over other competitors

As can be seen from the fact that the Company has already signed many power sale agreements with the private sector. For the year 2019, solar rooftop power plant and ground project, the electricity generating group for own use which the Company has completed construction and is under construction, totaling 70,424.17 MW and in the year 2019, the Company aims to invest more in the construction of power plants to sell to the private sector.

Risk Factors

1. Risk 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 2019, 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 and being certified with an ISO 14001 environmental management system. 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, in the year 2019, there were various projects From the government coming out quite a lot at the end of the year Resulting in a cumulative work of 8,000 million baht on hand.

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, while also increasing the company's potential by developing of products and equipment in electrical systems to be diverse and to meet the needs of customers, as well as participating in the product registration project with the network unit testing with the Electricity Authority Including increasing the internal testing standards of the company In accordance with international standards.

- **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.

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:

- Entering a Forward contract in accordance with the terms of the loan for import-export.
- Make a balance between revenue and expense or debt which is a foreign currency to be natural hedge.
- Manage foreign currency deposit in accordance with the cash flow in each period of the Company's operations.

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.

The consideration to invest in solar power plant projects in Japan and Malaysia for the Company is a contract to purchase electricity at a fixed rate throughout the project life. The Company considers that revenue recognition in Yen or Ringgit currency and repayment of project loans in that same currency is considered as protection against exchange rate risk in the proportion of 85% and 80%, respectively of the investment of the project from using the same currency. In this regard, the risk for investment in shareholders' equity at the rate of 15% and 20%, respectively, will arise from the change of financial statements from Yen or Ringgit currency into Baht currency, which will result in

affecting accounting records only, without affecting any profits or losses from operations in any way. This is including the change of currency values in both currencies have little fluctuation in exchange rates, which has little effect on exchange rates.

3. Possible risks to the power generation and supply business

1. Risk of power generation performance

The ability to generate electricity of a solar power plant depends on 3 main parts, which are 1. solar intensity 2. efficiency of solar panels and 3. amount of losses that occur in the electricity generation system. In order 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.

Currently, 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 ;as well as, increasing the efficiency of power plant construction even more than in the past. As can be seen from the performance in the year 2019, The Company is able to manage solar power plants with a 5% better efficiency than their predicted values due to good maintenance and improved light intensity.

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 183.06 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.

Also, in the year 2019 which is considered as a year that has an average wind speed rate better than 2018, resulting in the electricity efficiency of all 3 wind power plants that can produce more than 10% better than expected. This is due to the average wind speed is much better than usual, especially in the summer and rainy season, where the wind speed is usually quite soft, resulting in greatly increased power units produced.

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.

The Company has 4 solar power plant projects in Japan. Currently, 2 projects have successfully distributed electricity and are under construction for another 2 projects which is expected to be able to supply power into the system by the 3rd quarter of 2022 and the 1st quarter of 2023. The electricity sales rates of both projects are not affected by the electricity price cuts due to the construction regulations were not completed within 3 years, This is because the Company able to obtain a license and operate correctly in accordance with the rules of the Electricity Authority.

For the project in Malaysia which is currently under construction and the progress is over 80% which the power plant will be able to distribute commercially within the 2nd quarter of 2020.

4. Risk of economic and political factors

At beginning in the year 2014 with the revolution, the government has created a 20-year national strategic plan to guide the country and issued various policies in order to stimulate the country's economy, especially the investment in transportation infrastructure, both by land and water railways, which has already commenced operations in 2017, such as the double track railway project, Bang Yai - Kanchanaburi Motorway and electric trains in urban areas, etc. In this regard, the Company has a large customer being a state enterprise unit that have quite a lot of budget support; as well as, the equipment that the Company produces and sells will be related to the government infrastructure investment project. Therefore, the business of the Company has the opportunity to grow according to the expansion of the increase in government investment. The Thai economy in 2019 is expected to expand by 3.5 - 4.5%, with supporting factors from (1) Household spending is likely to expand favorably and support economic growth continuously (2) The improvement of total investment by public investment tends to accelerate. And private investment continued to expand well (3) Tourism improvement (4) The growth of the economy and the amount of world trade that can support the continuous expansion of exports and (5) The changes in the direction of trade, production and international investment.

Combining with energy policy is one of the important policies that the government supports, by announcing the new power development plan of Thailand (PDP 2018) that focuses on strengthening the electrical system by distributing electricity production projects throughout the country. This is including 3 southern border provinces and still have plans

to reduce dependence on natural gas, increasing proportion of electricity production from clean technology coal, increasing electricity supply from abroad, increasing proportion of electricity from renewable energy, including the development of electricity transmission systems, electrical distribution system in order to support the development of alternative energy and entering into the ASEAN Economic Community (AEC). As well as, establishing an Energy Efficiency Development Plan (EEDP) and an Alternative Energy Development Plan (AEDP). The said development plan will help promote the Company's business growth in the future, both in the production and distribution of equipment for power transmission and distribution systems, production and distribution of energy-saving devices in the category of LED. The development of power plants from alternative energy tends to increase every year.

Source: www.nesdb.go.th

In addition, the government's electric power policy has stipulated to increase the country's economic potential. In the long run, there will be an increase in power plant construction by the government and private sectors from all kinds of renewable energy, including promoting the utilization of science, technology, research and development and innovation by promoting the country's large investment projects such as clean energy, rail system, automotive, electricity, water management and waste management with important development plans. The Company has adopted the aforementioned guidelines to formulate the Company's business strategy for 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 ¹⁾	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
Total as of 2037	18,176	12,244

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.

5. Risk 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.

Therefore, in the overall management of investing in Japan, Malaysia and Vietnam at present, the Company has not been affected by any changes in any way.

6. Risk 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 the insurance is based on the study from an insurance consulting company in Japan, a specialist in insurance to ensure that coverage is reasonable with the damage that happen.

For Malaysia, there may be a risk of lightning strikes because there are statistics that show the frequent lightning events in the area which may affect the power generation system. This is considered as a risk of natural disasters that cannot be controlled.

The Company has studied the location of the power plant to various factors that may affect lightning events and have the expert to design a lightning protection system, including other protection devices to prevent lightning strikes on the project.

In addition, the company manages the risk from natural disasters by taking out insurance covering all risks by providing such insurance covering lightning damage as well and the insurance coverage is reasonable for the damage that may occur.

7. Risk 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. In case of foreign investment, the Company will provide personnel of that country. Which is an expert in the control and maintenance of the power plant after the commercial electricity has been completed.
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, for example solar power plant projects in Japan, the Company has managed until it can sell commercially in accordance with the plan and another 2 solar power plant projects are in progress as planned which is scheduled to be commercially distributed within the 3rd quarter of 2022 and the 1st quarter of 2023.

8. 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. Therefore, the Company has managed the risk from the selection of the contractor who must have experience in constructing solar power plants in accordance with the standards that 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.

9. 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.

10. 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 towards important data or systems, various cyber threats, such as harassment or network attacks (DDoS Attacks), malicious programs (Malware / Virus) causing business disruption, lost 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. Increase information security measures, such as setting access rights to important information in the system according to the level of users.
5. Establish measures to prevent leakage of important information. As well as creating an understanding of employees in the prevention and prudence of data transmission that is at risk of data leakage.
6. The Company has audited and evaluated the adequacy of the policy and internal control system, information technology system by the internal audit department and the auditor annually. In addition, the Company plans to test the information system risk assessment by examining the vulnerabilities of the host computer and network equipment. (Vulnerability Assessment) and having Penetration Test by independent agencies in 2020 to ensure the security of the computer network.

CAPITAL STRUCTURE AND SHAREHOLDERS

Capital

1) Common Stock

As of December 31, 2019, the Company had registered capital of THB 2,225,586,448.00 and had paid-up capital of THB 2,220,632,743.50 divided into 8,882,530,974 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, 2019, the Group's outstanding debt from bill of exchange totaling THB 280 million with several financial institutions by a duration between 3-6 months.

4) Bond

As of December 31, 2019, the Company has outstanding balances from issuing senior bond with unsecured total THB 5,619 Million. The redemption schedules are in May 2020, in April 2021, and July 2022.

Shareholders

Gunkul Engineering Public Company Limited

09 January 2020

No.	Shareholder Name	Share (s)	Percentage (%)
1	Dhumrongpiyawut Family Group		
1.1	Gunkul Group Company Limited	4,432,631,280	49.903
1.2	Mr. Gunkul Dhumrongpiyawut	311,511,270	3.507
1.3	Miss Naruechon Dhumrongpiyawut	431,193	0.005
	Total Number of Shares Holding by Dhumrongpiyawut Family Group	4,744,573,743	53.415
2	Thai NVDR Company Limited	408,878,999	4.603
3	Siam Commercial Bank Public Company Limited	278,880,000	3.140
4	UOB KAY HIAN (HONG KONG) LIMITED - Client Account	204,026,303	2.297
5	CPYI CLT	160,577,940	1.808
6	Bualuang Long-Term Equity Fund	159,361,760	1.794
7	SOUTH EAST ASIA UK (TYPE C) NOMINEES LIMITED	109,267,402	1.230
8	Gunkul Engineering Public Co., Ltd.	99,043,700	1.115
9	Mr. Wichai Wangprechacharn	65,339,919	0.736
10	Bualuang Long-Term Equity Fund 75/25	61,488,250	0.692
	Total	6,291,438,016	70.829

Paid-up Shares

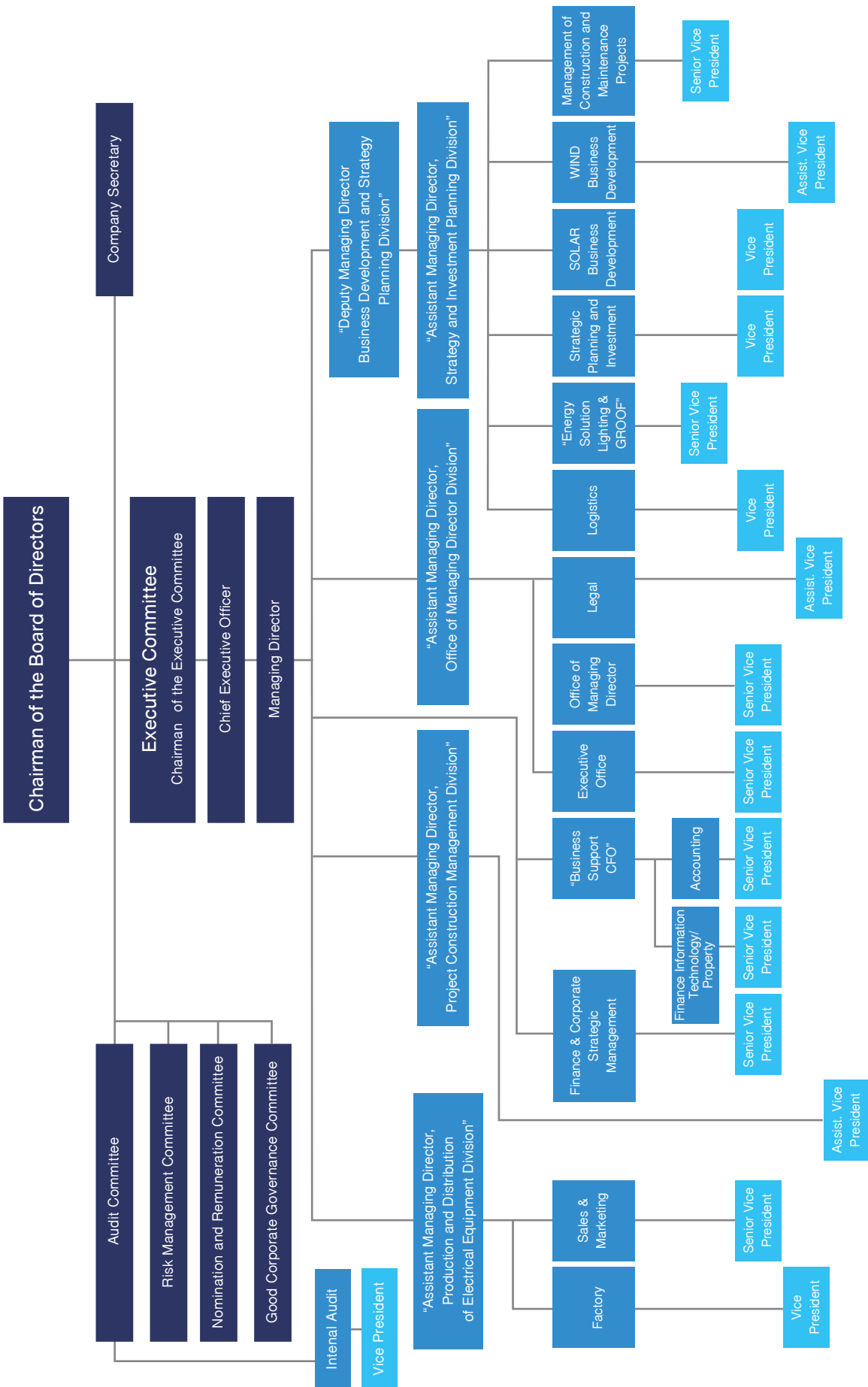
8,882,530,974

Gunkul Group Company Limited

09 January 2020

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

Management Structure



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, which there are 50 percent of the independent directors of the entire Board of Directors.

Board of Directors

As of December 31, 2019, board of directors comprised of 12 persons as follows;

1. Dr. Gunkul Dhumrongpiyawut ¹⁾	Chairman of the Board of Directors (Non-Executive Director)
2. Dr. Djitt Laowattana ¹⁾	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 ²⁾	Independent Director Audit Committee
5. Gen. Tarnchaiyan Srisuwan	Independent Director
6. Mr. Tarakorn Angpubate ¹⁾	Independent Director Chairman of the Risk Management Committee
7. Mr. Kris Chantanotoke	Independent Director
8. Miss Sopacha Dhumrongpiyawut	Director/ Chairman of the Executive Committee/ Member of the Risk Management Committee/ Chief Executive Officer
9. Dr. Somboon Aueatchasai	Director and Secretary of the Board of Directors Executive Director Managing Director
10. Miss Naruechon Dhumrongpiyawut	Director Executive Director
11. Mr. Chaloepon Sricharoen	Director Executive Director
12. Mrs. Areewan Chaloeindan	Director Executive Director
13. Miss Chantira Jongjamareeseethong	Company Secretary

¹⁾ Non-Executive Directors and/or Independent Directors who having experience in work related to the Company's business and the Subsidiary.

²⁾ 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 Chaloemdan or Mr. Chaloempon Sricharoen. Or Mrs. Areewan Chaloemdan, Mr. Chaloempon Sricharoen and Mr. Somboon Aueatchasai all sign their names.

Scope of Authority and Responsibility of Board of Directors

(Cited by “Board of Directors Charter”: Revision Date on 25th February 2020)

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 chief executive officer 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 Nomination 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 of BOD

(Cited by “Role, Authority, Duty and Responsibility of the Chairman, Chief Executive Officer and Managing Director”: Revision Date on 25th February 2020)

- 1) The Chairman of the board of directors and the Chief executive officer (CEO) are required to be different persons.
- 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.

Executives

As of 31st December 2019, there were 17 executives as follows:

Name list			Position
1.	Ms. Sopacha	Dhumrongpiyawut	Chief Executive Officer
2.	Dr. Somboon	Aueatchasai	Managing Director
3.	Dr. Phongsakorn	Damnoen	Deputy Managing Director, Business Development and Strategic Planning
4.	Ms. Naruechon	Dhumrongpiyawut	Assistant Managing Director, Strategy and Investment Planning
5.	Mrs. Areewan	Chaloemdan	Assistant Managing Director, Production and Distribution of Electrical Equipment
6.	Mr. Chaisiri	Wattanachannarong	Assistant Managing Director, Project Construction Management
7.	Mr. Theerapab	Punyasahkon	Assistant Managing Director, Office of Managing Director
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.	Mr. Thitipong	Techaratanayuenyong	- Senior Vice President, Finance & Corporate Strategic Management
12.	Ms. Wimol	Kamjornviputh	- Chief Financial Officer

Name list		Position
13. Mrs. Nattawan	Wongchan	Senior Vice President, Business Support (Finance / Information Technology / Property)
14. Ms. Suttirat	Tangnorakul	Senior Vice President, Business Support (Accounting)
15. Mr. Janpon	Ngamaroonchote	Senior Vice President, Sales & Marketing: Energy Solution, Lighting and GRoof
16. Miss Chantra	Jongjamareeseethong	Senior Vice President, Office of Managing Director Company Secretary
17. Mr. Tanetsiri	Farkmitr	Vice President, Internal Audit Secretary of the Audit Committee

Role, Authority, Duty and Responsibility of the Chief Executive Officer (CEO)

(Cited by “Role, Authority, Duty and Responsibility of the Chairman, Chief Executive Officer and Managing Director”: Revision Date on 25th February 2020)

The board of directors of the company has assigned the chief 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 25th February 2020)

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 Chief Executive Officer 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 6th November 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 Nomination 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 Chief executive officer

To recruit/select and arrange the succession plan while the Nomination and Remuneration Committee will prepare the succession plan in the level of Managing director and Chief executive officer for presentation to the board of directors of the Company for consideration in order to recruit and select the executives of the Company, the Nomination and Remuneration Committee will monitor the succession plan when the executive posts in the level of the Chief executive officer /Managing director are vacant or the person in the such post is unable to perform his duty. The Company will have a system for management at a similar level or a second level to act in the position until the recruitment and selection of qualified persons according to the criteria that specified by the Company which must be a person with a vision, knowledge, experience and suitability for organizational culture. The consideration of the Nomination and Remuneration Committee is the recruiter to propose to the Board of Directors for considering and approving the appointment of suitable persons to be appointed in the future.

Primary qualifications of the Chief Executive Officer and the Managing Director

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 Assistant Vice President level to the Deputy Managing Director level

If the executive level from the assistant vice president level to the deputy managing director level 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 committee 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 chief executive officer 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 chief executive officer 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.

Authorization for Credit Limit

(Cited by "Policy: Transaction measures with the related and non-related persons and table of approval authority": Revision Date on 25th February 2020)

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.

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.

Remuneration of Committee and Directors

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 6th November 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

In order to be in line with the responsibilities, duties and responsibilities of the directors, the composition of the remuneration for the directors has been determined which is divided into 2 parts as follows;

- Meeting attendance fee
- Quarterly remuneration

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. 1/2019 held on 20th February 2019, and approved by the 2019 Annual General Meeting of Shareholders held on 18th April 2019, details are as follows:

(Unit : THB)

Remuneration

Position	Board of Directors	Audit Committee	Good Corporate Governance Committee	Risk Management	Nomination and Remuneration Committee	Management Committee
Chairman	25,000	25,000	20,000	20,000	20,000	7,500
Member	18,000	18,000	12,000	12,000	12,000	5,000
Secretary of Committee	6,000	6,000	6,000	6,000	6,000	-

Remark: Incase 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

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

Remark: Incase 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.	Chief Executive Officer (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 2019, 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 2019, the Board of Directors has held a meeting between non-executive directors, with an open agenda for opinions, suggestions which related to the control, management, risk management and other matters that relating to corporate governance both inside and outside the organization in order to ensure transparency, fairness, and international standards, and then summarize the important discussion points for the Chief Executive Officer and the Managing Director for further management recommendations.

For the year 2018 and 2019, the total remuneration for directors is THB 8,857,700.00 and THB 9,480,100.00 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

Directors' remuneration, both monetary and non-monetary, for the years 2018 and 2019 are as follows:

1. Monetary Compensation : Totally 8,857,700.00 in 2018 and 9,480,100.00 in 2019

2. Non-Monetary Compensation : In 2018 - None / In 2019 - 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, 2019)					Executive Committee	Date Resignation / Termination	
			Board of Directors	Audit Committee	Risk Management Committee	Nomination and Remuneration Committee	Good Corporate Governance Committee			
Directors and sub-committees										
1	Dr. Gunkul	August 10, 2009 ²⁾	10 years 5 months							
2	Dr. Djitt	August 18, 2014 ³⁾	5 years 5 months	5 years 5 months						
3	Dr. Chongrak	July 3, 2015 ³⁾	4 years 6 months	4 years 6 months				4 years 6 months		
4	Mr. Tarakorn	April 20, 2018/ February 20, 2019 ⁷⁾	1 years 8 months		9 months		11 months			
5	Associate Professor Dr. Panarat	April 20, 2018/ May 14, 2018 ⁸⁾	1 years 8 months	1 years 8 months						
6	Gen. Tarnchaiyan	April 18, 2019	9 months							
7	Mr. Kris	November 6, 2019	2 months							
8	Ms. Sopacha	August 10, 2009 ²⁾	10 years 5 months		10 years 5 months				10 years 5 months	
9	Dr. Sombon	June 9, 2010 ³⁾ / August 10, 2009 ⁹⁾	9 years 7 months						9 years 7 months	
10	Ms. Naruechon	August 10, 2009 ²⁾	10 years 5 months						10 years 5 months	
11	Mrs. Areewan	August 10, 2009 ²⁾	10 years 5 months						10 years 5 months	
12	Mr. Chaloepon	August 10, 2009 ²⁾	10 years 5 months						10 years 5 months	
13	Mr. Somchai	June 22, 2015/ February 25, 2013 ⁶⁾			4 years 6 months			6 years 10 months		
14	Mr. Thitipong	12 November 2014			5 years 2 months					
15	Pol. Maj.Gen. Visit Sukrasep ¹⁾	November 20, 2019					10 months			
16	Mr. Decha	November 9, 2012					7 years 2 months			
17	Mr. Hathai	November 12, 2015					4 years 2 months			
18	Mrs. Somluk	August 10, 2009					10 years 5 months			
19	Mr. Phongthep	February 25, 2013						6 years 10 months		20 February 2019
Directors that resigned / completed their terms during the year 2019 that received compensation										
										3 November 2019
										20 April 2018

Directors that resigned / completed their terms during the year 2018 that received compensation								
1	Pol. Maj.Gen. Visit	August 10, 2009 ²⁾	8 years 9 months	8 years 9 months			8 years 9 months	

- 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 pays annual compensation on a quarterly basis. The annual compensation for the 1st - 3rd quarter will be paid within the year. accounting period of that year. For the 4th quarter, payment will be made at the beginning of next year. The annual compensation that specified in the "Compensation" table is the annual compensation that recorded according to the accounting period of that year.
- ⁵⁾ It is the meeting allowance and annual compensation that the executive committee receives from attending the meeting and holding the position of executive committee in 2018 and 2019. The Executive Committee of 5 persons do not wish to receive meeting allowances.
- ⁶⁾ The date of holding a position of the Good Corporate Governance Committee and a position of the Risk Management Committee, respectively.
- ⁷⁾ The date of holding a position of the Board of director and a position of the Chairman of Nomination and Remuneration Committee or the Chairman of Risk Management Committee, respectively.

The date of holding a position of the Board of Director and a position of the Member of Audit Committee, respectively.

The date of holding a position of the Board of Director, the Secretary of the Board and the Member of Executive committee respectively.

No.	Name List	Starting Date Position	The number of months that Holding position		Attendance of Board of Directors and Sub-Committee in Year 2018 and Year 2019										Executive Committee ⁵⁾	
					Board of Directors		Audit Committee		Risk Management Committee		The Nomination and Remuneration Committee		Good Corporate Governance Committee			
			2018 (Month)	2019 (Month)	2018 (8 Times)	2019 (7 Times)	2018 (6 Times)	2019 (6 Times)	2018 (4 Times)	2019 (5 Times)	2018 (3 Times)	2019 (2 Times)	2018 (4 Times)	2019 (5 Times)	2018 (32 Times)	2019 (45 Times)
			Directors and sub-committees													
1	Dr. Gunkul	Dhumrongpiyawut	12	12	8/8	6/7										
2	Dr. Djitt	Laowattana ¹⁾	12	12	8/8	6/7	6/6	6/6								
3	Dr. Chongrak	Rarueysong ¹⁾	12	12	8/8	7/7	6/6	6/6					4/4	5/5		
4	Mr. Tarakorn	Angpabate ¹⁾	8	12	5/6	6/7			-	4/4	2/2	1/1				
		April 20, 2018/ February 20, 2019 ⁷⁾														
5	Associate Professor Dr. Panarat	Panmanee ¹⁾	8	12	6/6	7/7	4/4	6/6								
6	Gen. Tarnchaiyan	Srisuwan ¹⁾	-	8	-	6/6										
7	Mr. Kris	Chantanotoke ¹⁾	-	2	-	0/2										
8	Ms. Sopacha	Dhumrongpiyawut	12	12	8/8	7/7			4/4	5/5					32/32	45/45
9	Dr. Somboon	Aueatchasai	12	12	8/8	7/7									32/32	45/45
10	Ms. Naruechon	Dhumrongpiyawut	12	12	8/8	7/7									32/32	45/45
11	Mrs. Areewan	Chaloemdan	12	12	8/8	7/7									32/32	45/45
12	Mr. Chabempon	Srichaen	12	12	8/8	7/7									32/32	45/45
13	Mr. Somchai	Traitatanapirom ¹⁾	12	12					4/4	5/5			4/4	5/5		
		June 22, 2015/ February 25, 2013 ⁶⁾														
14	Mr. Thitipong	Techaratanayuenyong	12	12					4/4	5/5						
15	Pol. Maj.Gen. Visit	Sukarasep ¹⁾	-	10							-	1/1				
16	Mr. Decha	Chooligom ¹⁾	12	12							2/3	2/2				
17	Mr. Hathai	Uthai ¹⁾	12	12							3/3	2/2				
18	Mrs. Somluk	Kanuenghet	12	12							3/3	2/2				
19	Mr. Phongthep	Thitapan ¹⁾	12	12									4/4	5/5		
		February 25, 2013														
Directors that resigned / completed their terms during the year 2019 that received compensation																
1	AVM.Dr.Plan	Tolarong ¹⁾	12	1					4/4	1/1						
2	Dr. Phairot	Phanukan	-	7	-	3/3										
Directors that resigned / completed their terms during the year 2018 that received compensation																
1	Pol. Maj.Gen. Visit	Sukarasep ¹⁾	4	-	2/2	-	2/2	-			1/1	-				
		August 10, 2009 ²⁾														

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 pays annual compensation on a quarterly basis. The annual compensation for the 1st - 3rd quarter will be paid within the year. accounting period of that year. For the 4th quarter, payment will be made at the beginning of next year. The annual compensation that specified in the "Compensation" table is the annual compensation that recorded according to the accounting period of that year.

⁵⁾ It is the meeting allowance and annual compensation that the executive committee receives from attending the meeting and holding the position of executive committee in 2018 and 2019. The Executive Committee of 5 persons do not wish to receive meeting allowances.

⁶⁾ The date of holding a position of the Good Corporate Governance Committee and a position of the Risk Management Committee, respectively.

⁷⁾ The date of holding a position of the Board of director and a position of the Chairman of Nomination and Remuneration Committee or the Chairman of Risk Management Committee, respectively.

No.	Name List	Starting Date Position	Annual compensation of 2018 ^{4) 5)}			Annual compensation of 2019 ^{4) 5)}		
			(Meeting allowance & Annual compensation)			(Meeting allowance & Annual compensation)		
			Board of Directors ³⁾	Sub- Committee ⁵⁾	Total Compensation	Board of Directors ³⁾	Sub- Committee ⁵⁾	Total Compensation
Directors and sub-committees								
1	Dr. Gunkul	August 10, 2009 ²⁾	926,000.00	-	926,000.00	897,000.00	-	897,000.00
2	Dr. Djitt	August 18, 2014 ³⁾	444,000.00	372,000.00	816,000.00	390,000.00	444,000.00	834,000.00
3	Dr. Chongrak	July 3, 2015 ³⁾	444,000.00	468,000.00	912,000.00	426,000.00	498,000.00	924,000.00
4	Mr. Tarakorn	April 20, 2018/ February 20, 2019 ⁷⁾	299,200.00	99,800.00	399,000.00	390,000.00	195,000.00	585,000.00
5	Associate Professor Dr. Panarat	April 20, 2018	317,200.00	211,500.00	528,700.00	426,000.00	308,000.00	734,000.00
6	Gen. Tarnchaiyan	April 18, 2019	-	-	-	320,000.00	-	320,000.00
7	Mr. Kris	November 6, 2019	-	-	-	46,100.00	-	46,100.00
8	Ms. Sopacha	August 10, 2009 ²⁾	444,000.00	648,000.00	1,092,000.00	426,000.00	660,000.00	1,086,000.00
9	Dr. Somboon	June 9, 2010 ³⁾	542,000.00	200,000.00	742,000.00	518,000.00	200,000.00	718,000.00
10	Ms. Naruechon	August 10, 2009 ²⁾	444,000.00	200,000.00	644,000.00	426,000.00	200,000.00	626,000.00
11	Mrs. Areewan	August 10, 2009 ²⁾	444,000.00	200,000.00	644,000.00	426,000.00	200,000.00	626,000.00
12	Mr. Chaloepon	August 10, 2009 ²⁾	444,000.00	200,000.00	644,000.00	426,000.00	200,000.00	626,000.00
13	Mr. Somchai	June 22, 2015/ February 25, 2013 ⁶⁾	-	296,000.00	296,000.00	-	320,000.00	320,000.00
14	Mr. Thilipong	December 2014	-	197,000.00	197,000.00	-	215,000.00	215,000.00
15	Pol. Maj.Gen. Visit	November 20, 2019	-	-	-	-	106,000.00	106,000.00
16	Mr. Decha	November 9, 2012	-	124,000.00	124,000.00	-	124,000.00	124,000.00
17	Mr. Hathai	November 12, 2015	-	136,000.00	136,000.00	-	124,000.00	124,000.00
18	Mrs. Somluk	August 10, 2009	-	179,000.00	179,000.00	-	161,000.00	161,000.00
19	Mr. Phongthep	February 25, 2013	-	148,000.00	148,000.00	-	160,000.00	160,000.00
Directors that resigned / completed their terms during the year 2019 that received compensation								
1	AVM.Dr.Pian	November 9, 2012	-	160,000.00	160,000.00	-	29,000.00	29,000.00
2	Dr. Phairot	April 18, 2019	-	-	-	219,000.00	-	219,000.00
Directors that resigned / completed their terms during the year 2018 that received compensation								
1	Pol. Maj.Gen. Visit	August 10, 2009 ²⁾	127,500.00	142,500.00	270,000.00	-	-	-
			4,875,900	3,981,800	8,857,700	5,336,100	4,144,000	9,480,100

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 pays annual compensation on a quarterly basis. The annual compensation for the 1st - 3rd quarter will be paid within the year. accounting period of that year. For the 4th quarter, payment will be made at the beginning of next year. The annual compensation that specified in the "Compensation" table is the annual compensation that recorded according to the accounting period of that year.

⁵⁾ It is the meeting allowance and annual compensation that the executive committee receives from attending the meeting and holding the position of executive committee in 2018 and 2019. The Executive Committee of 5 persons do not wish to receive meeting allowances.

⁶⁾ The date of holding a position of the Good Corporate Governance Committee and a position of the Risk Management Committee, respectively.

⁷⁾ The date of holding a position of the Board of director and a position of the Chairman of Nomination and Remuneration Committee or the Chairman of Risk Management Committee, respectively.

(2) Remuneration for Management Executive

In 2018, the Company had 16 executives, 5 were executives and directors and 11 were executives only. The Company paid compensation to the management of the Company as shown in the table.

In 2019, the Company had 17 executives, 5 were executives and directors and 12 were executives only. The Company paid compensation to the management of the company as follows:

(Unit : THB)

Remuneration	Executives and Directors				Executive Only			
	Year 2018		Year 2019		Year 2018		Year 2019	
	No. of persons	Remuneration	No. of persons	Remuneration	No. of persons	Remuneration	No. of persons	Remuneration
Total salary	5	23,272,200.00	5	25,223,700.00	11	26,097,840.00	12	27,626,576.66
Total bonus	5	18,998,005.00	5	27,392,930.00	11	17,861,382.67	12	16,997,993.87
Total	5	42,270,205.00	5	52,616,630.00	11	43,959,222.67	12	44,624,570.53

20.5.2 Non-cash remuneration

- None -

Personnel

- Total employees of the Company and subsidiaries as of 31st December 2019. The total number of employees is 844 persons, classified by type and employee level, as of 2014, 2015, 2016, 2017, 2018, and 2019 details are as follow;

Total Employees	Number of Employee					
	2014	2015	2016	2017	2018	2019
Total Employees	552	635	709	728	796	844
Full time	415	526	583	598	667	716
Daily	137	109	126	130	129	128
Total Employees by Category						
Permanent	482	553	599	611	663	718
Contracted	70	82	110	117	133	126
Total Employees by Gender						
Male	331	390	350	448	509	538
Female	221	245	359	280	287	306
Total Employees by Rank						
Management Executive	17	25	25	26	28	34
Department Manager	34	48	56	53	57	60
Chief / Specialists	74	77	78	75	97	88
Primary -intermediate employees	195	291	312	345	376	421
Operation employee	232	194	238	229	238	241

2. Employee remuneration

- In 2019, monetary compensation for employees of the Company and its subsidiaries, comprised of salary, bonus and provident fund with combined amount of THB 409,447,011.87 as details below:

Unit : Baht	Year 2017	Year 2018	Year 2019
Salary	238,349,317.58	273,089,643.41	293,830,006.33
Bonus	57,332,840.64	73,101,598.10	102,747,143.23
Provident Fund	10,725,020.90	12,136,192.47	12,869,862.31
Total	306,407,179.12	358,327,433.98	409,447,011.87

- 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

No labor disputes to court

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.

DIRECTOR PROFILE



Dr. Gunkul Dhumrongpiyawut

- Chairman of the Board of Directors
(Non-Executive Director)

Age

- 65 Years

Date and month of appointment as Director

- 10th August 2009 (10 Years 5 months)

Educational Qualifications

- The Honorary Doctor of Art, Rajamangala University of Technology Phra Nakhon in 2016
- Honorary Master of Engineering, Western University in 2010

Training

Training in 2019

- Intermediate Certificate Courses – Good Governance for Medical Executives Class 8 (IGM8), The Medical Council together with King Prajadhipok's Institute (studying)

Training Program

- Rule of Law for Democracy Class 6 (RLD.6), College of the Constitutional Court
- Top Executives Program Class 15/2012, Capital Market Academy
- Director Certification Program (DCP) Class 111/2008, Thai Institute of Director (IOD)
- Director Accreditation Program (DAP) Class 70/2008, Thai Institute of Director (IOD)
- Managing Finance for Business Owners by Peter Ho
- Secrets to Doubling Your Sales, Productivity & Profits Program
- Anti-Corruption Training Course
- Thai – Chinese Leadership Studies (TCL) Class 2 Huachiew Chalermprakiet University

Working Experience during the Past 5 Years

GUNKUL's Group		
• 2012 - Present	Gunkul Engineering PCL	Chairman of the Board of Directors
• 2009 - Present	Gunkul Engineering PCL	Director
Other Companies / Entities		
• 2017 - Present	Group of Great Miracle Asset	Director
• 2000 - Present	Gunkul Engineering (2000) Co., Ltd.	Director
• 1996 - Present	Gunkul Marine Line Co., Ltd.	Director
• 1994 - Present	G.M. Supply and Construction Co., Ltd.	Director
• 1991 - Present	Gunkul Group Co., Ltd.	Director

Number of companies currently holding the position of a director

- Listed Company (s) 1
- Non-Listed Companies (s) 17

Share Holding Percentage as at 31 December 2019

- 311,511,270 shares, representing 3.5070 percent of the issued and paid-up capital

Relationship between Management

- Spouse of Miss Sopacha Dhumrongpiyawut and Father of Miss Naruechon Dhumrongpiyawut



Dr. Djitt Laowattana

- Director (Independent Director)
- Chairman of the Audit Committee

Age

- 58 Years

Date and month of appointment as Director and Member of the Audit Committee

- 18th August 2014 (5 Years 5 months) / 18th August 2014 (5 Years 5 months)

Educational Qualifications

- 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)
- Bachelor of Engineering (Hons) King Mongkut's, University of Technology Thonburi

Training

Training in 2019

- -

Training Program

- 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 the System of Internal and Risk Management, MIR 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 Internal Audit Function, MIA 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)

Working Experience during the Past 5 Years

GUNKUL's Group		
• 2015 - Present	Gunkul Engineering PCL	Chairman of the Audit Committee
• 2014 - Present	Gunkul Engineering PCL	Director (Independent Director) / Member of the Audit Committee
• 2014 - 2015	Gunkul Engineering PCL	Chairman of the Good Corporate Governance Committee
Other Companies / Entities		
• 2018 - Present	Buriram Sugar Public Company Limited	Director
• 2015 - Present	TOT Public Company Limited	Chairman of the Strategic Committee
• 2012 - Present	Siam Commercial Bank PCL	Technology Consultant
• 2010 - Present	Thai Engineering Company Limited	Director
• 2010 - 2011	TOT Public Company Limited	Director / Audit Committee
• 2009 - 2011	Government Saving Bank	Director / Risk Management Director / Executive Director of Information Technology
• 2008 - 2011	National Science and Technology Development	Director of the Hard Disk Drive
• 2008 - 2011	KTB Computer Services Company Limited	Director / Member of Audit Committee
• 2008 - 2009	National Electronics and Computer Technology Center	Assistant to Director
• 2008 - 2009	Ministry of Information and Communications Technology	Consultant to the Minister
• 2007 - 2008	ADC Company Limited	Director
• 2007 - 2008	TOT Public Company Limited	Director / Chairman of the Finance Committee
• 2006 - 2012	National Research Council of Thailand (NRCT)	Director
• 2006 - 2007	Bangkok Crystal Company Limited	Director
• 2006 - 2007	Thai National Grid Center	Director
• 2005 - Present	Confucius scholars the "brainchild", Thai TV3	Academic Guru
• 2004 - Present	Robotics Society Thailand	Consultant
• 2002 - Present	ABU RoboCon (Thailand)	Chairman of the Technical Committee

Number of companies currently holding the position of a director

- Listed Company (s) 2
- Non-Listed Companies (s) 1

Share Holding Percentage as at 31 December 2019

- 2,074,080 shares, representing 0.0234 percent of the issued and paid-up capital

Relationship between Management

- None



Dr. Chongrak Rarueysong

- Director (Independent Director)
- Member of the Audit Committee
- Chairman of the Good Corporate Governance Committee

Age

- 66 Years

Date and month of appointment as Director, Member of the Audit Committee and Member of the Good Corporate Governance Committee

- 3rd July 2015 (4 Years 6 months) / 3rd July 2015 (4 Years 6 months) / 3rd July 2015 (4 Years 6 months)

Educational Qualifications

- Ph.D., Economics, University of Illinois at Urbana - Champaign, U.S.A.
- Bachelor of Economics (Hons), Thammasat University

Training

Training in 2019

- Seminar on "Business sustainability in the digital era "Know quickly ... Make use of" by EY Office Company Limited (Ernst & Young)

Training Program

- 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

Working Experience during the Past 5 Years

GUNKUL's Group

- 2015 - Present Gunkul Engineering Public Company Limited Director (Independent Director) /
Member of the Audit Committee /
Chairman of the Good Corporate
Governance Committee

Other Companies / Entities

- 2018 - Present Hatari Wireless Company Limited Director
- 2016 - Present Apple Wealth Securities Public Company Limited Chief Executive Group

• 2004 - 2014	KTB Computer Services Company Limited	Director / Chairman of the Audit Committee
• 2002 - 2003	PTT Public Company Limited	Director / Member of the Audit Committee
• 2001 - 2007	Thai Bond Dealing Centre	Director
• 2001 - 2002	Petroleum Authority of Thailand	Director
• 1998 - 2007	TRIS Corporation Limited	Director
• 1998 - 2007	Thailand Securities Institute	Director
• 1996 - 2012	Thai Securities Finance Company Limited	Director / Executive Director
• 1996 - 2012	Association of Thai Securities Companies	President
• 1996 - 2012	ASCO Training Institute	President
• 1995 - 1996	Vachira Dhanadhun Securities Company Limited	Managing Director
• 1992 - 1995	The Stock Exchange of Thailand	Director of Research and Development
• 1991 - 1992	Research Office Dhana Siam Finance and Securities Public Company Limited	Assistant Vice President
• 1983 - 1991	Ministry of Finance	Senior Specialist Loan Policy Division and Fiscal & Tax Policy Division

Number of companies currently holding the position of a director

- Listed Company (s) 1
- Non-Listed Companies (s) 1

Share Holding Percentage as at 31 December 2019

- None

Relationship between Management

- None



Associate Professor Dr. Panarat Panmanee

- Director (Independent Director)
- Member of the Audit Committee

Age

- 71 Years

Date and month of appointment as Director and Member of the Audit Committee

- 20th April 2018 (1 year 8 months) / 14th May 2018 (1 year 8 months)

Educational Qualifications

- Ph.D. in Management and Accounting, Keio University, Japan
- Master of Accountancy, Thammasat University
- Bachelor of Accountancy, Thammasat University

Training

Training in 2019

- Professional Training in Accounting and Others, in accordance with the requirements of the Federation of Accounting Professions for certified auditors, totaling 40 hours per year

Training Program

- Top Executive Program in Commerce and Trade Class 10 (TEPCoT 10), Commerce Academy
- Directors Certification Program (DCP) 264/2018, Thai Institute of Director (IOD)

Working Experience during the Past 5 Years

GUNKUL's Group

- | | | |
|------------------|------------------------|---------------------------------|
| • 2018 - Present | Gunkul Engineering PCL | Director (Independent Director) |
| • 2018 - Present | Gunkul Engineering PCL | Member of the Audit Committee |

Other Companies / Entities

- | | | |
|------------------|---|--|
| • 2018 - Present | Federation of Accounting Professions | Professional Accounting and Accounting Technology Advisor |
| | Royal Patronage | |
| • 2018 - Present | PROEN Corp Public Company Limited | Director (Independent Director) / Member of the Audit Committee |
| • 2017 - Present | Federation of Accounting Professions | Advisor to the Board of the Federation of Accounting Professions, Education and Technology |
| • 2016 - 2019 | University of the Thai Chamber of Commerce | Dean Faculty of Accounting |
| • 2009 - 2015 | Rajamangala University of Technology Thanyaburi | Specialist PhD program, Faculty of Business Administration |
| • 2002-2007 | Thammasat University | Deputy Dean for Academic Affairs Faculty of Commerce and Accountancy |
| • 1991 - 1999 | KPMG Peat Marwick & Suthee Ltd. | Partner |
| • 1976 - 2009 | Thammasat University | Professor, Faculty of Commerce and Accountancy |

Number of companies currently holding the position of a director

- | | |
|----------------------------|------|
| • Listed Company (s) | 2 |
| • Non-Listed Companies (s) | None |

Share Holding Percentage as at 31 December 2019

- None

Relationship between Management

- None



Gen. Tarnchaiyan Srisuwan

- Director (Independent Director)

Age

- 61 Years

Date and month of appointment as Director

- 18th April 2019 (9 months)

Educational Qualifications

- Master of Arts, Faculty of Political Science, Ramkhamhaeng University
- Army Staff School, United Kingdom
- Army Staff School, Thailand
- Chulachomklao Royal Military Academy
- Military School

Training

Training in 2019

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

Training Program

- Director Accreditation Program (DAP 160/2019), Thai Institute of Directors: IOD
- National Defense Joint with Private Sector, National Defence College of Thailand
- Leader Program Class 23, Capital Market Academy

Working Experience during the Past 5 Years

GUNKUL's Group		
• 2019-Present	Gunkul Engineering PCL	Director (Independent Director)
Other Companies / Entities		
• 2017	Royal Thai Armed Forces Headquarters	Supreme Commander
• 2016	Royal Thai Armed Forces Headquarters	Chief of Staff
• 2015	Royal Thai Armed Forces Headquarters	Deputy Chief of Staff
• 2014	Royal Thai Armed Forces Headquarters	Chief of Staff of the Supreme Commander
• 2012	Royal Thai Armed Forces Headquarters	Military commander

Number of companies currently holding the position of a director

- Listed Company (s) 1
- Non-Listed Companies (s) None

Share Holding Percentage as at 31 December 2019

- None

ความสัมพันธ์ทางครอบครัวระหว่างผู้บริหาร

- None



Mr. Tarakorn Angpubate

- Director (Independent Director)
- Chairman of the Risk Management Committee

Age

- 55 Years

Date and month of appointment as Director and Member of the Risk Management Committee

- 20th April 2018 (1 year 8 months) / 20th November 2019 (11 months)

Educational Qualifications

- MBA, Finance and Marketing, Sasin Graduate Institute of Business Administration of Chulalongkorn University
- Bachelor's Degree in Engineering (Computer), Chulalongkorn University

Training

Training in 2019

- -

Training Program

- 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

Working Experience during the Past 5 Years

GUNKUL's Group

- | | | |
|---------------------|------------------------|---|
| • Nov2019 - Present | Gunkul Engineering PCL | Chairman of the Risk Management Committee |
| • 2018 - Nov2019 | Gunkul Engineering PCL | Chairman of the Nomination and Remuneration Committee |
| • 2018 - Present | Gunkul Engineering PCL | Director (Independent Director) |

Other Companies / Entities

- | | | |
|------------------|--------------------------------------|---------------------------------|
| • 2019 - Present | Thai Agro Exchange Company Limited | Chairman of Executive Committee |
| • 2018 - Present | Thai Agro Exchange Company Limited | Director |
| • 2017 - Present | 988 Plus Company Limited | Chief Executive Officer (CEO) |
| • 2016 - 2017 | Food Capitals Public Company Limited | Chief Executive Officer (CEO) |
| • 2013 - 2014 | Government Housing Bank | Director |
| • 2012 - 2013 | Islamic Bank of Thailand | Managing Director |
| • 2011 - 2014 | Airports of Thailand PCL | Director |

Number of companies currently holding the position of a director

- | | |
|----------------------------|------|
| • Listed Company (s) | 1 |
| • Non-Listed Companies (s) | None |

Share Holding Percentage as at 31 December 2019

- 900,039 shares, representing 0.0101 percent of the issued and paid-up capital

Relationship between Management

- None



Mr. Kris Chantanotoke

- Director (Independent Director)

Age

- 44 Years

Date and month of appointment as Director

- 6th November 2019 (2 months)

Educational Qualifications

- Master of Business Administration, Assumption University
- Bachelor of Business Administration, Assumption University

Training

Training in 2019

- -

Training Program

- OIC Advanced Insurance Institute, Class 6, Office of Insurance Commission
- Top Executive Program in Commerce and Trade (TEPCOT 7), Commerce Academy
- Capital Market Academy Leadership Program (CMA 15), Capital Market Academy
- Certificate of Corporate Governance Program For Entrepreneurs in the Capital Market, Thai Institute of Directors Association (IOD)
- Director Certification Program (DCP), Thai Institute of Directors Association (IOD)
- Financial Statements for Directors (FSD), Thai Institute of Directors Association (IOD)
- Six Sigma Black Belt, General Electric Company

Working Experience during the Past 5 Years

GUNKUL's Group

- Nov2019 - Present Gunkul Engineering PCL Director (Independent Director)

Other Companies / Entities

- 2017 - Present AIA Thailand Chief Agency Officer
- 2015 - Present Talis Asset Management Company Limited Independent Director
- 2016- 2017 Thai Life Insurance PCL Senior Executive Vice President
- 2015-2015 Thai Cardif Life Assurance PCL Managing Director
- 2012-2015 Krungsri Securities PCL Director - Authorized Signatory
- 2010-2014 Bank of Ayudhya PCL Executive Vice President

Number of companies currently holding the position of a director

- Listed Company (s) 1
- Non-Listed Companies (s) 1

Share Holding Percentage as at 31 December 2019

- None

Relationship between Management

- None



Miss Sopacha Dhumrongpiyawut

- Director with Authority to sign on behalf of the Company
- Chairman of the Executive Committee / Chief Executive Officer
- Member of Risk Management Committee

Age

- 53 Years

Date and month of appointment as Director, Executive Director and Member of the Risk Management Committee

- 10th August 2009 (10 Years 5 months) / 10th August 2009 (10 Years 5 months) / 10th August 2009 (10 Years 5 months)

Educational Qualifications

- Honorary Doctorate Degree in Philosophy Business Administration Program, Western University
- Bachelor of Nurse, Srinakharinwirot University

Training

Training in 2019

- Corporate Innovation Summit 2019
- Leadership and Coaching Skills #1
- Driving Effective Cultural #2

Training Program

- Rule of Law for Democracy Class 7 (RLD.7), College of the Constitutional Court
- The National Defence Course Class 60, National Defence College
- Advanced Security Management Program: ASMP Class 6/2015, The Association National Defence College of Thailand under the Royal Patronage of His Majesty the King
- Top Executive Program Class 18/2014, Capital Market Academy
- Director Certification Program (DCP) Class 111/2008, Thai Institute of Director (IOD)
- Director Accreditation Program (DAP) Class 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 Program Class 21/2009, Thai Institute of Director (IOD)
- Anti-Corruption Training Course

Working Experience during the Past 5 Years

GUNKUL's Group

- | | | |
|------------------|---|----------|
| • 2019 - Present | Gunkul Infinite Group Company Limited | Director |
| • 2019 - Present | Joint Venture GKE and GPD Company Limited | Director |

• 2018 - Present	Future Electrical Control Company Limited	Director
• 2018 - Present	Solar Energy Society Company Limited	Director
• 2017 - Present	Gunkul Solar Power Company Limited	Director
• 2015 - Present	Korat Wind Energy Company Limited	Director
• 2014 - Present	Gunkul Solar Community Company Limited	Director
• 2013 - Present	NK Power Sola Company Limited	Director
• 2013 - Present	Siam Gunkul Solar Energy Company Limited	Director
• 2013 - Present	WHA Gunkul Green Solar Roof 1 Company Limited	Director
• 2013 - Present	WHA Gunkul Green Solar Roof 3 Company Limited	Director
• 2013 - Present	WHA Gunkul Green Solar Roof 6 Company Limited	Director
• 2013 - Present	WHA Gunkul Green Solar Roof 17 Company Limited	Director
• 2013 - Present	Gunkul Power Development Company Limited	Director
• 2013 - Present	Gunkul Training Center Company Limited	Director
• 2013 - Present	Gunkul Solar Roof 1 Company Limited	Director
• 2013 - Present	Gunkul Solar Power 1 Company Limited	Director
• 2013 - Present	Gunkul Solar Power 2 Company Limited	Director
• 2013 - Present	Gunkul Myanmar Central Power 1 Pte. Ltd.	Director
• 2012 - Present	Gunkul Engineering PCL	Chief Executive Officer / Member of the Risk Management Committee Chairman of the Executive Committee
• 2010 - Present	G-Power Source Company Limited	Director
• 2009 - 2012	Gunkul Chubu Powergen Company Limited	Director
• 2008 - Present	G.K. Assembly Company Limited	Director
• 2008 - Present	Gunkul Engineering PCL	Director
• 2000 - Present	G.K. Power Products Company Limited	Director
• 1998 - 2012	Gunkul Engineering PCL	Managing Director

Other Companies / Entities

• 2017 - Present	Gunkul Group Company Limited	Director
• 2017 - Present	Group of Great Miracle Asset	Director
• 2015 - Present	Happy Green 2558 Company Limited	Director
• 2015 - Present	Entity Sam Company Limited	Director
• 2015 - Present	Siam Future Company Limited	Director
• 2015 - Present	Tech-Green Company Limited	Director
• 2015 - Present	Thong Lo 9 Company Limited	Director
• 2002 - Present	Gunkul Trading and Agency Company Limited	Director

Number of companies currently holding the position of a director

- Listed Company (s) 1
- Non-Listed Companies (s) 42

Share Holding Percentage as at 31 December 2019

- None

Relationship between Management

- Spouse of Mr. Gunkul Dhumrongpiyawut



Dr. Somboon Aueatchasai

- Director with Authority to sign on behalf of the Company
- Executive Director
- Secretary to the Board of Directors
- Managing Director

Age

- 49 Years

Date and month of appointment as Director, Executive Director and Secretary of the Boards of Directors

- 9th June 2010 (9 Years 7 months) / 10th August 2009 (10 Years 5 months) / 10th August 2009 (10 Years 5 months)

Educational Qualifications

- Doctor's Degree, Industrial Business Administration, King Mongkut's Institute of Technology Ladkrabang
- Master Degree in Managerial Accounting, Thammasat University
- Diploma in Auditing, Thammasat University
- Bachelor Degree in Accounting, Rajamangala University of Technology Phra Nakhon
- 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
- ผู้เชี่ยวชาญสาขาบัญชีและบริหารธุรกิจ บัญชีรายชื่อกรรมการรัฐวิสาหกิจ ปี 2562 (ครั้งที่ 2) ลำดับที่ 46

Training

Training in 2019

- Senior Justice Executive Course, Class 24, Judicial Training Institute (Studying)

Training Program

- Thai - Chinese Leadership Studies (TCL), Class 2, Huachiew Chalermprakiet University (Studying)
- Thailand Insurance Leadership Program, Class 8, Office of Insurance Commission
- 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
- Anti-Corruption Training Course
- Top Executive Program (Class 23) 2016, Capital Market Academy, The Stock Exchange of Thailand
- Advanced Security Management Program: Class ASMP 7/ 2015, The Association National Defense College of Thailand under the Royal Patronage of His Majesty the King
- Capital Market Leader Program, Class 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) Class 139/2011, Thai Institute of Director (IOD)
- Director Accreditation Program (DAP) Class 84/2010, Thai Institute of Director (IOD)

Working Experience during the Past 5 Years

GUNKUL's Group		
• 2018 - Present	Future Electrical Control Company Limited	Director
• 2018 - Present	Solar Energy Society Company Limited	Director
• 2016 - Present	Gunkul Infinite Group Company Limited	Director
• 2015 - Present	Outgrow D Company Limited	Director
• 2015 - Present	Eco Thai Energy Company Limited	Director
• 2015 - Present	Infinite Alternative Energy Company Limited	Director
• 2015 - Present	Gio Bio Energy Company Limited	Director
• 2015 - Present	Korat Wind Energy Company Limited	Director
• 2015 - Present	Gunkul Energy Solution and Lighting Company Limited	Director
• 2014 - Present	Gunkul Solar Community Company Limited	Director
• 2013 - Present	NK Power Sola Company Limited	Director
• 2013 - Present	Gunkul Power Development Company Limited	Director
• 2013 - Present	Gunkul Training Center Company Limited	Director
• 2013 - Present	Gunkul Solar Roof 1 Company Limited	Director
• 2012 - Present	Gunkul Engineering PCL	Managing Director
• 2012 - Present	Wind Energy Development Company Limited	Director
• 2011 - Present	G-Power Source Company Limited	Director
• 2010 - Present	Gunkul Engineering PCL	Director
• 2010 - 2012	Gunkul Engineering PCL	Deputy Managing Director
• 2009 - Present	Gunkul Chubu Powergen Company Limited	Director
Other Companies / Entities		
• 2017 - Present	Federation of Accounting Professions	Committee on Taxation Committee
• Present	Tax Auditor Association of Thailand	President
• President	Rajamangala University of Technology Phra Nakhon	President of the Alumni Association
• President	Administration and Management College	Outstanding Alumni (Doctoral Degree)
	King Mongkut's Institute of Technology Ladkrabang	
• President	Rajamangala University of Technology Phra Nakhon	Outstanding Alumni
• 2016 - 2018	National Legislative Assembly Committee	Advisor to the Sub Committee on Alternative Energy Education, (1(8)/2016)
• 2016 - Present	Rajamangala University of Technology Phra Nakhon	Highly Qualified Director of Business Administration Faculty and a Special Instructor, Faculty of Business Administration,
• 2015 - 2017	Renewable Energy and Energy Conservation National Reform Steering Assembly	Advisor to the Sub-Committee on Propagation
• ปี 2558 - ปี 2560	Renewable Energy and Energy Conservation National Reform Steering Assembly	Specialist members of the Council of Propagation
• 2014	Senate	Former Expert Senator of the Senate
• 2014 - Present	The Prachuapkhirkhan Juvenile and Family Court	Lay Judge
• 2557 -2558	National Reform Council	Former Expert of the Member of the National Reform Council

Number of companies currently holding the position of a director

- Listed Company (s) 1
- Non-Listed Companies (s) 17

Share Holding Percentage as at 31 December 2019

- 33,600,000 shares, representing 0.3783 percent of the issued and paid-up capital
- 4,076,799 shares, representing 0.0459 percent of the issued and paid-up capital (spouse)

Relationship between Management

- None



Miss Naruechon Dhumrongpiyawut

- Director with Authority to sign on behalf of the Company
- Executive Director
- Assistant Managing Director, Business Development and Strategic Planning

Age

- 36 Years

Date and month of appointment as Director and Executive Director

- 10th August 2009 (10 Years 5 months) / 10th August 2009 (10 Years 5 months)

Educational Qualifications

- Master of Business Administration, Boston University U.S.A.
- Master of Management, Harvard University U.S.A.
- Bachelor of Engineering, Chulalongkorn University

Training

Training in 2019

- Advanced Master of Management Program Class 3, National Institute of Development Administration
- Corporate Innovation Summit 2019
- Exponential Manufacturing Singularity U Thailand Summit 2019
- Innovation Engineering for sustainable by Chulalongkorn Engineering Alumni
- New Gen Thai - Chinese Leadership Studies (NTCL) Class 1, Huachiew Chalermprakiet University
- Annual Energy Symposium 2019 on Thai Energy Plan under Disruptive Technology

Training Program

- Thailand Energy Program for New Generation Executive Class 4, Thailand Energy Academy
- Financial Advisor License 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

Working Experience during the Past 5 Years

GUNKUL's Group

- | | | |
|------------------|---------------------------------------|----------------------------------|
| • 2019 - Present | Gunkul Infinite Group Company Limited | Director |
| • 2018 - Present | Solar Energy Society Company Limited | Director |
| • 2017 - Present | BMP Solar Company Limited | Director |
| • 2016 - Present | Gunkul Engineering PCL | Senior Vice President, Logistics |

• 2016 - Present	Gunkul Engineering PCL	Assistant Managing Director, Business Development and Strategic Planning
• 2015 - Present	Outgrow D Company Limited	Director
• 2015 - Present	Eco Thai Energy Company Limited	Director
• 2015 - Present	Infinite Alternative Energy Company Limited	Director
• 2015 - Present	Rangngern Solution Company Limited	Director
• 2015 - Present	Gio Bio Energy Company Limited	Director
• 2014 - Present	Gunkul Energy Solution and Lighting Co., Ltd.	Director
• 2014 - Present	Gunkul Solar Community Company Limited	Director
• 2014 - Present	Greenovation Power Company Limited	Director
• 2013 - Present	Gunkul International Investment (Singapore) Pte. Ltd.	Director
• 2013 - Present	Gunkul Myanmar Central Power 1 Co., Ltd.	Director
• 2012 - Present	Wind Energy Development Company Limited	Director
• 2012 - 2017	Gunkul Engineering PCL	Senior Vice President, Strategic Planning and Investment
• 2009 - Present	Gunkul Engineering PCL	Director / Executive Director

Other Companies / Entities

• 2019 - Present	Future Energy Corporation Company Limited	Director
• 2017 - Present	Great Miracle Asset Group	Director
• 2017 - Present	Gunkul Group Company Limited	Director
• 2015 - Present	Happy Green 2558 Company Limited	Director
• 2015 - Present	Entity Sam Company Limited	Director
• 2015 - Present	Siam Future Company Limited	Director
• 2015 - Present	Tech-Green Company Limited	Director
• 2015 - Present	Thong Lo 9 Company Limited	Director
• 2012 - 2017	Kasikorn Securities PCL	Senior Associate
• 2011- 2012	Finansa Securities Company Limited	Assistant Vice President
• 2010 - 2011	Kasikorn Securities PCL	Senior Associate
• 2004 - Present	Noppakun Company Limited	Director

Number of companies currently holding the position of a

- Listed Company (s) 1
- Non-Listed Companies (s) 35

Share Holding Percentage as at 31 December 2019

- 431,193 shares, representing 0.0049 percent of the issued and paid-up capital

Relationship between Management

- Daughter of Mr. Gunkul Dhumrongpiyawut



Mrs. Areewan Chaloemdan

- Director with Authority to sign on behalf of the Company
- Executive Director
- Assistant Managing Director, Production and Distribution of Electrical Equipment

Age

- 50 Years

Date and month of appointment as Director and Executive Director

- 10th August 2009 (10 Years 5 months) / 10th August 2009 (10 Years 5 months)

Educational Qualifications

- Bachelor's Degree in Accounting, Dhurakij Bundit University

Training

Training in 2019

- Budget Management for Senior Executives Class 6, The Bureau of the Budget

Training Program

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

Working Experience during the Past 5 Years

GUNKUL's Group

- | | | |
|------------------|-------------------------------------|---|
| • 2019 - Present | Gunkul Engineering PCL | Assistant Managing Director,
Production and Distribution of Electrical Equipment |
| • 2010 - 2019 | Gunkul Engineering PCL | Senior Vice President, Factory |
| • 2009 - Present | Gunkul Engineering PCL | Director / Executive Director |
| • 2009 - Present | G.K. Assembly Company Limited | Director |
| • 2009 - Present | G.K. Power Products Company Limited | Director |

Number of companies currently holding the position of a director

- Listed Company (s) 1
- Non-Listed Companies (s) 2

Share Holding Percentage as at 31 December 2019

- None

Relationship between Management

- None



Mr. Chaloepon Sricharoen

- Director with Authority to sign on behalf of the Company
- Executive Director
- Vice President, Sales and Marketing

Age

- 50 Years

Date and month of appointment as Director and Executive Director

- 10th August 2009 (10 Years 5 months) / 10th August 2009 (10 Years 5 months)

Educational Qualifications

- Bachelor of Arts, Ramkhamhaeng University

Training

Training in 2019

- Advanced Security Management Program (ASMP) Class 10 The Association National Defence College
- Leadership and Coaching Skills, Class 1
- Corporate Culture
- Driving Effective Cultural, Class 2
- Senior Executive Program and Organizational Change Course

Training Program

- Leadership Succession Program (LPS), Class 8, The Institute of Research and Development for Public Enterprises (IRDP)
- 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
- Advanced Security Management Program (ASMP) Class 10 The Association National Defense College
- 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
- Train the Trainer of Anti-Corruption
- Managing Finance for Business Owners by Peter Ho

Working Experience during the Past 5 Years

GUNKUL's Group

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

Number of companies currently holding the position of a director

- Listed Company (s) 1
- Non-Listed Companies (s) 1

Share Holding Percentage as at 31 December 2019

- None

Relationship between Management

- Brother of Miss Sopacha Dhumrongpiyawut



Pol.Maj.Gen. Visit Sukarasep

- Chairman of the Nomination and Remuneration Committee (Independent Director)

Age

- 64 Years

Date and month of appointment as Member of the Nomination and Remuneration Committee

- 20th February 2019 (10 months)

Educational Qualifications

- Bachelor Degree in Public Administration, Royal Police Cadet Academy

Training

Training in 2019

-

Training Program

- Certificate in Management for High Rank Police Course Class 28
- Certificate in Superintendent Course Class 31
- Certificate in Nomination Committee Best Practice Guideline
- Certificate in Director Accreditation Program (DAP) Class 78/2009, Thai Institute of Director (IOD)

Working Experience during the Past 5 Years

GUNKUL's Group

- | | | |
|--------------------|------------------------|---|
| Nov 2019 - Present | Gunkul Engineering PCL | Chairman of the Nomination and Remuneration Committee |
| 2012 - Apr 2018 | Gunkul Engineering PCL | Chairman of the Nomination and Remuneration Committee |
| 2009 - Apr 2018 | Gunkul Engineering PCL | Member of the Audit Committee |
| 2009 - Apr 2018 | Gunkul Engineering PCL | Director (Independent Director) |

Other Companies / Entities

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

Number of companies currently holding the position of a director

- Listed Company (s) None
- Non-Listed Companies (s) None

Share Holding Percentage as at 31 December 2019

- None

Relationship between Management

- None



Mr. Decha Chooligorn

- Member of the Nomination and Remuneration Committee (Independent Committee)

Age

- 57 Years

Date and month of appointment as Member of the Nomination and Remuneration Committee

- 9th November 2012 (7 Years 2 months)

Educational Qualifications

- MBA Marketing and Finance, Case Western Reserve University, USA Year 1988
- Bachelor Degree of Economics, Thammasat University

Training

Training in 2019

-

Training Program

- 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

Working Experience during the Past 5 Years

กลุ่มบริษัทกัณฑ์กุล		
2012 - Present	Gunkul Engineering PCL	Member of the Nomination and Remuneration Committee
Other Companies / Entities		
2005 - Present	Integrated Management Consultant Co., Ltd.	Managing Director
2003 - 2005	Thai Rung Union Car PCL	Assistant Managing Director
2001 - 2003	Advance Power Supply PCL	Deputy Managing Director

Number of companies currently holding the position of a director

- Listed Company (s) None
- Non-Listed Companies (s) 1

Share Holding Percentage as at 31 December 2019

- None

Relationship between Management

- None



Mr. Hathai Uthai

- Member of the Nomination and Remuneration Committee (Independent Committee)

Age

- 65 Year

Date and month of appointment as a Member of the Nomination and Remuneration Committee

- 12th November 2015 (4 Years 2 months)

Educational Qualifications

- Management of Public and Private Program, National Institute of Development Administration
- Bachelor of Engineering (Mechanical), Khonkaen University
- Bachelor of Laws, Thammasat University

Training

Training in 2019

- -

Training Program

- Certificate in Nomination Committee Best Practice Guideline Course

Working Experience during the Past 5 Years

GUNKUL's Group

- 2015 - Present Gunkul Engineering PCL Member of the Nomination and Remuneration Committee

Other Companies / Entities

- 2014 - 2015 Thai Industrial Standards Institute Secretary-General
- 2013 - 2014 Ministry of Industry Inspector-General
- 2012 - 2013 Ministry of Industry Deputy Director of the Office of Industrial Economics
- 2008 - 2012 Ministry of Industry Deputy Secretary General, Thai Industrial Standards Institute

จำนวนบริษัทที่ดำรงตำแหน่งเป็นกรรมการบริษัทในปัจจุบัน

- Listed Company (s) None
- Non-Listed Companies (s) None

Share Holding Percentage as at 31 December 2019

- None

Relationship between Management

- None



Mr. Phongthep Thitapan

- Member of the Good Corporate Governance Committee (Independent Committee)

Age

- 61 Years

Date and month of appointment as Member of the Good Corporate Governance Committee

- 25th February 2013) (6 Years 10 months)

Educational Qualifications

- Master Degree of Public Administration, National Institute of Development Administration (NIDA)
- Bachelor Degree of Laws, Ramkhamhaeng University

Training

Training in 2019

-

Training Program

- Capital Market Academy Leadership Program 2017, Capital Market Academy
- Senior Justice Executive Course, Class 21/2017
- Senior Budget Administrator, Class 3 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
- 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

Working Experience during the Past 5 Years

GUNKUL's Group		
2013 - Present	Gunkul Engineering PCL	Member of the Good Corporate Governance Committee
Other Companies / Entities		
2019 - 2020	PTT Natural Gas Distribution Co., Ltd.	Director
2015 - Present	DOD Biotech Public Company Limited	Director
2014 - 2017	Totel Industrial Services Co., Ltd.	Director
2010 - 2015	PTT LNG Company Limited	Director

Number of companies currently holding the position of a director

- Listed Company (s) 1
- Non-Listed Companies (s) 1

Share Holding Percentage as at 31 December 2019

- None

Relationship between Management

- None



Mr. Somchai Trairatanapirom

- Member of the Good Corporate Governance Committee (Independent Committee)
- Member of the Risk Management Committee (Independent Committee)

Age

- 59 Years

Date and month of appointment as Director of the Good Corporate Governance Committee and the Risk Management Committee

- 25th February 2013 (6 Years 10 months) / 22th June 2015 (4 Years 6 months)

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

Training

Training in 2019

- Digital Transformation Course, Institute of Research and Development for Public Enterprises (IRDP)
- Digital Marketing Course, Institute of Research and Development for Public Enterprises (IRDP)

Training Program

- Certificate in Advanced Certificate Course in Public Administration and Public Law (PorRorMor 4)
- Certificate in the Program on Management of Technology, the Association for Overseas Technical Scholarship (Scholarship AOTS), Japan
- Certificate in Director Certification Program (DCP 118/2552), Thai Institute of Director (IOD)
- Certificate in Corporate Governance Public Sufficiency Management for Executive, Advanced Course No. 1, the Office of the Public Sector Development Commission

Working Experience during the Past 5 Years

GUNKUL's Group

- | | | |
|------------------|------------------------|---|
| • 2015 - Present | Gunkul Engineering PCL | Member of the Risk Management Committee |
| • 2013 - Present | Gunkul Engineering PCL | Member of the Good Corporate Governance Committee |

Other Companies / Entities

- | | | |
|------------------|---|--|
| • 2013 - Present | Institute of Research and Development for Public Enterprises (IRDP)
Course Director, CEO-Leadership Succession Program (LSP) | Deputy Managing Director |
| • 2012 - Present | Thai Health Promotion Foundation | Sub-Committee, Appraisal of Good Corporate Governance |
| • 1998 - Present | State Enterprise Policy Office
Ministry of Finance | Team Leader/Specialist/Advisor
Performance Appraisal of State Enterprises |

• 2012 - 2013	Enterprises State Enterprise Policy Office Ministry of Finance	Advisor, Performance Controlling along with Appraisal System in quality of State
• 2011 - 2012	International Institute for Trade and Development (Public Organization)	Advisor, Competency Development in KPI and Appraisal Determination
• 2011 - 2012	National Innovation Agency (Public Organization)	Advisor in Risk Management and Internal Audit
• 2011 - 2012	Public Debt Management Office Ministry of Finance	Advisor, Follow-up and Project Appraisal - Development Policy Loan 2012, Area 4 North-East of Thailand
• 2010 - 2012	The Institute for the Promotion of Teaching Science and Technology	Advisory, Risk Management and Internal Audit
• 2010 - 2012	Technology Development Agency (Public Organization)	Advisory, Follow-up and Performance Appraisal of GISTDA Informatics and Space
• 2010 - 2011	Office of The National Broadcasting and Telecommunications Commission (NBTC)	Team Leader, Performance Appraisal of the Nation Telecommunications Commission, 2012 - 2011
• 2010 - 2011	Petroleum Institute of Thailand (PTIP) Energy Policy and Planning office, Ministry of Energy	Advisory, Cost Analysis and NGV Price Determination
• 2009	Agricultural Research Development Agency (ARDA), Ministry of Public Health	Advisor, Competency Appraisal of Personal of Development Individual
• 2009 - 2012	Office of the Attorney General	Advisor, Project of Certificate Issuing and Annual Performance Appraisal for Governor
• 2008 - 2012	Comptroller General's Department (CGD)	Advisory, Performance Appraisal in Working Capital Budget
• 2008 - 2012	Ministry of Energy	Advisory, Performance Appraisal of Ministry of Energy
• 2008 - 2012	Tris Corporation Company Limited (TRIS)	Deputy Managing Director
• 2007 - 2012	The Stock Exchange of Thailand	Advisory, SET Award Project
• 2007 - 2011	Office of the National Anti-Corruption Commission	Subcommittee on Negotiating Agreements and Evaluation of the Annual Official Practice Certification
• 2007 - 2011	Office of the National Anti-Corruption Commission	Advisor to organize the Capacity Building Seminar
• 2007 - 2011	Office of the National Anti-Corruption Commission	Project Advisor to improve the assessment of efficiency and effectiveness
• 2003 - 2012	Office of the Public Sector Development Commission	Chief of the consulting team for the preparation of government official / provincial / public organization certification
• 2000 - 2012	The Institute for the Promotion of Teaching Science and Technology	Team Leader, Performance Evaluation Advisor
• 2000 - 2005	SEC and SET	Advisor to the Corporate Governance Rating Program
• 1999 - 2008	Tris Corporation Company Limited (TRIS)	Senior Vice President

Number of companies currently holding the position of a director

- Listed Company (s) None
- Non-Listed Companies (s) None

Share Holding Percentage as at 31 December 2019

- None

Relationship between Management

- None



Dr. Phongsakorn Damnoen

- Deputy Managing Director, Business Development & Strategic Planning

Age

- 42 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

Training

Training

- Thai - Chinese Leadership Studies (TCL3) Class 3, Huachiew Chalermprakiet University (Studying)

Training Program

- 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 (IRDP)
- Director Certification Program (DCP) 149/2011, Thai Institute of Director (IOD)
- Anti-Corruption Training Course
- Ultra Wealth, Class 4 (UW4), The Ultra Wealth Group Company Limited

Working Experience during the Past 5 Years

GUNKUL's Group

- | | | |
|------------------|-----------------------------------|--|
| • 2019 - Present | Joint Venture GKE & GPD Co., Ltd. | Director |
| • 2018 - Present | Solar Energy Society Co., Ltd. | Director |
| • 2017 - Present | BMP Solar Co., Ltd. | Director |
| • 2017 - Present | Gunkul Solar Power Co., Ltd. | Director |
| • 2016 - Present | Gunkul Infinite Group Co., Ltd. | Director |
| • 2016 - Present | Gunkul Engineering PCL | Deputy Managing Director,
Business Development & Strategic Planning |
| • 2015 - Present | ECO Thai Energy Co., Ltd. | Director |
| • 2015 - Present | Rangngern Solution Co., Ltd. | Director |
| • 2015 - Present | Gio Bio Energy Co., Ltd. | Director |
| • 2015 - Present | Gunkul Solar Power 1 Co., Ltd. | Director |

• 2015 - Present	Bright Green Power Co., Ltd.	Director
• 2015 - Present	Korat Wind Energy Co., Ltd.	Director
• 2015 - Present	Outgrow D Co., Ltd.	Director
• 2014 - Present	Greenovation Power Co., Ltd.	Director
• 2014 - 2015	Gunkul Engineering PCL	Assistant Managing Director Business Development & Strategic Planning
• 2013 - Present	Siam Gunkul Solar Energy Co., Ltd.	Director
• 2013 - Present	NK Power Sola Co., Ltd.	Director
• 2013 - Present	Gunkul Myanmar Central Power 1 Pte. Ltd.	Director
• 2012 - Present	Wind Energy Development Co., Ltd.	Director
• 2010 - 2014	Gunkul Engineering PCL	Senior Vice President, Business Development and Special Project
• 2010- 2012	G-Power Source Co., Ltd.	Director
• 2009 - ปัจจุบัน	Gunkul Chubu Powergen Co., Ltd.	Director

Number of companies currently holding the position of a director

- Listed Company (s) None
- Non-Listed Companies (s) 19

Share Holding Percentage as at 31 December 2019

- 38,174,073 shares, representing 0.4298 percent of the issued and paid-up capital
- 336,000 shares, representing 0.0038 percent of the issued and paid-up capital (spouse)

Relationship between Management

- None



Mr. Chaisiri Wattanacharnnarong

- Assistant Managing Director, Project Construction Management

Age

- 44 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

Training

Training in 2019

- Certificate in Director Accreditation Program, Class 159/2019, Thai Institute of Directors: IOD
- Negotiate Like PRO 2562 Course
- Certificate in Leadership Succession Program (LSP), Class 10, Institute of Research and Development for Public Enterprises
- Certificate in Public Administration and Law for Executives Program, Class 19, King Prajadhipok's Institute
- Leadership and Coaching Skills Course, Class 1
- Corporate Culture Course
- Driving Effective Cultural Course, Class 2
- Senior Executive Program and Organizational Change Course

Working Experience during the Past 5 Years

GUNKUL's Group

- | | | |
|------------------|-------------------------------------|--|
| • 2018 - Present | Gunkul Engineering PCL | Assistant Managing Director, Project Construction Management |
| • 2017 - 2018 | Gunkul Engineering PCL | Senior Vice President, Project Construction Management |
| • 2013 - Present | Future Electrical Control Co., Ltd. | Director |

Number of companies currently holding the position of a director

- Listed Company (s) None
- Non-Listed Companies (s) 1

Share Holding Percentage as at 31 December 2019

- None

Relationship between Managements

- None



Mr. Theerapab Punyasakhon

- Assistant Managing Director, Office of Managing Director

Age

- 46 Years

Educational Qualifications

- LLM, 1999, University of Illinois at Urbana-Champaign
- LLB, 1995, Thammasat University
- Admitted to the Thai Bar Association
- Admitted to Law Society of Thailand

Training

Training in 2019

- Exclusive Talk with Singapore International Arbitration Centre (SIAC)

Working Experience during the Past 5 Years

GUNKUL's Group

- | | | |
|----------------------|---------------------------------|--|
| • Oct 2019 - Present | Gunkul Engineering PCL | Assistant Managing Director, Office of Managing Director |
| • 2019 - Present | Gunkul Infinite Group Co., Ltd. | Director |

Other Companies / Entities

- | | | |
|---------------|----------------|---------|
| • 2011 - 2019 | Baker McKenzie | Partner |
|---------------|----------------|---------|

Number of companies currently holding the position of a director

- | | |
|----------------------------|------|
| • Listed Company (s) | None |
| • Non-Listed Companies (s) | 1 |

Share Holding Percentage as at 31 December 2019

- None

ความสัมพันธ์ทางครอบครัวระหว่างผู้บริหาร

- None



Mrs. Somluk Kanuenghet

- Member of the Nomination and Remuneration Committee
- Secretary of the Nomination and Remuneration Committee
- Senior Vice President, Executive Office

Age

- 54 Year

Date and month of appointment as a Director and Secretary of the Nomination and Remuneration Committee

- 10th August 2009 (10 Years 5 months) / 10th August 2009 (10 Years 5 months)

Educational Qualifications

- Bachelor Degree of Arts, Srinakharinwirot University

Training

Training in 2019

- Leadership and Coaching Skills Course, Class 2
- Driving Effective Cultural Course, Class 1
- Negotiate Like PRO Course
- Fundamentals of Business Sustainability, Class 2
- Capital Market Research Forum Course No. 5/2562
- Business Management Program for Sustainable Development in 2019
- Sustainability Reporting Workshop : GRI Standards
- Business and Human Rights Course
- Employee Benefits Assessment Program in accordance with Accounting Standard No. 19

Training Program

- Effective Senior Manager Course
- Performance Appraisal by Balance Score Card Course
- Career Planning & Development & Succession 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

Working Experience during the Past 5 Years

GUNKUL's Group

• 2017 - Present	Gunkul Training Center Co., Ltd.	Director
• 2016 - Present	Gunkul Engineering PCL	Senior Vice President, Executive Office
• 2016 - Present	G.K. Power Product Co., Ltd.	Director
• 2016 - Present	G.K. Assembly Co., Ltd	Director
• 2009 - Present	Gunkul Engineering PCL	Member of the Nomination and Remuneration Committee
• 2009 - Present	Gunkul Engineering PCL	Secretary of the Nomination and Remuneration Committee

Number of companies currently holding the position of a director

- Listed Company (s) None
- Non-Listed Companies (s) 3

Share Holding Percentage as at 31 December 2019

- None

Relationship between Management

- None



Mr. Thamrong Chankraithong

- Senior Vice President, Sales and Marketing

Age

- 48 Year

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

Training

Training in 2019

- Budgeting for Executive, Class 2, Budget of Bureau
- Leadership and Coaching Skills Course, Class 1
- Corporate Culture
- Driving Effective Cultural Course, Class 2
- Senior Executive Program and Organizational Change Course

Training Program

- 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 Equipment, by TEMA, Italy
- Meter Training Program, by General Electric Co., USA
- Meter Testing Equipment, by ZERA Electric, Germany
- Energy Conservation for Factory
- Business Opportunities in Marketing Energy Efficiency
- Train the Trainer of Anti-Corruption

Working Experience during the Past 5 Years

GUNKUL's Group

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

Number of companies currently holding the position of a director

- | | |
|----------------------------|------|
| • Listed Company (s) | None |
| • Non-Listed Companies (s) | 1 |

Share Holding Percentage as at 31 December 2019

- None

Relationship between Management

- None



Dr. Phairot Phanukan

- Senior Vice President, Project Construction Management & Operating Maintenance

Age

- 52 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

Training

Training in 2019

- Certificate in Director Accreditation Program, Class 159/2019, Thai Institute of Directors: IOD
- Leadership and Coaching Skills Course, Class 2
- Driving Effective Cultural Course, Class 2
- Senior Executive Program and Organizational Change Course
- Negotiate Like PRO Course

Training Program

- Train the Trainer of Anti-Corruption

Working Experience during the Past 5 Years

GUNKUL's Group

- | | | |
|--------------------------|------------------------|--|
| • 2015 - Present | Gunkul Engineering PCL | Senior Vice President,
Project Management and Operating & Maintenance |
| • April 2019 - Nov. 2019 | Gunkul Engineering PCL | Director |

Other Companies / Entities

- | | | |
|---------------|------------------------------|--|
| • 2010 - 2014 | Schneider (Thailand) Limited | Senior Manager-Renewable Energies, Solution Center |
|---------------|------------------------------|--|

Number of companies currently holding the position of a director

- | | |
|----------------------------|------|
| • Listed Company (s) | None |
| • Non-Listed Companies (s) | None |

Share Holding Percentage as at 31 December 2019

- None

Relationship between Management

- None



Mr. Thitipong Techaratanayuenyong

- Member of the Risk Management Committee
- Secretary of the Risk Management Committee
- Senior Vice President, Finance & Corporate Strategic Management

Age

- 44 Years

Date and month of appointment as Member and Secretary of the Risk Management Committee

- 12th November 2014 (5 Years 2 months) / 12th November 2014 (5 Years 2 months)

Educational Qualifications

- Master Degree of Business Administration (MBA), Sasun 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

Training

Training in 2019

- Public Economic Management for High Executives Program" by King Prajadhipok's Institute, Class 18
- Strategic CFO in Capital Markets Program by Stock Exchange of Thailand, Class 1
- Business Leader Program by Dr. Noel M. Tichy from University of Michigan (Ross School of Business)
- International Financial Reporting Standards (IFRS) No.9
- International Financial Reporting Standards (IFRS) No.15-16
- Good & Smart Team Management Program
- Bond Regulatory Updates 2018 by ThaiBMA
- Leadership and Coaching Skills, Class 1
- Driving Effective Cultural Change, Class 2
- Driving Effective Culture Change Program
- Negotiation like Professional

Training Program

- 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

Working Experience during the Past 5 Years

GUNKUL's Group		
• 2019 - Present	Gunkul Engineering PCL	Senior Vice President Finance & Corporate Strategic Management Member of the Risk Management Committee / Secretary of the Risk Management Committee
• 2014 - 2019	Gunkul Engineering PCL	Senior Vice President, Financial Management and Controlling Foreign Affairs / Chief Financial Officer
• 2014 - 2019	Gunkul Engineering PCL	
Other Companies / Entities		
• 2008 - 2013	Charoen Pokphand Foods PCL	Assistant Vice President, Office of Chief Financial Officer

Number of companies currently holding the position of a director

- Listed Company (s) None
- Non-Listed Companies (s) None

Share Holding Percentage as at 31 December 2019

- None

Relationship between Management

- None



Ms. Wimol Kamjornviputh

- Chief Financial Officer

Age

- 45 Years

Educational Qualifications

- Cambridge Senior Management Programme, University of Cambridge (Judge Business School) United Kingdom
- Master of Management, Major in Finance (Top 1st of the class), Mahidol University
- Bachelor of Accountancy, Major in Accounting & Information Systems, Chulalongkorn University
- Certified Public Accountant, CPA Thailand
- ASEAN Chartered Professional Accountant)

Training

Training in 2019

- Situational Leadership II workshop, KenBlanchard SEAC
- The 7 Habits of Highly Effective People, FranklinCovey by PacRim Group

Training Program

- Certificate in English, University of New Hampshire USA
- Certificate in Extraordinary Leader Program, Rogensi Singapore
- SAP user Training, Louisville Kentucky USA
- Certificate of Business Planning and Analysis Academy, Novartis Sandoz Germany
- Certificate of Finance Team Event - Drilling & Measurement and Well Testing, GBS Corporate Training USA, and France, respectively
- Certificate of Finance Segment Specific - Drilling & Measurement, Schlumberger Texas USA
- Certificate of Finance Segment Specific - Well Testing Services, Schlumberger Paris France
- Certificate of Finance PTS Segment Finance Training, Schlumberger Texas USA

Working Experience during the Past 5 Years

GUNKUL's Group		
• 2019 - Present	GUNKUL Engineering PCL	Chief Financial Officer
Other Companies / Entities		
• 2018 - 2019	Nanyang Textile Group of Company (Thailand, Laos and Vietnam)	Vice President of Financial Controller
• 2017 - 2017	CBRE (Thailand) Co., Ltd.	Associate Director, Global Workplace Solution Finance Thailand and Vietnam
• 2015 - 2017	CBRE (Thailand) Co., Ltd.	Finance Controller, Corporate Finance
• 2012 - 2015	Schlumberger Overseas S.A.	Operations Controller Thailand, Myanmar and Vietnam
• 2014 - 2014	Schlumberger Overseas S.A.	Internal Auditor, Mumbai India

Number of companies currently holding the position of a director

- Listed Company (s) None
- Non-Listed Company (s) None

Share Holding Percentage as at 31 December 2019

- None

Relationship between Management

- None



Mrs. Nattawan Wongchan

- Senior Vice President, Business Support
(Finance, Information Technology, Property)

Age

- 51 Years

Educational Qualifications

- Master Degree of Business Administration, Kasetsart University
- Bachelor Degree of Finance and Banking, Major in Finance Ramkhumharng University
- Diploma Program in Taxation, University of the Thai Chamber of Commerce

Training

Training in 2019

- Leadership and Coaching Skills Course, Class 1
- Corporate Culture Course
- Driving Effective Cultural Course, Class 2
- Senior Executive Program and Organizational Change Course
- Negotiate Like PRO

Training Program

- Train the Trainer of Anti-Corruption

Working Experience during the Past 5 Years

GUNKUL's Group

- | | | |
|------------------|------------------------|---|
| • 2016 - Present | Gunkul Engineering PCL | Senior Vice President, Business Support,
(Finance, Information Technology, Property) |
| • 2014 - 2016 | Gunkul Engineering PCL | Assistant Vice President, Business Support |

Number of companies currently holding the position of a director

- | | |
|----------------------------|------|
| • Listed Company (s) | None |
| • Non-Listed Companies (s) | None |

Share Holding Percentage as at 31 December 2019

- None

Relationship between Managements

- None



Miss Suttirat Tangnorakul

- Senior Vice President, Business Support (Accounting)

Age

- 46 Years

Educational Qualifications

- Master Degree of Business Administration, Major in Accounting, Ramkhamhaeng University
- Bachelor Degree of Business Administration, Major in Accounting, Ramkhamhaeng University

Training

Training in 2019

- Accounting Standard Update 2019
- Tax Law Update 2019
- Follow up to the financial reporting standard no. 15 (Revenue from Contracts with Customers)
- Leadership and Coaching Skills Course, Class 1
- Corporate Culture Program
- Driving Effective Cultural Course, Class 2
- Senior Executive Program and Organizational Change Course
- Negotiate Like PRO Course
- Transfer Pricing 2019 Course, transfer pricing between related companies

Training Program

- Tax Advisor Region 1 Course, Revenue Code, Gen. 5 (2018)
- Mini MBA I Taxation (Major in General Business), School of Tax
- Financial Model 1 - Fundamentals of Finance, Class 2
- Modern Accountants Program Class 13, Faculty of Commerce and Accountancy, Chulalongkorn University
- Specialist Tax Law Practice Course 2015
- Train the Trainer of Anti-Corruption

Working Experience during the Past 5 Years

GUNKUL's Group

- | | | |
|------------------|----------------------------------|---|
| • 2019 - Present | Gunkul Engineering PCL | Senior Vice President, Business Support (Accounting) |
| • 2017 - Present | Gunkul Training Center Co., Ltd. | Director |
| • 2016 - 2017 | Gunkul Engineering PCL | Assistant Vice President, Business Support (Accounting) |

Number of companies currently holding the position of a director

- Listed Company (s) None
- Non-Listed Companies (s) 1

Share Holding Percentage as at 31 December 2019

- None

Relationship between Managements

- None



Mr. Janpon Ngamaroonchote

- Senior Vice President, Sales & Marketing-Energy Solution, Lighting and Groof

Age

- 36 Years

Educational Qualifications

- Master Degree of MBA, Major in General, Suffolk University, Boston U.S.A.
- Bachelor of Science, Major in Statistics, Kasetsart University

Training

Training in 2019

- Leadership and Coaching Skills Course, Class 1
- Driving Effective Cultural Course, Class 2
- Senior Executive Program and Organizational Change Course
- Negotiate Like PRO Course
- Thai Energy Plan under the Disruptive Technology Program

Training Program

- Train the Trainer of Anti-Corruption

Working Experience during the Past 5 Years

GUNKUL's Group

• 2019 - Present	Gunkul Engineering PCL	Senior Vice President, Sales & Marketing-Energy Solution, Lighting and Groof
• 2015 - Present	Gunkul International (Mauritius)	Director
• 2014 - Present	Greenovation Power Co., Ltd.	Director
• 2014 - Present	Gunkul Engineering PCL	Vice President, Strategic Planning and Investment
• 2013 - Present	Solar Energy Society Co., Ltd.	Director
• 2013 - Present	NK Power Solar Co., Ltd.	Director
• 2010 - 2013	Gunkul Engineering PCL	Manager, Office of Managing Director

Number of companies currently holding the position of a director

- Listed Company (s) None
- Non-Listed Companies (s) 4

Share Holding Percentage as at 31 December 2019

- None

Relationship between Managements

- None



Miss Chantira Jongjamareeseethong

- Company Secretary
- Secretary of the Good Corporate Governance Committee
- Senior Vice President, Office of Managing Director

Age

- 52 Years

Date and month of appointment as Company Secretary and Secretary of the Good Corporate Governance Committee

- 10th August 2009 (10 Years 5 months) / 25th February 2013 (6 Years 10 month)

Educational Qualifications

- Master Degree of Business Administration, Major in Accounting, Ramkhamhaeng University
- Bachelor Degree of Business Administration, Major in Accounting, Siam University
- Bachelor Degree of Arts, Major in Linguistics, Thammasart University

Training

Training in 2019

- Follow up to the financial reporting standard no. 15 (Revenue from Contracts with Customers)
- Leadership and Coaching Skills Course, Class 1
- Corporate Culture Program
- Driving Effective Cultural Course, Class 2
- Senior Executive Program and Organizational Change Course
- Negotiate Like PRO Course
- Withholding Tax and Update Tax Law 2019 Course
- Accounting for Financial Instruments
- The Updated Land and Buildings Tax Act

Training Program

- 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

Working Experience during the Past 5 Years

GUNKUL's Group

- | | | |
|------------------|------------------------|--|
| • 019 - Present | Gunkul Engineering PCL | Senior Vice President, Office of Managing Director |
| • 2013 - Present | Gunkul Engineering PCL | Secretary of the Good Corporate Governance Committee |
| • 2009 - Present | Gunkul Engineering PCL | Company Secretary |

Number of companies currently holding the position of a director

- Listed Company (s) None
- Non-Listed Companies (s) None

Share Holding Percentage as at 31 December 2019

- None

Relationship between Managements

- None



Mr. Tanetsiri Farkmitr

- Secretary of the Audit Committee
- Vice President, Internal Audit

Age

- 43 Years

Date and month of appointment as Secretary of the Audit Committee

- 20th October 2016 (3 Years 2 months)

Educational Qualifications

- Master Degree of Accounting, Thammasat University
- Bachelor Degree of Accounting, Thammasat University
- Certified Public Accountant, CPA (Thailand)

Training

Training in 2019

- Auditor Challenges with AI and Block Chain Technology Course
- Leadership and Coaching Skills Course, Class 1
- Corporate Culture Program
- Driving Effective Cultural Course, Class 2
- Senior Executive Program and Organizational Change Course
- Preparation Course for IT Examination No. 2/2019
- Negotiate Like PRO Course

Training Program

- Train the Trainer of Anti-Corruption

Working Experience during the Past 5 Years

GUNKUL's Group

- | | | |
|------------------|------------------------|---|
| • 2019 - Present | Gunkul Engineering PCL | Vice President, Internal Audit |
| • 2016 - Present | Gunkul Engineering PCL | Secretary of the Audit Committee |
| • 2016 - 2019 | Gunkul Engineering PCL | Assistant Vice Director, Internal Audit |

Other Companies / Entities

- | | | |
|---------------|-------------------|--|
| • 2015 - 2016 | Tipco Asphalt PCL | Group Manager, Internal Audit, |
| • 2014 - 2015 | Banpu PCL | Manager, Technology and Information Systems Internal Audit |

Number of companies currently holding the position of a director

- | | |
|----------------------------|------|
| • Listed Company (s) | None |
| • Non-Listed Companies (s) | None |

Share Holding Percentage as at 31 December 2019

- None

Relationship between Managements

- None

21.2 Details Position Titles of Directors in Subsidiary Companies

Name	Subsidiary Companies (Direct and Indirect)																																															
	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	45			
	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.	Rang Ngern Solution Co., Ltd.	Glo 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 Infinite Group Co., Ltd.	BMP Solar Co., Ltd.	Gunkul Solar Power Co., Ltd.	Gunkul Solar Power 6 Co., Ltd.	Future Electrical Control Co., Ltd.	GKE & GPD Joint Venture Co., Ltd.	Gunkul International (Mauritius)	Gunkul Investment (Singapore) Pte. Ltd.	Gunkul International Investment (Singapore) 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	Ms. Sopacha Dhumrongpiyawut																																														
	2	Dr. Somboon Aueatchasai																																														
	3	Dr. Phongsakorn Damnoen																																														
	4	Ms. Naruechon Dhumrongpiyawut																																														
	5	Mrs. Areewan Chalodman																																														
	6	Mr. Chaloepon Srithaloen																																														
	7	Mrs. Somluk Kanuenghet																																														
	8	Mr. Thamrong Chanikraithong																																														
	9	Mr. Janpon Ngamaroonchote																																														
	10	Ms. Vijitra Saengpredekorn																																														
	11	Ms. Suttirat Tangnorakul																																														
	12	Mr. Trdti Boonyayone																																														
	13	Mr. Krisanapan Pboonwatanakit ¹⁾																																														
	14	Mr. Chaisiri Wattanachannarong																																														
15	Mr. Theerapab Punyasakorn																																															

Remark 1 Director

¹⁾ Registration of liquidation: 29 May 2019

⁵⁾ Registration of liquidation: 14 June 2019

⁶⁾ Registration of liquidation: 12 December 2018

¹²⁾ Original Name: Gunkul Mynamar Power (Hlawga) Pte. Ltd.

^{2/3/4/7/9)}

⁸⁾ Registration of liquidation: 18 July 2018

¹⁰⁾ Registration of liquidation: 26 July 2018

¹¹⁾ Registration of liquidation: 6 July 2018

¹³⁾ Company dissolution: 4 June 2018

Original Name: Gunkul Bio Energy Co., Ltd., Director Change

21.3 Details Position Titles of Directors and Managements of Gunkul Engineering Public Company Limited

Nmae		Joint Ventures															Related Companies																					
		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	
1	Dr. Gunkul Dhumrongpiyawut																																					
2	Dr. Djitt Laowattana																																					
3	Dr. Chongrak Rarueysong																																					
4	Associate Professor Dr. Panarat Panmanee																																					
5	Gen. Tarnchaiyan Srisuwan ⁽¹⁾																																					
6	Mr. Tarakorn Angpubate																																					
7	Mr. Kris Chantanotoke ⁽¹⁾																																					
8	Ms. Sopacha Dhumrongpiyawut																																					
9	Dr. Somboon Aueatchasai																																					
10	Ms. Naruechon Dhumrongpiyawut																																					
11	Mrs. Areewan Chalermdan																																					
12	Mr. Chaloepon Srichaloen																																					
13	Pol. Maj. Gen. Visit Sukrasep ⁽¹⁾																																					
14	Mr. Decha Chooligom																																					
15	Mr. Hathai Uthai																																					
16	Mr. Phongthep Thitapan																																					
17	Mr. Somchai Trairatanirom																																					
18	AVM. Dr. Pian Totarong ⁽²⁾																																					
19	Dr. Phongsakorn Damnoen																																					
20	Mr. Chaisiri Wattanachannarong																																					
21	Mr. Theerapab Punyasahkon ⁽¹⁾																																					
22	Mrs. Somluk Kanuenghet																																					
23	Mr. Thamrong Chankraithong																																					
24	Mr. Thiitipong Techaratanayuenyong																																					
25	Dr. Phairot Phanukan ⁽²⁾																																					
26	Ms. Wimol Kamjornviputh ⁽¹⁾																																					
27	Mrs. Nattawan Wongchan																																					
28	Mr. Janpon Ngamaroonchote																																					
29	Ms. Chanira Jongjamaareeseethong																																					
30	Ms. Suttirat Tangnorakul																																					
31	Mr. Tanetsiri Farkmitr																																					

¹⁾ Chairman of the Board of Directors
²⁾ Director

³⁾ Independent Director

⁴⁾ Chairman of the Audit Committee

⁵⁾ Audit Committee

⁶⁾ Chairman of the Other Sub-Committee

⁷⁾ Other Sub-Committee

⁸⁾ Chairman of Executive Committee

⁹⁾ Executive Committee

¹⁰⁾ Chief Executive Officer (CEO)

¹¹⁾ Chief Financial Officer (CFO)

¹²⁾ Executive

¹³⁾ Secretary of the Board of Directors

¹⁴⁾ Company Secretary

¹⁵⁾ Secretary of the Audit Committee

¹⁶⁾ Secretary of the Other Sub-Committee

⁽¹⁾ Appointed as a director or sub-committee member during the year / or holding executive positions during the year

⁽²⁾ Board of Directors or Sub-committees: Complete term during the year / Resign during the year

⁽³⁾ Complete liquidation in 2017

⁽⁴⁾ Complete liquidation in 2018

⁽⁵⁾ Complete liquidation in 2019

⁽⁶⁾ Original Name: Gunkul Mynamar Power (Hawga) Plc. Ltd.

⁽⁷⁾ Original Name: Gunkul Bio Energy Co.,Ltd., Director Change

⁽⁸⁾ Sold all shares to another company in December 2019

Corporate Governance

Good Corporate Governance Policy

(Citation to Good Corporate Governance Policy, Revised Version dated on November 6, 2019 and February 25, 2020)

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 and was last reviewed in the Board of Directors Meeting No. 5/2019 on November 6, 2019 and 1/2020 on February 25, 2020. 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 2019, the Company held general shareholders' meeting for the year 2019 dated on April 18, 2019, at Grand Ballroom, 3rd Floor, the Emerald Hotel, 99/1 Ratchadapisek Road, 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 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 the Audit Committee's e-mail : audit_committee@gunkul.com
- Via the Company's website : www.gunkul.com, click at "complaint channel"
- Via mail : Chairman of the Audit Committee

Gunkul Engineering Public Company Limited
 1177 Pearl Bangkok Building Fl.8
 Phahonyothin Road, Phayathai, Phayathai, Bangkok 10400

Via complaint box : “Whistle Blowing and Corruption Complaint” box

(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.)

3) Anti-corruption Policy and report clues or complaints

(Refer to the Anti-Corruption Policy and a clue or complaint: Revised version date on November 6, 2019 and February 25, 2020)

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
- 2) Submit via the Company's website : www.gunkul.com, click at "complaint channel"
- 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 No.1/2020 held on February 25, 2020, the Secretary to the Audit Committee and the Audit Committee informed the meeting of the results of the complaint regarding corruption in 2019 by summarized as follows;

Channel of fraud complaints	The follow-up of fraud complaints for the year 2018															
	2019														2020	
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB		
	15 31	15 28	15 31	15 30	15 31	15 30	15 31	15 31	15 30	15 31	15 30	15 31	15 31	15 28		
Complaints via Email	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
Complaints via letter.	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Complaints through the complaint box																
- Pearl Bangkok Building Office	x	x	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
- GKA & GKP Office	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	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

Website: www.gunkul.com

In 2019, 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 2019, 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 15 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 both in Thai and English so all stakeholders can participate. If interested, you can contact investor relations department at telephone no. 0-2242-5876, 0-2242-5867 and 0-2242-5868 or e-mail 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, 2019, the Board of Directors consisted of 12 members, consisting of 5 directors, 7 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 6 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, 2019, 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, 2019, 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, 2019, 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) Good 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, 2019, 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, 2019, 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 2019, 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 2019 is as follows:

Meeting type	Number of meetings
1) 2018 Annual General Meeting of Shareholders	1 Time
2) Extraordinary General Meeting of Shareholders	- Time
3) Board of Directors Meeting	7 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	5 Times
8) Nomination and Remuneration Committee Meeting	2 Times
9) Good Corporate Governance Committee Meeting	5 Times
10) Executive Board Meetings	45 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

In order to be in accordance with the duties, responsibilities and performance of the committees; therefore, the composition of committees' remuneration are divided into 2 parts which are Meeting attendance fee and Quarterly remuneration.

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 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) and Managing Director

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 Chief Executive Officer (CEO) and Managing Director 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 Chief Executive Officer (CEO) and Managing Director

The Board of Directors has the policy for the Board of Directors to evaluate the performance of the Chief Executive Officer (CEO) and Managing Director.

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 Chief Executive Officer (CEO) and Managing Director will be reviewed by the Board of Directors every year. In 2019 The Board of Directors and the Sub-committees determine the process and criteria for self-assessment and for the Chief Executive Officer (CEO) and Managing Director 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 Chief Executive Officer (CEO) and Managing Director is as follows:

Process of Self-Assessment of the Board of Directors and Sub-committees and the Chief Executive Officer (CEO) and Managing Director

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 as a group appraisal. In addition, the form of performance appraisal of the Chief Executive Officer (CEO) which is the top management of the organization and Managing Director, which is set out once a year in order to be used as a framework for assessing duties that have been implemented in accordance with policies and / or best practices As well as used as a tool to review and improve operations during the past year.
2. The Board of Directors shall approve and review the performance evaluation form of their committee along with the performance evaluation form of the Chief Executive Officer (CEO) and Managing Director including the sub-committees to approve and review the self-evaluation form of their own in order to be accurate, complete, and in accordance with the rules prescribed by the regulatory agencies.
3. The Company Secretary submits the self-assessment form of the board of directors and the performance evaluation of the Chief Executive Officer (CEO) and Managing Director to the directors; as well as, the secretaries of the sub-committees submitting their self-assessment form within December of every year.
4. The Board of Directors conducts the self-assessment form of the Board of Directors and the performance evaluation form of the Chief Executive Officer (CEO) and Managing Director and return to the company secretary, including the committees of the sub-committees conduct self-assessment and return to the secretaries of the sub-committees within January of every year.
5. The Company Secretary / sub-committees secretaries summarizes the evaluation results and brings them into the agenda of the board of directors' meeting to analyze the evaluation results of the board, sub-committees and Chief Executive Officer (CEO) and Managing Director 's performance.
6. The Secretary to the Board of Directors / Secretaries to the Sub-Committees take additional analysis and comments from the Board of Directors to make a plan for improvement.

Criteria for Self-Assessment and Performance Evaluation

The criteria used in the performance appraisal of the Board of Directors, the sub-committees and the Chief Executive Officer (CEO) and Managing Director is as follows:

Self-Assessment form of the Board of Directors		Self-Assessment Form of the Audit Committee	
Evaluation content	Number of items	Evaluation content	Number of items
<u>Group</u>		<u>Group</u>	
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. The Meeting of Audit Committee	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		
Total	64	Total	28
<u>Individually</u>			
1. Structure and Qualifications of the Board of Directors	2		
2. Board of Directors' Meetings	4		
3. Roles and Responsibilities of the Board	5		
Total	11		

Self-Assessment form of the Risk Committee		Self-Assessment form of the Nomination and Remuneration Committee	
Evaluation content	Number of items	Evaluation content	Number of items
<u>Group</u>		<u>Group</u>	
1. Structure and Qualifications of the Risk Management Committee	7	1. Structure and Qualifications of the Nomination and Remuneration Committee	7
2. The Meeting of Risk Management Committee	6	2. The Meeting of Nominating and Remuneration Committee	6
3. Roles and Responsibilities of the Risk Management Committee	6	3. Roles and Responsibilities of the Nomination and Remuneration Committee	7
Total	19	Total	20

Self-assessment form of the Good Corporate Governance Committee		Self-assessment form of the Executive Committee	
Evaluation content	Number of items	Evaluation content	Number of items
<u>Group</u>		<u>Group</u>	
1. Structure and Qualifications of the Good Corporate Governance Committee	7	1. Structure and Qualifications of the Executive Committee	7
2. The Meeting of Good Corporate Governance Committee	6	2. The Meeting of Executive Committee	6
3. Roles and Responsibilities of the Good Corporate Governance Committee	5	3. Roles and Responsibilities of the Executive Committee	6
Total	18	Total	19

Assessment form of the Chief Executive Officer (CEO)		Assessment form of the Managing Director	
Evaluation content	Number of items	Evaluation content	Number of items
<u>Section 1: Progress of the Plan</u> Specify goals and status		<u>Section 1: Progress of the Plan</u> Specify goals and status	
<u>Section 2: Performance Measurement</u>		<u>Section 2: Performance Measurement</u>	
2.1 Leadership	6	2.1 Leadership	6
2.2 Strategic Planning	6	2.2 Strategic Planning	6
2.3 Compliance Strategy	6	2.3 Compliance Strategy	6
2.4 Planning and Financial Performance	6	2.4 Planning and Financial Performance	6
2.5 Relationships with the Board	6	2.5 Relationships with the Board	6
2.6 External Relations	5	2.6 External Relations	5
2.7 Administration and relations with personnel	6	2.7 Administration and relations with personnel	6
2.8 Succession	3	2.8 Succession	3
2.9 Product and service knowledge	4	2.9 Product and service knowledge	4
2.10 Private feature	6	2.10 Private feature	6
Total	54	Total	54
<u>Section 3: Development of the CEO</u> Specify comment		<u>Section 3: Development of Managing Director</u> Specify comment	
3.1 The strengths that the CEO should maintain		3.1 The strengths that the MD should maintain	
3.2 Issues that the CEO should receive.		3.2 Issues that the MD should receive.	
Develop more in the next year.		Develop more in the next year.	

To allow the Board of Directors, the sub-committees and the Chief Executive Officer (CEO) and Managing Director 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, 2019 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 crating 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 February 25, 2020)

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. 1/2020 on February 25, 2020, 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 as well as guaranteed 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. In case that the Company is unable to comply with the conditions, the creditors will be notified in advance in order to jointly find solutions on the basis of reasoning.

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

(Cited by Investor Relations Ethics revised version dated on November 6, 2019)

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. 1/2020, held on February 25, 2020, 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.

Corporate Culture

1. GOAL “G”

Determination to achieve goals

2. RELIABILITY “R”

To be reliable and professional at work

3. OWNERSHIP “O”

Caring and unity

4. WISDOM LEARNING “W”

Learning constantly causing intelligence and adaptation

5. TECHNOLOGY & INNOVATION “T”

Exposure to technology and extending innovation

6. HONESTY & GOVERNANCE “H”

Honest, transparent and dedicated to the responsibilities

The company has set a policy to review the good corporate governance every year as well as review the internal practices of the organization to comply with the principles of good corporate governance completely or not. In the year 2019, there was a review and adjustment to be in accordance with the ASEAN CG Scorecard in order to implement and adapt as appropriate; as well as, explaining the reasons for not being able to comply with the said good corporate governance principles by presenting non-compliance to the Good Corporate Governance Committee and the Board of Director in order to be informed of the reasons and guidelines as follows:

Item that is not yet implemented	Reasons / guidelines
1. Employee compensation policy that is in line with the company's performance both in the short and long term.	The Company has implemented such a matter in the work system of the Human Resources Department which has already established an internal policy but this information may not publish for acknowledgment in general, hence the Company will disseminate the information widely.
2. The biography of the board of directors has specified directorship positions in other listed companies, clearly separated into the heading of listed companies and other companies.	The Company has not clearly divided topics which the Company will proceed in accordance with the specified criteria.
3. Revealing the CEO compensation policy for both short and long term including the performance of CEO,	The Company has set criteria for compensation of CEO and high level executives in the normal work system of the Human Resources Department; as well as, the board evaluating the performance of CEO annually but this information may not publish for acknowledgment in general, hence the Company will disseminate the information widely.

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, 2019, 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 ¹⁾	Chairman of the Audit Committee (Independent Director)
2. Dr. Chongrak	Rarueysong ¹⁾	Member of the Audit Committee (Independent Director)
3. Assoc. Prof. Dr. Panarat Panmanee ^{1) 2)}		Member of the Audit Committee (Independent Director)
4. Mr. Tanetsiri	Farkmitr	Secretary of the Audit Committee

Remarks 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 and being a woman

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 0.75 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 pothor 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, 2019, 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, 2019, the Risk Management Committee comprised of four persons including independent and executive directors as follow;

Name		Position
1. Mr. Tarakorn	Angpubate	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, 2019, the Nomination and Remuneration Committee comprised of four persons including independent and executive directors as follow;

Name		Position
1. Pol.Maj.Gen. Visit	Sukarasep	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, 2019, 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. Chaloempon	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

The selection of persons to be appointed as the Board of Directors will be selected through the resolution of the Nomination and Remuneration Committee before proposing to the meeting of the Board of Directors for appointment. This selection will be made by using criteria of knowledge, ability, experience, vision and reliability including having qualifications in professional skills, specialization, consistent with the business strategy of the Company and does not have prohibited characteristics as specified by law, in order to propose to the shareholders' meeting for consideration and appointment which the Company has specified the criteria and methods which can be summarized as follows;

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 committer, 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 which consistent with the business strategy of the Company 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 which consistent with the business strategy of the Company, and possess qualifications in accordance with the laws and regulations of the relevant regulatory agencies including the regulations of the Company.

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 Preparation of report on trading of shares/ holding of securities of the Company

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;

Report on the Holding of Securities of the Company's Directors and Senior Executives for 2019

No.	Director / Senior Executive Name (A)	Relation	Type of Securities	Number of shares that held at the beginning of the year 31 st December 2018	Number of shares that held at the end of the year 31 st December 2019	Number of shares changed increase / (decrease) in the year 2019 (share)	proportion Shareholding in the Company (%)
1	Dr. Gunkul Dhumrongpiyawut	Director	Common share	309,592,726	311,511,270	1,918,544	3.507
		Spouse	Common share	-	-	-	-
		Underage children	Common share	-	-	-	-
				309,592,726	311,511,270	1,918,544	3.507
2	Dr. Djitt Laowattana	Director (Independent Director)	Common share	1,728,400	2,074,080	345,680	0.023
		Spouse	Common share	-	-	-	-
		Underage children	Common share	-	-	-	-
				1,728,400	2,074,080	345,680	0.023
3	Dr. Chongrak Rarueysong	Director (Independent Director)	Common share	-	-	-	-
		Spouse	Common share	-	-	-	-
		Underage children	Common share	-	-	-	-
				-	-	-	-
4	Associate Professor Dr. Panarat Panmanee	Director (Independent Director)	Common share	-	-	-	-
		Spouse	Common share	-	-	-	-
		Underage children	Common share	-	-	-	-
				-	-	-	-
5	Gen. Tarnchaiyan Srisuwan	Director (Independent Director)	Common share	-	-	-	-
		Spouse	Common share	-	-	-	-
		Underage children	Common share	-	-	-	-
				-	-	-	-
6	Mr. Tarakorn Angpubate	Director (Independent Director)	Common share	750,033	900,038	150,005	0.010
		Spouse	Common share	-	-	-	-
		Underage children	Common share	-	-	-	-
				750,033	900,038	150,005	0.010
7	Mr. Kris Chantanotoke	Director (Independent Director)	Common share	-	-	-	-
		Spouse	Common share	-	-	-	-
		Underage children	Common share	-	-	-	-
				-	-	-	-
8	Ms. Sopacha Dhumrongpiyawut	Director / Senior Executive	Common share	-	-	-	-
		Spouse	Common share	-	-	-	-
		Underage children	Common share	-	-	-	-
				-	-	-	-
9	Dr. Somboon Aueatchasai	Director / Senior Executive	Common share	28,000,000	33,600,000	5,600,000	0.378
		Spouse	Common share	3,397,333	4,076,799	679,466	0.046
		Underage children	Common share	-	-	-	-
				31,397,333	37,676,799	6,279,466	0.424

No.	Director / Senior Executive Name (A)	Relation	Type of Securities	Number of shares that held at the beginning of the year 31 st December 2018	Number of shares that held at the end of the year 31 st December 2019	Number of shares changed increase / (decrease) in the year 2019 (share)	proportion Shareholding in the Company (%)
10	Ms. Naruechon Dhumrongpiyawut	Director / Senior Executive	Common share	359,328	431,193	71,865	0.005
		Spouse	Common share	-	-	-	-
		Underage children	Common share	-	-	-	-
				359,328	431,193	71,865	0.005
11	Mrs. Areewan Chaloeand	Director / Senior Executive	Common share	-	-	-	-
		Spouse	Common share	-	-	-	-
		Underage children	Common share	-	-	-	-
				-	-	-	-
12	Mr. Chaloepon Sricharoen	Senior Executive	Common share	-	-	-	-
		Spouse	Common share	-	-	-	-
		Underage children	Common share	-	-	-	-
				-	-	-	-
11	พล.ต.ต.วิศิษฐ์ สุกรเสพย์	กรรมการบริษัท (กรรมการอิสระ)	หุ้นสามัญ	-	-	-	-
		คู่สมรส	หุ้นสามัญ	-	-	-	-
		บุตรที่ยังไม่บรรลุนิติภาวะ	หุ้นสามัญ	-	-	-	-
				-	-	-	-
13	Dr. Phongsakorn Damnoen	Senior Executive	Common share	31,811,728	38,174,073	6,362,345	0.430
		Spouse	Common share	280,000	336,000	56,000	0.004
		Underage children	Common share	-	-	-	-
				32,091,728	38,510,073	6,418,345	0.434
14	Mr. Chaisiri Wattanachannarong	Senior Executive	Common share	-	-	-	-
		Spouse	Common share	-	-	-	-
		Underage children	Common share	-	-	-	-
				-	-	-	-
15	Mr. Theerapab Punyasakhon	Senior Executive	Common share	-	-	-	-
		Spouse	Common share	-	-	-	-
		Underage children	Common share	-	-	-	-
				-	-	-	-
16	Mrs. Somluk Kanuenghet	Senior Executive / Secretary of the Nomination and Remuneration Committee	Common share	-	-	-	-
		Spouse	Common share	-	-	-	-
		Underage children	Common share	-	-	-	-
				-	-	-	-
17	Mr. Thamrong Chankraithong	Senior Executive	Common share	-	-	-	-
		Spouse	Common share	-	-	-	-
		Underage children	Common share	-	-	-	-
				-	-	-	-
18	Dr. Phairot Phanukan	Senior Executive	Common share	-	-	-	-
		Spouse	Common share	-	-	-	-
		Underage children	Common share	-	-	-	-
				-	-	-	-
19	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 31 st December 2018	Number of shares that held at the end of the year 31 st December 2019	Number of shares changed increase / (decrease) in the year 2019 (share)	proportion Shareholding in the Company (%)
20	Ms. Wimol Kamjornviputh	Senior Executive	Common share	-	-	-	-
		Spouse	Common share	-	-	-	-
		Underage children	Common share	-	-	-	-
21	Mrs. Nattawan Wongchan	Senior Executive	Common share	-	-	-	-
		Spouse	Common share	-	-	-	-
		Underage children	Common share	-	-	-	-
22	Ms. Suttirat Tangnorakul	Executive	Common share	-	-	-	-
		Spouse	Common share	-	-	-	-
		Underage children	Common share	-	-	-	-
23	Mr. Janpon Ngamaroonchote	Senior Executive	Common share	-	-	-	-
		Spouse	Common share	-	-	-	-
		Underage children	Common share	-	-	-	-
24	Ms. Chantra Jongjamareeseethong	Senior Executive / Company Secretary	Common share	-	-	-	-
		Spouse	Common share	-	-	-	-
		Underage children	Common share	-	-	-	-
25	Mr. Tanetsiri Farkmitr	Executive / Secretary of the Audit Committee	Common share	-	-	-	-
		Spouse	Common share	-	-	-	-
		Underage children	Common share	-	-	-	-

Remark ¹⁾ As of 31 December 2019, the Company has registered capital of 2,220,632,743.50 baht and has the total share sold of 8,882,530,974 shares

Auditor fee

1. Audit fee

In 2014 - 2019, 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)
2019	1,830,000.00
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 2019 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 74,200.00 which was already paid within 2019.

21.5 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 2019, the Company received the Good Corporate Governance rating (CGR) at the excellent level rating of 94 points, comparing with the results that obtained in 2018 and 2017 at the excellent level rating of 91 points. In addition, in the year 2019, the Company received the results of the 2019 annual general meeting assessment at the excellent level rating of 100 points, comparing with the results that obtained in 2018 and 2017 at the excellent level rating of 96 points and 97.5 points, respectively.

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 2019, 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 2019.

INTERNAL CONTROL AND RISK MANAGEMENT

The Board of Directors recognizes the importance of internal control and the importance of risk management will lead the Company to achieve its goals with efficiency and compliance with relevant laws and standards. The objective is to support the operations of the Company's management division to be more efficient and achieve goals; as well as, formulating the policies and risk management framework and involved in all sections of the business and including setting guidelines for internal practices, preventive measures, risk reduction, reporting system and the process of monitoring and evaluation regularly.

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 responsibility to review and evaluate the adequacy of the internal control system that the management has set up in accordance with the Committee of Sponsoring Organizations of the Treadway Commission (COSO) standards, including internal audits in order to ensure that the operations are efficient and effective, causing check and with the control of asset use for the real benefit of the Company; as well as, the review of financial reports and risk management information by reporting to the Audit Committee quarterly.

In the Board of Directors' Meeting No. 1/2020 on 25th February 2020 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). From the overall assessment, the Board of Directors and the Audit Committee are of the opinion that the Company's internal control systems are adequate, appropriate and in line with the internal control system according to the Committee of Sponsoring Organizations of the Treadway Commission (COSO), which covers 5 components, namely the Control Environment, Risk Assessment, Control Activities, Information & Communication, and Monitoring Activities

In this regard, the management of the Company's internal control system can be summarized by the 5 components of internal control as follows:

Control Environment

The Company has clearly defined goals, vision, objectives, policies and guidelines. The Company has a good internal control environment which is suitable and sufficient for business operations. Also, by conducting business under the principles of corporate governance and business ethics in line with the written good corporate governance policy which determine the roles, duties and responsibilities of the Board of Directors. As well as, a regular review of the organization structure to be consistent with the strategy, operational plan and support business growth, including the emphasis on employees to understand the issue of fraud risk by providing measures to report clues or complaints about illegal acts, ethics or behavior that may indicate corruption or misconduct of individuals in the business group both from the staff and stakeholders in order to comply with the anti-corruption policy that set by the Company and as being a member of the Private Sector Collective Action Coalition Against Corruption.

Risk Assessment

The Board of Directors and the executives recognize the importance of the organization's risk management of by establishing the Risk Management Committee (RMC) to define and review the organization risk management policy including overseeing, supporting the implementation of risk management and internal control, also having a risk management plan or risk management process in order to reduce the impact on the Company's business, including monitoring and evaluation of the implementation of the risk management framework of the organization. To ensure that the Company has sufficient and appropriate risk management and internal control in accordance with the organization's business strategy and goals.

The Audit Committee recognizes the importance of prevention and anti-corruption by reviewing that the Company has an internal audit system, internal control system and risk management system in accordance with an appropriate and effective internal control framework. The internal audit department of the company has prepared a risk-based audit plan by taking the risk of fraud as one of the criteria used to evaluate in order to create an audit plan and conduct an audit by evaluating the internal control of processes that may be at risk of fraud.

Control Activities

The Company has a control over the operation of the group by planning and controlling, such as the use of Key Performance Indicator (KPI), Separation of duties, Responsibility, Scope of approval. This includes the limit of approval power at each level (Line of Authority: LOA) that is appropriate for the business and communicate to the employees of the Company thoroughly, also establish guidelines for dealing with transactions that may or may not have a conflict of interest by taking into account the best interests of the shareholders and the stakeholders of the Company. There is a monitoring of the subsidiaries / associated companies by appointing executives to take positions as directors in subsidiaries / associates in order to participate in policy setting, acknowledging information and following up on the operations, taking care to protect the company's assets from being lost or misused and a check and balance of power from the agency and the committee that has been appointed specifically, such as the internal audit department and the risk management committee, establishing an efficient and appropriate internal control system and risk assessment. In addition, the Company Secretary department is responsible for overseeing the operations of the business group and the Board of Directors, including the disclosure of information in accordance with the Securities and Exchange law, SEC regulations and related laws.

Information & Communication

The Company recognizes the importance of the quality of information and communication, which is an important factor to support effective internal control with guidelines for information management by designing general and appropriate information technology controls. The Company has set up a database for every system in daily operations and for other purposes, and the information in the said database has been reviewed for accuracy and always updated including data security in the database. The Company has a process and channel for communicating internal information that is appropriate and effective for communication within the organization, such as public relations, electronic mail, report process, arranging activities etc. In addition, according to the good corporate governance policy of the company, the Board of Directors has arranged for the sufficient, reliable, and timely disclosure of the Company's information both financial and non-financial matters so that the shareholders and stakeholders of the company to receive information equally. As well as, establishing an investor relations department to be responsible for providing information to investors and the general public, as well as establishing channels for complaints in accordance with the Company's complaints and protection policies.

Monitoring Activities

The Company has followed up the operations and evaluated the internal control system, comparing the performance with the plan to meet the set goals on a regular basis and regularly report the results to the management, the Audit Committee and the Board of Directors. In addition, the internal audit department of the Company has an annual audit plan based on important risks, an increase in the number of projects, process or system, requests from management and / or the audit committee in order to review the adequacy and appropriateness of the internal control system for each activity, as well as providing suggestions for increasing the efficiency and effectiveness of the internal control, by communicating to the management for acknowledgment in order to take corrective actions. The internal audit department has reported the audit results in accordance with the internal control audit plan that has been specified to the Audit Committee and the management of the Company throughout the year 2019.

The auditor of the Company is KPMG Phoomchai Audit Company Limited, a quarterly financial information and annual financial statements auditors for the year 2019 by reviewing the internal control system for accounting (in order to specify the guidelines, duration, scope and audit methods) in which the auditor did not find any significant faults regarding the internal control system.

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 20th 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.

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.

3. Summary of Relationship between the Company, Subsidiaries, Joint Ventures and Related Companies/Persons

Company	Symbol	Type of Business	Relationship
Subsidiaries : GUNKUL holding 100% stake			
Gunkul International (Mauritius)	GIM	Overseas Investment	As of December 31, 2019 - GUNKUL was major shareholder of GIM for 100% stake.
Gunkul International Investment (Singapore) Pte. Ltd.	GII	Overseas Investment	As of December 31, 2019 - GIM was major shareholder of GII for 100% stake.

Company	Symbol	Type of Business	Relationship
Subsidiaries : GUNKUL invest for 100% stake			
Sendai Okura GD Daiichi Godo Kaisha	GK Sendai	Generating Electrical Power	As of December 31, 2019 - GIM and BGP invested in GK Sendai in total for 100% stake.
Kimitsu Mega Solar Godo Kaisha			
	GK Kimitsu	Generating Electrical Power	As of December 31, 2019 - GIM and BGP invested in GK Kimitsu in total for 100% stake.
GD Solar Utsunomiya Godo Kaisha			
	GD Utsunomiya	Generating Electrical Power	As of December 31, 2019 - GIM and BGP invested in GD Utsunomiya in total for 100% stake.
East Japan Solar 13 Godo Kaisha			
	GK Solar 13	Generating Electrical Power	As of December 31, 2019 - GIM and BGP invested in GK Solar 13 in total for 100% stake.
Subsidiaries : GUNKUL holding 99.99% stake			
G.K. Assembly Co., Ltd.			
	GKA	Manufacturing Electrical Products	As of December 31, 2019 - 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 Chaloeamdan.
G.K.Power Products Co., Ltd.			
	GKP	Manufacturing Electrical Products	As of December 31, 2019 - GUNKUL was major shareholder of GKP for 99.99% stake. - Shared shareholder between GUNKUL and GKP is Mr.Gunkul Dhumrongpiyawut holding 0.001% stake in GKP. - Shared directors between GKP and GUNKUL are Miss Sopacha Dhumrongpiyawut and Mrs. Areewan Chaloeamdan.
K.N.P. Supply Co., Ltd.			
	KNP	Supplying Electrical Products	As of December 31, 2019 - GUNKUL was major shareholder of KNP for 99.99 % stake. - Shared shareholder between GUNKUL and KNP is Mr. Gunkul Dhumrongpiyawut holding 0.0002% stake in KNP. - Shared director between KNP and GUNKUL is Mr.Chaloempon Sricharoen.

Company	Symbol	Type of Business	Relationship
Wind Energy Development Co., Ltd.	WED	Generating Electrical Power	As of December 31, 2019 <ul style="list-style-type: none"> - GUNKUL was major shareholder of WED for 99.99% stake. - Shared shareholder between GUNKUL and WED is Mr. Gunkul Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut holding 0.00001% stake in WED. - Shared directors between WED and GUNKUL are Mr. Somboon Aueatchasai and Miss Naruechon Dhumrongpiyawut, daughter of Mr. Gunkul Dhumrongpiyawut. - Shared director between WED and GCPG and GPS is Mr. Somboon Aueatchasai.
Greenovation Power Co., Ltd.	GNP	Generating Electrical Power	As of December 31, 2019 <ul style="list-style-type: none"> - GUNKUL was major shareholder of GNP for 99.99% stake. - Shared shareholders between GNP and GUNKUL are Mr. Gunkul Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut holding 0.00001% stake each in GNP. - Shared director between GNP and GUNKUL is Miss Naruechon Dhumrongpiyawut
Korat Wind Energy Co., Ltd.	KWE	Generating Electrical Power	As of December 31, 2019 <ul style="list-style-type: none"> - GUNKUL was major shareholder of KWE for 99.99% stake. - Share shareholders between KWE and GUNKUL are Mr. Gunkul Dhumrongpiyawut and Miss Sopacha Dhumrongpiyawut by holding 0.00001% stake each in KWE. - Shared directors between KWE and GUNKUL are Miss Sopacha Dhumrongpiyawut and Mr. Somboon Aueatchasai.
Gunkul Solar Power Co., Ltd.	GSP	Generating Electrical Power	As of December 31, 2019 <ul style="list-style-type: none"> - GUNKUL was major shareholder of GSP for 99.99% stake. - Shared shareholder between GUNKUL and GSP is Mr. Somboon Aueatchasai holding 0.0001% stake in GSP. - Shared director between GSP and GUNKUL is Miss Sopacha Dhumrongpiyawut.
Gunkul Solar Power 1 Co., Ltd.	GSP-1	Generating Electrical Power	As of December 31, 2019 <ul style="list-style-type: none"> - GSP was major shareholder of GSP-1 for 99.99% stake. GUNKUL holds GSP-1 through GSP. - Shared shareholder between GUNKUL and GSP-1 is Mr. Somboon Aueatchasai holding 0.0001% stake in GSP-1. - Shared director between GSP-1 and GUNKUL is Miss Sopacha Dhumrongpiyawut.

Company	Symbol	Type of Business	Relationship
Gunkul Solar Power 2 Co., Ltd.	GSP-2	Generating Electrical Power	As of December 31, 2019 <ul style="list-style-type: none"> - GSP was major shareholder of GSP-2 for 99.99% stake. GUNKUL holds GSP-2 through GSP. - Shared shareholder between GUNKUL and GSP-2 is Mr. Somboon Aueatchasai holding 0.0001% stake in GSP-2. - Shared director between GSP-2 and GUNKUL is Miss Sopacha Dhumrongpiyawut.
Gunkul Solar Power 3 Co., Ltd. 1. Dissolution on April 9, 2018 2. Liquidation on July 18, 2018	GSP-3	Generating Electrical Power	As of December 31, 2019 <ul style="list-style-type: none"> - GSP was major shareholder of GSP-3 for 99.99% stake. GUNKUL holds GSP-3 through GSP. - Shared director between GSP-3 and GUNKUL is Miss Sopacha Dhumrongpiyawut.
Gunkul Solar Power 4 Co., Ltd. 1. Dissolution on April 9, 2018 2. Liquidation on July 18, 2018	GSP-4	Generating Electrical Power	As of December 31, 2019 <ul style="list-style-type: none"> - GSP was major shareholder of GSP-4 for 99.99% stake. GUNKUL holds GSP-4 through GSP. - Shared director between GSP-4 and GUNKUL is Miss Sopacha Dhumrongpiyawut.
Gunkul Solar Power 5 Co., Ltd. 1. Dissolution on April 9, 2018 2. Liquidation on July 18, 2018	GSP-5	Generating Electrical Power	As of December 31, 2019 <ul style="list-style-type: none"> - 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 April 9, 2018 2. Liquidation on June 6, 2018	GSP-6	Generating Electrical Power	As of December 31, 2019 <ul style="list-style-type: none"> - 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	As of December 31, 2019 <ul style="list-style-type: none"> - GUNKUL was major shareholder of BGP for 99.99% stake.

Company	Symbol	Type of Business	Relationship
Siam Gunkul Solar Energy Co., Ltd.	SGSE	Generating Electrical Power	As of December 31, 2019 <ul style="list-style-type: none"> - 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	As of December 31, 2019 <ul style="list-style-type: none"> - 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	As of December 31, 2019 <ul style="list-style-type: none"> - 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.
Gunkul Solar Community Co., Ltd.	GSC	Generating Electrical Power	As of December 31, 2019 <ul style="list-style-type: none"> - GUNKUL was major shareholder of GSC for 99.99% stake. - Shared shareholders between GSC and GUNKUL are Miss Naruechon Dhumrongpiyawut holding 0.001% stake and Mr.Somboon Aueatchasai holding 0.001% stake in GSC. - Shared directors between GSC and GUNKUL are Miss Sopacha Dhumrongpiyawut, Miss Naruechon Dhumrongpiyawut and Mr. Som boon Aueatchasai. - Share director between GSC and GNP is Miss Naruechon Dhumrongpiyawut.
Gunkul Power Development Co., Ltd.	GPD	Contractors and Generating Electric Power	As of December 31, 2019 <ul style="list-style-type: none"> - GUNKUL was major shareholder of GPD for 99.99% stake. - Shared shareholder between GPD and GUNKUL is Mr. Somboon Aueatchasai holding 0.0002% stake in GPD. - Shared directors between GPD and GUNKUL are Miss Sopacha Dhumrongpiyawut and Mr. Somboon Aueatchasai.

Company	Symbol	Type of Business	Relationship
NK Power Solar Co., Ltd.	NKP	Generating Electrical Power	<p>As of December 31, 2019</p> <ul style="list-style-type: none"> - GUNKUL was major shareholder of NKP for 99.99% stake. - Shared shareholder between GUNKUL and NKP is Miss Sopacha Dhumrongpiyawut holding 0.0038% stake in NKP. - Shared directors between NKP, GUNKUL and GPS are Miss Sopacha Dhumrongpiyawut and Mr. Somboon Aueatchasai. - Shared directors between NKP and GCPG are Mr. Somboon Aueatchasai and Mr. Phongsakorn Damnoen.
Gunkul Energy Solution and Lighting Co., Ltd. (Formerly name: Gunkul LED Lighting Co., Ltd., registered change on February 21, 2018)	GES	Producing LED electric bulbs for sale and Contractor to install electricity generation equipment from renewable energy	<p>As of December 31, 2019</p> <ul style="list-style-type: none"> - GUNKUL was major shareholder of GES for 99.99% stake. - Shared shareholder between GES and GUNKUL is Miss Naruechon Dhumrongpiyawut holding 0.0001% stake in GES. - Shared shareholder between GES and GUNKUL is Mr. Somboon Aueatchasai holding 0.0001% stake in GES - Shared directors between GES and GUNKUL are Miss Naruechon Dhumrongpiyawut and Mr. Somboon Aueatchasai.
Future Electrical Control Co., Ltd. (GPD bought shares on July 3, 2018)	FEC	Contractor	<p>As of December 31, 2019</p> <ul style="list-style-type: none"> - GPD was major shareholder of FEC for 99.99% stake by GUNKUL held FEC pass GPD. - Shared shareholders between FEC and GPD are Miss Sopacha Dhumrongpiyawut and Mr. Somboon Aueatchasai holding 0.01% stake in FEC. - Shared director between FEC and GUNKUL are Miss Sopacha Dhumrongpiyawut and Mr. Somboon Aueatchasai. - Shared director between FEC and GPD are Miss Sopacha Dhumrongpiyawut and Mr. Somboon Aueatchasai.

Company	Symbol	Type of Business	Relationship
Joint Venture GKE & GPD Co., Ltd.	JV GKE&GPD	Manufacture of LED lamps for sale and the contractor for the installation of electricity generation equipment from renewable energy	As of December 31, 2019 <ul style="list-style-type: none"> - GUNKUL was a shareholder of JV GKE&GPD for 49.99% stake. - GPD is a shareholder of JV GKE & GPD at 49.99% (GUNKUL holds 99.99% of GPD) - JV GKE & GPD has a common shareholder with GPD, namely Miss Sopacha Dhumrongpiyawut and Mr. Phongsakorn Damnoen Which holds 0.00001% in JV GKE & GPD. - Shared director between JV GKE & GPD and GUNKUL are Miss Sopacha Dhumrongpiyawut. - Shared director between JV GKE & GPD and GPD are Miss Sopacha Dhumrongpiyawut.
Subsidiaries : GUNKUL holding for 99.97% stake			
Gunkul Training Solar Center Co., Ltd. (Formerly name: Gunkul Solar Roof 2 Co., Ltd., registered change on March 16, 2017)	GTRC	Education Services, Seminar Management, Training management, etc.	As of December 31, 2019 <ul style="list-style-type: none"> - GUNKUL was major shareholder of GTRC for 99.97% stake. - Shared shareholder between GTRC and GUNKUL is Mr. Somboon Aueatchasai holding 0.01% stake in GTRC. - Shared director between GTRC and GUNKUL are Miss Sopacha Dhumrongpiyawut and Mr. Somboon Aueatchasai.
Subsidiaries : GUNKUL holding for 74.99% stake			
Gunkul Infinite Group Co., Ltd. (Formerly name: Gunkul Bio Energy Co., Ltd., eegistered change on October 21, 2019)	GIG	Rent, sublease and manage property, generate electricity for sale	As of December 31, 2019 <ul style="list-style-type: none"> - GUNKUL was a shareholder of GIG for 74.99% stake. - Shared shareholder between GIG and GUNKUL is Mr. Somboon Aueatchasai holding 0.02 % stake in GIG. - Shared directors between GIG and GUNKUL are Mr. Somboon Aueatchasai.
Subsidiaries : GUNKUL holding for 74.90% stake			
GO Bio Energy Co., Ltd.	GOB	Investing in Generating Electrical Power Business Company	As of December 31, 2019 <ul style="list-style-type: none"> - GUNKUL was a shareholder of GOB for 74.90% stake. - Shared shareholder between GOB and GUNKUL is Mr. Phongsakorn Damnoen holding 0.0003 % stake in GOB. - Shared directors between GOB and GUNKUL are Mr. Somboon Aueatchasai and Miss Naruechon Dhumrongpiyawut.

Company	Symbol	Type of Business	Relationship
Outgrow A Co., Ltd.	OGA	Generating Electrical Power	As of December 31, 2019
1. Dissolution on June 26, 2018			- GOB was major shareholder of OGA for 99.99% stake, GUNKUL held OGA pass GOB.
2. Liquidation on June 14, 2019			- Shared shareholder between OGA and GOB is Mr. Phongsakorn Damnoen holding 0.0013% stake in OGA.
			- Shared directors between OGA and GUNKUL are Mr. Somboon Aueatchasai and Miss Naruechon Dhumrongpiyawut.
			- Shared directors between OGA and GOB are Mr. Somboon Aueatchasai, Miss Naruechon Dhumrongpiyawut and Mr. Phongsakorn Damnoen.
Outgrow B Co., Ltd.	OGB	Generating Electrical Power	As of December 31, 2019
1. Dissolution on June 26, 2018			- GOB was major shareholder of OGB for 99.99% stake, GUNKUL held OGB pass GOB.
2. Liquidation on December 12, 2018			- Share shareholder between OGB and GOB is Mr. Phongsakorn Damnoen holding 0.0013% stake in OGB.
			- Shared directors between OGB and GUNKUL are Mr. Somboon Aueatchasai and Miss Naruechon Dhumrongpiyawut.
			- Shared directors between OGB and GOB are Mr. Somboon Aueatchasai, Miss Naruechon Dhumrongpiyawut and Mr. Phongsakorn Damnoen.
Outgrow D Co., Ltd.	OGD	Generating Electrical Power	As of December 31, 2019
			- GOB was major shareholder of OGD for 99.99% GUNKUL held OGB pass GOB.
			- Shared shareholder between OGD and GOB is Mr. Phongsakorn Damnoen holding 0.0013% stake in OGD.
			- Shared directors between OGD and GUNKUL are Mr. Somboon Aueatchasai and Miss Naruechon Dhumrongpiyawut.
			- Shared directors between OGD and GOB are Mr. Somboon Aueatchasai, Miss Naruechon Dhumrongpiyawut and Mr. Phongsakorn Damnoen.

Company	Symbol	Type of Business	Relationship
Outgrow E Co., Ltd.	OGE	Generating Electrical Power	As of December 31, 2019
1. Dissolution on June 26, 2018			- GOB was major shareholder of OGE for 99.99% stake, GUNKUL held OGB pass GOB.
2. Liquidation on July 18, 2019			- Shared shareholder between OGE and GOB is Mr. Phongsakorn Damnoen holding 0.0013% stake in OGE.
			- Shared directors between OGE and GUNKUL are Mr. Somboon Aueatchasai and Miss Naruechon Dhumrongpiyawut.
			- Shared directors between OGE and GOB are Mr. Somboon Aueatchasai, Miss Naruechon Dhumrongpiyawut and Mr. Phongsakorn Damnoen.
Outgrow Wood Supply A Co., Ltd.	OGW-A	Related to Power Plant Business	As of December 31, 2019
1. Dissolution on April 9, 2018			- GOB was major shareholder of OGW-A for 99.98% stake, GUNKUL held OGW-A pass GOB.
2. Liquidation on July 26, 2018			- Shared shareholder between OGW-A and GOB is Mr. Phongsakorn Damnoen holding 0.0100% stake in OGW-A.
			- Shared directors between OGW-A and GUNKUL are Mr. Somboon Aueatchasai and Miss Naruechon Dhumrongpiyawut.
			- Shared directors between OGW-A and GOB are Mr. Somboon Aueatchasai, Miss Naruechon Dhumrongpiyawut and Mr. Phongsakorn Damnoen.
Outgrow Wood Supply B Co., Ltd.	OGW-B	Related to Power Plant Business	As of December 31, 2019
1. Dissolution on April 9, 2018			- GOB was major shareholder of OGW-B for 99.98% stake , GUNKUL held OGW-B pass GOB.
2. Liquidation on July 18, 2018			- Shared shareholder between OGW-B and GOB is Mr. Phongsakorn Damnoen holding 0.0100% stake in OGW-B.
			- Shared directors between OGW-B and GUNKUL are Mr. Somboon Aueatchasai and Miss Naruechon Dhumrongpiyawut
			- Shared directors between OGW-B and GOB are Mr. Somboon Aueatchasai, Miss Naruechon Dhumrongpiyawut and Mr. Phongsakorn Damnoen.

Company	Symbol	Type of Business	Relationship
Subsidiaries : GUNKUL holding for 67% stake			
Infinite Alternative Energy Co., Ltd.	IAE	Investing in Generating Electrical Power Business Company	As of December 31, 2019 <ul style="list-style-type: none"> - GUNKUL was major shareholder of IAE for 67.00% stake. - Shared director between IAE and GUNKUL are Mr. Somboon Aueatchasai and Miss Naruechon Dhumrongpiyawut.
Rang Ngern Solution Co., Ltd.			
	RNS	Generating Electrical Power	As of December 31, 2019 <ul style="list-style-type: none"> - IAE was major shareholder of RNS for 99.99% stake, GUNKUL held RNS pass IAE - Shared director between RNS and GUNKUL is Miss Naruechon Dhumrongpiyawut.
Subsidiaries : GUNKUL holding for 51% stake			
Eco Thai Energy Co., Ltd.	ECO	Generating Electrical Power	As of December 31, 2019 <ul style="list-style-type: none"> - 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	As of December 31, 2019 <ul style="list-style-type: none"> - GMP was major shareholder of GMCP-1 for 51.00% stake.
Subsidiaries : GUNKUL holding for 48.98% stake			
BMP Solar Co., Ltd.	BMPS	Generating Electrical Power	As of December 31, 2019 <ul style="list-style-type: none"> - GUNKUL was major shareholder of BMPS for 48.98% stake. - Shared director between BMPS and GUNKUL is Miss Naruechon Dhumrongpiyawut.
Associated Company and Joint Venture: GUNKUL holding for 70% stake			
Kenyir Gunkul Solar Sdn Bhd.	Kenyir	Generating Electrical Power	As of December 31, 2019 <ul style="list-style-type: none"> - GUNKUL is a shareholder of Kenyir in 49.00% of common shares and 70.00% of preferred shares. - Shared director between Kenyir and GUNKUL is Miss Naruechon Dhumrongpiyawut.

Company	Symbol	Type of Business	Relationship
Associated Company and Joint Venture: GUNKUL holding for 51% stake			
Gunkul Chubu Powergen Co., Ltd.	GCPG	Generating Electrical Power	As of December 31, 2019 <ul style="list-style-type: none">- 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)"
Associated Companies and Joint Ventures : GUNKUL holding for 40% stake			
G- Power Source Co., Ltd.	GPS	Generating Electrical Power	As of December 31, 2019 <ul style="list-style-type: none">- 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 June 19, 2017	SWE	Generating Electrical Power	As of December 31, 2019 <ul style="list-style-type: none">- GUNKUL was a shareholder of SWE at 40.00% stake.
2. Liquidation on August 2, 2017			<ul style="list-style-type: none">- 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.
Joint Ventures (No Sharing Control) : GUNKUL holding for 25.01% stake			
WHA Gunkul Green Solar Roof 1 Co., Ltd.	WHA_GSR-1	Generating Electrical Power	As of December 31, 2019 <ul style="list-style-type: none">- 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 September 12, 2017	WHA_GSR-2	Generating Electrical Power	As of October 12, 2017 <ul style="list-style-type: none">- GUNKUL was a shareholder of WHA_GSR-2 for 25.01% stake.
2. Liquidation on October 12, 2017			<ul style="list-style-type: none">- Shared director between WHA_GSR-2 and GUNKUL is Miss Sopacha Dhumrongpiyawut.

Company	Symbol	Type of Business	Relationship
WHA Gunkul Green Solar Roof 3 Co., Ltd.	WHA_GSR-3	Generating Electrical Power	As of December 31, 2019 - 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 September 12, 2017 2. Liquidation on October 12, 2017	WHA_GSR-4	Generating Electrical Power	As of October 12, 2017 - GUNKUL was a shareholder of WHA_GSR-4 for 25.01% stake. - Shared director between WHA_GSR-4 and GUNKUL is Miss Sopacha Dhumrongpiyawut.
WHA Gunkul Green Solar Roof 5 Co., Ltd. 1. Dissolution on September 12, 2017 2. Liquidation on October 12, 2017	WHA_GSR-5	Generating Electrical Power	As of October 12, 2017 - 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	As of December 31, 2019 - 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 September 12, 2017 2. Liquidation on October 12, 2017	WHA_GSR-8	Generating Electrical Power	As of October 12, 2017 - 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 September 12, 2017 2. Liquidation on October 12, 2017	WHA_GSR-9	Generating Electrical Power	As of October 12, 2017 - 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 September 12, 2017 2. Liquidation on October 12, 2017	WHA_GSR-10	Generating Electrical Power	As of December 31, 2019 - GUNKUL was a shareholder of WHA_GSR-10 for 25.01% stake. - Shared director between WHA_GSR-10 and GUNKUL is Miss Sopacha Dhumrongpiyawut.

Company	Symbol	Type of Business	Relationship
WHA Gunkul Green Solar Roof 16 Co., Ltd.	WHA_GSR-16	Generating Electrical Power	As of October 12, 2017
1. Dissolution on September 12, 2017			- GUNKUL was a shareholder of WHA_GSR-16 for 25.01% stake.
2. Liquidation on October 12, 2017			- 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	As of December 31, 2019
			- GUNKUL was shareholder of WHA_GSR-17 for 25.01% stake.
			- Shared director between WHA_GSR-17 and GUNKUL is Miss Sopacha Dhumrongpiyawut.
Related Companies			
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.
			- 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 98% 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.	GKM	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.	SGP	Electricity Industry	- SGP is held by Dhumrongpiyawut family holding 75.00% stake.
1. Dissolution on July 3, 2017			- Shared director between SGP and GUNKUL is Mr. Gunkul Dhumrongpiyawut.
2. Liquidation on August 18, 2017			

Company	Symbol	Type of Business	Relationship
Siam Future Co., Ltd.	SF	Electricity Industry	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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. - Shared director between HPG and GUNKUL are Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.
Tech-Green Co., Ltd.	TG	Electricity Industry	<ul style="list-style-type: none"> - Major shareholder of TG is GKG holding 99.94% stake. - Shareholders between TG and GUNKUL are Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut holding 0.02% stake each in TG. - Shared director between TG and GUNKUL are Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.
Thong Lo9 Co., Ltd. Formerly name: Thanasap 2558 Co., Ltd., registered change on January 9, 2017) Selling shares to other company	TL9	Electricity Industry	<ul style="list-style-type: none"> - Major shareholder of TL9 is GKG holding 49.99% stake. - Shareholders between TL9 and GUNKUL are Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut holding 0.0004% stake each in TL9. - Shared director between TL9 and GUNKUL are Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.
Entirety Sap Co., Ltd.	ETS	Electricity Industry	<ul style="list-style-type: none"> - Major shareholder of ETS is GKG holding 99.94% stake. - Shareholders between ETS and GUNKUL are Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut holding 0.02% stake each in ETS. - Shared director between ETS and GUNKUL are Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.
Gunkul Tech Co., Ltd. 1. Dissolution on July 3, 2017 2. Liquidation on August 18, 2017	GTC	Technology	<ul style="list-style-type: none"> - Shareholder of GTC is GKG which holding 50.00% stake and Mr. Somboon Aueatchasai holding 0.005% stake. - Shared directors of GTC and GUNKUL are Miss Sopacha Dhumrongpiyawut and Mr. Somboon Aueatchasai.

Company	Symbol	Type of Business	Relationship
Noppakul Co., Ltd.	NPK	Chattel and Realty	<ul style="list-style-type: none"> - Major shareholder of NPK is Miss Naruechon Dhumrongpiyawut holding 82.00% stake and Sricharoen family holds 18.00% stake. - Shared director between NPK and GUNKUL is Miss Naruechon Dhumrongpiyawut.
FEC and SAC Joint venture	JV-FEC & SAC	Contractor	<ul style="list-style-type: none"> - JV-FEC&SAC has FEC as partner to do construction business.
Green Field Energy Co., Ltd.	Greenfield	Real Estate	<ul style="list-style-type: none"> - Shareholder of Greenfield is Mr. Khabaphat Jirakasempong, he is a relative of Mr. Gunkul Dhumrongpiyawut.
P.M. Building Group Co., Ltd.	PMBG	Rental	<ul style="list-style-type: none"> - Shareholder of PMBG is Ms. Fahmui Trikanjanonthai, she is a relative of Mr. Gunkul Dhumrongpiyawut.
Great Miracle Asset Co., Ltd.	GMA	Movable and Immovable	<ul style="list-style-type: none"> - Major shareholder of GMA is Mr. Gunkul Dhumrongpiyawut holding 99.99% stake. - Shareholder between GMA and GUNKUL is Miss Naruechon Dhumrongpiyawut holding 0.000001% stake in GMA. - Shared directors between GMA and GUNKUL are Mr. Gunkul Dhumrongpiyawut, Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.
Great Miracle Asset 1 Co., Ltd. 1. Dissolution on December 4, 2017 2. Liquidation on January 23, 2017	GMA-1	Movable and Immovable	<ul style="list-style-type: none"> - Major shareholder of GMA-1 is Mr. Gunkul Dhumrongpiyawut holding 99.99% stake. - Shareholder between GMA-1 and GUNKUL is Miss Naruechon Dhumrongpiyawut holding 0.000001% stake in GMA-1. - Shared directors between GMA-1 and GUNKUL are Mr. Gunkul Dhumrongpiyawut, Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.
Great Miracle Asset 2 Co., Ltd.	GMA-2	Movable and Immovable	<ul style="list-style-type: none"> - Major shareholder of GMA-2 is Mr. Gunkul Dhumrongpiyawut holding 99.99% stake. - Shareholder between GMA-2 and GUNKUL is Miss Naruechon Dhumrongpiyawut holding 0.000001% stake in GMA-2. - Shared directors between GMA-2 and GUNKUL are Mr. Gunkul Dhumrongpiyawut, Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.
Great Miracle Asset 3 Co., Ltd.	GMA-3	Movable and Immovable	<ul style="list-style-type: none"> - Major shareholder of GMA-3 is Mr. Gunkul Dhumrongpiyawut holding 99.99% stake. - Shareholder between GMA-3 and GUNKUL is Miss Naruechon Dhumrongpiyawut holding 0.000001% stake in GMA-3. - Shared directors between GMA-3 and GUNKUL are Mr. Gunkul Dhumrongpiyawut, Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.

Company	Symbol	Type of Business	Relationship
Great Miracle Asset 4 Co., Ltd.	GMA-4	Movable and Immovable	<ul style="list-style-type: none"> - 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. - Shared directors between GMA-4 and GUNKUL are Mr. Gunkul Dhumrongpiyawut, Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.
Great Miracle Asset 5 Co., Ltd.	GMA-5	Movable and Immovable	<ul style="list-style-type: none"> - Major shareholder of GMA-5 is Mr. Gunkul Dhumrongpiyawut holding 99.99% stake. - Shareholder between GMA-5 and GUNKUL is Miss Naruechon Dhumrongpiyawut holding 0.000001% stake in GMA-5. - Shared directors between GMA-5 and GUNKUL are Mr. Gunkul Dhumrongpiyawut, Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.
Great Miracle Asset 6 Co., Ltd. 1. Dissolution on December 4, 2017 2. Liquidation on January 23, 2018	GMA-6	Movable and Immovable	<ul style="list-style-type: none"> - Major shareholder of GMA-6 is Mr. Gunkul Dhumrongpiyawut holding 99.99% stake. - Shareholders between GMA-6 and GUNKUL are Mr. Gunkul Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut holding 0.000001% stake in GMA-6. - Shared directors between GMA-6 and GUNKUL are Mr. Gunkul Dhumrongpiyawut, Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.
Great Miracle Asset 7 Co., Ltd.	GMA-7	Movable and Immovable	<ul style="list-style-type: none"> - Major shareholder of GMA-7 is Mr. Gunkul Dhumrongpiyawut holding 99.99% stake. - Shareholder between GMA-7 and GUNKUL is Miss Naruechon Dhumrongpiyawut holding 0.000001% stake in GMA-7. - Shared directors between GMA-7 and GUNKUL are Mr. Gunkul Dhumrongpiyawut, Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.
Great Miracle Asset 8 Co., Ltd.	GMA-8	Movable and Immovable	<ul style="list-style-type: none"> - Major shareholder of GMA-8 is Mr. Gunkul Dhumrongpiyawut holding 99.02% stake. - Shareholders between GMA-8 and GUNKUL are Mr. Gunkul Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut holding 0.000001% stake in GMA-8. - Shared directors between GMA-8 and GUNKUL are Mr. Gunkul Dhumrongpiyawut, Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.
Great Miracle Asset 9 Co., Ltd.	GMA-9	Movable and Immovable	<ul style="list-style-type: none"> - Major shareholder of GMA-9 is Mr. Gunkul Dhumrongpiyawut holding 99.99% stake. - Shareholder between GMA-9 and GUNKUL is Miss Naruechon Dhumrongpiyawut holding 0.000001% stake in GMA-9. - Shared directors between GMA-9 and GUNKUL are Mr. Gunkul Dhumrongpiyawut, Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.

Company	Symbol	Type of Business	Relationship
Great Miracle Asset 10 Co., Ltd.	GMA-10	Movable and Immovable	<ul style="list-style-type: none"> - Major shareholder of GMA-10 is Mr. Gunkul Dhumrongpiyawut holding 99.99% stake. - Shareholders between GMA-10 and GUNKUL are Mr. Gunkul Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut holding 0.000001% stake in GMA-10. - Shared directors between GMA-10 and GUNKUL are Mr. Gunkul Dhumrongpiyawut, Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.
Great Miracle Asset 11 Co., Ltd.	GMA-11	Movable and Immovable	<ul style="list-style-type: none"> - Major shareholder of GMA-11 is Mr. Gunkul Dhumrongpiyawut holding 99.99% stake. - Shareholder between GMA-11 and GUNKUL is Miss Naruechon Dhumrongpiyawut holding 0.000001% stake in GMA-11. - Shared directors between GMA-11 and GUNKUL are Mr. Gunkul Dhumrongpiyawut, Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.
Great Miracle Asset 12 Co., Ltd.	GMA-12	Movable and Immovable	<ul style="list-style-type: none"> - Shared shareholders between GMA-12 and GUNKUL are Mr. Gunkul Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut holding 0.000001% stake in GMA-12.
Great Miracle Asset 13 Co., Ltd.	GMA-13	Movable and Immovable	<ul style="list-style-type: none"> - Major shareholder of GMA-13 is Mr. Gunkul Dhumrongpiyawut holding 99.99% stake. - Shareholders between GMA-13 and GUNKUL are Mr. Gunkul Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut holding 0.000001% stake in GMA-13. - Shared directors between GMA-13 and GUNKUL are Mr. Gunkul Dhumrongpiyawut, Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.
Great Miracle Asset 14 Co., Ltd.	GMA-14	Movable and Immovable	<ul style="list-style-type: none"> - Major shareholder of GMA-14 is Mr. Gunkul Dhumrongpiyawut holding 99.99% stake. - Shareholders between GMA-14 and GUNKUL are Mr. Gunkul Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut holding 0.000001% stake in GMA-14. - Shared directors between GMA-14 and GUNKUL are Mr. Gunkul Dhumrongpiyawut, Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.
Pranburi Boulevard Co., Ltd.	PB	Movable and Immovable	<ul style="list-style-type: none"> - Major shareholder of PB is Mr. Gunkul Dhumrongpiyawut holding 99.99% stake. - Shareholder between PB and GUNKUL is Miss Naruechon Dhumrongpiyawut holding 0.000001% stake in PB. - Shared directors between PB and GUNKUL are Mr. Gunkul Dhumrongpiyawut, Miss Sopacha Dhumrongpiyawut and Miss Naruechon Dhumrongpiyawut.

Company	Symbol	Type of Business	Relationship
Future Energy Corporate Co., Ltd.	FTEC	Application and computer program services	<ul style="list-style-type: none"> - Major shareholder of FTEC is Miss Naruechon Dhumrongpiyawut holding 74.99% stake. - Shareholder between FTEC and GUNKUL is Miss Naruechon Dhumrongpiyawut holding 74.99% stake in FTEC. - Shared directors between FTEC and GUNKUL is Miss Naruechon Dhumrongpiyawut.
Related Person			
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 (CEO) 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.

4. Summary of related transactions in 2019 and 2018

Company	Related Companies	Type of Transaction	Size		Reason and Necessity
			2019	2018	
			(Million baht)	(Million baht)	
(1) Sales of goods and rendering of service					
GUNKUL	GKA	Sale of goods	3.68	8.63	GUNKUL sold raw materials in the category of pending components to GKA for use in operations at cost plus profit of 5-30%.
		Sale of Properties	0.01	0.08	
		Account receivable	0.20	0.95	
		Other Receivable (Cash advance)	0.01	-	
		Other Receivable	0.18	0.02	
	GKP	Sale of goods	0.10	-	GUNKUL sold raw materials in the category of pending components to GKP for use in operations at cost plus profit of 5-30%.
		Sale of Properties	-	0.01	
		Other Receivable	0.05	0.88	
	GES	Sale of goods	0.06	0.04	GUNKUL sold finished products to GES for use in operations with cost price plus profit 5-30%.
	GPD	Sale of goods	99.13	126.02	GUNKUL sold finished products to GPD for use in operations with cost price plus profit 5-30%.
		Sale of Properties	0.19	-	
		Account receivable	85.19	133.27	
		Other Receivable	1.58	0.34	
		Other Receivable (Cash advance)	0.08	-	
	RNS	Sale of goods	0.58	3.89	GUNKUL sold finished products to RNS for use in operations with cost price plus profit 5-30% according to the contract agreed between the parties.
		Service revenue (S&A)	5.04	5.04	
		Other Receivable	0.45	0.45	
	WED	Sale of goods	0.02	-	GUNKUL sold finished products to WED for use in operations with cost price plus profit 5-30%.
	GSR-1	Sale of goods	0.64	-	GUNKUL sold finished products to GSR-1 for use in operations with cost price plus profit 5-30%.
	KWE	Sale of goods	0.04	-	GUNKUL sold finished products to KWE for use in operations with cost price plus profit 5-30%.
		Sale of Properties	0.01	-	
	SES	Sales revenue	1.09	3.11	GUNKUL sold finished products to SES for use in operations with cost price plus profit 5-30%.
		Account receivable	-	3.33	
		Other Receivable (Cash advance)	0.03	0.04	
		Other Receivable	0.50	-	
	ECO	Management income (S&A service)	0.39	0.37	According to the contract agreed between the parties.
		Sale of Properties	-	0.01	
		Other Receivable	0.03	0.03	
	NK	O&M Service revenue	1.58	1.58	According to the contract agreed between the parties.
		Account receivable	-	0.21	

Company	Related Companies	Type of Transaction	Size		Reason and Necessity
			2019	2018	
			(Million baht)	(Million baht)	
	GPS	Sale of goods	0.39	-	According to the contract agreed between the parties.
		O&M Service revenue	-	0.51	
	GNP	Sale of Properties	0.01	0.01	Book value
		Sale of goods	0.31	0.01	
	BMPS	Account receivable	0.23	-	Book value
		Sale of goods	1.19	4.16	
	FEC	Sale of Properties	0.01	0.07	GUNKUL sold finished products to FEC for use in operations with cost price plus profit 5-30%.
		Account receivable	0.13	2.80	
		Sale of goods	0.57	3.00	
	GSC	Account receivable	0.21	3.20	GUNKUL sold finished products to GSC for use in operations with cost price plus profit 5-30%.
		O&M Service revenue	-	8.56	
	GCPG	S&A Service revenue	5.31	5.11	According to the contract agreed between the parties.
		Other Receivable	0.47	0.46	
		Sale of Properties	-	0.03	
	GKT	Sale of goods	-	0.01	Book value
		Other Receivable	-	0.03	
		Sale of goods	-	-	
	JV GKE&FEC	Receivables Advance	0.30	-	GUNKUL sold finished products to JV GKE&FEC for use in operations with cost price plus profit 5-30%.
GKA	GKP	Sale of goods	35.91	21.42	GKA sold finished products to GKP for use in operations with cost price plus profit 5-30%.
		Account receivables	4.90	4.33	
	GES	Sale of goods	0.14	0.44	GKA sold finished products to GES for use in operations with cost price plus profit 5-30%.
	GPD	Sale of goods	2.20	0.36	GKA sold finished products to GPD for use in operations with cost price plus profit 5-30%.
		Account receivables	0.01	-	
	GNP	Sale of goods	-	0.10	GKA sold finished products to GNP for use in operations with cost price plus profit 5-30%.
	KWE	Sale of goods	-	0.24	GKA sold finished products to KWE for use in operations with cost price plus profit 5-30%.
	FEC	Sale of goods	1.77	21.43	GKA sold finished products to FEC for use in operations with cost price plus profit 5-30%.
		Other income	-	0.05	
		Account receivables	0.12	2.88	
	NK	Sale of goods	0.13	-	GKA sold finished products to NK for use in operations with cost price plus profit 5-30%.
		Account receivable	0.13	-	

Company	Related Companies	Type of Transaction	Size		Reason and Necessity
			2019	2018	
			(Million baht)	(Million baht)	
GKP	GES	Sale of goods	-	0.07	GKP sold finished products to
		Account receivables	-	0.08	GES for use in operations with cost price plus profit 5-30%.
	GPD	Sale of goods	2.61	14.11	GKP sold finished products to GPD for use in operations with cost price plus profit 5-30%.
	RNS	Sale of goods	0.21	0.81	GKP sold finished products to
		Account receivables	-	0.29	RNS for use in operations with cost price plus profit 5-30%.
	FEC	Sale of goods	0.59	0.33	GKP sold finished products to FEC for use in operations with cost price plus profit 5-30%.
	BMPS	Sale of goods	-	0.08	GKP sold finished products to BMPS for use in operations with cost price plus profit 5-30%.
	GCPG	Sale of goods	0.98	-	GKP sold finished products to
		Other Receivable	1.05	-	GCPG for use in operations with cost price plus profit 5-30%.
GPD	GES	Sale of goods	-	0.28	GPD sold finished products to GES for use in operations with cost price plus profit 5-30%.
	KWE	Sale of goods	-	0.03	GPD sold finished products to KWE for use in operations with cost price plus profit 5-30%.
	ECO	O&M Service revenue	2.50	2.50	According to the contract agreed between the parties.
	BMPS	O&M Service revenue	0.10	0.10	According to the contract agreed between the parties.
		O&M Deferred income	0.03	0.03	
	SES	Construction revenue	161.89	48.07	According to the contract agreed between the parties.
		O&M Service revenue	0.30	-	
		Sale of goods	-	0.33	
		Account receivables	15.73	0.36	
		Accrued revenue	37.77	-	
		Advance received	18.62	21.52	
	RNS	O&M Service revenue	57.91	56.22	According to the contract agreed between the parties.
		Sale of goods	0.06	-	
		Account receivables	0.07	2.81	
		O&M Accrued service fee	1.26	1.22	
		O&M Deferred income	4.13	4.01	
	FEC	Sale of goods	0.13	0.01	GPD sold finished products to FEC for use in operations with cost price plus profit 5-30%.

Company	Related Companies	Type of Transaction	Size		Reason and Necessity
			2019	2018	
			(Million baht)	(Million baht)	
	GPS	O&M Service revenue	26.40	26.83	According to the contract agreed between the parties.
		Sale of goods	0.01	-	
		Account receivables	-	1.59	
		O&M Accrued service fee	1.59	-	
		O&M Deferred income	1.23	-	
	GCPG	O&M Service revenue	23.03	16.89	According to the contract agreed between the parties.
		O&M Accrued service fee	0.19	-	
		Account receivables	-	3.42	
		O&M Deferred income	3.13	6.13	
	WHA_GSR-1	O&M Service revenue	0.32	0.57	According to the contract agreed between the parties.
		Account receivables	-	0.05	
	WHA_GSR-3	O&M Service revenue	0.41	0.75	According to the contract agreed between the parties.
		Account receivables	-	0.07	
	WHA_GSR-6	O&M Service revenue	0.41	0.75	According to the contract agreed between the parties.
		Account receivables	-	0.07	
	WHA_GSR-17	O&M Service revenue	0.49	0.90	According to the contract agreed between the parties.
		Account receivables	-	0.08	
	GSC	Sale of goods	0.60	1.71	GPD sold finished products to
		Account receivables	0.28	1.83	GSC for use in operations with cost price plus profit 5-30%.
FEC	RNS	Other Receivable	-	9.42	
	JV GKE&FEC	Account receivables	1.47	-	
		Other Receivable	7.40	-	
SES	RNS	Other Income	2.38	-	According to the contract agreed
		Other Receivable	1.83	-	between the parties.
(2) Purchase and Service Item					
GUNKUL	GKA	Purchase of goods	254.18	276.81	GUNKUL bought finished products from GKA for use in operations with cost price plus profit 5-30%.
		Purchase of properties	-	0.03	
		Account payables	54.91	50.97	
	GKP	Purchase of goods	254.64	244.55	GUNKUL bought finished products from GKP for use in operations with cost price plus profit 5-30%.
		Purchase of Properties	-	0.01	
		Account payables	93.07	127.69	
	GES	Purchase of goods	0.76	0.37	GUNKUL bought finished products from GES for use in operations with cost price plus profit 5-30%.
		Purchase of properties	-	0.04	
		Accounts payable	0.41	0.01	
	GPD	Purchase of goods	0.25	0.02	GUNKUL bought finished products from GPD for use in operations with cost price plus profit 5-30%.
		Other payables	0.03	-	
	GTRC	Training Fee	1.61	1.16	According to the contract agreed between the parties.
		Other payables	0.05	-	
	FEC	Purchase of goods	0.02	-	GUNKUL bought finished products from FEC for use in operations with cost price plus profit 5-30%.
		Purchase of properties	-	0.10	
		Creditor of retention	1.76	1.76	

Company	Related Companies	Type of Transaction	Size		Reason and Necessity
			2019	2018	
			(Million baht)	(Million baht)	
	GKT	Purchase of goods	0.01	-	GUNKUL bought finished products from GKT for use in operations with cost price plus profit 5-30%.
	GSC	Purchase of goods	0.04	-	GUNKUL bought finished products from GSC for use in operations with cost price plus profit 5-30%.
GKA	GKP	Purchase of goods	4.02	1.01	GKA bought finished products from
		Account payables	0.44	0.06	GKP for use in operations with cost price plus profit 5-30%.
	GES	Purchase of goods	0.90	2.35	GKA bought finished products from
		Purchase of properties	-	0.03	GES for use in operations with
		Accounts payable	0.01	0.92	cost price plus profit 5-30%.
	FEC	Purchase of properties	0.01	0.01	Book Value
	GTRC	Training Fee	0.99	0.78	According to the contract agreed between the parties.
GKP	GES	Purchase of goods	-	0.05	GKP bought finished products from
		Account payables	-	0.02	GES for use in operations with cost price plus profit 5-30%.
	GTRC	Training Fee	0.22	0.18	According to the contract agreed between the parties.
WED	GTRC	Training Fee	0.04	0.01	According to the contract agreed between the parties.
GPD	FEC	Purchase of goods and services	0.05	3.50	GPD bought finished products from FEC for use in operations with cost price plus profit 5-30%
		Construction Cost	-	4.96	According to the contract agreed between the parties.
		Purchase of goods	-	-	
		Account payables	0.12	0.97	
	GES	Creditor of retention	0.23	0.17	
		Purchase of goods	-	0.50	GPD bought finished products from GES for use in operations with cost price plus profit 5-30%
		Purchase of properties	-	-	
	GTRC	Training Fee	0.60	3.22	According to the contract agreed between the parties.
RNS	FEC	Purchase of goods and services	-	10.02	According to the contract agreed
		Creditor of retention	0.44	-	between the parties.
KWE	FEC	Creditor of retention	-	27.40	
ECO	GES	Purchase of goods and services	-	0.02	ECO bought finished products from GES for use in operations with cost price plus profit 5-30%
GES	GTRC	Training Fee	0.06	0.23	According to the contract agreed between the parties.

Company	Related Companies	Type of Transaction	Size		Reason and Necessity
			2019	2018	
			(Million baht)	(Million baht)	
FEC	GTRC	Training Fee	0.42	0.40	According to the contract agreed between the parties.
	GES	Purchase of goods and services	1.19	0.44	FEC bought finished products from
		Creditor of retention	-	0.47	GES for use in operations with cost price plus profit 5-30%
GSP2	GTRC	Training Fee	0.01	-	According to the contract agreed between the parties.
GCPG	GTRC	Training Fee	0.01	0.01	According to the contract agreed between the parties.
GKT	GTRC	Training Fee	0.06	0.05	According to the contract agreed
		Other payables	0.01	-	between the parties.
KNT	GTRC	Training Fee	-	-	According to the contract agreed between the parties.
BGP	GTRC	Training Fee	0.06	0.03	According to the contract agreed
		Other payables	-	-	between the parties.
GSC	GTRC	Training Fee	0.04	-	According to the contract agreed between the parties.
BMPS	GTRC	Training Fee	0.02	-	According to the contract agreed between the parties.
SES	GSC	Purchase of properties	0.37	-	According to the contract agreed between the parties.
(3) Acquisition and divestment of assets and rental -					
GUNKUL	NK	Rental income	0.23	0.23	NK entered into a land lease agreement for Nor Sor 3. No. 86, book 10, page 18, Moo 8, Nong Kum Sub-district, Bo Phloi District, Kanchanaburi Province, with an area of 19 rai 2 ngan 23 square wah from GUNKUL, to set up a 0.94 MW solar power plant with a 26-year lease agreement, starting on June 12, 2013, totaling 6.06 million baht.
		Accrued rental income	0.24	0.20	
	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.

Company	Related Companies	Type of Transaction	Size		Reason and Necessity
			2019	2018	
			(Million baht)	(Million baht)	
	GMA	Rental	3.12	3.08	GUNKUL leased land and headquarters building by entering into a 1 year lease agreement from January 2018 - December 2018 at the rental fee of 260,150.00 baht per month. The said rental rate has been added 10% from the appraised value by an independent appraiser.
	GMA-2	Rental	2.21	2.18	GUNKUL leased the land and warehouses (Pichai) by entering into a 1 year lease agreement from January 2018 - December 2018 at the rental rate of 184,250.00 baht per month. The said rental rate has been added 10% from the appraised value by an independent appraiser.
	GMA-3	Rental	-	1.13	GUNKUL leased the land and warehouses (Ruamjit) by entering into a 1 year lease agreement from January 2018 - December 2018 at the rental rate of 193,600.00 baht per month. The said rental rate has been added 10% from the appraised value by an independent appraiser.
	GMA-8	Rental	1.10	0.92	GUNKUL leases land and buildings by entering into a 1 year lease agreement from January 2018 - December 2018 at the rental rate of 220,833.33 baht per month. The said rental rate has been added 10% from the appraised value by an independent appraiser.
GKA	GKP	Rental Income	1.10	1.08	GKA has given GKP to rent a factory building to be used as a good assembly by entering into a 3-year lease agreement from July 1, 2012 - December 30, 2015 at the rental fee of 100,000 baht per month and has renewed the lease for 2 years from January 1, 2016 - December 31, 2017 at the rental rate of 83,000 baht / month.

Company	Related Companies	Type of Transaction	Size		Reason and Necessity
			2019	2018	
			(Million baht)	(Million baht)	
	GES	Rental Income	0.41	0.44	GKA has let GES to rent a part of the factory building which is a business that produces and sells LED light bulbs, size 380 square meters. No. 110/22 Moo 2, Mahasawat Subdistrict, Bang Krui District, Nonthaburi Province, with the lease agreement for a period of 3 years from July 1, 2014 - June 30, 2017 at the rental rate of 48,000 baht / month. The rental price (new) has been modified to be 33,000 baht / month according to the appraised value which the new contract is effective from January 1, 2016 - December 31, 2017 onwards.
		Accrued rental income	-	0.04	
	GSR-1	Rental Income	0.12	0.12	GKA has provided the GSR-1 to rent a factory roof to use as a solar panel installation area of 3,456 square meters with a 3-year lease with a monthly at the rental rate of 3 baht per square meter from the first day the lessee starts to distribute electricity into the system (starting on September 2, 2014).
		Accrued rental income	0.01	0.01	
	GMA-9	Rental Income	0.84	0.83	GKA leased land for use as a space for placing materials and goods by entering into a 1 year lease agreement from January 2018 - December 2018 at the rental rate of 69,960.00 baht per month. The said rental rate has been added 10% from the appraised value by an independent appraiser.

Company	Related Companies	Type of Transaction	Size		Reason and Necessity
			2019	2018	
			(Million baht)	(Million baht)	
GKP	GMA-7	Rental	0.68	0.67	GKP leased land and buildings for use as office, test building and warehouse with a 1 year lease contract from January 2018 - December 2018 at the rental rate of 56,100.00 baht per month. The said rental rate has been added 10% from the appraised value by an independent appraiser.
	GKA	Rental income	0.20	-	GKP has let GKA to rent a building to use as a production and equipment and products storage by entering into a 3-year lease agreement from October 1, 2019 - October 31, 2022 at the rental rate of 66,150 baht per month.
	GES	Rental income	0.20	-	GKP has let GES to rent a building
		Accrued rental income	0.07	-	to use as a production and equipment and products storage by entering into a 3-year lease agreement from October 1, 2019 - October 31, 2022 at the rental rate of 66,150 baht per month.
KNP	GMA-4	Rental	-	0.59	GKP leased land and warehouse (Ratchanikorn) for use as an office, test building and warehouse with a 1 year lease contract from January 2018 - December 2018 at the rental rate of 101,200.00 baht per month. The said rental rate has been added 10% from the appraised value by an independent appraiser.
GES	PMBG	Rental and service	-	0.11	GES leased 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 by entering into a 3-year lease agreement from January 9, 2015 - January 8, 2018 at the rental rate of 28,125.00 baht per month, including the service contract of the building at rate 28,125 baht/ month.

Company	Related Companies	Type of Transaction	Size		Reason and Necessity
			2019	2018	
			(Million baht)	(Million baht)	
(4) Financial Support					
GUNKUL	GPD	<u>Short-term loans</u>			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	57.07	-	
		Loans during the period	93.70	254.50	
		Payment received	(33.70)	(197.43)	
		Balance	117.07	57.07	
		Interest received	2.00	2.62	
	GES	Accrued interest receivable	1.96	0.02	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.
		<u>Short-term loans</u>			
		Early repayment loan	54.00	44.00	
		Loans during the period	-	10.00	
		Payment received	(19.66)	-	
		Balance	34.34	54.00	
	BGP	Interest received	1.55	1.53	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.
		Accrued interest receivable	0.02	3.85	
		<u>Short-term loans</u>			
		Early repayment loan	43.83	40.33	
		Loans during the period	559.56	3.50	
		Payment received	-	-	
	GIM	Balance	603.38	43.83	GUNKUL borrowed money from GIM to use in business without interest.
		Interest received	4.55	-	
		Accrued interest receivable	4.48	-	
		<u>Short-term loans</u>			
		Early repayment loan	349.63	352.12	
		Loans during the period	-	-	
	BMPS	Payment received	(141.29)	-	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.
		Difference from exchange rate change	(14.80)	(2.49)	
		Balance	193.54	349.63	
		Interest payable	-	-	
		<u>Short-term loans</u>			
		Early repayment loan	388.48	440.98	
GNP	Loans during the period	-	-	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.	
	Payment received	(20.00)	(52.50)		
	Balance	368.48	388.48		
	Interest received	14.18	13.05		
	Accrued interest receivable	0.60	7.33		
	<u>Short-term loans</u>				
	Early repayment loan	132.00	-	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.	
	Loans during the period	-	480.00		
	Pay back	(132.00)	(348.00)		
	Balance	-	132.00		
	Interest received	2.36	1.22		
	Accrued interest receivable	-	0.11		

Company	Related Companies	Type of Transaction	Size		Reason and Necessity
			2019	2018	
			(Million baht)	(Million baht)	
GSP		<u>Short-term loans</u>			GUNKUL lent money to GSP
		Early repayment loan	-	0.50	to use in business by issuing
		Loans during the period	-	-	promissory note with charged
		Pay back	-	(0.50)	interest at the rate of 2.97% per
		Balance	-	-	year. The interest rates are
		Interest received	-	0.01	mutually agreed.
		Accrued interest receivable	-	-	
		<u>Short-term loans</u>			GUNKUL borrowed money from
		Early repayment loan	80.00	-	GSP for use in business with an
		Loans during the period	-	80.00	interest at the rate of 2.85% per
		Pay back	-	-	year, which is in accordance with
		Balance	80.00	80.00	the mutual agreement.
		Interest payable	2.28	1.01	
		Accrued interest payable	0.06	1.01	
SES		<u>Short-term loans</u>			GUNKUL lent money to SES
		Early repayment loan	-	31.00	to use in business by issuing
		Loans during the period	40.00	-	promissory note with charged
		Pay back	-	(31.00)	interest at the rate of 2.77% per
		Balance	40.00	-	year. The interest rates are
		Interest received	0.07	0.39	mutually agreed.
		Accrued interest receivable	0.07	-	
		<u>Short-term loans</u>			GUNKUL borrowed money from
		Early repayment loan	54.00	-	SES for use in business with an
		Loans during the period	-	54.00	interest at the rate of 2.73% per
		Pay back	(54.00)	-	year, which is in accordance with
		Balance	-	54.00	the mutual agreement.
KWE		Interest payable	0.79	0.81	
		Accrued interest payable	-	0.81	
		<u>Short-term loans</u>			GUNKUL lent money to KWE
		Early repayment loan	1,069.07	-	to use in business with charged
		Loans during the period	-	1,224.07	interest at the rate of 2.67-2.98%
		Pay back	(1,069.07)	(155.00)	per year. The interest rates are
GTRC		Balance	-	1,069.07	mutually agreed.
		Interest received	12.33	5.88	
		Accrued interest receivable	-	5.44	
		<u>Short-term loans</u>			GUNKUL lent money to GTRC
		Early repayment loan	-	-	to use in business with charged
		Loans during the period	-	3.54	interest at the rate of 2.66% per
		Pay back	-	(3.54)	year. The interest rates are
		Balance	-	-	mutually agreed.
		Interest received	-	0.01	
		Accrued interest receivable	-	-	

Company	Related Companies	Type of Transaction	Size		Reason and Necessity
			2019	2018	
			(Million baht)	(Million baht)	
	FEC	<u>Short-term loans</u>			GUNKUL lent money to FEC
		Early repayment loan	10.00	-	to use in business with charged
		Loans during the period	-	10.00	interest at the rate of 2.51% per
		Pay back	(10.00)	-	year. The interest rates are
		Balance	-	10.00	mutually agreed.
		Interest received	0.01	0.02	
		Accrued interest receivable	-	0.02	
	KGS (Kenyir)	<u>Short-term loans</u>			GUNKUL lent money to KGS
		Early repayment loan	-	-	to use in business with charged
		Loans during the period	169.93	-	interest at the rate of 3.50% per
		Exchange gain / loss	-	-	year. The interest rates are
		Balance	169.93	-	mutually agreed.
		Interest received	0.90	-	
		Accrued interest receivable	0.90	-	
	KNP	<u>Short-term loans</u>			GUNKUL borrowed money from
		Early repayment loan	-	-	KNP for use in business with an
		Loans during the period	50.00	-	interest at the rate of 2.65% per
		Pay back	(37.24)	-	year, which is in accordance with
		Balance	12.77	-	the mutual agreement.
		Interest received	0.35	-	
		Accrued interest receivable	0.01	-	
	GSC	<u>Short-term loans</u>			GUNKUL lent money to GSC
		Early repayment loan	-	-	to use in business with charged
		Loans during the period	0.50	-	interest at the rate of 2.62% per
		Pay back	(0.50)	-	year. The interest rates are
		Balance	-	-	mutually agreed. .
		Interest received	-	-	
		Accrued interest receivable	-	-	
GPD	GSP-1	<u>Short-term loans</u>			GPD short-term loans from GSP-1
		Early repayment loan	15.00	15.00	for use as working capital by
		Loans during the period	-	-	issuing promissory note with
		Pay back	-	-	charged interest at the rate of
		Balance	15.00	15.00	2.87% per year. The interest rates
		Interest payable	0.43	0.43	are mutually agreed.
		Accrued interest payable	0.11	0.46	
	GSP-2	<u>Short-term loans</u>			GPD short-term loans from GSP-2
		Early repayment loan	17.00	17.00	for use as working capital by
		Loans during the period	-	-	issuing promissory note with
		Pay back	-	-	charged interest at the rate of
		Balance	17.00	17.00	2.87% per year. The interest rates
		Interest payable	0.49	0.49	are mutually agreed.
		Accrued interest payable	0.12	0.53	

Company	Related Companies	Type of Transaction	Size		Reason and Necessity
			2019	2018	
			(Million baht)	(Million baht)	
	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	-	-	
		Pay back	-	(14.00)	
		Balance	-	-	
		Interest payable	-	0.07	
	GSP-4	Accrued interest payable	-	-	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.
		<u>Short-term loans</u>			
		Early repayment loan	-	18.00	
		Loans during the period	-	-	
		Pay back	-	(18.00)	
		Balance	-	-	
	GSP-5	Interest payable	-	0.09	
		Accrued interest payable	-	-	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.
		<u>Short-term loans</u>			
		Early repayment loan	-	18.00	
		Loans during the period	-	-	
		Pay back	-	(18.00)	
	GSP-6	Balance	-	-	
		Interest payable	-	0.12	
		Accrued interest payable	-	-	GPD short-term loans from GSP-6 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.
		<u>Short-term loans</u>			
		Early repayment loan	-	18.00	
		Loans during the period	-	-	
		Pay back	-	(18.00)	
		Balance	-	-	
		Interest payable	-	0.07	
		Accrued interest payable	-	-	
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	
		Pay back	-	(3.50)	
		Balance	-	-	
		Interest payable	-	-	
		Accrued interest payable	-	-	
	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	
		Pay back	-	(2.60)	
		Balance	-	-	
		Interest payable	-	-	
		Accrued interest payable	-	-	

Company	Related Companies	Type of Transaction	Size		Reason and Necessity
			2019	2018	
			(Million baht)	(Million baht)	
	OGD	<u>Short-term loans</u>			GOB short-term loans from OGD for
		Early repayment loan	-	0.60	use as working capital by issuing
		Pay back	-	(0.60)	promissory note with charged
		Balance	-	-	interest at the rate of 6.30% per year.
		Interest payable	-	-	The interest rates are mutually
		Accrued interest payable	-	-	agreed.
	OGE	<u>Short-term loans</u>			GOB short-term loans from OGE for
		Early repayment loan	-	0.40	use as working capital by issuing
		Pay back	-	(0.40)	promissory note with charged
		Balance	-	-	interest at the rate of 6.30% per year.
		Interest payable	-	-	The interest rates are mutually
		Accrued interest payable	-	-	agreed.
FEC	KNT	Loans			FEC lent money to KNT to use
		Early repayment loan	-	29.00	in business with charged interest
		Loans during the period	-	-	at the rate of 1.55-4.55% per year.
		Payment received	-	(29.00)	The interest rates are mutually
		Balance	-	-	agreed.
		Interest received	-	0.25	
		Accrued interest receivable	-	-	
	Director	<u>Short-term loans</u>			FEC lent money to Director to use
		Early repayment loan	-	392.39	in business with charged interest
		Loans during the period	-	63.50	at the rate of 1.50-4.85% per year.
		Pay back	-	(455.89)	The interest rates are mutually
		Balance	-	-	agreed.
		Interest received	-	2.91	
		Accrued interest receivable	-	-	
(5) Other items					
GUNKUL	GKP	Dividend income	15.00	14.54	GUNKUL received dividends from GKP in accordance with the resolution of the Board of Directors' Meeting from the amount of 99,998 shares held (par value of 1,000.00 baht per share). In the year 2019 and 2018, the total dividend that received was 15 million baht and 14.54 million baht, respectively. The payment of dividends shall be made within one month from the date of resolution to be in accordance with the law.

Company	Related Companies	Type of Transaction	Size		Reason and Necessity
			2019	2018	
			(Million baht)	(Million baht)	
	GKA	Dividend income	-	50.00	GUNKUL received dividends from GKA in accordance with the resolution of the Board of Directors' Meeting from the amount of 1,999,998 shares held (par value of 100.00 baht per share). In the year 2018, a total dividend of 50 million baht has been received. The payment of dividends shall be made within one month from the date of resolution to be in accordance with the law.
	KNP	Dividend income	0.70	-	GUNKUL received dividends from KNP in accordance with the resolution of the Board of Directors' Meeting from the amount of 499,998 shares held (par value of 100.00 baht per share). In the year 2019, a total dividend of 0.70 million baht has been received. The payment of dividends shall be made within one month from the date of resolution to be in accordance with the law.
	GPS	Dividend income	48.77	50.41	GUNKUL received dividends from GPS in accordance with the resolution of the Board of Directors' Meeting from the amount of 3,719,998 shares held (par value of 100.00 baht per share). In the year 2019 and 2018, the total dividend that received was 48.77 million baht and 50.41 million baht, respectively. The payment of dividends shall be made within one month from the date of resolution to be in accordance with the law.
		Dividends receivable	115.80	115.80	

Company	Related Companies	Type of Transaction	Size		Reason and Necessity
			2019	2018	
			(Million baht)	(Million baht)	
	GCPG	Dividend income	131.59	155.32	GUNKUL received dividends from GCPG in accordance with the resolution of the Board of Directors' Meeting from the amount of 5,059,195 shares held (par value of 100.00 baht per share). In the year 2019 and 2018, the total dividend that received was 131.59 million baht and 155.32 million baht, respectively. The payment of dividends shall be made within one month from the date of resolution to be in accordance with the law.
	WHA_GSR-1	Dividend income	0.14	0.01	GUNKUL received dividends from WHA_GSR-1 in accordance with the resolution of the annual general meeting of shareholders from the amount of 287,615 shares held (par value of 10.00 baht per share). In the year 2019 and 2018, the total dividend that received was 0.14 million baht and 0.01 million baht, respectively.
		Dividends receivable	-	-	
	WHA_GSR-3	Dividend income	0.36	0.13	GUNKUL received dividends from WHA_GSR-3 in accordance with the resolution of the annual general meeting of shareholders from the amount of 362,645 shares held (par value of 10.00 baht per share). In the year 2019 and 2018, the total dividend that received was 0.14 million baht and 0.01 million baht, respectively.

Company	Related Companies	Type of Transaction	Size		Reason and Necessity
			2019	2018	
			(Million baht)	(Million baht)	
	WHA_GSR-6	Dividend income	0.36	0.13	GUNKUL received dividends from WHA_GSR-6 in accordance with the resolution of the annual general meeting of shareholders from the amount of 362,645 shares held (par value of 10.00 baht per share). In the year 2019 and 2018, the total dividend that received was 0.36 million baht and 0.13 million baht, respectively.
	WHA_GSR-17	Dividend income	0.74	1.00	GUNKUL received dividends from WHA_GSR-17 in accordance with the resolution of the annual general meeting of shareholders from the amount of 400,160 shares held (par value of 10.00 baht per share). In the year 2019 and 2018, the total dividend that received was 0.74 million baht and 1.00 million baht, respectively.
	GSR-1	Dividend income	1.20	-	GUNKUL received dividends from GSR-1 in accordance with the resolution of the annual general meeting of shareholders from the amount of 209,997 shares held (par value of 10.00 baht per share). In the year 2019, the total dividend that received was 1.20 million baht. The payment of dividends shall be made within one month from the date of resolution to be in accordance with the law.
	GPD	Dividend income	-	620.00	GUNKUL received dividends from GPD in accordance with the resolution of the Board of Directors' Meeting from the amount of 1,249,997 shares and 2,999,997 shares held (par value of 100.00 baht per share). In the year 2018, the total dividend that received was 620 million baht. The payment of dividends shall be made within one month from the date of resolution to be in accordance with the law.

Company	Related Companies	Type of Transaction	Size		Reason and Necessity
			2019	2018	
			(Million baht)	(Million baht)	
	IAE	Dividend income	80.69	165.44	GUNKUL received dividends from IAE in accordance with the resolution of the Board of Directors' Meeting from the amount of 10,478,799 shares held (par value of 100.00 baht per share). In the year 2019 and 2018, the total dividend that received was 80.69 million baht and 165.44 million baht, respectively. The payment of dividends shall be made within one month from the date of resolution to be in accordance with the law.
	NK	Dividend income	11.00	12.00	GUNKUL received dividends from NK in accordance with the resolution of the Board of Directors' Meeting and the annual general meeting of shareholders which the Company holds 2,940 preferred shares in accordance with the regulations of the preferred shareholders that will receive dividends before ordinary shareholders at the rate of 99% of all dividends. In the year 2019 and 2018, the total dividend that received was 11.00 million baht and 12.00 million baht, respectively. The payment of dividends shall be made within one month from the date of resolution to be in accordance with the law.
	SGSE	Dividend income	8.59	-	GUNKUL received dividends from SGSE in accordance with the resolution of the Board of Directors' Meeting from the amount of 408,997 shares held (par value of 100.00 baht per share). In the year 2019, the total dividend that received was 8.59 million baht. The payment of dividends shall be made within one month from the date of resolution to be in accordance with the law.

Company	Related Companies	Type of Transaction	Size		Reason and Necessity
			2019	2018	
			(Million baht)	(Million baht)	
	WED	Dividend income	200.02	389.02	GUNKUL received dividends from WED in accordance with the resolution of the Board of Directors' Meeting and the annual general meeting of shareholders from the amount of 157,499,987 shares held (par value of 100.00 baht per share). In the year 2019 and 2018, the total dividend that received was 200.02 million baht and 389.02 million baht, respectively. The payment of dividends shall be made within one month from the date of resolution to be in accordance with the law.
	ECO	Dividend income	4.83	6.96	GUNKUL received dividends from ECO in accordance with the resolution of the Board of Directors' Meeting and the annual general meeting of shareholders from the amount of 390,150 shares held (par value of 100.00 baht per share). In the year 2019 and 2018, the total dividend that received was 4.83 million baht and 6.96 million baht, respectively. The payment of dividends shall be made within one month from the date of resolution to be in accordance with the law.

Company	Related Companies	Type of Transaction	Size		Reason and Necessity
			2019	2018	
			(Million baht)	(Million baht)	
	BMPS	Dividend income	26.00	27.00	GUNKUL received dividends from BMPS in accordance with the resolution of the Board of Directors' Meeting and the annual general meeting of shareholders which the Company holds 48,010 preferred shares in accordance with the regulations of the preferred shareholders that will receive dividends before ordinary shareholders at the rate of 99% of all dividends. In the year 2019 and 2018, the total dividend that received was 26 million baht and 27 million baht, respectively. The payment of dividends shall be made within one month from the date of resolution to be in accordance with the law.
	GNP	Dividend income	629.64	-	GUNKUL received dividends from GNP in accordance with the resolution of the Board of Directors' Meeting from the amount of 148,499,998 shares held (par value of 10.00 baht per share). In the year 2019, the total dividend that received was 629.64 million baht. The payment of dividends shall be made within one month from the date of resolution to be in accordance with the law.
	GTRC	Dividend income	3.00	-	GUNKUL received dividends from GTRC in accordance with the resolution of the Board of Directors' Meeting from the amount of 99,997 shares held (par value of 100.00 baht per share). In the year 2019, the total dividend that received was 3.00 million baht. The payment of dividends shall be made within one month from the date of resolution to be in accordance with the law.

Company	Related Companies	Type of Transaction	Size		Reason and Necessity
			2019	2018	
			(Million baht)	(Million baht)	
IAE	RNS	Dividend income	201.62	259.75	IAE received dividends from RNS in accordance with the resolution of the Board of Directors' Meeting and the annual general meeting of shareholders from the amount of 13,549,997 shares held (par value of 100.00 baht per share). In the year 2019 and 2018, the total dividend that received was 201.62 million baht and 259.75 million baht, respectively. The payment of dividends shall be made within one month from the date of resolution to be in accordance with the law.
GSP	GSP-2	Dividend income	1.60	1.80	GSP received dividends from GSP-2 in accordance with the resolution of the Board of Directors' Meeting from the amount of 999,997 shares held (par value of 100.00 baht per share). In the year 2019 and 2018, the total dividend that received was 1.60 million baht and 1.80 million baht, respectively. The payment of dividends shall be made within one month from the date of resolution to be in accordance with the law.

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.

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' 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, 2019 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, 2019. The Board of Directors also believes that all these financial statements have been prepared in accordance with generally accepted accounting principle and related regulations.

(Dr. Gunkul Dhumrongpiyawut)

Chairman of the Board

25th February 2020

Summary of Financial Statements

Financial Statements

(1) Independent Auditor's Report

- 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 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.

- 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, 2019, and expressed the unqualified opinion that 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 2019 and their financial performance and cash flows for the year then ended in accordance with Thai Financial Reporting Standards (TFRSs).

(2) Table Summary of Financial Statements

Gunkul Engineering Public Company Limited and Its Subsidiaries

Statements of Financial Position as at 31 December 2017- 2019

Unit : Baht

Items	Consolidated Financial Statements			Separate Financial Statements		
	2019	2018	2017 (Restated)	2019	2018	2017
Assets						
Current assets						
Cash and cash equivalents	1,600,219,537	892,652,654	1,158,017,322	303,754,822	273,762,813	240,328,765
Current investments	23,553,105	606,089,344	645,019,982	-	529,906,475	550,020,906
Short-term deposits from financial institution pledged as collateral	2,593,886,402	1,501,020,586	964,049,692	200,103,712	-	-
Trade accounts receivable	1,063,382,228	1,068,798,910	1,153,979,661	287,910,819	388,885,965	223,096,299
Unbilled revenue	625,171,464	225,175,687	759,609,883	-	-	12,148,598
Other receivables	336,033,950	289,929,696	370,171,541	151,002,647	62,838,422	171,580,815
Revenue Department receivable	220,205,763	298,960,074	100,734,948	2,570,255	-	-
Short-term loans to related parties	169,928,657	-	402,390,094	984,724,262	1,754,452,670	556,807,750
Long-term loans to related parties that are due within one year	-	-	19,000,000	-	-	-
Inventories	652,779,571	540,167,019	408,985,378	380,906,999	284,332,577	194,904,660
Total current assets	7,285,160,677	5,422,793,970	5,981,958,501	2,310,973,516	3,294,178,922	1,948,887,793
Non-current assets						
Long-term deposits from financial institution pledged as collateral	325,562,501	592,003,707	40,770,206	-	-	-
Loan to related parties	-	-	-	348,482,931	-	-
Investments in associates	481,894,599	426,852,710	381,407,019	397,594,800	397,594,800	397,594,800
Investments in joint ventures	1,249,137,069	1,078,764,354	1,005,233,337	726,177,750	576,610,150	520,050,150
Investments in subsidiaries	-	-	-	13,188,214,576	12,884,624,101	12,272,402,201
Other non-current receivables	186,251,219	418,720,423	413,048,266	166,387,219	388,874,152	273,070,614
Investment properties	-	-	-	3,143,658	3,143,658	3,143,658
Property, plant and equipment	24,567,137,226	23,018,092,750	18,072,860,859	66,413,447	74,184,502	70,572,269
Goodwill	163,476,324	163,476,324	163,476,324	-	-	-
Intangible assets	3,953,067,993	4,213,228,830	4,068,184,786	6,132,502	4,928,514	4,091,404
Advance for shares subscription	559,555,466	-	-	-	-	-
Deposit for asset	-	-	362,141,578	-	-	-
Advance for land lease	194,348,456	215,351,112	215,440,843	-	-	-
Deferred tax assets	75,948,204	75,465,591	21,933,011	62,758,854	61,100,361	9,392,391
Total non-current assets	31,756,379,057	30,201,955,801	24,744,496,229	14,965,305,737	14,391,060,238	13,550,317,487
Total assets	39,041,539,734	35,624,749,771	30,726,454,730	17,276,279,253	17,685,239,160	15,499,205,280

Gunkul Engineering Public Company Limited and Its Subsidiaries
Statements of Financial Position as at 31 December 2017 - 2019

Unit : Baht

Items	Consolidated Financial Statements			Separate Financial Statements		
	2019	2018	2017 (Restated)	2019	2018	2017
Liabilities and equity						
Current liabilities						
Short-term loans from financial institutions	1,051,088,014	2,306,788,075	2,271,966,942	984,643,614	2,012,489,398	1,957,821,723
Short-term loans from related parties	-	-	-	286,305,838	483,630,656	352,121,984
Trade accounts payable	726,044,411	340,646,726	770,710,822	295,416,300	246,918,703	259,998,139
Unearned revenues	402,319,891	104,217,170	258,756,368	19,528,128	16,166,890	14,813,972
Payable for purchases of assets	2,802,809,458	454,767,934	1,496,735,070	-	-	-
Revenue Department payable	38,297,903	59,323,015	22,799,576	-	3,310,866	1,171,368
Retention payables	414,703,853	532,589,874	274,237,683	9,316,344	9,617,538	10,113,851
Other payables	468,840,498	315,094,448	353,570,840	85,204,288	119,595,334	98,421,099
Current portion of long-term loans	1,261,321,656	1,546,994,980	632,315,625	28,504,129	28,443,981	-
Current portion of debentures	1,000,000,000	2,765,500,000	280,000,000	1,000,000,000	2,765,500,000	280,000,000
Current portion of finance lease liabilities	15,510,305	13,931,656	15,315,477	7,903,214	7,185,659	9,426,787
Income tax payable	24,123,342	64,806,817	55,027,127	-	-	-
Total current liabilities	8,205,059,331	8,504,660,695	6,431,435,530	2,716,821,855	5,692,859,025	2,983,888,923
Non-current liabilities						
Long-term loans	14,387,961,223	14,129,849,292	9,750,699,546	364,982,721	393,486,850	-
Debentures	4,602,977,092	2,819,000,000	3,765,500,000	4,602,977,092	2,819,000,000	3,765,500,000
Retention payables	5,969,146	146,051,080	280,406,769	185,000	133,298	170,031
Finance lease liabilities	17,022,188	18,866,326	28,233,539	10,487,263	7,615,657	14,230,162
Deferred tax liabilities	186,316,792	188,230,332	188,595,429	-	-	-
Provisions for employee benefit	76,991,751	52,889,050	45,781,071	49,064,855	34,690,365	30,038,092
Provision for decommissioning costs of power plants	209,434,134	203,979,259	5,305,520	-	-	-
Other non-current liabilities	16,894,238	61,175,854	46,638,128	1,256,234	25,326,970	15,285,122
Total non-current liabilities	19,503,566,564	17,620,041,193	14,111,160,002	5,028,953,165	3,280,253,140	3,825,223,407
Total liabilities	27,708,625,895	26,124,701,888	20,542,595,532	7,745,775,020	8,973,112,165	6,809,112,330

Gunkul Engineering Public Company Limited and Its Subsidiaries
Statements of Financial Position as at 31 December 2017 - 2019

Unit : Baht

Items	Consolidated Financial Statements			Separate Financial Statements		
	2019	2018	2017 (Restated)	2019	2018	2017
Equity						
Share capital						
Authorized share capital	2,225,586,448	1,854,655,373	1,982,967,060	2,225,586,448	1,854,655,373	1,982,967,060
Issued and paid-up share capital	2,220,632,743	1,854,655,373	1,854,655,373	2,220,632,743	1,854,655,373	1,854,655,373
Treasury shares	(304,674,256)	(304,674,256)	-	(304,674,256)	(304,674,256)	-
Additional paid in capital:						
Share premium	5,179,473,454	5,179,473,454	5,179,473,454	5,179,473,454	5,179,473,454	5,179,473,454
Retained earnings						
Appropriated						
Legal reserve	222,559,000	198,300,000	198,300,000	222,559,000	198,300,000	198,300,000
Treasury shares reserve	304,674,256	304,674,256	-	304,674,256	304,674,256	-
Unappropriated	4,134,470,833	2,452,439,992	2,005,777,871	1,907,839,036	1,479,522,211	1,457,643,217
Difference arising from business combination under common control	(464,752,542)	(464,752,542)	93,622,450	-	-	-
Other components of equity	(580,176,332)	(309,604,699)	(362,631,882)	-	175,957	20,906
Equity attributable to owners of the Company	10,712,207,156	8,910,511,578	8,969,197,266	9,530,504,233	8,712,126,995	8,690,092,950
Former shareholder before business restructuring	-	-	616,557,891	-	-	-
Non-controlling interests	620,706,683	589,536,305	598,104,041	-	-	-
Total equity	11,332,913,839	9,500,047,883	10,183,859,198	9,530,504,233	8,712,126,995	8,690,092,950
Total liabilities and equity	39,041,539,734	35,624,749,771	30,726,454,730	17,276,279,253	17,685,239,160	15,499,205,280

Gunkul Engineering Public Company Limited and Its Subsidiaries
Statements of Comprehensive Income as of 31 December 2017 - 2019

Unit : Baht

Items	Consolidated Financial Statements			Separate Financial Statements		
	2019	2018	2017 (Restated)	2019	2018	2017
<u>Revenue</u>						
Revenue from sale	1,526,498,126	1,344,964,976	1,159,981,559	1,430,662,575	1,212,462,215	1,079,644,994
Revenue from sale of electricity	2,928,425,222	1,762,808,281	1,114,880,961	-	-	-
Revenue from rendering of services	87,728,797	68,541,412	68,088,980	40,007,288	28,309,677	44,485,943
Revenue from construction services	979,945,647	1,887,242,809	2,045,042,136	-	60,852,900	25,549,214
Revenue from adder	1,575,971,477	1,166,941,762	420,683,775	-	-	-
Dividend income	-	-	-	1,162,637,144	1,491,947,483	641,879,081
Net foreign exchange gain	19,893,800	-	7,266,458	7,205,903	6,380,350	-
Interest income	18,476,841	14,266,266	38,740,077	40,290,683	26,844,921	42,851,382
Other income	58,319,381	216,121,172	58,800,362	39,204,126	50,502,901	43,039,588
Total revenue	7,195,259,291	6,460,886,678	4,913,484,308	2,720,007,719	2,877,300,447	1,877,450,202
<u>Expenses</u>						
Cost of sale	1,040,341,624	943,583,114	795,831,255	1,086,502,988	944,887,737	826,499,809
Cost of sale of electricity	1,499,380,037	901,674,319	490,256,740	-	-	-
Cost of rendering of services	47,714,078	42,241,899	64,568,671	13,504,399	21,251,070	33,681,167
Cost of construction services	862,949,818	1,282,474,222	1,710,546,458	-	47,683,757	25,744,897
Selling expenses	68,263,898	63,205,732	57,953,686	45,429,016	46,564,007	46,644,733
Administrative expenses and others	771,916,944	679,832,705	592,148,697	390,233,897	344,421,150	325,676,108
Unwind foreign exchange option						
contracts fee	-	588,109,119	95,278,978	-	588,109,119	60,278,978
Net foreign exchange loss	-	146,810,278	-	-	-	13,689,898
Total expenses	4,290,566,399	4,647,931,388	3,806,584,485	1,535,670,300	1,992,916,840	1,332,215,590
Share of profit of associate and joint ventures	268,653,670	269,402,971	269,262,917	-	-	-
Profit before finance costs and income tax expense	3,173,346,562	2,082,358,261	1,376,162,740	1,184,337,419	884,383,607	545,234,612
Finance costs	910,076,035	800,452,148	570,284,549	290,683,941	275,702,662	191,465,116
Profit before income tax expense	2,263,270,527	1,281,906,113	805,878,191	893,653,478	608,680,945	353,769,496
Tax expense (income)	40,981,213	103,496,017	91,089,954	(945,963)	(51,707,970)	(241,807)
Profit for the year	2,222,289,314	1,178,410,096	714,788,237	894,599,441	660,388,915	354,011,303

Gunkul Engineering Public Company Limited and Its Subsidiaries
Statements of Comprehensive Income as of 31 December 2017 - 2019

Unit : Baht

Items	Consolidated Financial Statements			Separate Financial Statements		
	2019	2018	2017	2019	2018	2017
			(Restated)			
Other comprehensive income						
<i>Items that will be reclassified subsequently to profit or loss</i>						
Exchange differences on translating foreign operations	(270,009,246)	52,216,056	(272,491,787)	-	-	-
Net change in fair value of available-for-sale investments	(443,608)	826,812	20,371	(175,957)	155,051	20,906
Income tax relating to items that will be reclassified	(22,658)	-	-	-	-	-
Total items that will be reclassified subsequently to profit or loss	(270,452,805)	53,042,868	(272,471,416)	(175,957)	155,051	20,906
<i>Items that will not be reclassified to profit or loss</i>						
Losses on remeasurements of defined benefit plans	(2,332,399)	-	(18,848,974)	(3,562,648)	-	(12,418,314)
Income tax relating to items that will not be reclassified	466,480.00	-	3,768,771	712,530	-	2,483,663
Total items that will not be reclassified to profit or loss	(1,865,919)	-	(15,080,203)	(2,850,118)	-	(9,934,651)
Other comprehensive income (expense) for the year, net of tax	(272,341,431)	53,042,868	(287,551,619)	(3,026,075)	155,051	(9,913,745)
Total comprehensive income (expense) for the year	1,949,947,883	1,231,452,964	427,236,618	891,573,366	660,543,966	344,097,558
Profit attributable to:						
Owners of the parent	2,147,329,258	1,085,172,042	465,794,332	894,599,441	660,388,915	354,011,303
Former shareholder before business restructuring	-	5,067,117	172,800,522	-	-	-
Non-controlling interests	74,960,056	88,170,937	76,193,382	-	-	-
Profit for the year	2,222,289,314	1,178,410,096	714,788,236	894,599,441	660,388,915	354,011,303
Total comprehensive income (expense) attributable to:						
Owners of the parent	1,874,891,706	1,138,199,225	178,989,222	891,573,366	660,543,966	344,097,558
Former shareholder before business restructuring	-	5,067,117	172,054,013	-	-	-
Non-controlling interests	75,056,177	88,186,622	76,193,382	-	-	-
Total comprehensive income (expense) for the year	1,949,947,883	1,231,452,964	427,236,617	891,573,366	660,543,966	344,097,558
Basic earnings per share (in Baht)	0.24	0.12	0.06	0.10	0.08	0.05

Gunkul Engineering Public Company Limited and its Subsidiaries
Statement of changes in equity

	Consolidated financial statements												
	Issued and paid-up share capital	Treasury shares	Share premium	Retained earnings		Difference arising from business combination under common control	Other components of equity			Equity attributable to owners of the parent	Non-controlling interests	Total equity	
				Legal reserve	Treasury shares reserve		Unappropriated	Translating foreign operations	Available-for-sale investments				Total other components of equity
	(in Baht)												
Year ended 31 December 2019													
Balance at 1 January 2019	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
Transactions with owners, recorded directly in equity													
<i>Distributions to owners of the parent</i>													
Subsidiary paid dividend	-	-	-	-	-	-	-	-	-	-	-	(44,385,799)	(44,385,799)
Stock dividend	365,977,370	-	-	-	-	(365,977,370)	-	-	-	-	-	-	-
Dividend paid to shareholders	-	-	-	-	-	(73,196,128)	-	-	-	-	(73,196,128)	-	(73,196,128)
<i>Total distributions to owners of the parent</i>	365,977,370	-	-	-	-	(439,173,498)	-	-	-	-	(73,196,128)	(44,385,799)	(117,581,927)
<i>Changes in ownership interests in subsidiaries</i>													
Issue of ordinary shares in subsidiary	-	-	-	-	-	-	-	-	-	-	-	500,000	500,000
<i>Total changes in ownership interests in subsidiaries</i>	-	-	-	-	-	-	-	-	-	-	-	500,000	500,000
Total transactions with owners, recorded directly in equity	365,977,370	-	-	-	-	(439,173,498)	-	-	-	-	(73,196,128)	(43,885,799)	(117,081,927)
Comprehensive income (expense) for the year													
Profit	-	-	-	-	-	2,147,329,258	-	-	-	-	2,147,329,258	74,960,056	2,222,289,314
Other comprehensive income (expense)	-	-	-	-	-	(1,865,919)	-	(270,009,246)	(562,387)	(270,571,633)	(272,437,552)	96,121	(272,341,431)
Total comprehensive income (expense) for the year	-	-	-	-	-	2,145,463,339	-	(270,009,246)	(562,387)	(270,571,633)	1,874,891,706	75,056,177	1,949,947,883
Transfer to legal reserve	-	-	-	24,259,000	-	(24,259,000)	-	-	-	-	-	-	-
Balance at 31 December 2019	2,220,632,743	(304,674,256)	5,179,473,454	222,559,000	304,674,256	4,134,470,833	(464,752,542)	(580,445,443)	269,111	(580,176,332)	10,712,207,156	620,706,883	11,332,913,839

- Statements of Cash Flow

Gunkul Engineering Public Company Limited and Its Subsidiaries
Statements of Cash Flows as of 31 December 2017 - 2019

Unit : Baht

Items	Consolidated Financial Statements			Separate Financial Statements		
	2019	2018	2017 (Restated)	2019	2018	2017
<i>Cash flows from operating activities</i>						
Profit for the year	2,222,289,314	1,178,410,096	714,788,237	894,599,441	660,388,915	354,011,303
Adjustments to reconcile profit to cash receipts (payments)						
Tax expense (income)	40,981,213	103,496,017	91,089,954	(945,963)	(51,707,970)	(241,807)
Finance costs	910,076,035	800,452,148	570,284,549	290,683,941	275,702,662	191,465,116
Depreciation and amortisation	1,137,428,087	762,809,614	472,418,121	14,093,113	15,090,095	13,631,544
Provisions for employee benefits	23,144,731	7,694,195	5,830,122	11,718,991	4,664,594	4,304,947
Unrealised (gain) loss on foreign exchange	(13,419,138)	2,106,223	(26,864,540)	(7,830,297)	8,309,632	18,133,716
Share of profit of associate and joint ventures	(268,653,670)	(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	-	-	-	(1,162,637,144)	(1,491,947,483)	(641,879,081)
(Reversal of) doubtful debts expenses	1,313,177	(1,189,735)	-	187,152	-	-
Allowance for decline in value of inventories	10,695,705	1,358,873	2,801,346	6,678,700	2,480,263	(337,460)
(Gain) loss on disposal of property, plant and equipment	44,305,310	8,242,027	3,823,232	6,463,359	(75,454)	(1,125)
Gain on disposal of current investments	(3,310,253)	(1,974,744)	-	(1,987,463)	(1,925,655)	-
Interest income	(18,476,841)	(14,266,266)	(38,740,077)	(40,290,683)	(26,844,921)	(42,851,382)
	4,086,373,670	2,543,182,780	1,485,009,947	10,733,147	(640,418,019)	(144,308,271)
<i>Changes in operating assets and liabilities</i>						
Short-term deposits from financial institution pledged as collateral	(877,150,637)	(1,098,180,584)	(372,705,349)	(200,103,712)	-	45,572,105
Trade accounts receivable	4,178,602	86,370,486	(441,711,503)	100,787,901	(165,789,666)	249,881,056
Unbilled revenue	(399,995,777)	534,434,196	(422,849,416)	-	12,148,598	145,590
Other receivables	225,799,193	-50,976,783	(105,125,674)	158,938,638	7,287,378	(7,915,100)
Revenue Department receivable	306,881,090	(198,225,126)	248,038,373	(2,570,255)	-	-
Inventories	(123,308,257)	(132,540,514)	31,081,266	(103,253,122)	(91,908,180)	32,250,516
Other non-current receivables	(32,141,815)	113,226,714	(3,794,113)	(33,003,483)	-	57,852,724
Advance for land lease	10,020,198	(2,105,743)	-	-	-	-
Trade accounts payable	386,956,572	(429,554,738)	207,165,686	48,730,163	(12,741,717)	(50,907,204)
Unearned revenues	298,102,721	(154,539,198)	26,494,980	3,361,238	1,352,918	12,969,844
Revenue Department payable	(21,025,113)	36,523,439	7,022,548	(3,310,866)	2,139,498	(5,187,633)
Retention payables	(224,342,050)	140,440,649	154,529,593	(249,493)	(533,046)	(34,593,983)
Other payables	70,604,395	(115,965,624)	337,930,138	(41,102,549)	5,835,607	(10,560,966)
Provisions for employees benefits	(1,374,429)	(586,216)	(2,224,699)	(907,149)	(12,321)	(1,821,949)
Other non-current liabilities	(20,210,841)	14,537,726	20,566,962	40	(14,028,927)	(4,371,082)
Net cash generated from (used in) operating activities	3,689,367,522	1,286,041,464	1,169,428,739	(61,949,502)	(896,667,877)	139,005,647
Taxes paid	(115,875,436)	(163,759,102)	(95,258,107)	(12,854,435)	(9,480,432)	(14,442,422)
Net cash from (used in) operating activities	3,573,492,086	1,122,282,362	1,074,170,632	(74,803,937)	(906,148,309)	124,563,225

Gunkul Engineering Public Company Limited and Its Subsidiaries
Statements of Cash Flows as of 31 December 2017 - 2019

Unit : Baht

Items	Consolidated Financial Statements			Separate Financial Statements		
	2019	2018	2017 (Restated)	2019	2018	2017
Cash flows from investing activities						
Acquisition of subsidiaries, net of cash acquired	-	(573,628,353)	-	-	-	-
Payment for incremental of capital in subsidiaries	-	-	-	(341,090,475)	(629,641,900)	(1,926,122,245)
Proceeds from reduction of shares in subsidiary	-	-	-	37,500,000	17,420,000	-
Proceeds from incremental of shares in non-controlling interests	500,000	-	-	-	-	-
Payment for reduction of shares in 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)	-
Payment for incremental of capital in joint ventures	(152,067,600)	-	-	(149,567,600)	-	-
Proceeds from sale of current investments	2,156,565,115.00	1,968,784,038	604,999,854	1,911,717,980	1,801,746,980	1,560,550,603
Payment for purchase of current investments	(1,571,162,230)	(1,927,051,843)	(989,668,647)	(1,380,000,000)	(1,779,551,843)	(1,160,881,956)
Benefit received from advance payment of machinery for investment	7,744,373.00	35,147,322	45,502,708	7,744,373	35,147,322	45,502,708
Payment for deposit for purchase of assets	-	-	22,673,992	-	-	-
Payment for advance for land lease	-	-	(16,978,091)	-	-	-
Acquisition of property, plant and equipment	(743,056,656)	(6,167,793,747)	(4,060,582,578)	(2,922,677)	(17,820,463)	(8,330,875)
Acquisition of intangible assets	(32,849,993)	(135,311,376)	(654,938,080)	(2,684,535)	(1,993,870)	(449,850)
Proceeds from sale of property, plant and equipment	25,763,836	713,784	414,382	2,880,776	288,855	6,000
Proceeds from sale of intangible assets	73,008,746.00	-	-	-	-	-
Proceeds from loans to related parties	-	421,390,094	28,400,000	1,284,929,600	787,958,290	1,689,806,414
Payment for loans to related parties	(169,928,657)	-	(203,300,000)	(863,684,123)	(1,985,603,210)	(1,689,286,414)
Payment for advance for shares subscription	(559,555,466)	-	-	-	-	-
Dividend received	181,968,242	206,986,264	177,255,128	1,162,637,144	1,491,947,483	617,475,894
Interest received	18,177,390	46,129,984	48,825,784	48,977,680	21,443,700	50,399,905
Net cash from (used in) investing activities	(764,892,900)	(6,189,773,833)	(5,000,737,744)	1,716,438,143	(315,218,656)	(824,672,012)
Cash flows from financing activities						
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	(1,254,902,711)	-	(1,713,087,422)	(1,027,827,332)	-	(1,964,227,273)
Proceeds from loans from related parties	-	-	-	50,000,000	134,000,000	649,060,352
Repayment of loans to related parties	-	-	-	(232,523,205)	-	(300,000,000)
Proceeds of long-term loans	1,717,573,607.00	6,140,207,783	3,658,803,291	-	428,760,000	-
Repayment of long-term loans	(1,525,809,398)	(848,101,466)	(550,753,000)	(28,800,000)	(7,200,000)	-
Proceeds of debentures	2,783,042,500	1,819,000,000	2,265,500,000	2,783,042,500	1,819,000,000	2,265,500,000
Repayment of debentures	(2,765,500,000)	(280,000,000)	(300,000,000)	(2,765,500,000)	(280,000,000)	(300,000,000)
Payment by a lessee for reduction of the outstanding liability relating to a finance lease	(15,183,489)	(15,942,393)	(17,649,130)	(7,858,839)	(8,855,633)	(9,572,021)
Dividend paid	(73,198,984)	(333,793,403)	(254,320,025)	(73,198,983)	(333,793,403)	(254,320,025)
Dividend paid to non-controlling interests	(44,385,799)	(88,174,358)	(117,270,472)	-	-	-
Dividend paid to former shareholder before business restructuring	-	(562,000,000)	-	-	-	-
Interest paid	(904,612,822)	(756,770,609)	(545,305,743)	(306,749,747)	(235,964,690)	(178,510,463)
Net cash from (used in) financing activities	(2,082,977,096)	4,807,547,181	2,426,187,900	(1,609,415,606)	1,266,423,114	(91,799,029)
Net increase (decrease) in cash and cash equivalents	725,622,090	(259,944,290)	(1,500,379,212)	32,218,600	45,056,149	(791,907,816)
Effect of exchange rate changes on cash and cash equivalents	(18,055,207)	(5,420,378)	(11,706,519)	(2,226,591)	(11,622,101)	(11,706,519)
Cash and cash equivalents as at 1 January	892,652,654	1,158,017,322	2,670,103,053	273,762,813	240,328,765	1,043,943,100
Cash and cash equivalents at 31 December	1,600,219,537	892,652,654	1,158,017,322	303,754,822	273,762,813	240,328,765

Remarks As at 31st December 2019, the Company has a registered capital in the amount of 2,225,586,448.00 Baht and paid-up capital in the amount of 2,220,632,743.50 Baht with a total amount of common shares at 8,882,530,974, at a par value of 0.25 Baht.

(3) Table of Key Financial Ratios

Items	Consolidated			Separate		
	Financial Statements			Financial Statements		
	2019	2018	2017	2019	2018	2017
Liquidity Ratio						
Liquidity Ratio (time)	0.89	0.65	0.93	0.85	0.60	0.65
Quick Liquidity Ratio (time)	0.81	0.59	0.87	0.71	0.55	0.59
Cash Flow Liquidity Ratio (time)	0.20	0.10	0.18	0.11	0.05	0.08
Trade Account Receivable Turnover (time)	4.76	3.88	3.25	4.35	4.17	3.19
Average Collection Period (days)	76.68	93.95	112.44	83.99	87.51	114.37
Inventory Turnover (days)	2.99	4.20	6.29	2.89	3.57	4.55
Average Selling Period (days)	122.12	86.92	58.06	126.39	102.37	80.30
Payable Turnover (time)	3.66	4.08	3.85	4.06	4.00	3.10
Credit Term (days)	99.78	89.42	94.71	89.98	91.25	117.62
Cash Cycle (days)	99.02	91.46	75.79	120.40	98.62	77.06
Profitability Ratio						
Gross Profit Margin (%)	51.39%	49.12%	36.34%	25.20%	22.11%	22.94%
Operating Profit Margin (%)	44.70%	33.42%	28.62%	80.53%	67.94%	47.42%
Net Profit Margin (%)	30.25%	18.91%	14.86%	60.83%	50.74%	30.79%
Return on Equity (%)	18.95%	12.40%	7.02%	9.39%	7.58%	4.07%
Efficiency Ratio						
Return on Assets (%)	5.50%	3.31%	2.33%	5.18%	3.73%	2.28%
Return on Fixed Assets (%)	6.76%	3.92%	2.89%	5.98%	4.63%	2.61%
Asset Turnover (time)	0.18	0.17	0.16	0.09	0.07	0.07
Financial Ratio						
Debt to Equity Ratio (time)	2.44	2.75	2.02	0.81	1.03	0.78
Interest Coverage Ratio (time)	3.49	2.60	2.41	4.07	3.21	2.85
Dividend Payout (%)	56.67%	40.00%	75.00%	134.04%	66.67%	90.00%
Other Ratios						
Earnings Per Share (Baht) ²⁾	0.24	0.16	0.10	0.10	0.09	0.05
Basic Earnings Per Share (Baht) ¹⁾	0.24	0.15	0.06	0.10	0.09	0.05
Book Value Per Share (Baht) ²⁾	1.28	1.28	1.37	1.07	1.17	1.17

Remarks ¹⁾ Basic Earnings per Share: to calculate with the number of all average weighted common shares which have been paid up.

²⁾ 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.

Management Discussion and Analysis

Operating Performance

Revenue

The main revenue of the Group during the years 2017 - 2019 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. As for the year ended 31st December 2019, the Company had total revenue of 7,195.26 million baht, increased from the same period of last year showing the amount of 6,460.89 million baht, an increase of 734.47 million baht, representing an increase of 11.37% and had the profit for the period (the portion of the parent company) in the amount of 2,147.33 million baht, increased from the same period of the previous year showing the amount of 1,085.17 million baht which increased by 1,062.16 million baht or increased by 97.88%, due to the Company had revenue that grew 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 31st December 2019, showing the amount of 4,504.00 million baht, compared with the same period of the previous year showing the amount of 2,929.75 million baht, increased by 1,574.65 million baht or representing 53.75% 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 and solar power plants in Japan.

The Company had revenue from construction services that shown in the consolidated financial statements for the year ended 31st December 2019, amounting to 979.95 million baht, compared with the same period of the previous year showing the amount of 1,887.24 million baht, which has decreased due to the work revenue will be recognized in 2020.

The Company had revenue from selling electrical equipment that shown in the consolidated financial statements for the year ended 31st December 2019, showing the amount of 1,526.50 million baht compared with the same period of the previous year showing the amount of 1,344.96 million baht, increased by 181.54 million baht, representing an increase of 13.50%, increased from being appointed as a distributor of electrical equipment to the public sector.

Revenue Structure of GUNKUL's Group divided by Product Line

Revenue Type	2017		2018		2019	
	THB mln	%	THB mln	%	THB mln	%
1. Revenue from the manufacturing, supply and distribution of equipment business for electrical systems and renewable energy systems and renewable						
1.1 Sourcing for Distribution	480.68	10.00	573.03	9.20	1,017.92	14.34
1.2 Production for Distribution	679.30	14.13	771.93	12.39	508.58	7.16
2. Revenue from electricity generation and distribuion business from renewable energy						
- Produce and sell electricity from solar energy	1,535.56	31.93	2,929.75	47.02	4,504.40	63.46
3. Revenue from construction of renewable energy power plants	2,045.04	42.53	1,887.24	30.29	979.95	13.80
4. Service Revenue	68.09	1.42	68.54	1.10	87.72	1.24
Total Revenue	4,808.67	100.00	6,230.49	100.00	7,098.57	100.00

Revenue from the total sales of the Group in 2017 - 2019, the main customers of the Group were government, private agencies and business customers that produce electricity from renewable energy.

Revenue Structure of GUNKUL's Group divided by Customer Segment

Revenue	2017		2018		2019	
	THB mln	%	THB mln	%	THB mln	%
Public Sector Customer						
- Revenue from the sale of equipment for electrical and renewable energy systems and revenue from rendering of services	683.81	14.22	768.44	12.33	1,087.69	15.32
- Revenue from electricity distribution	1,535.56	31.93	2,929.75	47.02	4,504.40	63.46
Private Sector Customer						
- Revenue from the sale of equipment for electrical and renewable energy systems	507.11	10.55	620.46	9.96	515.42	7.26
- Revenue from construcion of power plants	2,045.04	42.53	1,887.24	30.29	979.95	13.80
Foreign customers	37.15	0.77	24.60	0.39	11.11	0.16
Total Revenue	4,808.67	100.00	6,230.49	100.00	7,098.57	100.00

Cost of Sales and Gross margin

The Group had a gross profit margin of 51.39% and 49.12% in 2019 and 2018, 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 power.

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 31st December 2019, showing the amount of 910.08 million baht, compared with the same period of the previous year showing the amount of 800.45 million baht, increased by 109.63 million baht or 13.70%. Because the Company had more credit for project loans from the sale of commercial electricity in the wind project which increased by 170 MW and 61 MW of solar power plant projects in Japan.

Net Profit

The Company's consolidated financial statements for the year 2019 were 2,222.29 million baht, the year 2018 were 1,178.41 million baht and the year 2017 were 714.79 million baht, with a net profit increased 1,043.88 million baht if considering the normal operating results of the Company and subsidiaries in the consolidated financial statements for the year 2019 compared to the same period of the previous year. Because the Company had sold commercial electricity from the 170 MW of wind project and the solar power plant projects in Japan then received into the system, also 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 2019, 2018 and 2017 are 39,041.54 million baht, 35,624.75 million baht and 30,726.45 million baht, respectively. The main items of current assets are Short-term deposits from financial institution pledged as collateral, 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 2.44 times, 2.75 times and 2.02 times, according to the consolidated financial statements as at the end of 2019, 2018 and 2017, 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 30-120 days for both private and government customers and credit term 30-120 days for foreign customers.

As at the end of 2019, 2018 and 2017 according to consolidated financial statements, The Group had total trade accounts receivable and unbilled revenue of 1,688.55, 1,293.98 million baht and 1,913.59 million baht. (Excluding other account receivables and trade account receivables value less allowance for doubtful account), respectively. With an average collection period at the end of 2019, 2018 and 2017, was 77 days, 94 days and 112 days, respectively. In 2019, The Company had an increase in accounts receivable which was due to the increased income recognition from construction accounts receivable according to the period of completion and from power plants customers that generate higher electricity.

Details of the Group's Trade Account Receivables are as follows:

Amount Due from Related Parties

	2017		2018		2019	
	THB mln	%	THB mln	%	THB mln	%
Not Yet Due	6.38	99.84	5.28	100.00	2.83	100.00
Overdue						
- Not over 3 months	0.01	0.16	-	-	-	-
- During 3 - 6 months	-	-	-	-	-	-
- During 6 - 12 months	-	-	-	-	-	-
- Over than 12 months	-	-	-	-	-	-
Total Trade Receivable	6.39	100.00	5.28	100.00	2.83	100.00
Deduction of Allowance for Doubtful Accounts	-	-	-	-	-	-
Net Trade Receivables	6.39	100.00	5.28	100.00	2.83	100.00

Other Trade Account Receivables

	2017		2018		2019	
	THB mln	%	THB mln	%	THB mln	%
Not Yet Due	666.03	57.93	858.19	80.63	1,000.40	94.13
Overdue						
- Not over 3 months	457.56	39.80	161.08	15.13	28.31	2.66
- During 3 - 6 months	8.96	0.78	31.68	2.98	1.32	0.12
- During 6 - 12 months	3.52	0.31	0.77	0.07	3.55	0.33
- Over than 12 months	13.60	1.18	12.69	1.19	29.23	2.75
Total Trade Receivable	1,149.67	100.00	1,064.41	100.00	1,062.81	100.00
Deduction of Allowance for Doubtful Accounts	(2.08)	(0.00)	(0.89)	(0.00)	(2.26)	(0.00)
Net Trade Receivables	1,147.59	100.00	1,063.52	100.00	1,060.55	100.00

Inventory

When considering the consolidated financial statements as at the end of 2019, 2018 and 2017, the Group's inventories amounted to 652.78 million baht, 540.17 million baht and 408.98 million baht.

	2017		2018		2019	
	THB mln	%	THB mln	%	THB mln	%
Instant Product	244.64	56.82	374.65	66.54	479.74	69.89
Inter-Production	43.88	10.19	0.72	0.13	0.48	0.07
Raw Material	85.47	19.85	146.08	25.94	136.40	19.87
Supplies	1.01	0.23	1.71	0.30	1.70	0.25
Construction in Process	30.35	7.05	11.34	2.01	28.75	4.19
Goods in Transit	25.18	5.85	28.57	5.07	39.31	5.73
Total	430.53	100.00	563.07	100.00	686.38	100.00
<u>Decution of Allowance for Devaluation</u>	(21.55)	(5.01)	(22.90)	(4.07)	(33.60)	(4.90)
Net Inventories	408.98	94.99	540.17	95.93	652.78	95.10

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 33.60 million baht, 22.90 million baht and 21.55 million baht at year-end of 2019, 2018 and 2017, respectively.

The Company has average selling period from 122 days, 87 days, and 58 days in 2019, 2018 and 2017, most of them are products related to sourcing for distribution and for the construction projects of government agencies and private sectors.

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)		
	2019	2018	2017	2019	2018	2017	2019	2018	2017	2019	2018	2017
G.K. Power Products Co., Ltd.	100,000	100,000	100,000	100	100	100	80,425	80,425	80,425	15,000	14,540	14,488
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.	12,500	50,000	50,000	100	100	100	3,908	41,408	41,408	700	-	10,000
Greenovation Power Co.,Ltd.	1,485,000	1,485,000	1,485,000	100	100	100	1,916,500	1,916,500	1,916,500	629,640	-	-
Wind Energy Development Co.,Ltd.	1,575,000	1,575,000	1,575,000	100	100	100	2,226,150	2,226,150	2,226,150	200,025	389,025	-
NK Power Sola Co., Ltd.	2,600	2,600	2,600	100	100	100	40,854	40,854	40,854	11,001	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	1,201	-	-
Gunkul Training Center Co., Ltd. (Gunkul Solar Roof 2 Co., Ltd.)	1,000	1,000	250	100	100	100	1,000	1,000	250	2,999	-	-
Solar Energy Society Co., Ltd.	315,678	140,300	20,400	100	100	100	315,678	140,300	20,400	-	-	2,040
Bright Green Power Co.,Ltd.	171,250	120,000	102,850	100	100	100	171,250	120,000	102,850	-	-	-
Gunkul Power Development Co., Ltd.	300,000	300,000	23,750	100	100	100	300,000	300,000	23,749	-	619,999	172,799
Gunkul Solar Community Co.,Ltd.	20,000	10,000	2,750	100	100	100	20,000	10,000	2,750	-	-	-
Siam Gunkul Solar Energy Co.,Ltd.	40,900	40,900	40,900	100	100	100	40,899	40,899	40,899	8,589	-	6,033
Korat Wind Energy Co.,Ltd.	1,107,000	1,017,138	809,170	100	100	100	1,538,750	1,448,887	1,240,920	-	-	-
Gunkul Energy Solution and Lighting Co., Ltd.	40,600	40,600	40,600	100	100	100	40,600	40,600	40,600	-	-	-
Gio Bio Energy Co.,Ltd.	34,300	34,300	34,300	75	75	75	25,690	25,690	25,690	-	-	-
Infinite Alternative Energy Co.,Ltd.	1,564,000	1,564,000	1,590,000	67	67	67	1,088,576	1,088,576	1,105,996	80,687	165,436	238,094
Eco Thai Energy Co., Ltd.	76,500	76,500	76,500	51	51	51	42,015	42,015	42,015	4,830	6,964	-
Gunkul Infinite Group Co.,Ltd. (Gunkul Bio Energy Co., Ltd.)	2,000	500	125	75	100	100	1,499	499	125	-	-	-
Gunkul International (Mauritius) Ltd.	4,740,445	4,740,445	4,740,445	100	100	100	4,740,445	4,740,445	4,740,445	-	-	-
Gunkul Solar Power Co., Ltd.	179,250	179,250	179,250	100	100	100	179,250	179,250	179,250	-	-	-
BMP Solar Co., Ltd.	980	980	980	100	100	100	216,938	216,938	216,938	25,997	26,997	-
GKE & GPD Joint Venture Co.,Ltd.	20,000	-	-	50			10,000					
GKE & FEC Joint Venture	6,000	-	-	60			3,600					
Total							13,188,215	12,884,624	12,272,402	980,669	1,284,961	463,454

Land, Buildings and Equipment

In 2018, the Company had net building and equipment equal to 66.41 million baht, 74.18 million baht and 70.57 million baht in 2019, 2018 and 2017, 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 2019, 2018 and 2017 were 24,567.14 million baht, 23,018.09 million baht and 18,072.86 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 2 projects of solar power plant in Sendai and Kimitsu 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.

- **Renewable energy project from solar energy in Sendai, Japan**

In 2018, the said project had complete commercial electricity sales in November 2018.

- **Renewable energy project from solar energy in Kimitsu, Japan**

In 2019, the said project had complete commercial electricity sales in April 2019.

Total Liabilities

The Company's total liabilities at the end of 2019, 2018 and 2017 were 27,708.62 million baht, 26,124.70 million baht and 20,542.60 million baht, respectively. In 2019, the Group began to have a higher total liability. Since in 2019, 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 2019.

Total liabilities of the Company consisting of current debts, mainly including Short-term loans from financial institutions account for 3.79% of the Group's total liabilities. Trade payable account and asset payable for approximately 12.73% of the Group's total liabilities and long-term loans account and current portion of debentures for 8.16% 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 2017-2019 were 0.89 times, 0.65 times and 0.93 times, respectively. For quick liquidity ratios were 0.81 times, 0.59 times and 0.87 times, respectively. The average repayment period was 100 days, 89 days and 95 days. The Company has a cash cycle of 99 days, 91 days and 76 days, respectively. The selling period was 122 days, 87 days and 58 days. The collection period was 77 days, 94 days and 112 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 2019 and 2018, the Company's debt-to-equity ratio decreased from 2.75 times to 2.44 times and due to the improved operating results, the shareholders' equity increased from the previous year.

Shareholders' Equity

Shareholders' equity of the Company was 9,530.50 million baht, 8,712.13 million baht and 8,690.09 million baht at the end of the year 2019, 2018 and 2017, according to the separate financial statements, respectively.

For the consolidated financial statements as at the end of 2019, 2018 and 2017, The Group's shareholders' equity was 11,332.91 million baht, 9,500.05 million baht and 10,183.86 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 an 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 2019 in the amount of 1,200 million baht.

Cash Flow

In 2019, the Company has a net cash flow from operations in the amount of 3,573.49 million baht, because the Company has increased the revenue growth in the year 2019 due to investment in subsidiaries in the renewable energy group in order to invest in a subsidiary that related to renewable energy. As for the use of investment activities in the amount of 764.89 million baht, the cash flow from financing activities decreased due to the gradual repayment of loans and debentures due to be drawn down for investment in wind power project construction in the amount of 170 MW and solar energy projects in Japan which gradually draw down in 2018.

For the year 2018, the Company had cash flow that needs to be spent on investing activities for 6,189.77 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 and solar power in the country.

Financial statements

Gunkul Engineering Public Company Limited



Independent Auditor's Report

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 2019, 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 2019 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"> • Understanding the estimate of the recoverable amount; • 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; • 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; • Performing a sensitivity analysis, which included assessing the possible effect in growth rates and forecast cash flows and the discount rate. • Evaluating the adequacy of the disclosures in accordance with the relevant Thai Financial Reporting Standards.

Revenue and cost of construction services	
Refer to Note 3 and 8	
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"> • Understanding the processes of the estimation and revision of the estimated costs of construction services; • 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; • Comparing the stage of completion determined by engineers with the actual costs and the estimated costs including tested customers' acceptance documents; • Performing site visits together with the engineers to assess the appropriateness of the actual constructions progress and the stage of completion; • Performing analyses of the actual costs incurred and the estimated costs comparison, gross profits, progress of constructions and challenging the management for any deviations; • Testing the stage of completions and unbilled revenue calculations; • Testing the actual costs incurred after the period ended with related documents; • Evaluating the adequacy of the disclosures in accordance with the relevant Thai Financial Reporting Standards.

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
 25 February 2020

Statement of financial position

Gunkul Engineering Public Company Limited and its Subsidiaries

		Consolidated		Separate	
		financial statements		financial statements	
		31 December		31 December	
Assets	Note	2019	2018	2019	2018
(in Baht)					
Current assets					
Cash and cash equivalents	5	1,600,219,537	892,652,654	303,754,822	273,762,813
Current investments	6	23,553,105	606,089,344	-	529,906,475
Short-term deposits from financial institution					
pledged as collateral	16	2,593,886,402	1,501,020,586	200,103,712	-
Trade accounts receivable	4, 7	1,063,382,228	1,068,798,910	287,910,819	388,885,965
Unbilled revenue	8	625,171,464	225,175,687	-	-
Other receivables	4	336,033,950	289,929,696	151,002,647	62,838,422
Revenue Department receivable		220,205,763	298,960,074	2,570,255	-
Short-term loans to related parties	4	169,928,657	-	984,724,262	1,754,452,670
Inventories	9	652,779,571	540,167,019	380,906,999	284,332,577
Total current assets		7,285,160,677	5,422,793,970	2,310,973,516	3,294,178,922
Non-current assets					
Long-term deposits from financial institution					
pledged as collateral	16	325,562,501	592,003,707	-	-
Loan to related parties	4	-	-	348,482,931	-
Investments in associates	10	481,894,599	426,852,710	397,594,800	397,594,800
Investments in joint ventures	10	1,249,137,069	1,078,764,354	726,177,750	576,610,150
Investments in subsidiaries	11	-	-	13,188,214,576	12,884,624,101
Other non-current receivables	4, 13	186,251,219	418,720,423	166,387,219	388,874,152
Investment properties		-	-	3,143,658	3,143,658
Property, plant and equipment	14	24,567,137,226	23,018,092,750	66,413,447	74,184,502
Goodwill	15	163,476,324	163,476,324	-	-
Intangible assets	15	3,953,067,993	4,213,228,830	6,132,502	4,928,514
Advance for shares subscription	34	559,555,466	-	-	-
Advance for land lease		194,348,456	215,351,112	-	-
Deferred tax assets	28	75,948,204	75,465,591	62,758,854	61,100,361
Total non-current assets		31,756,379,057	30,201,955,801	14,965,305,737	14,391,060,238
Total assets		39,041,539,734	35,624,749,771	17,276,279,253	17,685,239,160

The accompanying notes form an integral part of the financial statements.

Statement of financial position

Gunkul Engineering Public Company Limited and its Subsidiaries

		Consolidated		Separate	
		financial statements		financial statements	
		31 December		31 December	
Liabilities and equity	Note	2019	2018	2019	2018
(in Baht)					
Current liabilities					
Short-term loans from financial institutions	16	1,051,088,014	2,306,788,075	984,643,614	2,012,489,398
Short-term loans from related parties	4	-	-	286,305,838	483,630,656
Trade accounts payable	4	726,044,411	340,646,726	295,416,300	246,918,703
Unearned revenues		402,319,891	104,217,170	19,528,128	16,166,890
Payable for purchases of assets		2,802,809,458	454,767,934	-	-
Revenue Department payable		38,297,903	59,323,015	-	3,310,866
Retention payables	4	414,703,853	532,589,874	9,316,344	9,617,538
Other payables	4	468,840,498	315,094,448	85,204,288	119,595,334
Current portion of long-term loans	16	1,261,321,656	1,546,994,980	28,504,129	28,443,981
Current portion of debentures	16	1,000,000,000	2,765,500,000	1,000,000,000	2,765,500,000
Current portion of finance lease liabilities	16	15,510,305	13,931,656	7,903,214	7,185,659
Income tax payable		24,123,342	64,806,817	-	-
Total current liabilities		8,205,059,331	8,504,660,695	2,716,821,855	5,692,859,025
Non-current liabilities					
Long-term loans	16	14,387,961,223	14,129,849,292	364,982,721	393,486,850
Debentures	16	4,602,977,092	2,819,000,000	4,602,977,092	2,819,000,000
Retention payables	4	5,969,146	146,051,080	185,000	133,298
Finance lease liabilities	16	17,022,188	18,866,326	10,487,263	7,615,657
Deferred tax liabilities	28	186,316,792	188,230,332	-	-
Provisions for employee benefit	17	76,991,751	52,889,050	49,064,855	34,690,365
Provision for decommissioning costs of power plants	18	209,434,134	203,979,259	-	-
Other non-current liabilities		16,894,238	61,175,854	1,256,234	25,326,970
Total non-current liabilities		19,503,566,564	17,620,041,193	5,028,953,165	3,280,253,140
Total liabilities		27,708,625,895	26,124,701,888	7,745,775,020	8,973,112,165

The accompanying notes form an integral part of the financial statements.

Statement of financial position

Gunkul Engineering Public Company Limited and its Subsidiaries

		Consolidated		Separate	
		financial statements		financial statements	
		31 December		31 December	
Liabilities and equity	Note	2019	2018	2019	2018
(in Baht)					
Equity					
Share capital	19				
Authorised share capital		2,225,586,448	1,854,655,373	2,225,586,448	1,854,655,373
Issued and paid-up share capital		2,220,632,743	1,854,655,373	2,220,632,743	1,854,655,373
Treasury shares	20	(304,674,256)	(304,674,256)	(304,674,256)	(304,674,256)
Additional paid in capital:					
Share premium	21	5,179,473,454	5,179,473,454	5,179,473,454	5,179,473,454
Retained earnings					
Appropriated					
Legal reserve	21, 31	222,559,000	198,300,000	222,559,000	198,300,000
Treasury shares reserve	20, 21	304,674,256	304,674,256	304,674,256	304,674,256
Unappropriated		4,134,470,833	2,452,439,992	1,907,839,036	1,479,522,211
Difference arising from business combination					
under common control		(464,752,542)	(464,752,542)	-	-
Other components of equity		(580,176,332)	(309,604,699)	-	175,957
Equity attributable to owners of the parent		10,712,207,156	8,910,511,578	9,530,504,233	8,712,126,995
Non-controlling interests	12	620,706,683	589,536,305	-	-
Total equity		11,332,913,839	9,500,047,883	9,530,504,233	8,712,126,995
Total liabilities and equity		39,041,539,734	35,624,749,771	17,276,279,253	17,685,239,160

The accompanying notes form an integral part of the financial statements.

Statement of comprehensive income

Gunkul Engineering Public Company Limited and its Subsidiaries

		Consolidated		Separate	
		financial statements		financial statements	
		Year ended 31 December		Year ended 31 December	
	Note	2019	2018	2019	2018
(in Baht)					
Revenue					
Revenue from sale	4	1,526,498,126	1,344,964,976	1,430,662,575	1,212,462,215
Revenue from sale of electricity		2,928,425,222	1,762,808,281	-	-
Revenue from rendering of services	4	87,728,797	68,541,412	40,007,288	28,309,677
Revenue from construction services		979,945,647	1,887,242,809	-	60,852,900
Revenue from adder		1,575,971,477	1,166,941,762	-	-
Dividend income	4, 10, 11	-	-	1,162,637,144	1,491,947,483
Net foreign exchange gain		19,893,800	-	7,205,903	6,380,350
Interest income	4	18,476,841	14,266,266	40,290,683	26,844,921
Other income	4	58,319,381	216,121,172	39,204,126	50,502,901
Total revenue		7,195,259,291	6,460,886,678	2,720,007,719	2,877,300,447
Expenses					
Cost of sale	4, 9	1,040,341,624	943,583,114	1,086,502,988	944,887,737
Cost of sale of electricity	4	1,499,380,037	901,674,319	-	-
Cost of rendering of services	4	47,714,078	42,241,899	13,504,399	21,251,070
Cost of construction services		862,949,818	1,282,474,222	-	47,683,757
Selling expenses		68,263,898	63,205,732	45,429,016	46,564,007
Administrative expenses and others	4, 23	771,916,944	679,832,705	390,233,897	344,421,150
Unwind foreign exchange option contracts fee	24	-	588,109,119	-	588,109,119
Net foreign exchange loss		-	146,810,278	-	-
Total expenses		4,290,566,399	4,647,931,388	1,535,670,300	1,992,916,840
Share of profit of associate and joint ventures	10	268,653,670	269,402,971	-	-
Profit before finance costs and income tax expense		3,173,346,562	2,082,358,261	1,184,337,419	884,383,607
Finance costs	4, 27	910,076,035	800,452,148	290,683,941	275,702,662
Profit before income tax expense		2,263,270,527	1,281,906,113	893,653,478	608,680,945
Tax expense (income)	28	40,981,213	103,496,017	(945,963)	(51,707,970)
Profit for the year		2,222,289,314	1,178,410,096	894,599,441	660,388,915

The accompanying notes form an integral part of the financial statements.

Statement of comprehensive income

Gunkul Engineering Public Company Limited and its Subsidiaries

	Note	Consolidated		Separate	
		financial statements		financial statements	
		Year ended 31 December		Year ended 31 December	
		2019	2018	2019	2018
(in Baht)					
Other comprehensive income					
<i>Items that will be reclassified</i>					
<i>subsequently to profit or loss</i>					
Exchange differences on translating foreign operations		(270,009,246)	52,216,056	-	-
Net change in fair value of available-for-sale investments	6	(443,608)	826,812	(175,957)	155,051
Income tax relating to items that will be reclassified	28	(22,658)	-	-	-
Total items that will be reclassified					
<i>subsequently to profit or loss</i>		<u>(270,475,512)</u>	<u>53,042,868</u>	<u>(175,957)</u>	<u>155,051</u>
<i>Items that will not be reclassified to profit or loss</i>					
Losses on remeasurements of defined benefit plans	17	(2,332,399)	-	(3,562,648)	-
Income tax relating to items that will not be reclassified	28	466,480	-	712,530	-
Total items that will not be reclassified					
<i>to profit or loss</i>		<u>(1,865,919)</u>	<u>-</u>	<u>(2,850,118)</u>	<u>-</u>
Other comprehensive income (expense)					
<i>for the year, net of tax</i>		<u>(272,341,431)</u>	<u>53,042,868</u>	<u>(3,026,075)</u>	<u>155,051</u>
Total comprehensive income (expense) for the year		<u>1,949,947,883</u>	<u>1,231,452,964</u>	<u>891,573,366</u>	<u>660,543,966</u>
Profit attributable to:					
Owners of the parent		2,147,329,258	1,085,172,042	894,599,441	660,388,915
Former shareholder before business restructuring		-	5,067,117	-	-
Non-controlling interests	12	74,960,056	88,170,937	-	-
Profit for the year		<u>2,222,289,314</u>	<u>1,178,410,096</u>	<u>894,599,441</u>	<u>660,388,915</u>
Total comprehensive income (expense) attributable to:					
Owners of the parent		1,874,891,706	1,138,199,225	891,573,366	660,543,966
Former shareholder before business restructuring		-	5,067,117	-	-
Non-controlling interests	12	75,056,177	88,186,622	-	-
Total comprehensive income (expense) for the year		<u>1,949,947,883</u>	<u>1,231,452,964</u>	<u>891,573,366</u>	<u>660,543,966</u>
Basic earnings per share (in Baht)	30	<u>0.24</u>	<u>0.12</u>	<u>0.10</u>	<u>0.08</u>

The accompanying notes form an integral part of the financial statements.

Statement of changes in equity

Gunkul Engineering Public Company Limited and its Subsidiaries

Consolidated financial statements														
Note	Retained earnings					Difference arising from business combination under common control				Other components of equity				
	Issued and paid-up share capital	Treasury shares	Share premium	Legal reserve	Treasury shares reserve	Unappropriated	Translating foreign operations	Available-for-sale investments	Total other components of equity	Equity attributable to owners of the parent	Former shareholder before business restructuring	Non-controlling interests	Total equity	
(in Baht)														
Year ended 31 December 2018														
Balance at 1 January 2018														
Transactions with owners, recorded directly in equity														
Distributions to owners of the parent														
20	-	(304,674,256)	-	-	304,674,256	(304,674,256)	-	-	-	-	(304,674,256)	-	-	(304,674,256)
Subsidiary paid dividend														
31	-	-	-	-	-	(333,835,665)	-	-	-	-	(333,835,665)	-	(88,174,358)	(650,174,358)
Dividend paid to shareholders														
Total 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														
-	-	-	-	-	-	(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 (expense) 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 (expense)														
-	-	-	-	-	-	-	52,216,056	811,127	53,027,183	53,027,183	53,027,183	-	15,685	53,042,868
Total comprehensive income (expense) 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 form an integral part of the financial statements.

Statement of changes in equity

Gunkul Engineering Public Company Limited and its Subsidiaries

		Separate financial statements						Other components of equity	
		Issued and paid-up share capital	Treasury shares	Share premium	Legal reserve	Treasury shares reserve	Unappropriated	Available-for-sale investments	Total equity
	Note					(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									
Distributions to owners									
	20	-	(304,674,256)	-	-	304,674,256	(304,674,256)	-	(304,674,256)
	31	-	-	-	-	-	(333,835,665)	-	(333,835,665)
Total distributions to owners									
		-	(304,674,256)	-	-	304,674,256	(638,509,921)	-	(638,509,921)
Comprehensive income (expense) for the year									
		-	-	-	-	-	660,388,915	-	660,388,915
		-	-	-	-	-	-	155,051	155,051
Total comprehensive income (expense) for the year									
		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
Year ended 31 December 2019									
Balance at 1 January 2019									
		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
Transactions with owners, recorded directly in equity									
Distributions to owners									
	19, 31	365,977,370	-	-	-	-	(365,977,370)	-	-
	31	-	-	-	-	-	(73,196,128)	-	(73,196,128)
Total distributions to owners									
		365,977,370	-	-	-	-	(439,173,498)	-	(73,196,128)
Comprehensive income (expense) for the year									
		-	-	-	-	-	894,599,441	-	894,599,441
		-	-	-	-	-	(2,850,118)	(175,957)	(3,026,075)
Total comprehensive income (expense) for the year									
		-	-	-	-	-	891,749,323	(175,957)	891,573,366
	21, 31	-	-	-	24,259,000	-	(24,259,000)	-	-
Transfer to legal reserve									
		2,220,632,743	(304,674,256)	5,179,473,454	222,559,000	304,674,256	1,907,839,036	-	9,530,504,233
Balance at 31 December 2019									

The accompanying notes form an integral part of the financial statements.

Statement of cash flows

Gunkul Engineering Public Company Limited and its Subsidiaries

	Consolidated		Separate	
	financial statements		financial statements	
	Year ended 31 December		Year ended 31 December	
	2019	2018	2019	2018
	<i>(in Baht)</i>			
Cash flows from operating activities				
Profit for the year	2,222,289,314	1,178,410,096	894,599,441	660,388,915
<i>Adjustments to reconcile profit to cash receipts (payments)</i>				
Tax expense (income)	40,981,213	103,496,017	(945,963)	(51,707,970)
Finance costs	910,076,035	800,452,148	290,683,941	275,702,662
Depreciation and amortisation	1,137,428,087	762,809,614	14,093,113	15,090,095
Provisions for employee benefits	23,144,731	7,694,195	11,718,991	4,664,594
Unrealised (gain) loss on foreign exchange	(13,419,138)	2,106,223	(7,830,297)	8,309,632
Share of profit of associate and joint ventures	(268,653,670)	(269,402,971)	-	-
Benefit received from advance payment of machinery for investment	-	(34,552,697)	-	(34,552,697)
Dividend income	-	-	(1,162,637,144)	(1,491,947,483)
(Reversal of) doubtful debts expenses	1,313,177	(1,189,735)	187,152	-
Allowance for decline in value of inventories	10,695,705	1,358,873	6,678,700	2,480,263
(Gain) loss on disposal of property, plant and equipment	44,305,310	8,242,027	6,463,359	(75,454)
Gain on disposal of current investments	(3,310,253)	(1,974,744)	(1,987,463)	(1,925,655)
Interest income	(18,476,841)	(14,266,266)	(40,290,683)	(26,844,921)
	4,086,373,670	2,543,182,780	10,733,147	(640,418,019)
Changes in operating assets and liabilities				
Short-term deposits from financial institution pledged as collateral	(877,150,637)	(1,098,180,584)	(200,103,712)	-
Trade accounts receivable	4,178,602	86,370,486	100,787,901	(165,789,666)
Unbilled revenue	(399,995,777)	534,434,196	-	12,148,598
Other receivables	225,799,193	(50,976,783)	158,938,638	7,287,378
Revenue Department receivable	306,881,090	(198,225,126)	(2,570,255)	-
Inventories	(123,308,257)	(132,540,514)	(103,253,122)	(91,908,180)
Other non-current receivables	(32,141,815)	113,226,714	(33,003,483)	-
Advance for land lease	10,020,198	(2,105,743)	-	-
Trade accounts payable	386,956,572	(429,554,738)	48,730,163	(12,741,717)
Unearned revenues	298,102,721	(154,539,198)	3,361,238	1,352,918
Revenue Department payable	(21,025,113)	36,523,439	(3,310,866)	2,139,498
Retention payables	(224,342,050)	140,440,649	(249,493)	(533,046)
Other payables	70,604,395	(115,965,624)	(41,102,549)	5,835,607
Provisions for employees benefits	(1,374,429)	(586,216)	(907,149)	(12,321)
Other non-current liabilities	(20,210,841)	14,537,726	40	(14,028,927)
Net cash generated from (used in) operating activities	3,689,367,522	1,286,041,464	(61,949,502)	(896,667,877)
Taxes paid	(115,875,436)	(163,759,102)	(12,854,435)	(9,480,432)
Net cash from (used in) operating activities	3,573,492,086	1,122,282,362	(74,803,937)	(906,148,309)

The accompanying notes form an integral part of the financial statements.

Statement of cash flows

Gunkul Engineering Public Company Limited and its Subsidiaries

	Consolidated		Separate	
	financial statements		financial statements	
	Year ended 31 December		Year ended 31 December	
	2019	2018	2019	2018
	(in Baht)			
<i>Cash flows from investing activities</i>				
Acquisition of subsidiaries, net of cash acquired	-	(573,628,353)	-	-
Payment for incremental of capital in subsidiaries	-	-	(341,090,475)	(629,641,900)
Proceeds from reduction of shares in subsidiary	-	-	37,500,000	17,420,000
Proceeds from incremental of shares in non-controlling interests	500,000	-	-	-
Payment for reduction of shares in non-controlling interests	-	(8,580,000)	-	-
Payment for interest in joint venture	-	(56,560,000)	-	(56,560,000)
Payment for incremental of capital in joint ventures	(152,067,600)	-	(149,567,600)	-
Proceeds from sale of current investments	2,156,565,115	1,968,784,038	1,911,717,980	1,801,746,980
Payment for purchase of current investments	(1,571,162,230)	(1,927,051,843)	(1,380,000,000)	(1,779,551,843)
Payment for advance for shares subscription	(559,555,466)	-	-	-
Benefit received from advance payment of machinery for investment	7,744,373	35,147,322	7,744,373	35,147,322
Acquisition of property, plant and equipment	(743,056,656)	(6,167,793,747)	(2,922,677)	(17,820,463)
Acquisition of intangible assets	(32,849,993)	(135,311,376)	(2,684,535)	(1,993,870)
Proceeds from sale of property, plant and equipment	25,763,836	713,784	2,880,776	288,855
Proceeds from sale of intangible assets	73,008,746	-	-	-
Proceeds from loans to related parties	-	421,390,094	1,284,929,600	787,958,290
Payment for loans to related parties	(169,928,657)	-	(863,684,123)	(1,985,603,210)
Dividend received	181,968,242	206,986,264	1,162,637,144	1,491,947,483
Interest received	18,177,390	46,129,984	48,977,680	21,443,700
Net cash from (used in) investing activities	(764,892,900)	(6,189,773,833)	1,716,438,143	(315,218,656)
<i>Cash flows from financing activities</i>				
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	(1,254,902,711)	-	(1,027,827,332)	-
Proceeds from loans from related parties	-	-	50,000,000	134,000,000
Repayment of loans to related parties	-	-	(232,523,205)	-
Proceeds of long-term loans	1,717,573,607	6,140,207,783	-	428,760,000
Repayment of long-term loans	(1,525,809,398)	(848,101,466)	(28,800,000)	(7,200,000)
Proceeds of debentures	2,783,042,500	1,819,000,000	2,783,042,500	1,819,000,000
Repayment of debentures	(2,765,500,000)	(280,000,000)	(2,765,500,000)	(280,000,000)
Payment by a lessee for reduction of the outstanding liability relating to a finance lease	(15,183,489)	(15,942,393)	(7,858,839)	(8,855,633)
Dividend paid	(73,198,984)	(333,793,403)	(73,198,983)	(333,793,403)
Dividend paid to non-controlling interests	(44,385,799)	(88,174,358)	-	-
Dividend paid to former shareholder before business restructuring	-	(562,000,000)	-	-
Interest paid	(904,612,822)	(756,770,609)	(306,749,747)	(235,964,690)
Net cash from (used in) financing activities	(2,082,977,096)	4,807,547,181	(1,609,415,606)	1,266,423,114

The accompanying notes form an integral part of the financial statements.

Statement of cash flows

Gunkul Engineering Public Company Limited and its Subsidiaries

	Consolidated		Separate	
	financial statements		financial statements	
	Year ended 31 December		Year ended 31 December	
	2019	2018	2019	2018
	<i>(in Baht)</i>			
Net increase (decrease) in cash and cash equivalents	725,622,090	(259,944,290)	32,218,600	45,056,149
Effect of exchange rate changes on				
cash and cash equivalents	(18,055,207)	(5,420,378)	(2,226,591)	(11,622,101)
Cash and cash equivalents as at 1 January	892,652,654	1,158,017,322	273,762,813	240,328,765
Cash and cash equivalents at 31 December	1,600,219,537	892,652,654	303,754,822	273,762,813
<i>Non-cash transactions</i>				
Receivable for sales of property, plant and equipment	1,896,902	61,495	185,032	61,495
Payables for purchases of property, plant and equipment	2,802,809,458	454,767,934	-	-
Acquisition of assets under finance lease contracts	14,918,000	3,608,131	11,448,000	-
Finance costs and front end fee capitalise as assets	-	92,854,035	-	-
Provision for decommissioning costs of power plants				
capitalise as assets	7,787,223	196,775,672	-	-
Stock dividend	365,977,370	-	365,977,370	-
Dividend payable	-	115,760	-	115,760

The accompanying notes form an integral part of the financial statements.

Notes to the financial statements

For the year ended 31 December 2019

Gunkul Engineering Public Company Limited and its Subsidiaries

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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 25 February 2020.

1 General information

Gunkul Engineering Public Company Limited, the “Company”, is incorporated in Thailand and was listed on the Stock Exchange of Thailand on 15 October 2010. The Company’s registered office at 1177 Pearl Bangkok Building, 8th floor, Phahonyothin Road, Phaya Thai, Bangkok.

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 subsidiaries are given in note 11.

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 and applicable rules and regulations of the Thai Securities and Exchange Commission.

New and revised TFRS are effective for annual accounting periods beginning on or after 1 January 2019. The initial application of these new and revised TFRS has resulted in changes in certain of the Group’s accounting policies. There is no material impact on the Group’s financial statements. The Group has initial applied TFRS 15 *Revenue from Contracts with Customers* which replaces TAS 18 *Revenue*, TAS 11 *Construction Contracts* and related interpretations. The details of accounting policies are disclosed in note 3(s).

In addition, the Group has not early adopted a number of new and revised TFRS which are not yet effective for the current period in preparing these financial statements. Those new and revised TFRS that are relevant to the Group’s operations are disclosed in note 35.

(b) Functional and presentation currency

The financial statements are prepared 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.

(c) *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 the Group's accounting policies. 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 at 31 December 2019 that have a significant risk of resulting in a material adjustments to the carrying amounts of assets and liabilities in the next financial year is included in the following notes:

Note 3 and 8	Determination of stage of completion;
Note 15	Impairment test: key assumptions underlying recoverable amounts;
Note 17	Measurement of defined benefit obligations: key actuarial assumptions;
Note 18	Recognition and measurement of provision for decommissioning costs of power plant; and
Note 28	Recognition of deferred tax assets: availability of future taxable profit against which deductible temporary differences and tax losses carried forward can be utilised.

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, as describe in subsidiaries section, other than those with entities under common control.

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.

Any contingent consideration is measured at fair value at the date of acquisition, and remeasured at fair value at each reporting date. Subsequent changes in the fair value are recognised in profit or loss.

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 initially recognised 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, call deposits 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

A receivable is recognised when the Group has an unconditional right to receive consideration.

A receivable is stated at invoice value less allowance for doubtful accounts which is determined based on an 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 8) less progress billings and recognised losses, presented as current asset in the statement of financial position.

(h) Investments*Investments in associates, subsidiaries and joint ventures*

Investments in associates, subsidiaries 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 measured 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. 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.

Any gains and losses on disposal of 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 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

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) Measurement of fair values

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 these valuations meet the requirements of TFRS, including the level in the fair value hierarchy in which the valuations should be classified.

Significant valuation issues are reported to the Group's Audit Committee.

When measuring the fair value of an asset or a liability, the Group uses observable market 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 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 or indirectly.
- *Level 3*: inputs for the asset or liability that are based on unobservable input.

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.

The Group recognises transfers between levels of the fair value hierarchy at the end of the reporting period during which the change has occurred.

(r) 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.

(s) Revenue

Revenue is recognised when a customer obtains control of the goods or services in an amount that reflects the consideration to which the Group expects to be entitled, excluding those amounts collected on behalf of third parties, value added tax and is after deduction of any trade discounts and volume rebates.

Sale of goods and services

Revenue from sales of goods is recognised when a customer obtains control of the goods, generally on delivery of the goods to the customers. For contracts that permit the customers to return the goods, revenue is recognised to the extent that it is highly probable that a significant reversal in the amount of cumulative revenue recognised will not occur. Therefore the amount of revenue recognised is adjusted for estimated returns, which are estimated based on the historical data. Revenue for rendering of services is recognised over time as the services are provided.

For bundled packages, the Group accounts for individual products and services separately if they are distinct (i.e. if a product or service is separately identifiable from other items and a customer can benefit from it) or the multiple services are rendered in different reporting periods. The consideration received is allocated based on their relative stand-alone selling prices which are determined based on the price list at which the Group sells the products and services in separate transactions.

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.

Revenue from 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.

(t) Rental income

Rental income from investment property 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.

(u) Investment income

Investment income comprises dividend and interest income from investments and bank deposits. Dividend income is recognised in profit or loss on the date the Group's right to receive payments is established. Interest income is recognised in profit or loss as it accrues.

(v) 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.

(w) Lease payments

Payments made under operating leases are recognised in profit or loss on a straight-line basis over the term of the lease. Lease incentives received are recognised in profit or loss as an integral part of the total lease expense, over the term of the lease.

(x) 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.

(y) Earnings per share

The Group presents basic earnings per share (EPS) data for its ordinary shares. EPS 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 period, adjusted for own shares held.

(z) Related parties

Related parties are a person or entity that has direct or indirect control or joint control, or has significant influence over the financial and managerial decision-making of the Group; a person or entity that are under common control or under the same significant influence as the Group; or the Group has direct or indirect control or joint control or has significant influence over the financial and managerial decision-making of a person or entity.

(aa) 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 Related parties

Relationships with subsidiaries, associates and joint ventures are described in notes 10 and 11. Other related parties during the year were as follows:

Name of entities	Country of Incorporation	Nature of relationships
Gunkul Group Co., Ltd.	Thailand	Major shareholder
Rang-Ngern Solution Co., Ltd.	Thailand	Indirect subsidiary and/or common directors
Outgrow A Co.,Ltd. ⁽²⁾	Thailand	Indirect subsidiary and/or common directors
Outgrow B Co.,Ltd. ⁽¹⁾	Thailand	Indirect subsidiary and/or common directors
Outgrow D Co.,Ltd.	Thailand	Indirect subsidiary and/or common directors
Outgrow E Co.,Ltd. ⁽²⁾	Thailand	Indirect subsidiary and/or common directors
Outgrow Wood Supply A Co.,Ltd. ⁽¹⁾	Thailand	Indirect subsidiary and/or common directors
Outgrow Wood Supply B Co.,Ltd. ⁽¹⁾	Thailand	Indirect subsidiary and/or common directors

Name of entities	Country of Incorporation	Nature of relationships
Gunkul Investment (Singapore) Pte. Ltd.	Singapore	Indirect subsidiary and/or common directors
Gunkul International Investment (Singapore) Pte. Ltd. (Formerly :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. ⁽¹⁾	Thailand	Indirect subsidiary and/or common directors
Gunkul Solar Power 4 Co., Ltd. ⁽¹⁾	Thailand	Indirect subsidiary and/or common directors
Gunkul Solar Power 5 Co., Ltd. ⁽¹⁾	Thailand	Indirect subsidiary and/or common directors
Gunkul Solar Power 6 Co., Ltd. ⁽¹⁾	Thailand	Indirect subsidiary and/or common directors
Future Electrical Control Co., Ltd.	Thailand	Indirect subsidiary and/or common directors
Gunkul Trading and Agency Co., Ltd.	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
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
Future Energy Corporation Co., Ltd.	Thailand	Common directors
Noprakul Co., Ltd.	Thailand	Holding by the director
Gunkul Marine Line Co., Ltd.	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

Name of entities	Country of Incorporation	Nature of relationships
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

⁽¹⁾ The liquidation was completed during the year 2018

⁽²⁾ The liquidation was completed during the year 2019

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	Contractually agreed prices
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	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Subsidiaries				
Revenue from sale	-	-	107,422	148,862
Revenue from rendering of services	-	-	1,585	1,575
Management service income	-	-	5,429	5,414
Rental income	-	-	255	255
Interest income	-	-	37,057	24,721
Dividend income	-	-	980,669	1,284,961
Purchase of goods and services	-	-	509,889	521,746
Interest expenses	-	-	3,420	1,820
Training expense	-	-	1,607	1,160
Purchase of assets	-	-	-	170
Sale of assets	-	-	232	197
Associate				
Revenue from sale	401	-	387	-
Revenue from rendering of services	26,396	27,337	-	507
Dividend income	-	-	48,769	50,406

	Consolidated financial statements		Separate financial statements	
<i>Year ended 31 December</i>	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Joint ventures				
Revenue from sale	980	-	-	-
Revenue from rendering of services	24,661	28,423	-	8,555
Management service income	5,314	5,110	5,314	5,110
Interest income	900	-	900	-
Dividend income	-	-	133,200	156,580
Training expense	13	-	-	-
Other related parties				
Revenue from sale	-	10	-	10
Revenue from rendering of services	70	55	-	-
Interest income	-	3,162	-	-
Purchase of goods and services	10	-	10	-
Office and warehouse rental fee	7,954	9,492	6,438	7,299
Sale of assets	-	34	-	34
Key management personnel				
Key management personnel compensation				
Short-term employee benefit	137,955	141,252	109,907	113,325
Post-employment benefits	5,594	2,596	4,737	2,220
Total	143,549	143,848	114,644	115,545

Balances as at 31 December with related parties were as follows:

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Trade accounts receivable				
Subsidiaries	-	-	85,952	143,767
Associate	1,586	1,586	-	-
Joint ventures	1,242	3,694	-	-
Other related parties	5	-	-	-
Total	2,833	5,280	85,952	143,767
Other receivables				
Subsidiaries	-	-	10,581	18,743
Joint ventures	1,374	456	1,374	456
Other related parties	-	32	-	32
Total	1,374	488	11,955	19,231
Other non-current receivables				
Associate	115,803	115,803	115,803	115,803

Loans to related parties

Movements during the years ended 31 December of loans to related parties were as follows:

	Interest rate	Consolidated financial statements			
	At 31 December (% per annum)	At 1 January	Increase	Decrease	At 31 December
2019					
Joint venture - Current portion					
Kenyir Gunkul Solar Sdn Bhd.	3.50	-	169,929	-	169,929
Total		-	169,929	-	169,929

	Interest rate	Separate financial statements			
	At 31 December (% per annum)	At 1 January	Increase	Decrease	At 31 December
2019					
Current portion					
Subsidiaries					
Bright Green Power Co., Ltd.	2.51 - 3.10	43,828	559,555	-	603,383
Gunkul Energy Solution and Lighting Co., Ltd.	2.62 - 3.11	54,000	-	(19,663)	34,337
BMP Solar Co., Ltd.	3.73	388,483	-	(368,483)	20,000
Korat Wind Energy Co., Ltd.	-	1,069,067	-	(1,069,067)	-
Future Electrical Control Co., Ltd.	-	10,000	-	(10,000)	-
Gunkul Power Development Co., Ltd.	2.57 - 2.59	57,075	93,700	(33,700)	117,075
Greenovation Power Co., Ltd.	-	132,000	-	(132,000)	-
Solar Energy Society Co., Ltd.	2.50 - 2.61	-	40,000	-	40,000
Gunkul Solar Community Co., Ltd.	-	-	500	(500)	-
Joint venture					
Kenyir Gunkul Solar Sdn Bhd.	3.50	-	169,929	-	169,929
Total current portion		1,754,453	863,684	(1,633,413)	984,724
Non-current portion					
Subsidiary					
BMP Solar Co., Ltd.	3.73	-	348,483	-	348,483
Total non-current portion		-	348,483	-	348,483
Total		1,754,453	1,212,167	(1,633,413)	1,333,207

2018

Current portion

Subsidiaries

Bright Green Power Co., Ltd.	3.00	40,328	3,500	-	43,828
Gunkul Energy Solution and Lighting Co., Ltd.	2.62 - 3.13	44,000	10,000	-	54,000
Gunkul Solar Power Co., Ltd.	-	500	-	(500)	-
BMP Solar Co., Ltd.	3.73	440,980	-	(52,498)	388,482
Korat Wind Energy Co., Ltd.	2.57 - 2.98	-	1,224,067	(155,000)	1,069,067

	Interest rate	Separate financial statements			
	At 31 December (% per annum)	At 1 January	Increase	Decrease	At 31 December
			(in thousand Baht)		
Solar Energy Society Co., Ltd.	-	31,000	-	(31,000)	-
Gunkul Training Center Co., Ltd.	-	-	3,536	(3,536)	-
Future Electrical Control Co., Ltd.	2.51	-	10,000	-	10,000
Gunkul Power Development Co., Ltd.	2.57	-	254,500	(197,425)	57,075
Greenovation Power Co., Ltd.	2.49	-	480,000	(348,000)	132,000
Total		556,808	1,985,603	(787,959)	1,754,452

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	(in thousand Baht)			
Trade accounts payable				
Subsidiaries	-	-	148,388	178,672
Other payable				
Subsidiaries	-	-	148	1,820
Associate	1,230	-	-	-
Joint ventures	3,126	6,133	-	-
Total	4,356	6,133	148	1,820
Retention payables				
Subsidiaries	-	-	1,763	1,763

Short-term loans from related parties

Movements during the years ended 31 December of short-term loans from related parties were as follows:

	Interest rate	Separate financial statements			
	At 31 December (% per annum)	At 1 January	Increase	Decrease	At 31 December
			(in thousand Baht)		
2019					
Subsidiaries					
Gunkul International (Mauritius)	-	349,631	-	(156,090)	193,541
Solar Energy Society Co., Ltd.	-	54,000	-	(54,000)	-
Gunkul Solar Power Co., Ltd.	2.85	80,000	-	-	80,000
K.N.P. Supply Co., Ltd.	2.65	-	50,000	(37,235)	12,765
Total		483,631	50,000	(247,325)	286,306
2018					
Subsidiaries					
Gunkul International (Mauritius)	-	352,122	-	(2,491)	349,631
Solar Energy Society Co., Ltd.	2.73	-	54,000	-	54,000
Gunkul Solar Power Co., Ltd.	2.85	-	80,000	-	80,000
Total		352,122	134,000	(2,491)	483,631

Significant agreements with related parties

As at 31 December 2019, 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 1-3 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 2019, the Company has pledged promissory notes of loan to related party with a book value of Baht 368.48 million as collateral to secure long-term loan received from a commercial bank (See note 16).

5 Cash and cash equivalents

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Cash on hand	853	946	200	200
Cash at banks-current accounts	200,946	242,860	13,219	12,772
Cash at banks-savings accounts	1,253,265	462,418	287,377	188,728
Highly liquid short-term investments	555	535	25	25
Cheques on hand	144,600	185,894	2,934	72,038
Cash and cash equivalents in the statement of financial position	1,600,219	892,653	303,755	273,763

6 Current investments

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Bill of exchange	-	79,551	-	79,552
Equity and debt securities available-for-sale	23,553	526,538	-	450,354
Total	23,553	606,089	-	529,906

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
Bill of exchange				
Annual interest rate (%)	-	3.3 - 6	-	3.3 - 6

Movements during the years ended 31 December of marketable equity and debt securities were as follows:

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Current investment				
Available-for-sale securities				
At 1 January	526,538	645,020	450,354	550,021
Purchases during the year	1,571,162	1,855,000	1,380,000	1,700,000
Sales during the year	(2,073,703)	(1,974,309)	(1,830,178)	(1,799,822)
Valuation adjustment	(444)	827	(176)	155
At 31 December	23,553	526,538	-	450,354

7 Trade accounts receivable

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Within credit terms	1,003,235	863,469	194,727	269,135
Overdue:				
Less than 3 months	28,318	161,077	23,907	106,676
3 - 6 months	1,319	31,679	43,577	994
6 - 12 months	3,546	773	13,010	487
Over 12 months	29,228	12,697	13,773	12,490
	1,065,646	1,069,695	288,994	389,782
Less allowance for doubtful accounts	(2,264)	(896)	(1,083)	(896)
Net	1,063,382	1,068,799	287,911	388,886

The normal credit term granted by the Group ranges from 30 days to 120 days.

8 Unbilled revenue

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Cost and attributable profit	1,774,843	4,146,369	-	90,116
Progress billings	(1,149,671)	(3,921,193)	-	(90,116)
Net	625,172	225,176	-	-

9 Inventories

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Finished goods	479,736	374,653	378,762	287,621
Work in progress	485	714	-	-
Raw materials	136,397	146,082	-	-
Factory supplies	1,700	1,713	-	-
Construction in progress	28,747	11,343	-	-
Goods in transit	39,315	28,566	18,396	6,284
Total	686,380	563,071	397,158	293,905
Less allowance for declining in value of inventories	(33,600)	(22,904)	(16,251)	(9,572)
Net	652,780	540,167	380,907	284,333
Inventories recognised in 'cost of sales of goods':				
- Cost	1,029,646	942,224	1,079,824	942,408
- Write-down to net realisable value	12,226	2,913	6,946	2,480
- Reversal of write-down	(1,530)	(1,554)	(267)	-
Net	1,040,342	943,583	1,086,503	944,888

10 Investments in associate and joint ventures

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
At 1 January	1,505,617	1,386,640	974,205	917,645
Share of net profit of associates and joint ventures	268,654	269,403	-	-
Acquisition	-	56,560	-	56,560
Increase in share capital	152,068	-	149,568	-
Dividend income	(181,968)	(206,986)	-	-
Exchange differences on translating financial statement	(13,339)	-	-	-
At 31 December	1,731,032	1,505,617	1,123,773	974,205

Increase in share capital of joint ventures

Joint venture SPI & GPD

On 25 July 2019, Gunkul Power Development Co., Ltd. which is the Company's subsidiary entered into joint venture agreement to invest in 50% of the investment in Joint venture SPI & GPD, incorporated in Thailand. Joint venture SPI & GPD thereby become indirect joint ventures of the Group. During year ended 31 December 2019, the subsidiary paid for a consideration of Baht 2.5 million.

Kenyir Gunkul Solar Sdn Bhd.

During year ended 31 December 2019, the Company paid for the additional preferred share subscription amounting to Malaysian Ringgit 19.25 million or equivalents to Baht 149.57 million.

Investment in associate and joint ventures as at 31 December 2019 and 2018, and dividend income for the years then ended were as follows:

Consolidated financial statements										
	Type of business	Ownership interest		Paid-up capital		Cost		Equity		Dividend income for the year
		2019	2018	2019	2018	2019	2018	2019	2018	
		(in thousand Baht)								
(%)										
Associate										
G-G-Power Source Co., Ltd.	Generating and selling electricity	40.00	40.00	930,000	930,000	397,595	397,595	481,895	426,853	50,406
						397,595	397,595	481,895	426,853	50,406
Direct joint ventures										
Gunkul Chubu Powergen Co., Ltd.	Generating and selling electricity	51.00	51.00	992,000	992,000	505,920	505,920	1,067,054	1,014,184	155,317
WHA Gunkul Green Solar Roof1 Co., Ltd.	Generating and selling electricity	25.01	25.01	11,500	11,500	2,876	2,876	1,987	1,720	13
WHA Gunkul Green Solar Roof3 Co., Ltd.	Generating and selling electricity	25.01	25.01	14,500	14,500	3,626	3,626	3,036	2,745	125
WHA Gunkul Green Solar Roof6 Co., Ltd.	Generating and selling electricity	25.01	25.01	14,500	14,500	3,626	3,626	3,037	2,721	125
WHA Gunkul Green Solar Roof17 Co., Ltd.	Generating and selling electricity	25.01	25.01	16,000	16,000	4,002	4,002	1,982	2,125	1,000
Kenyir Gunkul Solar Sdn Bhd.	Generating and selling electricity	70.00	70.00	4,035	4,035	206,128	56,560	171,436	55,269	-
						726,178	576,610	1,248,532	1,078,764	156,580
Indirect joint venture										
Joint venture SPI & GPD	Providing cleaning services and goods shipping	50.00	-	5,000	-	2,500	-	605	-	-
						1,126,273	974,205	1,731,032	1,505,617	206,986
Total										

Separate financial statements									
	Ownership interest		Paid-up capital		Cost		Impairment		Dividend income for the year
	2019	2018	2019	2018	2019	2018	2019	2018	
	(%)						(in thousand Bahr)		
Associate									
G-Power Source Co., Ltd.	40.00	40.00	930,000	930,000	397,595	397,595	-	-	50,406
					397,595	397,595	-	-	48,769
									50,406
Joint ventures									
Gunkul Chubu Powergen Co., Ltd.	51.00	51.00	992,000	992,000	505,920	505,920	-	-	155,317
WHA Gunkul Green Solar Roof 1 Co., Ltd.	25.01	25.01	11,500	11,500	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	-	-	363
WHA Gunkul Green Solar Roof 6 Co., Ltd.	25.01	25.01	14,500	14,500	3,626	3,626	-	-	363
WHA Gunkul Green Solar Roof 17 Co., Ltd.	25.01	25.01	16,000	16,000	4,002	4,002	-	-	740
Kenyir Gunkul Solar Sdn Bhd.	70.00	70.00	4,035	4,035	206,128	206,128	-	-	-
					726,178	576,610	-	-	133,199
					1,123,773	974,205	-	-	181,968
									206,986
Total									

All associate and joint ventures were incorporated in Thailand, except Kenyir Gunkul Solar Sdn Bhd. which was incorporated and operates in Malaysia.
None of the Group's associate and joint ventures are publicly listed and consequently do not have published price quotations.

Associate and joint ventures

The following table summarises the financial information of the associate 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.

	Associate		Joint venture	
	G-Power Source Co., Ltd. 2019	2018	Gunkul Chubu Powergen Co., Ltd. 2019	2018
	<i>(in thousand Baht)</i>			
Revenue	456,928	446,557	594,251	576,784
Net profit	250,137	230,239	369,810	346,342
Other comprehensive income (expense)	-	-	-	-
Total comprehensive income (100%)	250,137	230,239	369,810	346,342
Total comprehensive income (40% and 51% hold)	100,055	92,096	188,603	176,634
Elimination of unrealised profit on sales of assets	8,140	8,140	7,251	7,251
Power purchase agreement	(4,384)	(4,384)	(11,394)	(11,394)
Group's share of total comprehensive income	103,811	95,852	184,460	172,491
Current assets	139,862	121,165	276,958	283,079
Non-current assets	2,170,289	2,284,348	2,299,146	2,422,482
Current liabilities	(532,988)	(531,810)	(267,684)	(258,975)
Non-current liabilities	(406,938)	(631,691)	(359,669)	(609,626)
Net assets (100%)	1,370,225	1,242,012	1,948,751	1,836,960
Group's share of net assets (40% and 51% hold)	548,091	496,805	993,863	936,850
Elimination of unrealised profit on sales of assets	(142,489)	(150,629)	(135,022)	(142,273)
Power purchase agreement	76,293	80,677	208,213	219,607
Carrying amount of interest in associate/joint ventures	481,895	426,853	1,067,054	1,014,184

	Joint venture	
	Gunkul Chubu Powergen Co., Ltd.	
	2019	2018
	<i>(in thousand Baht)</i>	
Remark:		
a. Includes:		
– depreciation and amortisation	123,084	124,289
– interest expense	39,595	45,796
– income tax expense	4,502	(2)
b. Includes cash and cash equivalents	20	18
c. Includes current financial liabilities (excluding trade, other payables and provisions)	250,333	239,900
d. Includes non-current financial liabilities (excluding trade, other payables and provisions)	359,236	609,569

Immaterial joint ventures

The following is summarised financial information for the Group's interest in immaterial joint ventures based on the amounts reported in the Group's consolidated financial statements:

	Immaterial Joint ventures	
	2019	2018
	<i>(in thousand Baht)</i>	
Carrying amount of interests in immaterial joint ventures	182,083	64,580
Group's share of:		
- Profit (loss) from continuing operations	(19,617)	240
- Other comprehensive income (expense)	-	-
- Total comprehensive income (expense)	<u>(19,617)</u>	<u>240</u>

11 Investments in subsidiaries

	Separate financial statements	
	2019	2018
	<i>(in thousand Baht)</i>	
At 1 January	12,884,624	12,272,402
Increase in share capital of subsidiaries	341,091	629,642
Decrease in share capital	(37,500)	(17,420)
At 31 December	<u>13,188,215</u>	<u>12,884,624</u>

Increase in share capital of subsidiaries

Bright Green Power Co., Ltd.

During the year ended 31 December 2019, the Company paid for the additional share capital amounting to Baht 51.25 million, totalling paid-up share capital amount of Baht 171.25 million.

Korat Wind Energy Co., Ltd.

During the year ended 31 December 2019, the Company paid for the additional share capital amounting to Baht 89.86 million, totalling paid-up share capital amount of Baht 1,107 million.

Solar Energy Society Co., Ltd.

During the year ended 31 December 2019, the Company paid for the additional share capital amounting to Baht 175.38 million, totalling paid-up share capital amount of Baht 315.68 million.

Gunkul Solar Community Co., Ltd.

During the year ended 31 December 2019, the Company paid for the additional share capital amounting to Baht 10.00 million, totalling paid-up share capital amount of Baht 20.00 million.

Joint venture GKE & GPD Company Limited

On 11 February 2019, the Company made an investment in 50% of the issued and paid up capital of Joint venture GKE & GPD Company Limited, incorporated in Thailand, for a consideration of Baht 10 million. Gunkul Power Development Co., Ltd. which is the Company's subsidiary held remaining 50% interest of the issued and paid up capital of Joint venture GKE & GPD Company Limited amounting to Baht 10 million. Joint venture GKE & GPD Company Limited thereby become subsidiary of the Group.

Joint venture GKE & FEC

On 18 January 2019, the Company entered into joint venture agreement to invest in 60% of the investment in Joint venture GKE & FEC, incorporated in Thailand. During year ended 31 December 2019, the Company paid for a consideration of Baht 3.6 million. Future Electrical Control Co., Ltd. which is the Company's indirect subsidiary held remaining 40% interest of the investment in Joint venture GKE & FEC amounting to Baht 2.4 million. Joint venture GKE & FEC thereby become subsidiary of the Group.

Increase in share capital of subsidiary***Gunkul Infinite Group Co., Ltd***

(Formerly: Gunkul Bioenergy Co., Ltd.)

During the year ended 31 December 2019, the subsidiary increased its registered capital in the number of 15,000 shares at par value of Baht 100 per share which was allocated to the Company of 10,000 shares and the new shareholder of 5,000 shares, resulting to 75% interest of the subsidiary from 100% interest with no change in control. The Company paid for the additional share capital amounting to Baht 1.00 million, totalling paid-up share capital amount of Baht 2.00 million.

Decrease in share capital of subsidiary***K.N.P Supply Co., Ltd.***

During the year ended 31 December 2019, the subsidiary decreased its registered capital from Baht 50 million to Baht 12.50 million by reduction of 0.375 million shares at par value of Baht 100 per share which is own by the parent company in the amount of Baht 37.5 million.

Investments in subsidiaries as at 31 December 2019 and 2018, and dividend income for the years then ended were as follows;

Separate financial statements													
	Type of business	Ownership interest		Paid-up capital		Cost		Impairment		At cost - net		Dividend income	
		2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
(in thousand Baht)													
Subsidiaries													
G.K. Power Product Co., Ltd.	Manufacturing and selling of equipments for electrical systems	100.00	100.00	100,000	100,000	80,425	80,425	-	-	80,425	80,425	15,000	14,540
G.K. Assembly Co., Ltd.	Manufacturing and selling of equipments for electrical systems	100.00	100.00	200,000	200,000	163,188	163,188	-	-	163,188	163,188	-	50,000
K.N.P Supply Co.,Ltd.	Import-export and selling equipments for electrical systems	100.00	100.00	12,500	50,000	3,908	41,408	-	-	3,908	41,408	700	-
Greenovation Power Co., Ltd.	Generating and selling electricity	100.00	100.00	1,485,000	1,485,000	1,916,500	1,916,500	-	-	1,916,500	1,916,500	629,640	-
Wind Energy Development Co., Ltd.	Generating and selling electricity	100.00	100.00	1,575,000	1,575,000	2,226,150	2,226,150	-	-	2,226,150	2,226,150	200,025	389,025
NK Power Sola Co., Ltd.	Generating and selling electricity	100.00	100.00	2,600	2,600	40,854	40,854	-	-	40,854	40,854	11,001	12,000
Gunkul Solar Roof I Co., Ltd.	Generating and selling electricity	100.00	100.00	21,000	21,000	21,000	21,000	-	-	21,000	21,000	1,201	-
Gunkul Training Center Co., Ltd.	Providing training services	100.00	100.00	1,000	1,000	1,000	1,000	-	-	1,000	1,000	2,999	-
Solar Energy Society Co., Ltd.	Generating and selling electricity	100.00	100.00	315,678	140,300	315,678	140,300	-	-	315,678	140,300	-	-
Bright Green Power Co., Ltd.	Investing in companies	100.00	100.00	171,250	120,000	171,250	120,000	-	-	171,250	120,000	-	-
Gunkul Power Development Co., Ltd.	Construction	100.00	100.00	300,000	300,000	300,000	300,000	-	-	300,000	300,000	-	619,999

Separate financial statements													
	Type of business	Ownership interest		Paid-up capital		Cost		Impairment		At cost - net		Dividend income	
		2019	2018	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
(in thousand Baht)													
Gunkul Solar Community Co., Ltd. Siam Gunkul Solar Energy Co., Ltd. Korat Wind Energy Co., Ltd. Gunkul Energy Solution and Lighting Co., Ltd. GO Bioenergy Co., Ltd. Infinite Alternative Energy Co., Ltd. Eco Thaienergy Co., Ltd. Gunkul Infinite Group Co., Ltd (Formerly: Gunkul Bioenergy Co., Ltd.) Gunkul International (Mauritius) Gunkul Solar Power Co., Ltd. BBMP Solar Co., Ltd. Joint venture GKE & GPD Company Limited Joint venture GKE & FEC	Generating and selling electricity	100.00	100.00	20,000	10,000	20,000	10,000	-	-	20,000	10,000	-	-
	Generating and selling electricity	100.00	100.00	40,900	40,900	40,899	40,899	-	-	40,899	40,899	8,589	-
	Generating and selling electricity	100.00	100.00	1,107,000	1,017,138	1,538,750	1,448,887	-	-	1,538,750	1,448,887	-	-
	Manufacturing and selling of energy - saving products	100.00	100.00	40,600	40,600	40,600	40,600	-	-	40,600	40,600	-	-
	Investing in companies	74.90	74.90	34,300	34,300	25,690	25,690	-	-	25,690	25,690	-	-
	Investing in companies	67.00	67.00	1,564,000	1,564,000	1,088,576	1,088,576	-	-	1,088,576	1,088,576	80,687	165,436
	Generating and selling electricity	51.00	51.00	76,500	76,500	42,015	42,015	-	-	42,015	42,015	4,830	6,964
	Generating and selling electricity	75.00	100.00	2,000	500	1,499	499	-	-	1,499	499	-	-
	Investing in companies	100.00	100.00	4,740,445	4,740,445	4,740,445	4,740,445	-	-	4,740,445	4,740,445	-	-
	Generating and selling electricity	100.00	100.00	179,250	179,250	179,250	179,250	-	-	179,250	179,250	-	-
Joint venture GKE & GPD Company Limited Joint venture GKE & FEC	Generating and selling electricity	100.00	100.00	980	980	216,938	216,938	-	-	216,938	216,938	25,997	26,997
	Construction	50.00	-	20,000	-	10,000	-	-	-	10,000	-	-	-
	Construction	60.00	-	6,000	-	3,600	-	-	-	3,600	-	-	-
Total				13,188,215	12,884,624	13,188,215	12,884,624	-	-	13,188,215	12,884,624	980,669	1,284,961

All subsidiaries were incorporated and operate in Thailand, except Gunkul International (Mauritius) which was incorporated and operates in Mauritius.
None of the Company's subsidiaries are publicly listed and consequently do not have published price quotations.

12 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.	
	2019	2018
	<i>(in thousand Baht)</i>	
Non-controlling interest percentage	33%	33%
Current assets	475,318	363,568
Non-current assets	4,718,834	4,967,404
Current liabilities	(276,002)	(273,026)
Non-current liabilities	(3,178,910)	(3,409,101)
Net assets	1,739,240	1,648,845
Carrying amount of non-controlling interest	573,949	544,119
Revenue	730,427	752,092
Profit	210,539	257,976
Other comprehensive income	284	6
Total comprehensive income	210,823	257,982
Profit allocated to non-controlling interest	69,478	85,132
Other comprehensive income allocated to non-controlling interest	94	2
Cash flows from operating activities	434,240	491,226
Cash flows from investing activities	(11,530)	(35,537)
Cash flows from financing activities	(341,560)	(481,894)
Net increase (decrease) in cash and cash equivalents	81,150	(26,205)

13 Other non-current receivables

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	(in thousand Baht)			
Advance payment of machinery for investment	-	268,345	-	268,345
Dividend receivable	115,803	115,803	115,803	115,803
Deposits	33,000	-	33,000	-
Refundable withholding tax deduct at source	19,202	-	12,855	-
Prepaid front-end fee – undrawdown credit facilities	-	15,468	-	-
Others	18,246	19,104	4,729	4,726
Total	186,251	418,720	166,387	388,874

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.

At the Board of Directors' meeting of the Company held on 28 June 2019, the Board approved the selling of machinery for investment to the Counterparty in the amount of U.S. dollar 9.1 million which will due within the year 2020. This transaction was reclassified to other receivable in the financial statements.

14 Property, plant and equipment

Consolidated financial statements							
	Land	Building improvement and utility system	Machinery and equipment	Furniture, fixtures and office equipment (in thousand Baht)	Vehicles	Assets under construction	Total
Cost							
At 1 January 2018	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 and 1 January 2019	1,065,981	1,059,669	20,080,901	90,979	126,338	2,167,933	24,591,801
Additions	400	1,728	53,024	4,933	15,216	3,064,675	3,139,976
Transfers	662,256	-	2,843,464	(6,377)	917	(3,500,260)	-
Disposals	-	-	(47,662)	(2,707)	(15,894)	(252,613)	(318,876)
Effect of movements in exchange rates	-	-	(185,363)	(98)	-	(124,518)	(309,979)
At 31 December 2019	1,728,637	1,061,397	22,744,364	86,730	126,577	1,355,217	27,102,922

Consolidated financial statements						
	Land	Building improvement and utility system	Machinery and equipment	Furniture, fixtures and office equipment (in thousand Baht)	Vehicles	Assets under construction
						Total
Accumulated depreciation and impairment losses						
At 1 January 2018	-	(114,769)	(708,151)	(48,214)	(51,758)	(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)
At 31 December 2018 and 1 January 2019						
Depreciation charge for the year	-	(153,351)	(1,300,621)	(57,989)	(61,425)	(1,573,708)
Transfer	-	(41,649)	(929,362)	(9,483)	(10,198)	(990,692)
Disposals	-	(20)	(431)	461	(10)	-
Effect of movements in exchange rates	-	-	6,217	2,763	9,803	18,783
At 31 December 2019	-	(195,020)	(2,214,436)	(64,177)	(61,830)	(2,535,785)
Net book value						
At 1 January 2018						
Owned assets	1,065,981	726,498	8,302,901	15,933	14,272	18,012,787
Assets under finance leases	-	-	2,935	-	57,139	60,074
	1,065,981	726,498	8,305,836	15,933	71,411	18,072,861
At 31 December 2018 and 1 January 2019						
Owned assets	1,065,981	906,318	18,778,679	32,990	16,911	22,968,490
Assets under finance leases	-	-	1,601	-	48,002	49,603
	1,065,981	906,318	18,780,280	32,990	64,913	23,018,093
At 31 December 2019						
Owned assets	1,728,637	866,377	20,528,818	22,553	13,590	24,514,870
Assets under finance leases	-	-	1,110	-	51,157	52,267
	1,728,637	866,377	20,529,928	22,553	64,747	24,567,137

Separate financial statements						
	Building and improvement	Machinery and equipment	Furniture, fixtures and office equipment (in thousand Baht)	Vehicles	Assets under construction	Total
Cost						
At 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 and 1 January 2019	32,608	21,772	53,757	79,374	2,778	190,289
Additions	-	27	2,714	11,629	-	14,370
Transfer	-	(3,255)	(1,742)	(15,893)	-	(20,890)
At 31 December 2019	32,608	18,544	54,729	75,110	2,778	183,769
Accumulated depreciation						
At 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 and 1 January 2019	(29,279)	(17,432)	(32,493)	(36,900)	-	116,104
Depreciation charge for the year	(487)	(531)	(6,343)	(5,252)	-	(12,613)
Disposals	-	64	1,494	9,803	-	11,361
At 31 December 2019	(29,766)	(17,899)	(37,342)	(32,349)	-	(117,356)
Net book value						
At 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 and 1 January 2019						
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
At 31 December 2019						
Owned assets	2,842	645	17,387	11,562	2,778	35,214
Assets under finance leases	-	-	-	31,199	-	31,199
	2,842	645	17,387	42,761	2,778	66,413

The gross amount of the Group's fully depreciated plant and equipment that was still in use as at 31 December 2019 amounting to Baht 280.89 million (2018: Baht 177.19 million).

Security

At 31 December 2019, the Group has pledged land, building and machinery with a net book value of Baht 19,718.13 million as collateral to secure long-term loans (31 December 2018: Baht 20,757 million) (See note 16).

At 31 December 2019, the Group has no capitalised borrowing costs relating to the power plant under construction (2018: 92.85 million with a capitalization rate of 2.35% – 4.60%).

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 (in thousand Baht)	Goodwill	Software under installation	Total
Cost						
At 1 January 2018	12,173	886,461	3,257,755	163,476	-	4,319,865
Additions	2,554	1,736	237,412	-	780	242,482
Effect of movements in exchange rates	-	-	12,058	-	-	12,058
At 31 December 2018 and 1 January 2019	14,727	888,197	3,507,225	163,476	780	4,574,405
Additions	9,300	860	22,170	-	520	32,850
Transfer	1,300	-	-	-	(1,300)	-
Disposals	-	-	(73,009)	-	-	(73,009)
Effect of movements in exchange rates	-	-	(74,082)	-	-	(74,082)
At 31 December 2019	25,327	889,057	3,382,304	163,476	-	4,460,164
Accumulated amortisation and impairment losses						
At 1 January 2018	(5,544)	(16,259)	(66,401)	-	-	(88,204)
Amortisation charge for the year	(1,629)	(28,268)	(79,559)	-	-	(109,496)
At 31 December 2018 and 1 January 2019	(7,173)	(44,527)	(146,000)	-	-	(197,700)
Amortisation charge for the year	(3,658)	(35,649)	(106,612)	-	-	(145,919)
At 31 December 2019	(10,831)	(80,176)	(252,612)	-	-	(343,619)
Net book value						
At 1 January 2018	6,629	870,202	3,191,354	163,476	-	4,231,661
At 31 December 2018 and 1 January 2019	7,554	843,670	3,361,225	163,476	780	4,376,705
At 31 December 2019	14,496	808,881	3,129,692	163,476	-	4,116,545

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 19 - 24 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		Separate	
	financial statements		financial statements	
	2019	2018	2019	2018
				(%)
Discount rate-Solar power stations	5.39 – 7.49	7.26 – 8.25	-	-
Discount rate-Wind Farm power stations	7.07 – 7.23	8.18 – 8.26	-	-

The discount rate was a post-tax measure based on the rate of 19 - 24 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)
Cost	
At 1 January 2018	5,976
Additions	1,993
At 31 December 2018 and 1 January 2019	7,969
Additions	2,685
At 31 December 2019	10,654
Accumulated amortisation	
At 1 January 2018	(1,884)
Amortisation charge for the year	(1,157)
At 31 December 2018 and at 1 January 2019	(3,041)
Amortisation charge for the year	(1,480)
At 31 December 2019	(4,521)
Net book value	
At 1 January 2018	4,092
At 31 December 2018 and at 1 January 2019	4,928
At 31 December 2019	6,133

16 Interest-bearing liabilities

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	(in thousand Baht)			
Current				
Short-term loans from financial institutions - unsecured	1,052,141	2,309,304	985,696	2,015,006
Less unamortised discount	(1,053)	(2,516)	(1,053)	(2,516)
	1,051,088	2,306,788	984,643	2,012,490
Current portion of long-term loans from financial institutions - secured	1,297,337	1,575,314	28,800	28,800
Less unamortised deferred financing fees	(36,015)	(28,319)	(296)	(356)
	1,261,322	1,546,995	28,504	28,444
Current portion of debentures - unsecured	1,000,000	2,765,500	1,000,000	2,765,500
Current portion of finance lease liabilities	15,510	13,932	7,903	7,186
Total current interest-bearing liabilities	3,327,920	6,633,215	2,021,050	4,813,620

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	(in thousand Baht)			
Non-current				
Long-term loans from financial institutions - secured	14,554,220	14,283,463	367,200	396,000
Less unamortised deferred financing fees	(166,259)	(153,614)	(2,217)	(2,513)
	14,387,961	14,129,849	364,983	393,487
Debentures - unsecured	4,619,000	2,819,000	4,619,000	2,819,000
Less unamortised deferred financing fees	(16,023)	-	(16,023)	-
	4,602,977	2,819,000	4,602,977	2,819,000
Financial lease liabilities	17,022	18,866	10,487	7,615
Total non-current interest-bearing liabilities	19,007,960	16,967,715	4,978,447	3,220,102
Total	22,335,880	23,600,930	6,999,497	8,033,722

As at 31 December 2019, 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 2018: Baht 18,479.45 million, U.S. Dollars 220 million and JPY 11,699 million).

Finance lease liabilities

Finance lease liabilities as at 31 December were payable as follows:

	Consolidated financial statements					
	2019			2018		
	Minimum lease payments	Interest	Present value of minimum lease payments	Minimum lease payments	Interest	Present value of minimum lease payments
	(in thousand Baht)					
Finance lease liabilities						
<i>Maturity period</i>						
Within 1 year	16,568	(1,058)	15,510	15,078	(1,146)	13,932
1 - 5 years	18,393	(1,371)	17,022	19,680	(814)	18,866
Total	34,961	(2,429)	32,532	34,758	(1,960)	32,798

Separate financial statements						
	2019			2018		
	Minimum lease payments	Interest	Present value of minimum lease payments (in thousand Baht)	Minimum lease payments	Interest	Present value of minimum lease payments
Finance lease liabilities						
<i>Maturity period</i>						
Within 1 year	8,526	(623)	7,903	7,703	(517)	7,186
1 - 5 years	11,433	(946)	10,487	7,884	(269)	7,615
Total	19,959	(1,569)	18,390	15,587	(786)	14,801

Long-term borrowings

Details of principal features of the Group's long-term borrowings as at 31 December 2019 and 2018 were as follows:

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	(in thousand Baht)			
Subsidiaries :				
1) Baht 3,730 million and U.S. Dollars 81 million Loan Facility Agreement at interest BIBOR 3M plus a margin, payable in four-months installments commencing in February 2017	2,647,536	2,962,133	-	-
2) Baht 4,080 million Loan Facility Agreement at interest THBFIX 6M plus a margin, payable in three-months installments commencing in November 2016	3,375,022	3,596,154	-	-
3) JPY 11,007 million Loan Facility Agreement at interest TIBOR 6M plus a margin, payable in six-months installments commencing in December 2018	2,761,197	3,133,282	-	-
4) JPY 692 million Loan Facility Agreement at interest TIBOR 3M plus a margin, payable once within December 2019	-	202,282	-	-
5) 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	3,865,028	3,709,305	-	-
6) Baht 207 million Loan Facility Agreement at interest rate 4.43%, payable in three-months installments commencing in September 2017	164,951	178,059	-	-

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
		<i>(in thousand Baht)</i>		
7) Baht 3,048 million Loan Facility Agreement at interest rate THBFIX 6M plus a margin, payable in three-months installments commencing in December 2018	2,442,062	1,473,698	-	-
8) Baht 432 million Loan Facility Agreement at interest MLR less a discount, payable in monthly installments commencing in October 2018	393,487	421,931	393,487	421,931
Total	<u>15,649,283</u>	<u>15,676,844</u>	<u>393,487</u>	<u>421,931</u>

Debentures

As at 31 December 2019, the Company has outstanding balances of issued unsecured, name registered, unsubordinated debentures. The details of issuance of debentures were as below:

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	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
Debenture issued on	3 October 2019
Unit and value	2,800,000 units at par value of Baht 1,000 each
Total debenture value	Baht 2,800 million
Period and maturity date	2 years 9 months will mature on 3 July 2022
Interest rate	Fixed rate of 4.50% per annum
Interest payment due	Every 3 months

As at 31 December 2019, the Group had unutilised credit facilities totalling Baht 4,710.75 million (31 December 2018 : Baht 4,622.17 million).

The Group has to comply with certain conditions in accordance with those agreements including maintaining certain key financial ratios.

17 Provisions for employee benefit

Defined benefit plan

The Group and the Company operate a defined benefit plan based on the requirement of Thai Labour Protection Act B.E 2541 (1998) to provide retirement benefits to employees based on pensionable remuneration and length of service. The defined benefit plans expose the Group to actuarial risks, such as longevity risk, currency risk, interest rate risk and market risk.

<i>Present value of the defined benefit obligations</i>	Consolidated financial statements		Separate financial statements	
	2019	2018 (in thousand Baht)	2019	2018
At 1 January	52,889	45,781	34,690	30,038
Include in profit or loss:				
Current service cost	10,931	6,301	5,092	3,744
Past service cost	10,483	-	5,561	-
Interest on obligation	1,731	1,393	1,066	920
	23,145	7,694	11,719	4,664
Included in other comprehensive income				
Actuarial gain (loss)				
- Demographic assumptions	375	-	236	-
- Financial assumptions	1,198	-	984	-
- Experience adjustment	759	-	2,343	-
	2,332	-	3,563	-
Benefit paid	(1,374)	(586)	(907)	(12)
At 31 December	76,992	52,889	49,065	34,690

On 5 April 2019, the Labor Protection Act was amended 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 has therefore amended its retirement plan in accordance with the changes in the Labor Protection Act in 2019. As a result of this change, the provision for retirement benefits as well as past service cost recognised increased.

<i>Principal actuarial assumptions</i>	Consolidated and Separate financial statements	
	2019	2018
	(%)	
Discount rate	2.84	3.07
Future salary growth	4.0 – 8.0	4.0 – 8.0
Employee turnover	0.0 – 30.0	0.0 – 30.0

Assumptions regarding future mortality have been based on published statistics and mortality tables.

At 31 December 2019, the weighted-average duration of the defined benefit obligation was 12.4 years (2018: 9.9 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 defined benefit obligations by the amounts shown below.

Consolidated financial statements				
<i>Effect to the defined benefit obligation At 31 December</i>	1% increase in assumption		1% decrease in assumption	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Discount rate	(6,522)	(4,543)	7,509	5,227
Future salary growth	7,947	6,055	(7,031)	(5,327)

Separate financial statements				
<i>Effect to the defined benefit obligation At 31 December</i>	1% increase in assumption		1% decrease in assumption	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Discount rate	(3,568)	(2,710)	4,065	3,099
Future salary growth	4,376	3,657	(3,915)	(3,240)

18 Provisions for decommissioning costs of power plants

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
At 1 January	203,979	5,306	-	-
Additions	11,782	198,673	-	-
Effect of movements in exchange rates	(6,327)	-	-	-
At 31 December	209,434	203,979	-	-

19 Share capital

	Par value per share (in Baht)	2019		2018	
		Number	Baht	Number	Baht
(thousand shares / thousand Baht)					
Authorised					
At 1 January					
- ordinary shares	0.25	7,418,620	1,854,655	7,931,870	1,982,967
Increase of new shares					
- ordinary shares	0.25	1,483,724	370,931	-	-
Reduction of shares	0.25	-	-	(513,250)	(128,312)
At 31 December					
- ordinary shares	0.25	8,902,344	2,225,586	7,418,620	1,854,655
Issued and paid-up					
At 1 January					
- ordinary shares	0.25	7,418,620	1,854,655	7,418,620	1,854,655
Increase of new shares					
- ordinary shares	0.25	1,463,911	365,978	-	-
At 31 December					
- ordinary shares	0.25	8,882,531	2,220,633	7,418,620	1,854,655

At the annual general meeting of the shareholders of the Company held on 18 April 2019, the shareholders approved the increase of the Company's registered capital by 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.

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.

20 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 22 October 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.

21 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.

22 Segment information

Management determined that the Group has four reportable segments which are the Group's strategic divisions for 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

Each segment's 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. Inter-segment pricing is determined on an arm's length basis.

	Manufacturing and selling of equipments for electrical systems									
	Generating and selling electricity		Construction service		Maintenance service		Eliminations		Total	
	2019	2018	2019	2018	2019	2018	2019	2018	2019	2018
For the year ended 31 December	<i>(in thousand Baht)</i>									
Information about reportable segments										
External revenues	1,526,498	1,344,965			87,729	68,541	-	-	7,098,570	6,230,499
Inter-segment revenue	667,750	736,538	161,894	66,546	72,132	71,992	(901,776)	(875,076)	-	-
Total revenue	2,194,248	2,081,503	1,141,840	1,953,789	159,861	140,533	(901,776)	(875,076)	7,098,570	6,230,499
Disaggregation of revenue										
Primary geographical markets										
Thailand	2,181,764	2,069,185	1,141,840	1,953,789	159,861	140,533	(901,776)	(875,076)	6,277,491	6,173,551
Japan	-	-	-	-	-	-	-	-	808,595	44,630
Other countries	12,484	12,318	-	-	-	-	-	-	12,484	12,318
Total revenue	2,194,248	2,081,503	1,141,840	1,953,789	159,861	140,533	(901,776)	(875,076)	7,098,570	6,230,499
Timing of revenue recognition										
At a point in time	2,194,248	2,081,503	-	-	-	-	(667,750)	(736,538)	1,526,498	1,344,965
Over time	-	-	1,141,840	1,953,789	159,861	140,533	(234,026)	(138,538)	5,572,072	4,885,534
Total revenue	2,194,248	2,081,503	1,141,840	1,953,789	159,861	140,533	(901,776)	(875,076)	7,098,570	6,230,499
Segment gross profit	496,135	403,784	129,715	611,721	72,808	67,924	(86,688)	(61,097)	3,648,184	3,060,526
Total assets by segment	17,970,033	18,474,631	1,930,590	1,514,293	-	-	(13,676,365)	(14,242,944)	39,041,540	35,624,750

Reconciliation of reportable segment profit or loss

	Consolidated financial statements	
	2019	2018
	<i>(in thousand Baht)</i>	
Profit or loss		
Total gross profit for reportable segments	3,648,184	3,060,526
Unallocated amounts	<u>(1,384,913)</u>	<u>(1,778,620)</u>
Profit before income tax	<u>2,263,271</u>	<u>1,281,906</u>

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	Consolidated financial statements			
	Revenues		Assets	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Thailand	6,277,491	6,173,551	29,033,694	27,706,136
Japan	808,595	44,630	9,649,597	7,700,146
Other countries	12,484	12,318	186,813	163,199
Investments in associate and joint ventures	-	-	171,436	55,269
Total	<u>7,098,570</u>	<u>6,230,499</u>	<u>39,041,540</u>	<u>35,624,750</u>

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 5,582 million of the Group's total revenues (2018: three customers, amount Baht 4,652.5 million).

The Group recognises revenue in an amount that corresponds directly with the value to the customer of the date on which the performance obligations are satisfied.

23 Administrative expenses and other expenses

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Personnel expense	381,827	321,286	245,769	220,297
Consulting and professional fees	107,485	91,655	56,288	24,006
Rental fee and insurance premium	42,186	45,268	23,521	26,019
Depreciation and amortisation	28,666	29,559	14,093	15,090
Bank charge	23,677	18,477	7,316	7,190
Penalty	23,719	14,516	2,857	1,792
Travelling and delivery expense	22,105	26,208	8,305	12,361
Others service fee	19,291	38,395	5,899	15,435
Utility expense and supplies used	19,009	17,100	10,450	8,024
Entertainment expense	16,167	16,146	7,347	8,159
Property taxes	15,293	8,819	19	-
Others	72,492	52,404	8,370	6,048
Total	771,917	679,833	390,234	344,421

24 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 33*). 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.

25 Employee benefit expenses

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Wages and salaries	347,043	305,599	177,914	179,120
Bonus	97,123	83,975	61,963	52,863
Defined contribution plans	11,971	11,411	7,993	7,715
Contribution to defined post-benefit plans	23,365	7,175	11,719	4,665
Others	45,737	38,746	28,578	27,722
Total	525,239	446,906	288,167	272,085

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.

26 Expenses by nature

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	(in thousand Baht)			
Changes in inventories of finished goods and work in progress	(104,854)	(153,899)	(103,253)	(91,908)
Raw materials and consumables used	1,057,296	1,028,640	1,181,944	1,034,148
Construction cost	862,950	1,282,474	-	47,684
Operation and maintenance service fee	186,806	57,702	5,327	3,267
Employee benefit expenses	525,239	446,906	288,167	272,085
Depreciation and amortisation	1,137,428	762,810	14,093	15,090
Consulting fees	111,681	92,565	56,288	24,006
Property taxes	65,697	11,927	-	-
Bank charge and others service fee	44,485	54,590	13,234	22,625
Utility expense and supplies used	68,877	60,752	11,359	8,169
Rental fee	52,478	47,458	21,700	22,632
Insurance premium	46,790	39,010	1,825	3,411
Travelling and delivery expense	32,418	35,891	14,667	15,805
Others	203,275	146,185	30,319	27,794
Total cost of sales, cost of sale of electricity, cost of rendering of services, cost of construction services, distribution costs and administrative expenses	4,290,566	3,913,011	1,535,670	1,404,808

27 Finance costs

		Consolidated financial statements		Separate financial statements	
	Note	2019	2018	2019	2018
		(in thousand Baht)			
Interest expense					
Related parties	4	-	-	3,420	1,820
Other parties		651,047	675,300	55,702	76,299
Total		651,047	675,300	59,122	78,119
Debtenture		228,688	196,247	228,688	196,247
Amortisation of financing fees		24,763	18,012	1,341	242
Others		5,578	3,747	1,533	1,095
Total		259,029	218,006	231,562	197,584
Less amounts included in the cost of qualifying assets:					
- Property, plant and equipment under construction	14	-	(92,854)	-	-
		-	(92,854)	-	-
Net		910,076	800,452	290,684	275,703

28 Income tax

<i>Income tax recognised in profit or loss</i>	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Current tax expense				
Current year	41,782	157,394	-	-
Adjustment for prior years	1,152	-	-	-
	42,934	157,394	-	-
Deferred tax expense				
Movements in temporary differences	(1,953)	(53,898)	(946)	(51,708)
Total income tax expense	40,981	103,496	(946)	(51,708)

<i>Reconciliation of effective tax rate</i>	Consolidated financial statements			
		2019		2018
	<i>Rate (%)</i>	<i>(in thousand Baht)</i>	<i>Rate (%)</i>	<i>(in thousand Baht)</i>
Profit before income tax expense		2,263,271		1,281,906
Income tax using the Thai corporation tax rate	20.0	452,654	20.0	256,381
Income not subject to tax		(499,295)		(319,329)
Expenses not deductible for tax purposes		29,812		30,904
Addition deductible expense for tax purpose		(10,545)		(5,181)
Current year losses for which no deferred tax asset was recognised		74,807		128,092
Effect of different tax rates in foreign jurisdictions		(6,452)		12,629
Total	1.81	40,981	8.0	103,496

<i>Reconciliation of effective tax rate</i>	Separate financial statements			
		2019		2018
	<i>Rate (%)</i>	<i>(in thousand Baht)</i>	<i>Rate (%)</i>	<i>(in thousand Baht)</i>
Profit before income tax expense		893,653		608,681
Income tax using the Thai corporation tax rate	20.0	178,731	20.0	121,736
Income not subject to tax		(232,527)		(298,389)
Expenses not deductible for tax purposes		109		431
Current year losses for which no deferred tax asset was recognised		52,741		124,514
Total	(0.11)	(946)	(8.0)	(51,708)

Deferred tax	Consolidated financial statements			
	Assets		Liabilities	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Total	160,175	157,482	(270,544)	(270,247)
Set off of tax	(84,227)	(82,017)	84,227	82,017
Net deferred tax assets (liabilities)	75,948	75,465	(186,317)	(188,230)

Deferred tax	Separate financial statements			
	Assets		Liabilities	
	2019	2018	2019	2018
	<i>(in thousand Baht)</i>			
Total	65,321	63,557	(2,562)	(2,457)
Set off of tax	(2,562)	(2,457)	2,562	2,457
Net deferred tax assets	62,759	61,100	-	-

Consolidated financial statements				
		(Charged) / credited to		
	At	Profit or	Other	At
Deferred tax	1January	loss	comprehensive	31 December
		(in thousand Baht)		
2019				
Deferred tax assets				
Trade account receivable and other receivables	816	262	-	1,078
Inventories	4,537	2,139	-	6,676
Provisions	11,472	(4,691)	-	6,781
Provisions for employee benefit	10,441	4,360	466	15,267
Profit in inventories	3,131	1,930	-	5,061
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	361	-	366
Loss carry forward	53,791	(2,134)	-	51,657
Total	157,482	2,227	466	160,175
Deferred tax liabilities				
Property, plant and equipment	(2,963)	(302)	-	(3,265)
Right to power purchase agreement and right to operate (See note 15)	(264,263)	-	-	(264,263)
Finance leases liabilities	(3,021)	28	-	(2,993)
Available-for-sale investments	-	-	(23)	(23)
Total	(270,247)	(274)	(23)	(270,544)
Net	(112,765)	1,953	443	(110,369)

Consolidated financial statements				
		(Charged) / credited to		
	At	Profit or	Other	At
Deferred tax	1January	loss	comprehensive	31 December
		(in thousand Baht)	income	
2018				
Deferred tax assets				
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
Total	102,782	54,700	-	157,482
Deferred tax liabilities				
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)
Total	(269,445)	(802)	-	(270,247)
Net	(166,663)	53,898	-	(112,765)

Separate financial statements				
Deferred tax	At 1 January	(Charged)/ credited to		At 31 December
		Profit or loss	Other comprehensive income	
		(in thousand Baht)		
2019				
Deferred tax assets				
Trade account receivable and other receivables	179	37	-	216
Inventories	1,914	1,336	-	3,250
Provisions	2,976	(2,484)	-	492
Provisions for employee benefit	6,939	2,162	713	9,814
Loss carry forward	51,549	-	-	51,549
Total	63,557	1,051	713	65,321

Separate financial statements				
Deferred tax	At 1 January	(Charged)/ credited to		At 31 December
		Profit or loss	Other comprehensive income	
		(in thousand Baht)		
Deferred tax liabilities				
Finance leases liabilities	(2,457)	(105)	-	(2,562)
Total	(2,457)	(105)	-	(2,562)
Net	61,100	946	713	62,759

Separate financial statements				
Deferred tax	At 1 January	(Charged)/ credited to		At 31 December
		Profit or loss	Other	
			comprehensive income	
(in thousand Baht)				
2018				
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

<i>Unrecognised deferred tax assets</i>	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
<i>(in thousand Baht)</i>				
Temporary differences	-	839	-	-
Loss carry forward	307,673	210,374	232,756	180,014
Total	307,673	211,213	232,756	180,014

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.

29 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 Group has been granted several privileges including exemption and/or reduction from payment of income tax on the net profit derived from promoted operations with certain terms and conditions prescribed in the promotional certificates.

Consolidated financial statements						
Year ended 31 December	2019			2018		
	Promoted businesses	Non- promoted businesses	Total	Promoted businesses	Non- promoted businesses	Total
			(in thousand Baht)			
Export sales	-	821,079	821,079	-	56,948	56,948
Local sales	3,695,802	3,483,465	7,179,267	2,885,120	4,163,507	7,048,627
Eliminations	-	(901,776)	(901,776)	-	(875,076)	(875,076)
Total revenue	3,695,802	3,402,768	7,098,570	2,885,120	3,345,379	6,230,499

30 Earnings per share

The calculations of basic earnings per share for the year ended 31 December 2019 and 2018 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 2019 as disclosed in note 19 and 31. For the benefit of comparison, the number of ordinary shares used in the calculations of earnings per share for the year ended 31 December 2018 are adjusted as if such change had occurred at the beginning of the earliest reporting period as follows:

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	(in thousand Baht/ thousand shares)			
Profit attributable to ordinary shareholders for the year ended 31 December	2,147,329	1,085,172	894,599	660,389
Number of ordinary shares outstanding as at 1 January				
- ordinary shares of Baht 0.25 each	8,882,531	8,882,531	8,882,531	8,882,531
Effect of treasury shares	(99,044)	(99,044)	(99,044)	(99,044)
Weighted average number of ordinary shares outstanding at 31 December	8,783,487	8,783,487	8,783,487	8,783,487
Earnings per share (basic) (in Baht)	0.24	0.12	0.10	0.08

31 Dividend

The shareholders of the Company have approved dividends as follows:

	Approval date	Payment schedule	Dividend rate per share (Baht)	Amount (in million Baht)	Legal reserve
2019					
Annual dividend					
- Cash dividend	18 April 2019	May 2019	0.01	73.19	-
- Stock dividend	18 April 2019	May 2019	0.05	365.98	24.26
				439.17	24.26
2018					
Annual dividend	20 April 2018	May 2018	0.045	333.84	-

32 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 is primarily exposed to interest rate risk from its borrowings (*see note 16*). 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 debt securities and borrowings.

Consolidated financial statements					
At 31 December	Effective interest rate (% per annum)	Maturity period			
		Within 1 year	After 1 year but within 5 years	After 5 years	Total
			(in thousand Baht)		
2019					
Financial Asset					
Loan to related parties	3.50	169,929	-	-	169,929
Total		169,929	-	-	169,929
Financial Liabilities					
Short-term loans from financial institutions	2.05 - 4.30	1,051,088	-	-	1,051,088
Long-term loans from financial institutions	3.14 - 6.71	1,261,322	7,941,645	6,446,316	15,649,283
Debentures	3.50 - 4.51	1,000,000	4,602,977	-	5,602,977
Total		3,312,410	12,544,622	6,446,316	22,303,348
2018					
Financial Liabilities					
Short-term loans from financial institutions	2.20 - 4.50	2,306,788	-	-	2,306,788
Long-term loans from financial institutions	2.89 - 6.69	1,546,995	8,033,483	6,096,366	15,676,844
Debentures	3.50 - 4.50	2,765,500	2,819,000	6,096,366	5,584,500
Total		6,619,283	10,852,483	6,096,366	23,568,132

Separate financial statements					
At 31 December	Effective interest rate (% per annum)	Maturity period			
		Within 1 year	After 1 year but within 5 years	After 5 years	Total
			(in thousand Baht)		
2019					
Financial Asset					
Loan to related parties	2.50 - 3.73	984,724	348,483	-	1,333,207
Total		984,724	348,483	-	1,333,207
Financial Liabilities					
Loans from related parties	2.65 - 2.85	286,306	-	-	286,306
Short-term loans from financial institutions	2.05 - 2.82	984,643	-	-	984,643
Long-term loans from financial institutions	3.72	28,504	114,089	250,894	393,487
Debentures	3.50 - 4.51	1,000,000	4,602,977	-	5,602,977
Total		2,299,453	4,717,066	250,894	7,267,413
2018					
Financial Assets					
Loan to related parties	2.49 - 3.73	1,754,453	-	-	1,754,453
Total		1,754,453	-	-	1,754,453
Financial Liabilities					
Loans from related parties	2.73 - 2.85	483,631	-	-	483,631
Short-term loans from financial institutions	2.20 - 3.73	2,012,490	-	-	2,012,490
Long-term loans from financial institutions	3.72	28,444	114,017	279,470	421,931
Debentures	3.50 - 4.50	2,765,500	2,819,000	-	5,584,500
Total		5,290,065	2,933,017	279,470	8,502,552

Foreign currency risk

The Group is exposed to foreign currency risk relating to purchases material, purchases of asset, costs of operation and maintenance and have long-term loan 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:

Consolidated financial statements								
Assets and liabilities denominated in the foreign currencies as at 31 December	2019				2018			
	United States	Japanese			United States	Japanese		
	Dollars	Yen	Euro	Total	Dollars	Yen	Euro	Total
	<i>(in thousand Baht)</i>							
Cash and cash equivalents	101,676	697,497	243	799,416	85,121	263,660	265	349,046
Trade accounts receivables	1,124	51,235	-	52,359	-	17,982	-	17,982
Other receivables	92,928	20,094	-	113,022	-	13,194	-	13,194
Revenue Department receivable	-	198,006	-	198,006	-	246,754	-	246,754
Deposits from financial institution pledged as collateral	92,371	323,541	-	415,912	221,119	590,584	-	811,703
Other non-current receivables	-	1,551	-	1,551	-	1,668	-	1,668
Interest-bearing liabilities	(72,141)	(2,761,197)	-	(2,833,338)	(206,139)	(3,335,564)	(3,165)	(3,544,868)
Trade accounts payable	(116,681)	(9)	(835)	(117,525)	(52,140)	(1,103)	(2,174)	(55,417)
Other payables	(81,513)	(89,655)	(40,902)	(212,070)	(1,583)	(17,991)	-	(19,574)
Payable for purchases of assets	(67,853)	(2,701,922)	-	(2,769,775)	(712)	(452,295)	-	(453,007)
Retention payables	(220,365)	-	-	(220,365)	(360,600)	-	-	(360,600)
Other non-current liabilities	-	(110,268)	-	(110,268)	-	(108,139)	-	(108,139)
Gross balance sheet exposure	(270,454)	(4,371,127)	(41,494)	(4,683,075)	(314,934)	(2,781,250)	(5,074)	(3,101,258)
Estimated forecast payable for operation and maintenance service fee of power plants	(674,436)	(1,023,063)	(286,311)	(1,983,810)	(807,919)	(672,919)	(359,889)	(1,840,727)
Gross exposure	(944,890)	(5,394,190)	(327,805)	(6,666,885)	(1,122,853)	(3,454,169)	(364,963)	(4,941,985)
Cross currency and interest rate swap contracts	1,166,353	-	-	1,166,353	1,357,054	-	-	1,357,054
Net exposure	221,463	(5,394,190)	(327,805)	(5,500,532)	234,201	(3,454,169)	(364,963)	(3,584,931)

Separate financial statements								
<i>Assets and liabilities denominated in the foreign currencies as at 31 December</i>	2019				2018			
	United States				United States			
	Japanese Yen				Japanese Yen			
	Dollars	Yen	Euro	Total	Dollars	Yen	Euro	Total
	<i>(in thousand Baht)</i>							
Cash and cash equivalents	99,886	-	241	100,127	82,928	-	265	83,193
Trade accounts receivables	1,124	-	-	1,124	-	-	-	-
Other receivables	92,928	-	-	92,928	-	-	-	-
Interest-bearing liabilities	(5,696)	-	-	(5,696)	(31,841)	-	(3,165)	(35,006)
Trade accounts payable	(63,159)	(9)	(185)	(63,353)	(20,820)	(1,103)	-	(21,923)
Gross balance sheet exposure	125,083	(9)	56	125,130	30,267	(1,103)	(2,900)	26,264
Cross currency and interest rate swap contracts	1,166,353	-	-	1,166,353	1,357,054	-	-	1,357,054
Net exposure	1,291,436	(9)	56	1,291,483	1,387,321	(1,103)	(2,900)	1,383,318

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 2019 and 2018 were as following:

Consolidated financial statements						
	Note	Carrying amount	Fair value			
			Level 1	Level 2	Level 3	Total
			(in thousand Baht)			
31 December 2019						
Financial assets measured at fair value						
Equity and debt securities available-for-sale	6	23,553	-	23,553	-	23,553
Financial liabilities not measured at fair value						
Long-term loans	16	164,951	-	152,506	-	152,506
Debentures	16	5,602,977	-	5,654,110	-	5,654,110
Interest rate swap contracts	33	-	-	335,421	-	335,421
Cross currency and interest rate swap contracts	33	-	-	233,179	-	233,179
31 December 2018						
Financial assets measured at fair value						
Equity and debt securities available-for-sale	6	526,538	-	526,538	-	526,538
Financial liabilities not measured at fair value						
Long-term loans	16	178,059	-	162,500	-	162,500
Debentures	16	5,584,500	-	5,577,669	-	5,577,669
Interest rate swap contracts	33	-	-	174,631	-	174,631
Cross currency and interest rate swap contracts	33	-	-	188,293	-	188,293
Separate financial statements						
	Note	Carrying amount	Fair value			
			Level 1	Level 2	Level 3	Total
			(in thousand Baht)			
31 December 2019						
Financial liabilities not measured at fair value						
Debentures	16	5,602,977	-	5,654,110	-	5,654,110
Cross currency and interest rate swap contracts	33	-	-	233,179	-	233,179
31 December 2018						
Financial assets measured at fair value						
Equity and debt securities available-for-sale	6	450,354	-	450,354	-	450,354

Separate financial statements						
	<i>Note</i>	Carrying amount	Fair value			
			Level 1	Level 2	Level 3	Total
				<i>(in thousand Baht)</i>		
<i>Financial liabilities not measured at fair value</i>						
Debentures	16	5,584,500	-	5,577,669	-	5,577,669
Cross currency and interest rate swap contracts	33	-	-	188,293	-	188,293

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.
Forward exchange contracts/ Interest rate swap contracts/ Cross currency and interest rate swap contracts	<i>Market comparison technique:</i> 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

33 Commitments with non-related parties

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
(in thousand Baht)				
Capital commitment				
Design, construction and installment for project under construction	648,811	2,597,092	-	1,273
Total	648,811	2,597,092	-	1,273

	Consolidated financial statements		Separate financial statements	
	2019	2018	2019	2018
	(in thousand Baht)			
Future minimum lease payments under non-cancellable operating				
Within 1 year	26,163	26,290	18,116	18,116
1 - 5 years	47,167	63,552	2,230	20,346
After 5 years	198,612	198,462	-	-
Total	271,942	288,304	20,346	38,462

Interest Rate Swap Agreements (See note 32)

As at 31 December 2019, the Group has outstanding interest rate swap agreements as follow:

Loan facility and outstanding principal	Interest Receive Rate Swap agreements	Interest Pay Rate Swap agreements	Termination date
Loan facility of Baht 3,730 million and U.S. Dollars 81 million and the outstanding principal in interest rate swap agreement of Baht 2,682.75 million.	Floating rate BIBOR 3M +1.85% per annum ended November 2021 and BIBOR 3M +2% per annum ending August 2026	Fixed coupon rate 4.985% per annum	27 August 2026
Loan facility of Baht 4,080 million and the outstanding principal in interest rate swap agreement of Baht 1,701.77 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 8,202.06 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 32)

As at 31 December 2019, the Group has outstanding cross currency and interest rate swap contracts as follow:

Currency and Interest Receive Rate Swap agreements	Currency and Interest Pay Rate Swap agreements	Termination date
U.S. dollar 4.68 million at the rate 0.00%	Baht 164.44 million at the rate 0.64%	25 November 2022
U.S. dollar 5.27 million at the rate 0.00%	Baht 185.37 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 4.62 million at the rate 0.00%	Baht 161.33 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

Power Purchase Agreement

The Group has the power purchase agreements for 15 - 25 years, 5 years and renew 5 years automatically with the Electricity Generating Authority of Thailand, Provincial Electricity Authority, Metropolitan Electricity Authority and private sectors 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 2019, the Group had outstanding commitments being amount of Baht 2,170.43 million and Malaysian Ringgit 5.40 million (31 December 2018 : Baht 1,393.53 million and Malaysian Ringgit 10.00 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 2019, the Group had outstanding commitments being amount of Baht 17.71 million and JPY 295.35 million (31 December 2018: Baht 16.59 million and JPY 503.52 million).

Service Agreement

The Group had obligation commitment in operation and maintenance service of power plant contracts. As at 31 December 2019, the Group outstanding obligation remains at Baht 52.66 million, EUR 8.42 million, U.S. Dollars 22.24 million and JPY 3,658.98 million (31 December 2018: Baht 64.55 million, EUR 9.60 million, U.S. Dollars 24.77 million and JPY 2,266.00 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 2019, the Group had outstanding commitments being amount of JPY 836.16 million (31 December 2018: JPY 877.44 million).

34 Events after the reporting period

At the Board of Directors' meeting of the Company held on 19 December 2019, the Board approved the acquiring of additional ordinary shares in Infinite Alternative Energy Co., Ltd. which is the Company's subsidiary at the proportion of 33% of paid-up capital from the existing shareholder. On 6 January 2020, the Company paid for share capital amounting to Baht 780 million, resulting in the increasing of the Company's interest in Infinite Alternative Energy Co., Ltd. from 67% to 99.99%.

On 4 February 2020, Bright Green Power Co., Ltd., the Company's subsidiary, acquired all ordinary shares of Singapore An Yang Pte. Ltd. ("An Yang") and Singapore Yun Yang Pte. Ltd. ("Yun Yang") which is incorporated in Singapore and invest in 2 solar power plant projects in Vietnam with a total capacity of 60 megawatts. The investment value of each project is U.S. Dollars 30.30 million, totaling U.S. Dollars 60.60 million or equivalent to Baht 1,867.39 million. During the year 2020, the subsidiary paid advance for shares subscription amounting to Baht 559.56 million.

At the Board of Directors' meeting of the Company held on 25 February 2020, the Board approved to submit for approval at the annual general meeting of the shareholders of the Company on 21 April 2020.

- The appropriation of the profit allocation from the results of the Company's operation to be cash dividend at the rate of Baht 0.136 per share, total amount does not exceed Baht 1,200 million. The balance of dividend is subject to the approval of the shareholders at the annual general meeting on 21 April 2020.
- The decrease of the Company's registered capital in the amount of Baht 4.95 million from the existing registered capital of Baht 2,225.59 million to Baht 2,220.63 million, by cancelling the unissued registered ordinary shares in the amount of 19.82 million shares at a par value of Baht 0.25 per share.
- To approve on issuance and offering of the debenture by increasing credit line of Baht 6,000 million from the previous credit line of not exceeding Baht 9,000 million to be new credit line of not exceeding Baht 15,000 million, maturity period is 1 - 7 years and it's subject to the approval of the shareholders at the annual general meeting on 21 April 2020.

35 Thai Financial Reporting Standards (TFRS) not yet adopted

New and revised TFRS, which are relevant to the Group's operations, expected to have material impact on the consolidated and separate financial statements when initially adopted, and will become effective for the financial statements in annual reporting periods beginning on or after 1 January 2020, are as follows

TFRS	Topic
TFRS 7*	Financial Instruments: Disclosures
TFRS 9*	Financial Instruments
TFRS 16	Leases
TAS 32*	Financial Instruments: Presentation
TFRIC 16*	Hedges of a Net Investment in a Foreign Operation
TFRIC 19*	Extinguishing Financial Liabilities with Equity Instruments

* TFRS - Financial instruments standards

(a) TFRS - Financial instruments standards

These TFRS - Financial instruments standards establish requirements related to definition, recognition, measurement, impairment and derecognition of financial assets and financial liabilities, including accounting for derivatives and hedge accounting. When these TFRS are effective, some accounting standards, interpretations and guidance which are currently effective will be cancelled.

(b) TFRS 16 Leases

TFRS 16 introduces a single lessee accounting model for lessees. A lessee recognises a right-of-use asset and a lease liability, with recognition exemptions for short-term leases and leases of low-value items. As a result, the Group will recognise new assets and liabilities for its operating leases. When this TFRS is effective, some accounting standards and interpretations which are currently effective will be cancelled.

Management is currently considering the potential impact from these TFRS (a) and (b) on the financial statements in the initial period adopted.

36 Reclassification of accounts

Certain accounts in the Statement of financial position as at 31 December 2018, which are included in the 2019 financial statements for comparative purposes, have been reclassified to conform to the presentation in the 2019 financial statements as follows:

	2018					
	Consolidated financial statements			Separate financial statements		
	Before reclass.	Reclass.	After reclass.	Before reclass.	Reclass.	After reclass.
	<i>(in thousand Baht)</i>					
Statement of financial position as at 31 December 2018						
Other receivables	405,733	(115,803)	289,930	178,642	(115,803)	62,839
Other non-current receivables	302,917	<u>115,803</u>	418,720	273,071	<u>115,803</u>	388,874
		<u>-</u>			<u>-</u>	

The reclassifications have been made in the opinion of management, the new classification is more appropriate.

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7. Achievement

Message from Chief Executive Officer

Almost 4 decades, Gunkul Engineering Public Company Limited has been committed “to be a leader in the integrated renewable energy and electrical systems business, implementing state of the art technology for sustainable infrastructure development.” both domestically and internationally.

Throughout the past period, the company has operated in accordance with the principles of good corporate governance, good governance, and transparency. According to “We care” policy framework that focuses on operations and value creations in 3 factors: Economic, Social, and Environment by connecting with planning, monitoring, and risk assessment in the business operation with the sustainability indicator. To be able to respond to the needs of the stakeholders by increasing the capability of the operation while creating sustainable good results for society under the commitment.

“Not only the energy, we care”

We care People : Running the business by focusing on developing people to be “Smart and Good”. We believe that people are an important resource for the business propulsion. In this highly competition, if people have skills, abilities, and preparedness to handle situations appropriately, the organization will be able to move forward sustainably. Besides, in our organization, we have to trust each other for bringing out the best and efficiency part of each person.

We care Business : Expanding the business by developing the innovation, and creating a new integrated business both domestically and internationally; according to, the principles of good corporate governance to respond the needs of stakeholders.

We care Social : Conducting the business in a friendly manner with the emphasis on the society and environment to create good relationship and inter-dependency as being “good neighbor”.

Dr. Sopacha Dhumrongpiyawut
Chief Executive Officer

1. Sustainable Development

1.1 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:

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.

1.2 Sustainable Development Master Plan

In 2019, the company established a sustainable development master plan. We have a 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”.

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.
4. Create careers for people in the community by hiring them to be our employees in renewable energy power plants
5. Create the balance between business growth along with the eco-friendly innovation, alternative energy, and manage the environment in order to achieve sustainable growth.

2. 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	1. 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.
	2. Distribution	Providing electrical components and distribution channels with efficient and complete service to customers.
	3. Technology	Developing and applying new technologies in production process for efficient performance and cost saving.
	4. Remuneration	Generating the highest returns to shareholders and all parties concerned.
	5. Human Resources	Developing and increasing employees' capabilities for international competition.
	6. 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:

Stakeholders	Expectation/Requirement	Challenge/Procedure	Communication Channel
1. Employees	<ul style="list-style-type: none"> Fair salary and benefit other than stated by the laws Fair and equal treatment Equal opportunity in competence development including; promote advancement and security Provide favorable working environment Promote engagement between families, employees and organizations 	<ul style="list-style-type: none"> HR Committee Meeting Welfare Committee Vocational Training courses Employee opinion survey Comments and suggestions channels intranet, Line and Announcement Board Treat employees fairly and equally regarding to human rights Create a corporate welfare policy that reinforces organizational commitment Develop/ improve proper benefit arrangement Promote activities to build relationships between families, employees and organizations 	<ul style="list-style-type: none"> Channel for receiving employee's suggestion/ complaint including employee opinion survey Organizational engagement survey Publicize news and activities through the company's network online and offline Annual Report
2. Business Partners	<ul style="list-style-type: none"> Fair and transparent procurement and auction Compliance with the terms and conditions of the contract Complete and on-time payment Long-term business relationships Growth and sustainable progress along with the Company Transfer and exchange of technology knowledge and experience Respect the rights and intellectual property of those who involved 	<ul style="list-style-type: none"> Organize meeting / discussion for mutual agreement and objective Arrange for expertise and the Company's team to transmit specific business aspect Visit the business partners to learn about their comments and suggestions Treat all business partners fairly and equally Stand firmly on contract agreements as well as business ethics Understanding of working processes with the same standard 	<ul style="list-style-type: none"> Channel for receiving complaints, suggestions, and inquiries Visiting, meeting, training/seminar Verification and audit Annual Report

Stakeholders	Expectation/Requirement	Challenge/Procedure	Communication Channel
		<ul style="list-style-type: none"> Organize strict control system in confidential information to prevent misusage or illegal disclosure 	
3. Clients	<ul style="list-style-type: none"> Quality / standardized products and service with fair and competitive price Develop products by using technology and innovation Product and service delivery under agreed condition and in timeframe Offer before sales service such as product usage manual and after sales service as well as other assistance Compliance with the terms and conditions of the contract 	<ul style="list-style-type: none"> Offering quality products and services which can be inspected Reasonable price Create quality assurance system for all supply chain from raw materials to customer's hand Inspect and control the production and service process as certified and recommended Continuously research and develop quality product by using technology and innovation Well-communicate and strictly comply with agreements signed with customers Offer before-after service 	<ul style="list-style-type: none"> Channel for receiving complaints, suggestions, and inquiries Visiting, meeting, training/seminar Verification and audit Annual Report
4. Competitors	<ul style="list-style-type: none"> Conduct business fairly and ethically according to the laws Non-infringement of intellectual property 	<ul style="list-style-type: none"> Treat competitors fairly and legally according to the laws Share knowledges and skills in order to integrate knowledge together 	<ul style="list-style-type: none"> Seminar Website Annual Report
5. Creditors	<ul style="list-style-type: none"> Repay the debt on schedule Comply with conditions and agreements Arrange proper Risk Management for business continuity 	<ul style="list-style-type: none"> Set meeting for mutual agreement Share knowledges and skills in order to integrate knowledge together 	<ul style="list-style-type: none"> meeting for mutual agreement Website Annual Report

Stakeholders	Expectation/Requirement	Challenge/Procedure	Communication Channel
6. Community / Society and Environment	<ul style="list-style-type: none"> • Conduct business with responsibility to community/ society and the environment. • Assess the impact before-after the operation • Policies, measures and operational guidelines for handling the impact of business operations • Participation in community and social development • Employment of disabled people 	<ul style="list-style-type: none"> • Conduct business under good corporate governance principles with responsibilities to community/society and environment. • Community relations activities to build relationships between organization and community • Organizational engagement survey 	<ul style="list-style-type: none"> • Channel for receiving complaints, suggestions • Organizational engagement survey • Annual Report
7. Shareholders and investors	<ul style="list-style-type: none"> • Conduct fair and transparent business as per the good corporate governance • Success business operations • Good corporate governance and risk management • Satisfying Compensation • Being treated equally and fairly • Disclose the Company's information in accordance with the facts, accurate, complete, up-to-date and transparent 	<ul style="list-style-type: none"> • Conduct fair and transparent business as per the good corporate governance, and comply with annual plan • Annual report, Sustainability Report • Disclose business operations to the public on website 	<ul style="list-style-type: none"> • Annual General Meeting, or announce the business plan and the aims on opportunity day • Website • Annual Report
8. Press	<ul style="list-style-type: none"> • Receive correct, fair, beneficial and timely information 	<ul style="list-style-type: none"> • Deliver realistic and neutrality operational data regularly • Deliver beneficial information to the public 	<ul style="list-style-type: none"> • Annual General Meeting, or announce the business plan and the aims on opportunity day • Website • Annual Report

Stakeholders	Expectation/Requirement	Challenge/Procedure	Communication Channel
9. Government Agencies	<ul style="list-style-type: none"> Strictly abide to the related laws and regulations Act against the demand for benefit and corruption Full payment of taxes and fees as prescribed Cooperation and support in various areas 	<ul style="list-style-type: none"> Conduct fair and transparent business as per the good corporate governance, related to laws, rules and regulations Participate with anti-corruption network Tax operations as per the relevant laws and regulations Cooperate and support in various areas 	<ul style="list-style-type: none"> Visiting, meeting, training/seminar Verification and audit Annual Report

3. Report Preparation

1.1 Scope of Report

The Company concentrates on how to submit sustainable management report of GUNKUL and the subsidiaries for 2019 as of January 1, 2019 to December 31, 2019, 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 2019 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
• 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


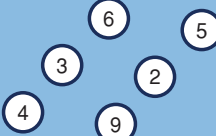

Business Category	Company name	
• Production and distribution of alternative energy (solar energy)	Gunkul Chubu Powergen Company Limited	GCPG
	Gunkul Solar Power 2 Company Limited	GSP-2
	Gunkul Solar Roof 1 Company Limited	GSR-1
	Rang Ngern Solution Company Limited	RNS
	N.K. Power Solar Company Limited	NKP
	Gunkul Solar Community Company Limited	GSC
• Production and distribution of 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 2019, 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 analyse 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;

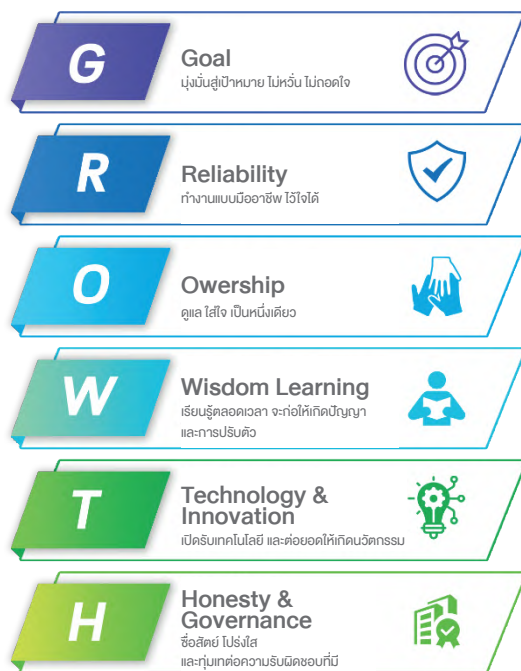
Economic Issues 	Social Issues 	Environment Issues 
<ol style="list-style-type: none"> 1. Conducting fair and transparent business as per the principles of good corporate governance 2. Building relationships and responding to customer needs 3. Developing technology and innovation for business opportunity 4. Agreement management and fair partner development 	<ol style="list-style-type: none"> 1. Maintenance and Developing employee to be “Smart and Good People” 2. Employee engagement, and Treating employees fairly and equally 3. Safety, occupation health, and good working environment 4. Continuous care and development to enhance quality of life of the community and society 	<ol style="list-style-type: none"> 1. Managing an environment impact which caused by business operation and resource usage

	ผลการประเมินประเด็นสำคัญด้านความยั่งยืน		
ระดับความสำคัญต่อผู้มีส่วนได้เสีย			
			
	ระดับความสำคัญต่อการดำเนินธุรกิจของบริษัทฯ		

By reviewing the issues from centralized department who is responsible for company's report, and presenting to the board of directors for consideration and approval to ensure that the all issues and contents in the report is consistent with the business operation.

4. 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. Creating “organizational culture” is the duty of all employees. The company has held Town Hall meeting “organizational culture development project” for all employees to create a good culture in the organization to work happily together, and make the organization easily achieve goals through the cooperation of all employees.



- 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, 2019, the Company consisted of 844 employees working in the following categories and levels.

Total Employees	Number of Employee					
	2014	2015	2016	2017	2018	2019
Total Employees	552	635	709	728	796	844
Full time	415	526	583	598	667	716
Daily	137	109	126	130	129	128
Total Employees by Category						
Permanent	482	553	599	611	663	718
Contracted	70	82	110	117	133	126
Total Employees by Gender						
Male	331	390	350	448	509	538
Female	221	245	359	280	287	306
Total Employees by Rank						
Management Executive	17	25	25	26	28	34
Department Manager	34	48	56	53	57	60
Chief / Specialists	74	77	78	75	97	88
Primary —intermediate employees	195	291	312	345	376	421
Operation employee	232	194	238	229	238	241

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 2019, 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	2019
1. Operation	15	6	4	11	10	9
2. Primary-immediate	23	8	13	26	16	14
3. Chief / Specialists	39	36	22	8	28	26
4. Department Manager	34	43	23	51	35	36
5. Management Executive	36	32	23	38	37	36

Incubate the talents with the development of the potential for employee advancement

"We care People"

In 2019 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 3.85 million baht. The training programs have 168 courses. The average training hours for employees is 16.57 hours per person per year. The details are as follows;

Details	2015	2016	2017	2018	2019
Training budget (million baht)	2.02	1.11	1.71	4.95	3.85
Number of courses	160	180	160	186	168
Number of employees	1,782	1,363	2,128	2,087	2,231
Average hours of training per person	14.37	12.11	21.67	17.18	16.57



Training Course Data for the Year 2019
as of 31 December 2019, classified by level of employees

ข้อมูลบัณฑิตศึกษาด้านการฝึกอบรม ปี 2562				
Level/Course	Quality System Course	Personnel Development Course (Core Competencies)	Management Course	Productivity / Technical / Safety Environment Course
Executive	<ul style="list-style-type: none"> - Policy, quality target, and documents in the ISO/IEC 17025: 2017 - Requirement and internal audit in accordance with the ISO/IEC 17025: 2017 	<ul style="list-style-type: none"> - Leadership and Coaching Skills - Driving Effective Culture - Corporate Culture - Negotiate Like PRO - Leadership Succession - Program Class 10 - Leadership for Disruptive Thailand 4.0 	<ul style="list-style-type: none"> - Project Management skill Development for Construction - Top Executive Program: Organization Change Management - Advanced Master of Management Program Class 3 - Top Executive Program in Commerce and Trade (TEPCoT) Class 12 - Director Accreditation Program DAP - Budget Management Middle Level Class 2 - The Young Executive Program in Energy Literacy for a Sustainable Future, YTEA Class 7 - Business Management for Sustainability Development 2019 	<ul style="list-style-type: none"> - Thai Financial Reporting Standards (TFRS16) - Withholding Tax and Update Tax Law 2019 - Advance Products Quality Planning - APQP - Production-Part Approval Process (PPAP) - Product Design Innovation - High Voltage Substation: Connection Specifications, Design, Testing and Importing - Challenges of Auditor with AI and Blockchain technology - LEADERSHIP IN ENERGY INNOVATION - Corporate Innovation Summit 2019 - Preliminary to Corporate Sustainability Class 2 - Innovation Engineering for Sustainable Solar PV Rooftop - CISA Examination Preparation Program 2/2562 - Roi Jai Thai Electricity Suppliers 2019 - Transfer Pricing 2019 - Sustainability Reporting Workshop: GRI Standards - Capital Market Research Forum 5/2562 - Thai Energy Plan under Disruptive Technology - Business and Human Rights - 1689 The new Land and Building Tax Act

ข้อมูลบันทึกหลักสูตรการฝึกอบรม ปี 2562			
Level/Course	Quality System Course	Personnel Development Course (Core Competencies)	Management Course
			Productivity / Technical / Safety Environment Course
			<ul style="list-style-type: none"> - Employee Benefits Evaluation in accordance with Accounting Standards No.19 - Exclusive Talk with Singapore International Arbitration Centre (SIAC) - The Accounting Standards PAEs for the Year of 2019 - Applying Technology in Lean Manufacturing - OEE Real Time Monitoring and Improvement Program - High Voltage Substation Equipment, Motor and Generator: Safety, Operation and Maintenance - How to Get Product and Service Certification for the Entrepreneurs Class 1
Manager	<ul style="list-style-type: none"> - ISO 14001: 2015 Introduction & Requirement + Internal Audit - Policy, quality target, and documents in the ISO/IEC 17025 : 2017 - Requirement and internal audit in accordance with the ISO/IEC 17025:2017 	<ul style="list-style-type: none"> - Mentoring and Feedback Technique - Leadership and Coaching Skills - Driving Effective Culture - Corporate Culture - Negotiate Like PRO - FROM ME TO WE Change Mindset to Transform Results - Performance Appraisal 2019 	<ul style="list-style-type: none"> - Construction Management - Top Executive Program: Organization Change Management - Leaderships and Organizational Culture Change
			<ul style="list-style-type: none"> - Thai Financial Reporting Standards (TFRS16) - Withholding Tax and Update Tax Law 2019 - Business Presentation Workshop - Evaluation of Rooftop Solar PV Performance - The Basic of Electrical System Design - Safety for Electricity Works - Solar PV Rooftop Safety: Safe Working At Heights - Crane In-House Training: Crane Controller, Signal Provider for Crane Controller, Material Binder

ข้อมูลบันทึกหลักสูตรการฝึกอบรม ปี 2562				
Level/Course	Quality System Course	Personnel Development Course (Core Competencies)	Management Course	Productivity / Technical / Safety Environment Course
		<ul style="list-style-type: none"> - Self Leadership: Getting what you need to succeed 		<ul style="list-style-type: none"> - Basic Fire Fighting and Evacuation Fire Drill Training - Methods and Testing Equipment of the ISO/IEC 17025:2017 - Usability of Google Suite (Google Calendar, Slide) - Advance Products Quality Planning - APQP) - Uncertainty of Measurement - Production-Part Approval Process (PPAP) - Evacuation Fire Drill Training in case of Chemical Spills - Product Design Innovation - Construction Business Tax - Solar PV Rooftop - Energy Storage System: Technology, Design, Control and Applications - Deferred Income Tax: Tax Accounting Different Similarities - Building Inspectors Training 2018 Class 47 - Internal Auditor Training: Preparing to be Certified Internal Auditor (Pre-CIA) Class 27 - Professional Electrical Installation - ADVANCED EXECUTIVE SECRETARY & OFFICE MANAGER

ข้อมูลบันทึกหลักสูตรการฝึกอบรม ปี 2562				
Level/Course	Quality System Course	Personnel Development Course (Core Competencies)	Management Course	Productivity / Technical / Safety Environment Course
				<ul style="list-style-type: none"> - Digital HR Forum 2019 - "Tax Advisor" Part 1: Revenue Code - Thai Financial Reporting Standards (TFRS) 2019 Class 2/62 - Deferred Income Tax Class 2/62 - Applying Technology in Lean Manufacturing - Branding Cord Value to HR Revolution - Solar PV Rooftop Policy Information - Disrupting Your Employee Experience Strategy - OEE Real Time Monitoring and Improvement Program - Public Hearing: Suggestions of uncertainty of measurement - Personal Data Protection Act B.E. 2562 (2019) About CCTV
Head of the Department	<ul style="list-style-type: none"> - ISO 14001: 2015 Introduction & Requirement + Internal Audit - Policy, quality target, and documents in the ISO/IEC 17025: 2017 - Requirement and internal audit in accordance with the ISO/IEC 17025:2017 	<ul style="list-style-type: none"> - Mentoring and Feedback Technique - Leadership and Coaching Skills - Driving Effective Culture - Corporate Culture - How to be Rich: Think Outside the Box - Performance Appraisal 2019 	<ul style="list-style-type: none"> - Construction Management - Leaderships and Organizational Culture Change - Disrupting Your Employee Experience Strategy 	<ul style="list-style-type: none"> - Thai Financial Reporting Standards (TFRS16) - Withholding Tax and Update Tax Law 2019 - Advance Payment - Business Presentation Workshop - Evaluation of Rooftop Solar PV Performance - ThaiWPS Office - SketchUp 3D Design & PVsyst - Driving Forklift Properly and Safety - Safety Officer Training: Supervisor Level

ข้อมูลบัณฑิตหลักสูตรการฝึกอบรม ปี 2562				
Level/Course	Quality System Course	Personnel Development Course (Core Competencies)	Management Course	Productivity / Technical / Safety Environment Course
	<ul style="list-style-type: none"> - Step to Success: Cost Reduction by QCC Class 1/62 			<ul style="list-style-type: none"> - Safety Officer Training: Technicians - Safety for Electricity Works - Solar PV Rooftop Safety: Safe Working At Heights - Crane In-House Training: Crane Controller, Signal Provider for Crane Controller, Material Binder - First Aids, CPR, Knowledge about AIDS - Basic Fire Fighting and Evacuation Fire Drill Training - Methods and Testing Equipment of the ISO/IEC 17025:2017 - Usability of Google Suite (Google Calendar, Slide) - Advance Products Quality Planning - APQP) - Uncertainty of Measurement - Production-Part Approval Process (PPAP) - Evacuation Fire Drill Training in case of Chemical Spills - Product Design Innovation - Zero-Defect by Visual Control and POKA YOKE Class 5 - Working At Heights for Controllers

ข้อมูลบัณฑิตศึกษารายปี 2562				
Level/Course	Quality System Course	Personnel Development Course (Core Competencies)	Management Course	Productivity / Technical / Safety Environment Course
				<ul style="list-style-type: none"> - Training: Safety Leadership for Construction and Machine Installation - High Voltage Substation: Connection Specifications, Design, Testing and Importing - Protective Relaying 1 (Class 8) - Survey, Design, Installation Estimation, and Maintenance Solar PV Rooftop - Analytical thinking for professional internal Auditor - Solar PV Rooftop - Train the Trainers: Happy Money, Happy Retirement - Professional Electrical Installation - The New Financial Reporting Standards for the Year of 2019 and 2020 - 1689 The new Land and Building Tax Act - Employee Benefits Evaluation in accordance with Accounting Standards No.19 - Transformation TISI 4.0 - Application of Logistics Information Technology System for Inventory Management - Strengthening Social Responsibility Regarding to Labor of the Workplace with the Thai Labor Standard 2019

ข้อมูลบันทึกหลักสูตรฝึกอบรม ปี 2562				
Level/Course	Quality System Course	Personnel Development Course (Core Competencies)	Management Course	Productivity / Technical / Safety Environment Course
				<ul style="list-style-type: none"> - Applying Technology in Lean Manufacturing - Awareness Strengthening Project for Employers, Corporations, Expat, and Network Parties Organizations - Thailand HR - Personal Data Protection Act B.E. 2562 (2019) About CCTV - Skill Development in the Organization under Skill Development Promotion Act. B.E. 2545 (2002)
Staff	<ul style="list-style-type: none"> - ISO 14001: 2015 Introduction & Requirement + Internal Audit - Policy, quality target, and documents in the ISO/IEC 17025: 2017 - Requirement and internal audit in accordance with the ISO/IEC 17025:2017 - Step to Success: Cost Reduction by QCC Class 1/62 	<ul style="list-style-type: none"> - Mentoring and Feedback Technique - Driving Effective Culture - Corporate Culture - How to be Rich: Think Outside the Box 	<ul style="list-style-type: none"> - Construction Management - Disrupting Your Employee Experience Strategy 	<ul style="list-style-type: none"> - Thai Financial Reporting Standards (TFRS16) - Withholding Tax and Update Tax Law 2019 - Advance Payment - Business Presentation Workshop - Evaluation of Rooftop Solar PV Performance - ThaiWPS Office - SketchUp 3D Design & PVsyst - The Basic of Electrical System Design - Driving Forklift Properly and Safely - Safety Officer Training: Supervisor Level - Safety Officer Training: Technicians - Safety for Electricity Works - Solar PV Rooftop Safety: Safe Working At Heights

ข้อมูลบัณฑิตศึกษาระดับปริญญาตรี ปี 2562				
Level/Course	Quality System Course	Personnel Development Course (Core Competencies)	Management Course	Productivity / Technical / Safety Environment Course
				<ul style="list-style-type: none"> - Crane In-House Training: Crane Controller, Signal Provider for Crane Controller, Material Binder - First Aids, CPR, Knowledge about AIDS - Basic Fire Fighting and Evacuation Fire Drill Training - Methods and Testing Equipment of the ISO/IEC 17025:2017 - Usability of Google Suite (Google Calendar, Slide) - Advance Products Quality Planning - APQP) - Uncertainty of Measurement - Production-Part Approval Process (PPAP) - SOLIDWORKS Software - Evacuation Fire Drill Training in case of Chemical Spills - Product Design Innovation - Zero-Defect by Visual Control and POKA YOE Class 5 - Solar PV Rooftop - Preparation and Development: Sustainability Evaluation Scores - Working At Heights for Staff - Working At Heights for Supervisor

ข้อมูลบันทึกหลักสูตรการฝึกอบรม ปี 2562				
Level/Course	Quality System Course	Personnel Development Course (Core Competencies)	Management Course	Productivity / Technical / Safety Environment Course
				<ul style="list-style-type: none"> - Training: Safety Leadership for Construction and Machine Installation - High Voltage Substation: Connection Specifications, Design, Testing and Importing - Survey, Design, Installation Estimation, and Maintenance Solar PV Rooftop - Techniques for Making Working Paper, Audit Fieldwork - Solar PV Rooftop - Energy Accumulation System, Technology, Design, Control and Application. - Best Practice of Business Partners - Power System Protection: Theory and Case Studies - Professional Electrical Installation - The Ladder to Become a Sustainable Business - Grid Energy Storage and the Solutions of Thai Energy - Business Plus HRM NEW VERSION 7.1 - Raising the bar for Sustainability Reporting by Deloitte - State of the Corporate Sustainability : Sector Perspective from 100 Reporting Organizations - Sustainability Reporting Workshop : GRI Standards

ข้อมูลบัณฑิตศึกษารายปี 2562				
Level/Course	Quality System Course	Personnel Development Course (Core Competencies)	Management Course	Productivity / Technical / Safety Environment Course
				<ul style="list-style-type: none"> - Capital Market Research Forum No. 5/2562 - Labour Law - Essential ASP.NET Core MVC Class 15 - Remittance of the Payments to Student Loan Fund Act B.E. 2560 (2017) By Employers - the International Energy Cooperation Center Development - The Safe Operation of Low Voltage Power Systems - Personal Data Protection Act B.E. 2562 (2019) - National Action Plan on Business and Human Rights: NAP, Phase 1 - Chalermphrakiat Capital Market Development - Transformation TISI 4.0 - Thailand Safe @ Work #23 - SOLIDWORKS Simulation Professional Software 3D - SOLIDWORKS Flow Simulation - Public Hearing: Suggestions of uncertainty of measurement - SOLID PLANT Program - Personal Data Protection Act B.E. 2562 (2019) About CCTV

ข้อมูลบันทึกหลักสูตรการฝึกอบรม ปี 2562				
Level/Course	Quality System Course	Personnel Development Course (Core Competencies)	Management Course	Productivity / Technical / Safety Environment Course
Operational Level Staff	<ul style="list-style-type: none"> - Step to Success: Cost Reduction by QCC Class 1/62 	<ul style="list-style-type: none"> - Corporate Culture 		<ul style="list-style-type: none"> - Evaluation of Rooftop Solar PV Performance - ThaiWPS Office - Driving Forklift Properly and Safely - Solar PV Rooftop Safety: Safe Working At Heights - Crane In-House Training: Crane Controller, Signal Provider for Crane Controller, Material Binder - First Aids, CPR, Knowledge about AIDS - Basic Fire Fighting and Evacuation Fire Drill Training - Zero-Defect by Visual Control and POKA YOE Class 5 - Working At Heights for Staff

In addition to the aforementioned training courses, the Company also recognizes the importance of personnel that start new jobs. By focusing on the employees to grow with the organization, paying attention from the first day of the job by organizing the new board orientation (On Boarding Program) for employees to understand and learn about the organization's culture by creating a mentor system in order for new employees to understand the work system, organizational culture, occupational health and safety, and the rules and policies in the operation correctly and be balanced between the employees and the organization and work together in a balanced and teamwork. Moreover, aside from the development of training to support the business, the organization also has courses "Investment planning for tax benefits and saving money for use in retirement" for employees to have a good life balance before retirement. These are preparation before retiring in advance in order to be able to plan a life plan, health plan, asset management for a balanced life after retirement.





4.2 Capacity Development and Career Advancement

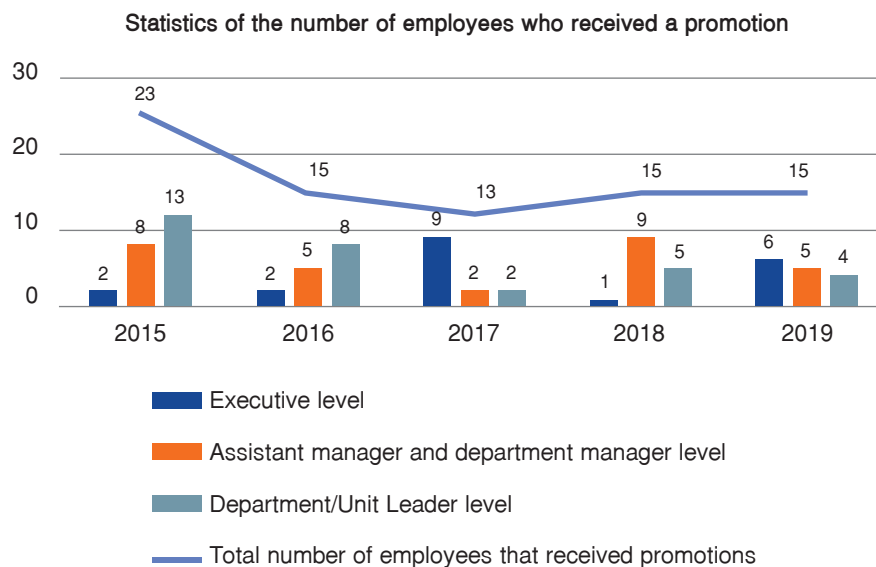
The Company has set up personnel screening criteria under the policy principles of promotion procedure as an incentive to maintain our qualified employees who can foresee their career advancement. When a person is of required qualification to fill or replace certain vacancy that person shall be nominated 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.
- The Personnel Management Committee is appointed by senior management and the Human Resources and Administration Manager as a committee and secretary which has been approved by the Chairman of Executive Committee.

Statistic Number of Promoted Employees

Level of Promoted Employees	Number of Promoted Employee				
	2015	2016	2017	2018	2019
• Executive level	2	2	9	1	6
• Assistant manager and department manager level	8	5	2	9	5
• Department / Unit Leader level	13	8	2	5	4
Total number of promoted employees in each year	23	15	13	15	15

- 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.

1. Inviting friends to do good deeds

- “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 9 consecutive years, with friends from GUNKUL together to continue the great giving by helping people to donate blood to an endless life.



- **“Precious Old Desktop Calendar”** At the end of each year, Gunkul employees will collect old calendars to deliver to blind schools for making them into braille cards as learning and teaching materials for the blind and redundant disabled children at Phayathai. The employees of Gunkul working together to do such things for the 4th consecutive year.

2. Voluntary activities

- This activity were 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, the employees continuously clean the public streets, communities, surrounding the Company.
- 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.





3. “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.

5. 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 2017-2019 from Thai Institute of Directors for the 3rd year, with an average score of the Company equal to or higher than the average score of all surveying companies as following;

1. Overall Average Score					
Year	Overall Listed Company	SET 100 Index	SET 50 Index	Market Cap. > 10,000	GUNKUL
2019	82%	86%	90%	88%	94%
2018	81%	88%	91%	-	91%
2017	80%	87%	90%	-	91%

2. Comparison of overall scores and categories by 2017 - 2019				
Category		2017	2018	2019
1	(A) Rights of Shareholders	97	98	93
2	(B) Equitable Treatment of Shareholders	98	88	98
3	(C) Role of Stakeholders	84	89	94
4	(D) Disclosure and Transparency	93	96	97
5	(E) Board Responsibilities	89	89	91
Overall		91	91	94

Overall result and category scores of GUNKUL for the year 2019			
Category	Scores	Recognition Level	Meaning
(A) Rights of Shareholders	93		Excellent
(B) Equitable Treatment of Shareholders	98		Excellent
(C) Role of Stakeholders	94		Excellent
(D) Disclosure and Transparency	97		Excellent
(E) Board Responsibilities	91		Excellent
GUNKUL	94		Excellent

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.

- **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:

Communication channel for informant for anti-corruption

- 1 Audit committee email: audit_committee@gunkul.com
- 2 GUNKUL Website 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.
- Organize activities to encourage employees to be aware of the "Anti-Corruption Policy" by organizing a photo contest and answering questions for prizes





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.

Currently, tax measures and regulations have changed dramatically with more complicated according to the direction of business operations and government policies that have changed. Therefore, accounting staff and related employees need to know and understand the entire tax system requirements which is related to the preparation of financial reports as well as good tax planning in order to be consistent with the activities of the organization. In addition, for helping pay taxes correctly and completely, it also helps to protect the interests of the organization under legal conditions and this is also considered as a strict plan to prevent the burden that may occur in the future of the organization according to the regulations, procedures and understanding of calculation methods in order to reduce accounting and taxation errors and to prevent tax problems that may occur. Therefore, the Company has organized training courses for relevant employees to know how to deal with personal and corporate income tax which can apply the knowledge to be used with the business effectively as taught continuously every year.

No.	Course	Date	Staff	Sup.	Manager	President	Total
1	2017 Accountings standards	15 SEP 2017	27	6	11	9	53
2	2017 Income tax update	18 NOV 2017	42	7	10	5	64
3	Financial Reporting Standards Draft: Financial Instruments	16 JUNE 2018	30	6	11	8	55
4	2018 Income tax update	24 JUNE 2018	41	9	10	6	66

No.	Course	Date	Staff	Sup.	Manager	President	Total
5	Financial Reporting Standards Draft: Financial Instruments	2 FEB 2019	36	10	9	5	60
6	Withholding tax and update tax laws	14 SEP 2019	52	11	7	4	74

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.

ISO 9001

มาตรฐานระบบบริหารงานคุณภาพ

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.

Company	ISO 9001:2005
Gunkul Engineering Public Co., Ltd.	GUNKUL /
G.K. Assembly Co., Ltd.	GKA /
G.K.Power Products Co., Ltd.	GKP /
Gunkul Chubu Powergen Co., Ltd.	GCPG /
Gunkul Solar Power 2 Co., Ltd.	GSP2 /
Gunkul Solar Roof 1 Co., Ltd.	GSR1 /

Company		ISO 9001:2005
Rangngen Solution Co., Ltd.	RNS	/
NK Power Solar Co., Ltd.	NKP	/
Wind Energy Development Co., Ltd.	WED	/
Greenovation Power Co., Ltd.	GNP	/
Bright Green Power Co., Ltd.	BGP	/
Korat Wind Energy Co., Ltd.	KWE	/

5.6 Labor Practices, Human Rights and Personal Data Protection Act B.E.2562

The Company's human rights practices in the past have abided by the provisions of the Constitution, relevant laws such as labor laws, human rights and the Company's code of ethics which attaches importance to the respect for the rights and basic freedoms of all stakeholders; as well as, equal and fair treatment, which the company has implemented in business operations continuously.

For the Personal Data Protection Act B.E.2562 and the Cyber Security Act B.E.2562, the Company is currently studying to establish standards and guidelines for protecting personal information and protecting cyber security in the organization and further stakeholders.

In the past practice of the Company, whether it is the guidelines set forth in various relevant laws, the Code of Ethics and Good Corporate Governance that the Company adheres to includes human rights principles. The Company's practices that promote respect for human rights as a guideline for the treatment of employees, partners, suppliers and stakeholders can be summarized as follows;

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 comparable 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
 - Good Corporate Governance Committee
 - Investor Relations Section: ir@gunkul.com
 - Intranet, Top Executive, Meeting with Employees, Morning Talk, Opinion Box for Employees.
 - Annual General Meeting of Shareholders / Extraordinary General Meeting
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 2019 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



Occupational Health and Safety Management System Standard: OHSAS18001 aims to reduce and control the risk of employees and those who involved. Increasing the efficiency of business operations for safety and promoting the image of corporate responsibility towards employees and society.



The Company promotes practices recognized by the international standard for environmental conditions at various solar and wind power plants in the group of Gunkul Engineering Public Company Limited, certified by ISO 14001: 2015 which is an international standard for the organization's environmental management system to increase the environmental performance within the organization and for environmental sustainability; as well as, receiving the CSR-DIW Awards from the Department of Industrial Works

Summary of Gunkul Engineering PCL's group that have been certified by ISO14001 and OHSAS18001

Company		ISO14001	OHSAS18001
G.K.Assembly Co., Ltd.	GKA	/	/
G.K.Power Products Co., Ltd.	GKP	/	/
Gunkul Chubu Powergen Co., Ltd.	GCPG	/	
Gunkul Solar Roof 1 Co., Ltd.	GSR1	/	
Rangngen Solution Co., Ltd.	RNS	/	

Assessment of ISO systems by external agencies



Summary of project activity data, Green Industry, Department of Industrial Works

ระดับการพัฒนา 5 ขั้นสู่อุตสาหกรรมสีเขียว



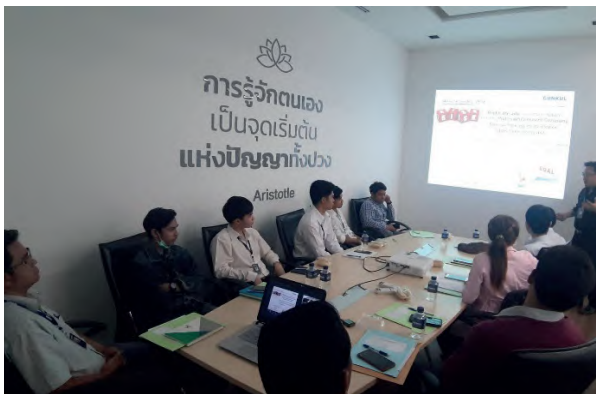
Power plant / Factory	Type Of Industry		2018		2019	
	Electrical System Equipment Factory	Electrical System Equipment Factory	Electrical System Equipment Factory	Solar power plant	Electrical System Equipment Factory	Solar power plant
Green Culture Level 1 (Green Commitment)	2	2	2	30	2	41
Green Culture Level 2 (Green Activity)	2	2	2	30	2	41
Green Culture Level 3 (Green System)	2	1	1	7	2	23
Green Culture Level 4 (Green Culture)	2	0	0	0	0	0
Green Culture Level 5 (Green Network)	2	0	0	0	0	0

- Remark:
1. Total number of participating factories are 43. (41 renewable solar power plants, 2 electrical equipment manufacturing factory)
 2. The Green Culture certificate, Level 1-2, with a valid for 2 years from the date of receipt.
 3. The Green Culture certificate, Level 3-4, with a valid for 2 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.

Solar and wind power plants have announced the appointment of “Environmental Responsibility Committee” with the powers and duties as follows;

1. Jointly formulate policies and actions within the organization both administrative, service, and environmental system management both inside and outside the organization.
2. Specify environmental operations as criteria for evaluating employee performance, including company regulations, as well as educating employees on the nature of environmental problems in their area of responsibility.
3. Communicate the benefits and the commitment to create an environmental management system for employees at all levels.
4. Monitor and review the effectiveness of the environmental management system operation.

Occupational health and safety activities in 2019: 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 believes 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 reports of accidents and safety days 2015 - 2019

Company	2016		2017		2018		2019	
	Accident which caused day off (more than 3 days)	Number of days without continuous accidents	Accident which caused day off (more than 3 days)	Number of days without continuous accidents	Accident which caused day off (more than 3 days)	Number of days without continuous accidents	Accident which caused day off (more than 3 days)	Number of days without continuous accidents
GKA	0	681	0	978	0	1,275	1	133
GKP	0	1,032	0	1329	0	1,626	0	1,846

5.8 Employee Engagement with Welfare and Productivity Enhancement Activities

Gunkul creates engagement with employees through the activity of "GROWTH together (Corporate Culture)" The organization is confident that the behavior created by people in the organization by learning from each other and adhering to the practice of that organization. Creating a culture in an organization is like rooting the people of an organization. If building a culture in a good way, it will make that organization have strong roots. It is the duty of everyone in the organization to truly create a good corporate culture within the organization for all levels of employees to participate in the awareness, listen to the years of belief in the change and development, expanding business opportunities and setting growth goals through both domestic and international business strategies in order to become a leader in the integrated energy business and steadily moving towards the next year and shows significant changes to the Company. Including letting employees know about the caring of staff that the organization is confident that Every employee is the power to create success for the organization. The organization cannot move forward without effective staff which there are more than 600 employees attending the activity through the activity.



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 Facili-ties	Health and Safety	Family Welfare
<ul style="list-style-type: none"> Annual bonus payment and adjustment, Performance assessment , Skills and Time attendance 	<ul style="list-style-type: none"> Group insurance and travel insurance in case of overseas travel 	<ul style="list-style-type: none"> Scholarship for employees' children
<ul style="list-style-type: none"> The provident fund 	<ul style="list-style-type: none"> Medical expenses in case of outpatients and inpatients 	<ul style="list-style-type: none"> Financial aid in case of disaster
<ul style="list-style-type: none"> Uniform 	<ul style="list-style-type: none"> Annual sports day 	<ul style="list-style-type: none"> Compassionate funds for employees' parents and children
<ul style="list-style-type: none"> Flexible Working Hours 	<ul style="list-style-type: none"> Morning Talk — JSA: Job Safe-ty Analyst, encouraging the employees to analyze the job based on Plan-Do-Check-Act (PDCA) principle before work-ing 	
<ul style="list-style-type: none"> Increase annual leave day per year worked 	<ul style="list-style-type: none"> Annual Health Check-up 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 den-tists and breast cancer examination, Correct CPR patient train-ing in case of tight situations etc. 	
Moral Support and Participa-tion	Religion, Culture and Tradi-tion	Volunteer Activities
<ul style="list-style-type: none"> Celebrating employees' birthday by having meal to-gether, presenting birthday gifts, and/or giving offerings to Buddhist monks and lis-tening to dharma 	<ul style="list-style-type: none"> Offering food in the monks' alms bowls and joining reli-gious activities with surround-ing communities on religious days. Holding an annual event to offer food to the monks. 	<ul style="list-style-type: none"> Community service <ul style="list-style-type: none"> - Cleaning toilets and sweep-ing temple court - Collecting garbage around the company and communi-ties
<ul style="list-style-type: none"> 5S and QCC, which encour-age the employees to take part in improving the way of work or work environment 	<ul style="list-style-type: none"> Water-pouring ceremony to ask a blessing from the man-agement in “Maha Songkran Ban GUNKUL Festival” 	<ul style="list-style-type: none"> Knowledge transfer <ul style="list-style-type: none"> - Installing Solar cell - Installing and changing LED lights

Moral Support and Participa-tion	Religion, Culture and Tradi-tion	Volunteer Activities
<ul style="list-style-type: none"> Employee organization activities Because all employees in the department contributed to support the sales according to the quarterly target The management visit solar or wind farm to give the em-ployees moral support and talk to them to learn about their well-being. 	<ul style="list-style-type: none"> Giving oranges as traditional Chinese blessing during Chi-nese New Year Giving the “Red Envelope” to the employees and the surrounding community Holding an annual event to offer food to the monks. 	

Town Hall Meeting “Corporate Culture Development Project” is one of the power to drive the organization through the behavior of employees within the organization for employees of the entire group in order to communicate to all employees to acknowledge the desirable behavior expectation, resulting in mutual engagement among employees rather than holding personal benefits in order to drive the organization towards excellence.

Annual staff health check and provide services to promote good health

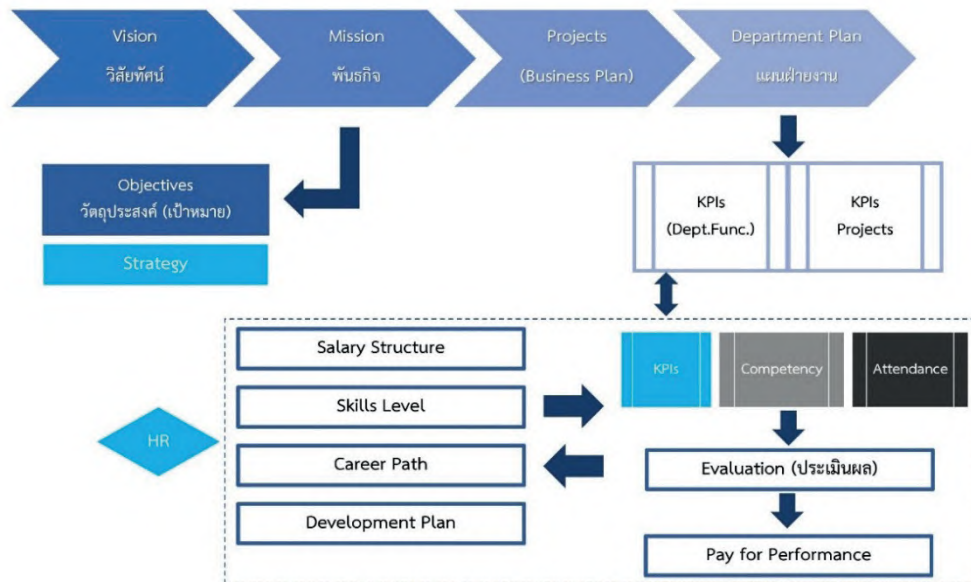




Birthday activities



Linkage of employee compensation based on employee performance: based on performance evaluation, performance indicators (KPIs), skills, abilities, and time attendance according to the goal that setting process from the vision, mission of the organization to achieve the goals as in the diagram below;



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.

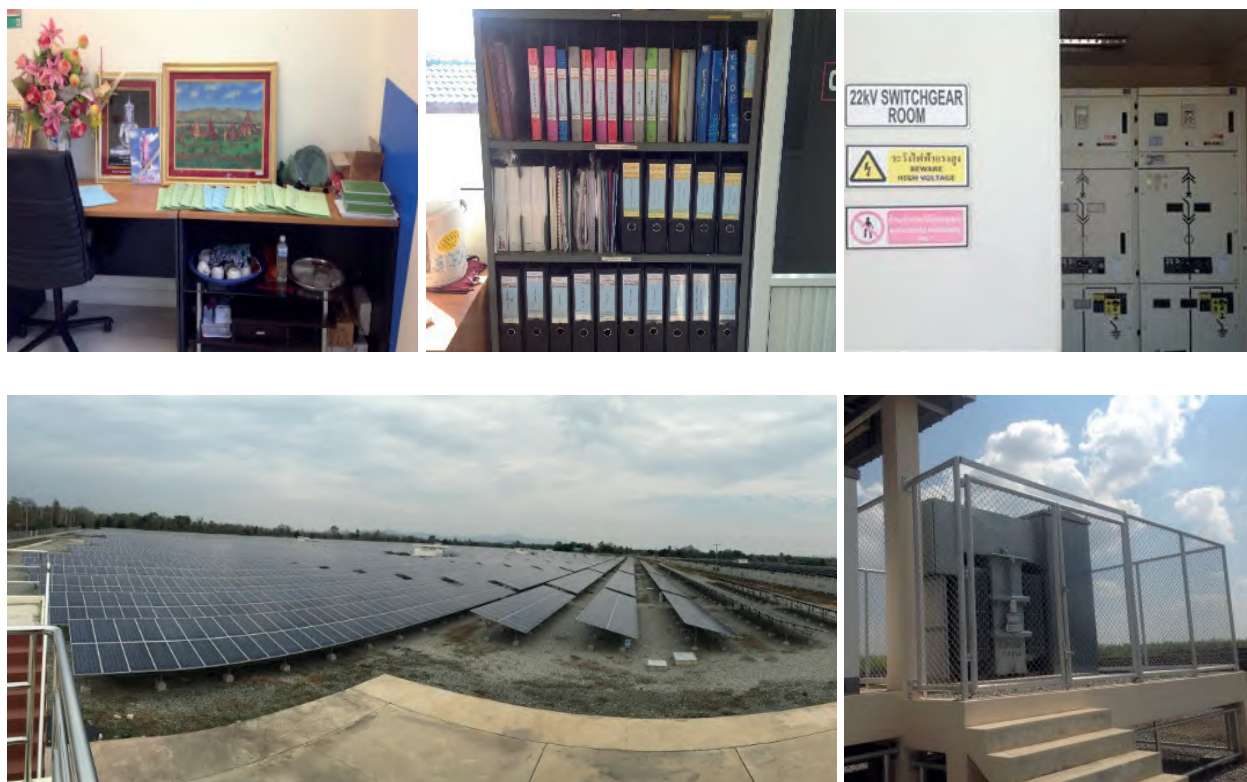
Hence, the Company has focused on all employees' participation in all productivity activities to encourage corporate objectives and expectations to be achieved through the activities, as follows:

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 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, Set in Order, Shine, Standardize and Sustain” for employees to benefit the organization and volunteer employees in doing good deeds.



2. QCC Quality Improvement

The Company has used 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 2019 as at 31st December 2019, there were 46 QCC quality improvement groups, and the following categories were proposed for improvement:

- Workflow reduction: 18 topics
- Work time reduction: 13 topics
- Performance improvement: 15 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
2019	46	657,682.46 Baht (First half data)

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.

Example of the Awarded Operation of QCC group

1. Reduce production cost of Preformed model 185 mm2.(PFDE-228AC185-296-31S) PEA

Item	Problems / Causes	Solutions	Processing Time
1	Roller and die do not match	Create new roller sets and wire dies	24 Apr 19- 28 May 19
2	Machine	Install the engine speed adjustment	29 May 19 — 31 May 19



Before proceeding

1. One set of wire flow takes 1.37 minutes
2. Within 7 hours, get 300 sets / person

After proceeding

1. One set of wire flow takes 0.87 minutes
2. Within 7 hours, get 480 sets / person, the value of work increased 60%.
3. Reduced CVC costs by 26%, equal to 7.6 baht / set
4. Increased quality of workpieces.
5. Improved employee quality of life and reduced fatigue from traditional work

2. Reducing assembly time of Tape Support Cable Saddle Series 25x3 MM and 50-70 SQ.MM

Compare results between before and after the update

งาน Tape Support 25x3 mm.

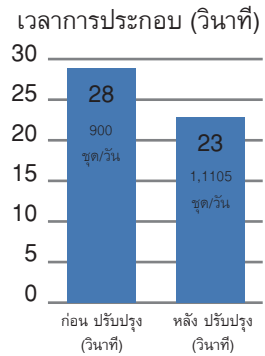
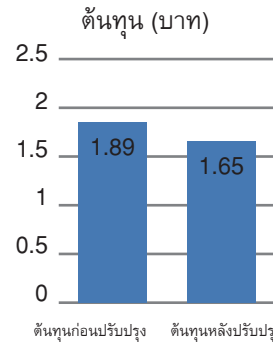
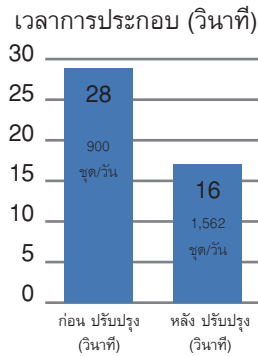
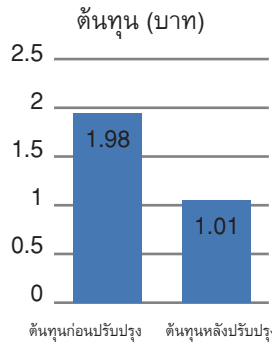
งาน Cable Saddle 50-70 SQ.MM.

ลดต้นทุน	
ต้นทุน ก่อน ปรับปรุง	1.98 บาท/ชุด
ต้นทุน หลัง ปรับปรุง	1.01 บาท/ชุด

ลดเวลาการประกอบ		
ก่อน ปรับปรุง(วินาที)	28	900 ชุด/วัน
หลัง ปรับปรุง(วินาที)	16	1,562 ชุด/วัน

ลดต้นทุน	
ต้นทุน ก่อน ปรับปรุง	1.89 บาท/ชุด
ต้นทุน หลัง ปรับปรุง	1.65 บาท/ชุด

ลดเวลาการประกอบ		
ก่อน ปรับปรุง(วินาที)	28	900 ชุด/วัน
หลัง ปรับปรุง(วินาที)	23	1,105 ชุด/วัน










- ต้นทุนลดลง 0.97 บาท / ชุด ลดลง 49%
- ใช้เวลาประกอบ 16 วินาที / ชุด ลดลง 43%
- เพิ่มจำนวนผลิต 1,562 ชุด / วัน เพิ่มขึ้น 74%

- ต้นทุนลดลง 0.24 บาท / ชุด ลดลง 12%
- ใช้เวลาประกอบ 23 วินาที / ชุด ลดลง 18%
- เพิ่มจำนวนผลิต 1,105 ชุด / วัน เพิ่มขึ้น 23%

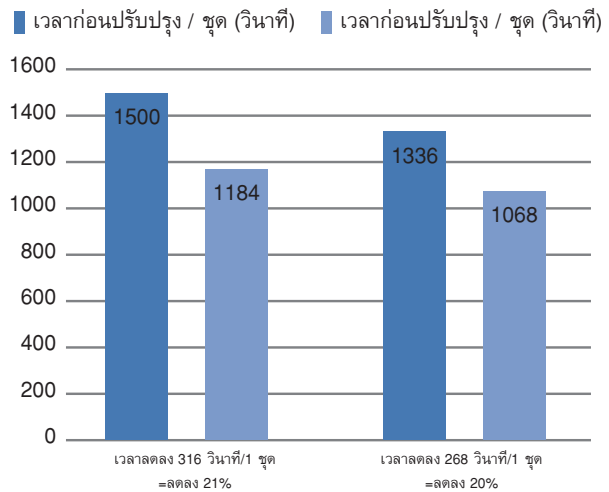
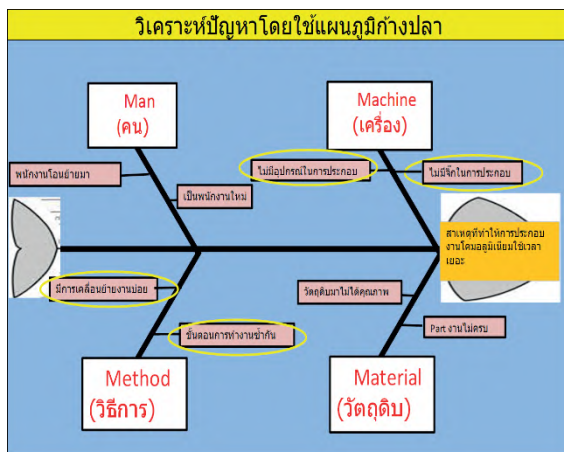
หมายเหตุ เนื่องจากงานหล่อ รูปไม่ตรง, เอียง ทำให้ประกอบใช้เวลามาก

3. Increase production of Keeper 16-70 sq.mm. (AD12)

Before					
					
1.ขั้นตอนฉีด	2.ขั้นตอนแยกทางน้ำ	3.ขั้นตอนปั๊มลบลครีบ	4.ขั้นตอนเจาะรู	5.ขั้นตอนเป่าแป็ค	
After					
					
1.ขั้นตอนฉีด	2.ขั้นตอนแยกทางน้ำ	3.ขั้นตอนปั๊มลบลครีบ	4.ขั้นตอนเจาะรู + เป่าแป็ค		

แก้ไข Route หลังปรับปรุง						
Before						
StdRoute] Session Date:7/3/2019 (1) - Production: APD0010440, KEEPER 16-79 sq.mm. (ADC12)						
New General Setup Update Times Resource requirements Scheduling Feedback Financial dimensions Descrip						
Oper. No.	Priority	Operation	Operation Name	Run time	Process qty.	Next
10	Primary	AL_IPU	Injection Aluminium/ ใส่(ฉีด)อลูมิเนียม,ทองเหลือง...	7.00	2,000.00	20
20	Primary	AL_SPL	Split Runner/ ฉีกตามน้ำ	7.00	2,000.00	30
30	Primary	AL_TRM	Trimming/ ตัดเส้น, ขึ้นเส้น	7.00	2,000.00	40
40	Primary	AL_DRL-01	Drilling/ เจาะรู-01	7.00	1,500.00	50
50	Primary	AL_PKG	Packing/ บรรจุ	7.00	4,000.00	0
After						
Oper. No.	Priority	Operation	Name	Description	Run time	Process qty. Standard Time
10	Primary	AL_IPU	Injection Aluminium/ ใส่(ฉีด)อลูมิเนียม,ทองเหลือง...		7.00	2,300.00 0.18
20	Primary	AL_SPL	Split Runner/ ฉีกตามน้ำ		7.00	5,000.00 0.08
30	Primary	AL_TRM	Trimming/ ตัดเส้น, ขึ้นเส้น		7.00	3,500.00 0.12
40	Primary	AL_DRL-01	Drilling/ เจาะรู-01		7.00	2,700.00 0.16

4. Reduce the assembly time of 3mm aluminum lamp PEA and (LED) PEA



ลดเวลาการประกอบงาน	โคมอลูมิเนียม 3 มม. PEA	โคมอลูมิเนียม 3 มม. (LED) PEA
เวลา ก่อนปรับปรุง / ชุด (วินาที)	1,500	1,336
เวลา หลังปรับปรุง / ชุด (วินาที)	1,184	1,068

5.9 Responsibility for Consumers

The Company has concerned for a great importance of 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)

No.	Standard highlight topics
3.	TISI Standard registration for new equipment.
4.	ISO 9001:2008 : Quality Management System according to international standards
5.	ISO 14001:2004: Environmental Management System
6.	OHSAS18001: Occupational Health and Safety Management System Standard
7.	ISO / IEC 17025: Laboratory quality system according to international standards (In process which is expected to receive the certificate by May 2020)



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.

Laboratory quality system according to international standards: ISO / IEC 17025



It is an international standard between International Organization for Standardization and the International Electrotechnical Commission to set the general requirements for the calibration laboratories capabilities and testing laboratories to have the same standards, by combining the laboratory management system which consists of personnel, sample management, proficiency in test analysis including record keeping and reporting. This standard focuses on various components, including laboratory quality system, document control, corrective and preventive actions, locations and environmental conditions, tools, estimation uncertainty of measurements, validation of methods, trace ability, sample management and others. The accreditation of ISO / IEC 17025: 2005 gives the laboratory a competitive advantage and

build trust with customers/ consumers, also improve efficiency both in terms of quality and academic ability of the laboratory and personnel to build trust for customers/ consumers sustainably. (In process which is expected to receive the certificate by May 2020)

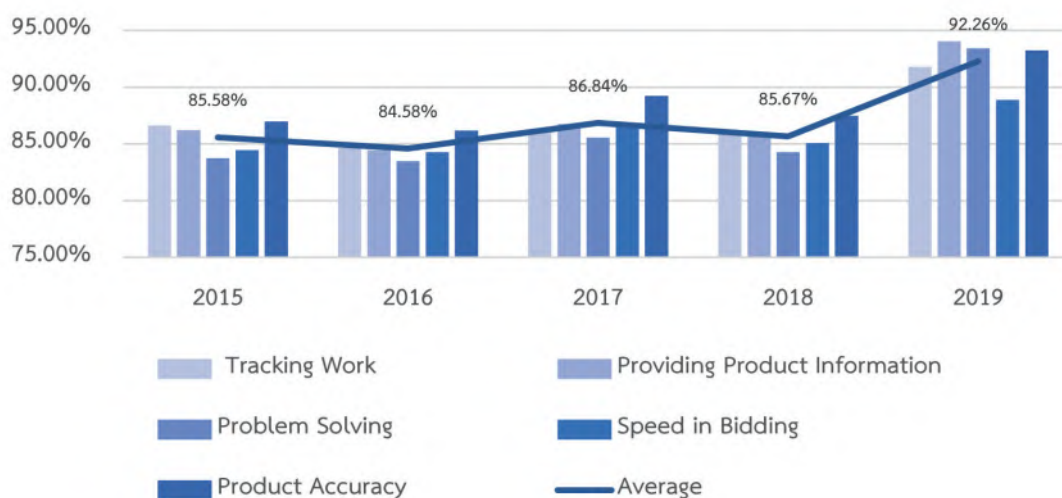
Activities for consumers

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 satisfaction questionnaire, with the summary of the external customer satisfaction questionnaire from year 2015- year 2019 as follows:

Summarize the external customer satisfaction questionnaire for 2015-2019

Topics Surveyed / Year	2015	2016	2017	2018	2019
1. Job Tracking	86.60%	84.61%	86.19%	85.80%	91.77%
2. Product information	86.18%	84.40%	86.72%	85.77%	94.03%
3. Troubleshooting	83.74%	83.46%	85.53%	84.25%	93.39%
4. The speed of the bid	84.43%	84.27%	86.52%	85.07%	88.87%
5. The accuracy of the number of products	86.97%	86.15%	89.22%	87.48%	93.23%
average	85.58%	84.58%	86.84%	85.67%	92.26%

Summary of external customer satisfaction questionnaire of the year 2015-2019

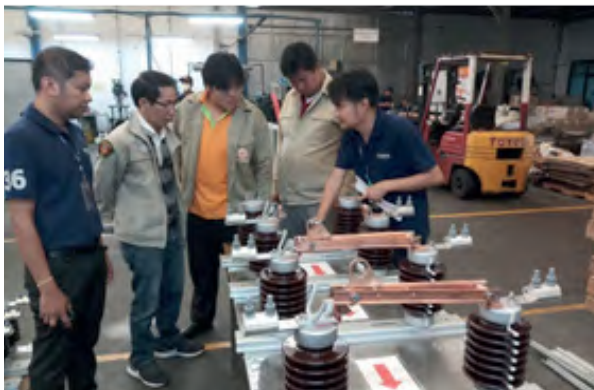


Customers visit the factory and inspect the product in order to build trust for customers to be confident in product quality and jointly develop sustainable products.

Metropolitan Electricity Authority officials inspect Fuse Link products.



Metropolitan Electricity Authority officials inspect Discon DSM products.



Provincial Electricity Authority officials inspect the product for the project.



Customers from Malaysia visit the factory and inspect the LV surge arrester products.



5.10 Supply Chain Management

The Company 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 in renewable energy both solar and wind energy which contribute to reduce 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. The details are as 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	There is no effect, but proceed to maintain the environment as follows 1. Injection of prom water in the spot that causes dust to spread in the air.	There is no impact and action to protect the environment like the solar power plant.

Resource	Level	Solar Power Plant O&M Optimization	Wind Power Plant O&M Optimization
		<ol style="list-style-type: none"> Prohibit workers to burn solid waste or others In the project area Increase the green area around the project to prevent dust from spreading into the air. Take care and maintain the engine, machinery or tools that have combustion of fuel and cause exhaust or dust. Always good 	
2. Noise	Low	<ol style="list-style-type: none"> Do not perform any activities. That produces sound, apart from the working time 8.00–17.00 hrs. Avoid using machines for maintenance work that is a high source sound source simultaneously. Take care of maintenance of tools and maintenance machinery to be in good condition always Provide sound pollution prevention equipment such as Ear plug for employees and workers to wear while working. Provide a rotation of workers who work in areas with high sound sources according to law. 	<ol style="list-style-type: none"> Check and maintain the machine according to the time specified in the requirements of various devices to prevent noise caused by the machine. Create Noise Contour Map after the project is opened. By applying the results of the study to manage the sound environment Implement the solar power plant No. 1–5
3. Water Quality	Low	<ol style="list-style-type: none"> Establish a toilet that is hygienic and sufficient for the number of workers. Arrange to have a retention pond to collect rainwater from the soil in the construction area into the pond. Bring water in the retention pond to reuse, such as spraying the carpet, the entrance road to the project. And construction area 	Perform the same tasks as solar power plants
4. Management of solid waste from offices and workers' activities	Low	<ol style="list-style-type: none"> 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 	Perform the same tasks as solar power plants

Resource	Level	Solar Power Plant O&M Optimization	Wind Power Plant O&M Optimization
		2. Recyclable general waste Keep collecting for recycling. 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.	
5. Water drainage	Low	1. There is a sediment trap before drainage to the outside of the project. 2. The project must regularly clean the waterways around the project regularly. 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 be-fore entering the project 4. Must regularly check the drainage system. Raceway around the project And sediment trap systems	Perform the same tasks as solar power plants
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

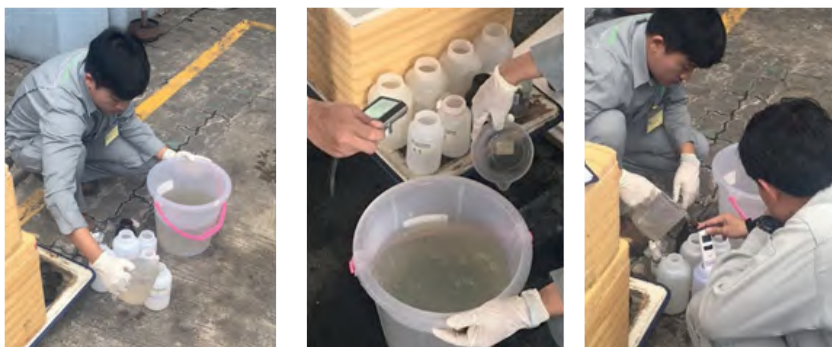
Management, efficient resource use, and global warming mitigation

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.

- **Waste water quality measurement by experts**



- **Waste management:** Sorting each type of waste before delivering it to the municipality in the area of responsibility for disposal, divided into 4 types as follows;

1. Hazardous waste (red containers), including rags and gloves that contaminated with oil.
2. Wet waste (green containers), including food waste, fruit & vegetable waste, waste paper or plastic that containing food.
3. Recyclable waste (yellow containers), including beverage cans, drink bottle.
4. General waste (blue container bin), including plastic bags, plastic foam, sachets of instant noodles, candy wrappers.

In this regard, a survey and recording of the results were inspected once a month by the 5S activity committee of the Company. The employees or assigned persons used the said recycling waste for sale or use in an appropriate way.



- **Management of sewage or unused materials**

The Company has selected operators and eliminate hazardous waste and hazardous waste carriers that approved by the Department of Industrial Works and proceed according to the methods prescribed by law.

Summary table of waste and unused materials 2018 — 2019

No	List	“Disposal amount (Ton)”		Remark
		2018	2019	
1	Graphite	3.44	0.45	
2	Glue residue	3.92	5.81	
3	Sand water filter	0.05	0.02	
4	Used light bulb	0.02	0.02	
5	Used Solvent	1.74	0.3	
6	Work wire bundle	0.06	0.2	
7	Stainless steel scrap, suction	1.29	0.06	
8	Stainless steel scrap, non-suction	1.09	0.65	
9	Zinc scrap	8.39	3.68	
10	Steel scrap	1.23	3.73	
11	Structural steel scrap	25.14	24.12	
12	Pump scrap	29.86	66.43	
13	Stel bands scrap	4.26	6.3	
14	Steel gutter scrap	3.65	38	
15	Machined/Cut aluminum scrap	0.68	1.38	
16	Aluminum piece scrap	2.94	2.49	
17	Aluminum cover scrap	0	0.08	
18	Copper lathe scrap	4.66	10.67	
19	Copper piece scrap	1.33	2.7	
20	Machined brass scrap	0	2.45	
21	Brass piece scrap	0	0.47	
22	Copper scrap 85%	0	0.01	

Note: The amount of waste and unused materials increases or decreases depending on the production process.

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โทร. 0-8512-7818 แฟกซ์ : 0-8512-7819

รูปถ่ายถังขยะฝังกลบ
ถังขยะ : 2-1176 1.0. หนองบัว 1.0.0
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รูปถ่ายถังขยะฝังกลบ
ถังขยะ : C00244 1.0. หนองบัว 1.0.0
14-September-2019



บริษัท บัณฑิต วัชระ จำกัด
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27-October-2019



The Reduction Amount of CO2 Emission of the Company in 2019

No	Project	Energy types	Year of Implementation	Production capacity (MRp)	Amount of CO2 reduction (tOO2/y)
1	Ban Klui 1		2011	3,3	2,814.05
2	Ban Klui 2		2011	5,3	3,970.60
3	Wichianburi		2013	9,8	8,302.42
4	Si-Chula		2013	9,8	7,883.64
5	Noen Po		2013	5,60	4,520.85
6	Buengsamphan 2		2013	3,6	2,542.63
7	Ta Khit		2013	7,6	5,410.88
8	Ta Sang		2013	7,6	5,605.70
9	Dong Korn	Solar farm	2013	7,6	5,822.45
10	Buengsamphan 1		2013	7,6	6,494.61
11	Bo Phloi		2013	1,2	972.806748
12	RNS Phang Tru		2015	8	7,234.82
13	RNS Don Slap		2015	8	7,368.50
14	RNS Lum Rang		2015	8	6,942.32
15	RNS Ang Thong 1		2015	8	6,173.46
16	RNS Ang Thong 2		2015	8	6,196.20
17	RNS Ang Thong 3		2015	8	6,523.92
18	RNS Yang Nam Klat Tai		2015	8	6,947.62

The Reduction Amount of CO2 Emission of the Company in 2019					
No	Project	Energy types	Year of Implementation	Production capacity (MRp)	Amount of CO2 reduction (tOO2/y)
19	RNS Klat Luang		2015	8	6,882.20
20	RNS Nong Chumpol		2015	8	7,009.34
21	RNS Thung Kwao		2015	7	6,281.14
22	RNS Tao Pun		2016	8	7,157.55
23	Sa Kaeo		2016	8	6,952.01
24	Bang Krachao		2016	5	4,773.11
25	WHA GUNKUL GSR 1		2011	0.64	492.88666
26	WHA GUNKUL GSR 3		2011	0.83	656.56 4204
27	WHA GUNKUL GSR 6		2011	0.83	660.12696
28	WHA GUNKULGSR 17		2011	0.998	749.085432
29	Pichai		2013	0.022	17.476684
30	GKA	Solar Rooftop	2013	0.25	133.216852
31	T-Park, Si Racha		2013	0.539	397.476868
32	SGSE		2015	0.873	585.373016
33	SES		2015	0.499	337.21224
34	Robinson, Phetchaburi		2017	0.999	574.585944
35	KCG Corporation, Thepharak		2019	1.107	448.34
36	BDMS, Chanthaburi		2019	0.480	192.00
37	Murata Electronics, Lamphun		2019	0.466	191.14
38	Z.KURODA, Ayutthaya		2019	0.594	237.6
39	WAYU Wind Farm		2016	50	74,184.00
40	SUBPLU 1 Wind Farm		2016	8	12,860.00
41	SUBPLU 2 Wind Farm	Wind Farm	2016	2	3,626.00
42	Saranlom Wind Farm		2018	67.5	119,154.00
43	Mittraphab Wind Farm		2018	50	100,274.00
			รวม	355.627	456,553.91

5.12 Innovation in the Business Process for Sustainability

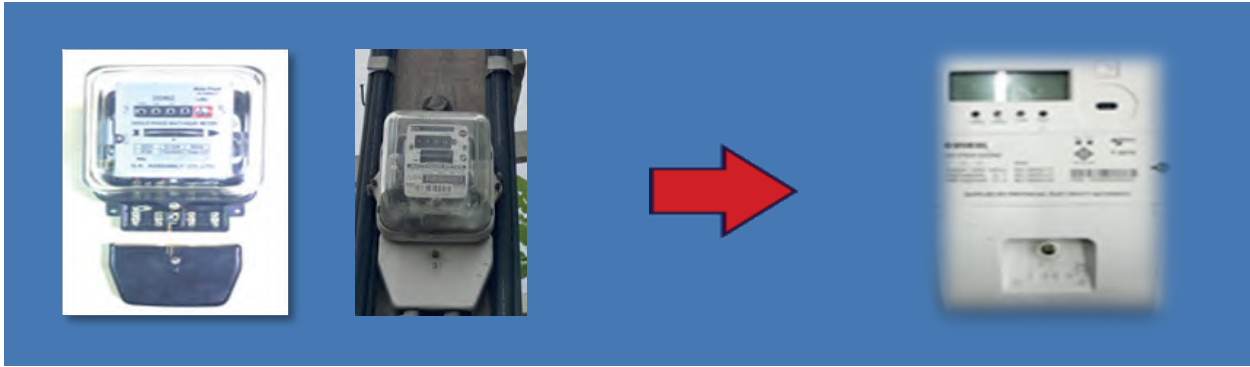
Technological innovation

- 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. **Innovations in new product development:** smart meter, to be in accordance with the technology and government policy. The Company has jointly developed the electronic power meter products that use wireless communication to send, receive, send data and order with the Provincial Electricity Authority, by developing this product to be used as a replacement for conventional rotary plate gauges. This is to meet the needs and develop a system to increase service efficiency according to the policy of the Provincial Electricity Authority that wants to change the electronic power meter to approximately 2 million users nationwide, according to the development plan to PEA Digital Utility.

Business value	Value to society / environment
<ul style="list-style-type: none"> • Increase revenue / sales of new products • Satisfying customers • Strengthen modernity and good image 	<ul style="list-style-type: none"> • Reduce incorrect energy usage violations • Reduce time and work procedures <ul style="list-style-type: none"> - Since the display results in numeric values, make it easy to read the value. - It can communicate with the software which can read various values and control the meter directly from the software page. • Reduce the amount of resources used



Electricity meter, original swivel plate

Electronic power meter

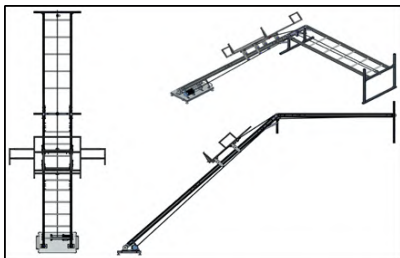
2. Solar panel lifting machine to the roof

The solar panel lift up machine is a facility that the Company has designed and developed for the benefit of use and to increase the efficiency of solar panel installation as the Company foresaw the growing trend of the Solar Rooftop business, as customers see the benefits and worthwhile investment in installing solar panels on the roof.

In the design and development of solar cell lifting and moving facilities to create added value for the organization. The Company takes into account the installation efficiency and the safety of the equipment and operators including paying attention to various limitations such as the height of the roof, working space and regulations that must be followed in each area.

The main objectives of the design and development of solar panel lifter are as follows:

1. Able to be used efficiently and suitable for all types of work, increase speed and security, while also reducing the cost of human resources and equipment.
2. Able to be applied to cover all working areas and roof height.
3. The panel lifter has a safety protection system for users and prevent damage that may occur to solar panels.
4. The panel lifting machine can operate automatically to reduce the manual labor of the control.
5. The price is reasonable and worth in the long run when compared to the cost of traditional panel lifting.
6. Able to be produced by using all domestic materials to promote income for partners.

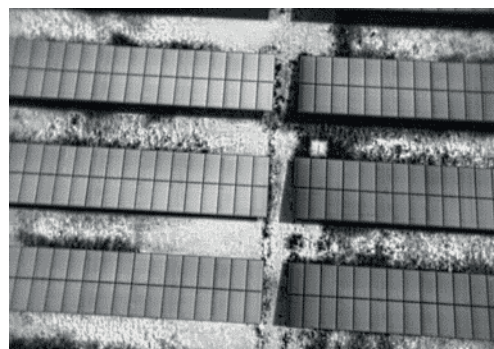


3. Drone for detecting faults in solar power generation systems

Although Solar Farm and Solar Rooftop are power plants that generate electricity every time when there is sunlight, but still need to be inspected, maintained and monitored the production capacity to meet the specified values in order to prevent problems that may occur with solar panels and related equipment. This is including causing the generation of electricity generating the highest revenue. The important and necessary inspection is Thermal inspection of solar panels which will show which solar panels are abnormal. It is expressed in the form of a particularly hot temperature which cannot be seen by the naked eye. Normally, the inspections are done by having the inspectors use thermal imaging cameras to take one panel at a time which will take a lot of time and money.

Due to the development of the features of unmanned aerial vehicles (drones) for commercial use, together with the current Big Data and the Internet of Things that are currently popular. Using a drone in conjunction with a thermal imaging camera to check solar panels is an extremely effective method and the obvious advantage is that it can shorten the inspection time many times, reduce the inspection process; as well as, adding value to the organization as follows:

1. Allows for increased accuracy, faster work, faster results back to the office, preventive / corrective actions can be taken immediately.
2. The heat images from the drone are highly organized and have location data. Therefore, this information can be used for many benefits such as taking into account heat maps and identify the location of the problem, which is very useful for the maintenance team.
3. Asset inventory & Maintenance management, Energy and electricity operations and maintenance is a budget-intensive work segment, although the drone has a high cost, when compared to the cost of opportunity and labor that lost in the traditional solar panel inspection. This is considered worth the use of drones instead.
4. Significant reduction in operational accidents and the current drone technology allows easy operation, highly secure and effective, which makes the growth rate of the organization as expected.



6. 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.

6.1 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 supporting the learning experience in the real work. We also develop various skills that are fundamental to sustainable growth by establishing a network with educational institutes since 2017, the Company has carried out a collaborative project with educational institutions to create opportunities for young students in the project as follows: Cooperative Education Project. The Company has a policy to be a learning organization and participate in creating quality human resources for society by allowing students to study and learn from real work experience with the agreement by entering into a cooperation agreement with the educational institution (MOU) to give students the opportunity to work in the Company together for a period of 2 years. In the year 2018-2019, there are students taking vocational training while studying with the company under the cooperative education program, with a total of 16 people from Rajamangala University of Technology Phra Nakhon.

Department	Amount/Person	University
Accounting	12	Rajamangala University of Technology Phra Nakhon
Finance	2	Rajamangala University of Technology Phra Nakhon
Assets	2	Rajamangala University of Technology Phra Nakhon

1. **General Internship Program:** There are 10 students who join these program from the following institution;

Department	Amount/Person	University
HR	1	Thammasat University
Construction Project Management	1	Kasetsart University Kamphaengsaen Campus
Engineer (Head Office)	1	Chulalongkorn University
	1	Thatphanom Collage, Nakhonphanom University
Alternative Energy Business Development Department	1	York Queen Ethelburga's England
Power Plant Maintenance Department	2	Wichian Buri Vocational College
Engineer (Factory)	3	King Mongkut's University of Technology Thonburi 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 Matthayom 1-6 (secondary level) students from Wat Noi Noppakhun School (Petch 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.

The number of students in each grade level that receiving fund from GUNKUL

Wat Sawat Waree Simaram School

Anuban-Prathom	Number of students (each year)					
	2014	2015	2016	2017	2018	2019
Anuban 1	7	4	4	6	5	5
Anuban 2	7	4	4	5	5	5
Prathom 1	8	5	5	7	5	6
Prathom 2	4	7	7	5	8	5
Prathom 3	4	6	6	9	7	8
Prathom 4	8	6	6	10	17	7
Prathom 5	6	7	7	6	8	7
Prathom 6	6	11	11	12	5	7
Total	50	50	50	60	50	50

Number of students at each secondary school level that receiving the scholarship “Petch Gunkul”

Wat Noi Noakhun School

Matthayom	Number of students					
	2014	2015	2016	2017	2018	2019
1	17	10	16	16	16	12
2	-	6	7	7	7	13
3	-	8	7	7	7	12
4	-	-	2	2	2	-
5	-	7	4	4	4	1
6	-	11	4	4	4	1
Total	17	42	40	40	40	39

- **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 12 years. There are 571 scholarships offered to their children with a total amount of 2,499,000 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 2562”, “Ban Noi Pattana Cup” 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” and supporting the sporting events for Wat Sawat Wari Simaram School. Due to exercise and sports are a part of everyday activities of everyone because it causes strength both physical and mental, also emotional, social and intellectual. As well as, building all youth to be a sportsman which can reduce and eliminate drug problems. Morality and discipline is able to improve the quality of life, national human resources, promote sports for good health in order 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 donate money, rice, dried food, consumer goods and medical supplies for using with AIDS patients (HIV), aging people, and orphans at Phrabat Nampu Temple, Lopburi.
- **Support activities for the community**, such as activities for the elders, Water blessing activities for Songkran festival, Sports activities for the elderly by supporting sports shirts and folklore stage activities in order to demonstrate brainstorming for creating a career for the household, including holistic health care for people in the community such as Nakhon Chaisri community, Wat Sawat community, 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 plants.
- **Support the National Children’s Day by giving the gifts to the surrounding community**, the Company gave sports equipment, school supplies, books, toys, bicycles and various things to be used as a gift for the event to organize the Children’s Day 2019 for the schools, government agencies, and communities that has requested assistance in the amount of 24 departments, such as Wat Sawat Waree Simaram School, Wat Noi Noppakun School, Early Childhood Development Center, The 11th Military District Community, Samsen Police Station, Wat Sawat Wari Simaram Community, Nakornchaisri Community and Wat Noi Noppakun Community
- Communities around wind power plants, Nong Nam Sai Municipality, Ban Sub Pool, Ban Noi Phatthana, Ban Nong Krad Noi, Ban Huai Bong, Don Mueang SAO., Ban Huay Rai School, Nakhon Ratchasima.
- Communities around solar power plants, Yang Nam Klat SAO., Phang Tru Subdistrict SAO.n, Tha Kwian SAO., Wichian Buri Intersection Branch SAO., Lum Rang SAO., Ang Thong School, Nong Kum School, Lum Rang School.
- The Company has supported Children’s Day for the surrounding community, which has been in operation since the establishment until the present as 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	D/M/Y	Activity
Solar Power Plant		
Wichian Buri Branch	Mar-19	Supported the anti-drug sporting event of Sam Yaek SAO./ Wichian Buri Police Station, Wichian Buri District, Phetchabun Province
	16-Sep-19	Donated financial for assisting to house fire victims in Sam Yaek Subdistrict, Wichian Buri District, Phetchabun Province
Nern Por Branch	11-Aug-19	Supported the offering of educational robes to the Sa Yai Chi School, Noen Por Subdistrict, Sam Ngam District, Phi-chit Province
Wind Power Plant		
Wayu Wind Farm plant Huai Bong Subdistrict, Dan Khun Thot District, Nakhon Ratchasima Province	11-Jan-19	Childrens day activities at Ban Huai Bong School, Huai Bong Subdistrict, Dan Khun Thot District, Nakhon Ratchasima Province
	11-Jan-19	Childrens day activities at Ban Noi Pattana School, Huai Bong Subdistrict, Dan Khun Thot District, Nakhon Ratchasima Province
	5-Feb-19	Supported the Red Cross, Nakhon Ratchasima Province
	15-Feb-19	Annual Merit Fair, Ban Noi Phatthana Temple
	17-Feb-19	Supported "Riding for younger, Surfing in the Huai Bong Windmill Field 62" Project
	5-Mar-19	Supported the construction of a bell tower at Ban Non Rang Temple, Krisana Subdistrict, Sikhio District, Nakhon Ratchasima Province
	13-Apr-19	Supported the journalist party
	13-Apr-19	Supported Songkran Festival at Huai Bong SAO.
	6-Aug-19	Supporting Sport Competition 'Huai Bong Games 2019'
Saranlom Wind Farm plant Huai Bong Subdistrict, Dan Khun Thot District, Nakhon Ratchasima Province	11-Jan-19	Childrens day activities at Huai Bong SAO., Huai Bong Subdistrict, Dan Khun Thot District, Nakhon Ratchasima Province
	11-Jan-19	Childrens day activities at Ban Supplu School, Huai Bong Subdistrict, Dan Khun Thot District, Nakhon Ratchasima Province

Renewable Energy Power Plant	D/M/Y	Activity
	11-Jan-19	Childrens day activities at Ban Sila Ruam Samakkhi School, Huai Bong Subdistrict, Dan Khun Thot District, Nakhon Ratchasima Province
	12-Jan-19	Childrens day activities at Village Headman Club, Huai Bong Subdistrict, Dan Khun Thot District, Nakhon Ratchasima Province
	15-Feb-19	Annual Merit Fair, Ban Noi Phatthana Temple
	17-Feb-19	Supported "Riding for younger, Surfing in the Huai Bong Windmill Field 62" Project
	5-Mar-19	Supported the construction of a bell tower at Ban Non Rang Temple, Krisana Subdistrict, Sikhio District, Nakhon Ratchasima Province
	5-Mar-19	Supported the journalist party
	13-Apr-19	Supporting Sport Competition in the Songkran festival Huay Bong Conservation Club
	6-Aug-19	Supporting Sport Competition 'Huai Bong Games 2019'
Mittraphap Wind Farm Plant Don Mueang Subdistrict, and Nong Nam Sai Subdistrict, Sikhio District, Nakhon Ratchasima Province	12-Jan-19	Supported the 2019 Children's Day Activity at Don Mueang SAO., Sikhio District, Nakhon Ratchasima Province.
	12-Jan-19	Supported the 2019 Children's Day Activity, Nong Nam Sai Subdistrict Municipality, Sikhio District, Nakhon Ratchasi-ma Province
	13-Apr-19	Supported Songkran merit festival at Baan Sagha Pat-tana, Nong Nam Sai Subdistrict, Sikhio District, Nakhon Ratchasima Province
	13-Apr-19	Supported 2019 Songkran Festival, Don Mueang SAO., Sikhio District, Nakhon Ratchasima Province
	13-Apr-19	Supported 2019 Songkran Festival, Nong Nam Sai Subdis-trict Municipality, Sikhio District Nakhon, Ratchasima Province
	24-Jun-19	Joined the merit ceremony with Pracharat Samakkhi School, Don Mueang Subdistrict, Sikhio District, Nakhon Ratchasima Province
	17-Aug-19	Supported the organization of anti-drug sports competi-tions "Don Mueang Cup", the 17th, Don Mueang SAO.
	17-Aug-19	Supported the organization of anti-drug sports competi-tions "Don Mueang Cup", the 17th, Ban Buka, Don Mueang Subdistrict

6.3 Join to maintain Buddhism, Local Culture and Traditions with the community around the head office, communities surrounding the solar 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 (lent candles, light bulbs, including money for making merit) and Kathin (offering clothes, tri-robe and robes) to help fund the restoration of the pier, the entrance arch and the Buddhist eunuchs for Wat Sawat Waree Simaram, including the temple around the wind power plant in order to promote and inherit the good culture of Thailand continuously. This is including supporting the community to have love, unity and support more.

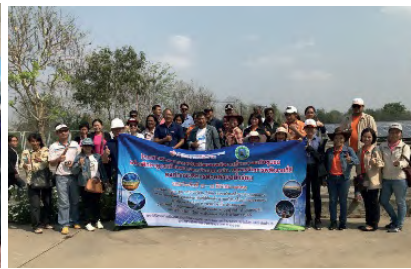


6.4 Promote learning sources, alternative energy plants for schools And the surrounding community

The Company recognizes the importance of education and knowledge enhancement; as well as, being a learning organization for schools, students, teachers, organizations and the surrounding community who are interested in solar power plants by giving an opportunity to visit and study the solar and wind power plants, in order to expand knowledge, lead to further study, and spark the idea of alternative energy development and can be applied in daily life. In the year 2019, there are both public and private organizations as follows:

Renewable Energy Power Plant Branch	Date	Organizations, schools and institutions that visited	Amount (persom)
Wind Power Plant			
	8-Feb-19	Teachers and students from Electrical Engineering, Faculty of Engineering at Maha Sarakham University	115
	16-Feb-19	Investors from "Mitihoon"	52
Wayu Wind Farm plant	28-Feb-19	RBH BANK	5
Huai Bong Subdistrict, Dan Khun Thot District, Nakhon Ratchasima Province	7-Mar-19	Department of Physics, Faculty of Science, Naresuan University	15
	23-May-19	Federation of Industry, Nakhon Ratchasima Province	7
Saranlom Wind Farm plant	21-Jun-19	Grid Group (Guest of Dr.Somboon)	6
Huai Bong Subdistrict, Dan Khun Thot District, Nakhon Ratchasima Province	1-Jul-19	Executive's Guests	1
	4-Jul-19	The visitor from Seagate Technology (Thailand) Co., Ltd., Nakhon Ratchasima	5
Mittraphap Wind Farm Plant	24-Jul-19	Faculty of International Conference on "the Interna-tional Forum on Unlocking Investment Opportunities in Renewable Energy for the ASEAN Region", De-partment of Alternative Energy, Ministry of Energy	70
Don Mueang Subdistrict, and Nong Nam Sai Sub-district, Sikhio District, Nakhon Ratchasima Prov-ince	28-Jul-19	A group of people from the Electrical Vehicle Associ-ation of Thailand	16
	18-Aug-19	Operations Department Northeast region, Electricity Generating Authority of Thailand	5
Solar power plant for the year 2019			
RNS, Phang Tru Branch, Kanchanaburi Province	8-Feb-19	Suranaree University of Technology, Faculty of Electrical Engineering	203
GPS, Dong Khon Branch, Chainat Province	18-Jul-19	NSTDA	6
GPS, Ta Khit Branch, Na-khon Sawan Province	31-Jul-19	Watchara Sahasuksa School	40
GCPG, Ban Kluai Branch, Phetchabun Province	21-Feb-19	Lat Khae SAO., Phetchabun Province	40
	7-Mar-19	Nam Ron SAO., Phetchabun province	30
GCPG, Wichian Buri Branch, Phetchabun Province	21-Aug-19	Prachinburi Energy Office	30

Renewable Energy Power Plant Branch	Date	Organizations, schools and institutions that visited	Amount (persom)
GCPG, Sri Chula Branch, Nakhon Nayok Province	30-Sep-19	AIT Institute	30
	2-Jun-19	Khun Watcharin Phongkue, Golden Lime PCL	4
	19-Jul-19	Khun Prapaporn Chamwongla, Consultant of Technology Company Limited	7



6.5 Promotion of Community Participation and Community Income Generation

The Company has concerned about the importance of environmental management at every stage and every process 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.

7. Achievements



Miss Sopacha Dhumrongpiyawut
Chief Executive Officer
Gunkul Engineering Public Company Limited
Received the Outstanding Brand Award from Mr. Chuan Leekpai



GKP: Best Practice Award
Electrical and Electronics Industry Group
Division of Industrial and Industrial Technology
Development Department of Industrial Promotion,
Ministry of Industry



GUNKUL: Acknowledgments
(Sustainability Disclosure Acknowledgement) From Thaipat Institute



GUNKUL: Honorary Award for Cooperative Education
Project, Rajamangala Institute of Technology Phra Nakhon,
Phra Nakhon District



GKA: Outstanding Establishment Award in the promotion of skill development



GKP: Honors the program to promote the en-hancement of SME capabilities with applica-tions or equipment and tools in the field of logistics



GKA / GKP: Certificate of Establishment of a Standard for Prevention and Solution to Drug Problems in the Workplace



WED: Certificate of Honor from the Internal Security Division of Nakhon Ratchasima Coordination Project for Prevention and Correction of Environmental Resources Energy and food Nakhon Ratchasima Province









WED: Certificate of Honor for Sponsored from Hin Dat Police Station








WED / GNP / KWE: Honorary Sponsorship for the Public Cycling Academy “PEA Bike For Life” from the Provincial Electricity Authority’s club








8. ดัชนีชี้วัดตามกรอบแนวทาง

การจัดการทำรายงานความยั่งยืนระดับสากล (GRI Content Index)

Company Policy	GRI Standard	Descriptions	Page Number		SDGs
			AR	SR	
		ORGANIZATIONAL PROFILE			
	102-1	Name of the organization			
	102-2	Activities, brands, products, and services			
	102-3	Location of headquarters			
	102-4	Location of operations			
	102-5	Ownership and legal form			
	102-6	Markets served			
	102-7	Scale of the organization			
	102-8	information on employees and other workers			
	102-9	Supply chain			
	102-10	Significant changes to the organization and its supply chain			
	102-11	Precautionary Principle or approach			
	102-12	External initiatives			
	102-13	Membership of associations			
		STRATEGY			
	102-14	Statement from senior decision-maker			
	102-15	Key impacts, risks, and oppoortunities			
		ETHICS AND INTEGRITY			
	102-16	Values, principles, standards, and norms of behavior			








Company Policy	GRI Standard	Descriptions	Page Number		SDGs
			AR	SR	
GRI 102 : General Disclosures 2016	GOVERNANCE				
	102-18	Governance structure			
	102-19	Delegating authority			
	102-20	Executive-level responsibility for economic, environmental and social topics			
	102-22	Composition of the highest governance body and its committees			
	102-23	Chair of the highest governance body			
	102-24	Nominating and selecting the highest governance body			
	102-26	Role of highest governance body in setting purpose, values, and strategy			
	102-27	Collective knowledge of highest governance body			
	102-28	Evaluating the highest governance body's performance			
	102-29	Identifying and managing economics, environmental, and social impacts			
	102-31	Review of economic, environmental, and social topics			
	102-31	Highest governance body's role in sustainability reporting			
	102-32	Communicating critical concerns			
	102-35	Remuneration policies			
	102-36	Process for determining remuneration			
	102-37	Stakeholders' involvement in remuneration			
	102-38	Annual total compensation ratio			
	102-39	Percentage increase in annual total compensation ratio			
	STAKEHOLDER ENGAGEMENT				
	102-40	List of stakeholder groups			
	102-41	Collective bargaining agreements			
	102-42	Identifying and selecting stakeholders			








Company Policy	GRI Standard	Descriptions	Page Number		SDGs	
			AR	SR		
We care Business		102-43	Approach to stakeholder engagement			
		102-44	Key topics and concerns raised			
		REPORTING PRACTICE				
		102-45	Entities included in the consolidated financial statements			
		102-46	Defining report content and topic boundaries			
		102-47	List of material topics			
		102-48	Restatements of information			
		102-49	Changes in reporting			
		102-50	Reporting period			
		102-51	Date of most recent report			
		102-52	Reporting cycle			
		102-53	Contact point for questions regarding the report			
		102-54	Claims of reporting in accordance with the GRI standards			
		102-55	GRI content index			
		102-56	External assurance			
		Economic Performance				
GRI 103 : Management approach 2016		103-1	Explanation of the material topic and its Boundary			
		103-2	The management approach and its components			
			Evaluation of the management approach			
	GRI 201: Economic Performance 2016	201-1	Direct economic value generated and distributed			
	GRI 203 : Indirect Economic Impacts 2016	203-1	Infrastructure investments and services supported			


Company Policy	GRI Standard	Descriptions	Page Number		SDGs
			AR	SR	
		PROCUREMENT PRACTICE			
GRI 103 : Management approach 2016	103-1	Explanation of the material topic and its Boundary			
	103-2	The management approach and its components			
	103-3	Evaluation of the management approach			
GRI 204 : Procurement Practices 2016	204-1	Proportion of spending on local suppliers			
		ANTI-CORRUPTION			
GRI 205 : Anti- corruption 2016	205-2	Communication and training about anti- corruption policies and procedures			
	205-3	Confirmed incidents of corruption and actions taken			
		TAX			
GRI 207 : Tax 2019	207-1	Approach to tax			
	207-2	Tax governance, control and risk management			
	207-3	Stakeholders engagement and management of concerns related to tax			
		ENERGY			
GRI 103 : Management approach 2016	103-1	Explanation of the material topic and its Boundary			
	103-2	The management approach and its components			
	103-3	Evaluation of the management approach			
GRI 302 : Energy 2016	302-1	Energy consumption within the organization			
	302-3	Energy intensity			
		MARKETING AND LABELING			
GRI 103 : Management approach 2016	103-1	Explanation of the material topic and its Boundary			

Company Policy	GRI Standard	Descriptions	Page Number		SDGs
			AR	SR	
We care people	GRI 417 : Marketing and Labeling 2016	103-2	The management approach and its components		
		103-3	Evaluation of the management approach		
		417-3	Incidents of non-compliance concerning marketing communications		
	EMPLOYMENT				
	GRI 103 : Management approach 2016	103-1	Explanation of the material topic and its Boundary		
		103-2	The management approach and its components		
		103-3	Evaluation of the management approach		
	GRI 401 : Employment 2016	401-1	New employee hires and employee turnover		
	LABOR/MANAGEMENT RELATION				
	GRI 103 : Management approach 2016	103-1	Explanation of the material topic and its Boundary		 
103-2		The management approach and its components			
103-3		Evaluation of the management approach			
GRI 403 : Occupational Health and Safety 2018	403-2	Types of injury and rates of injury, occupational diseases, lost days, and absenteeism, and number of work-related fatalities			
TRAINNING AND EDUCATION					
GRI 103 : Management approach 2016	103-1	Explanation of the material topic and its Boundary		 	
	103-2	The management approach and its components			
	103-3	Evaluation of the management approach			

Company Policy	GRI Standard	Descriptions	Page Number		SDGs
			AR	SR	
	GRI 404 : Training and Education 2016	404-1 Average hours of training per year per employee			
	404-3 Percentage of employees receiving regular performance and career development reviews				
	HUMAN RIGHTS				
	GRI 103 : Management approach 2016	103-1 Explanation of the material topic and its Boundary			
	103-2 The management approach and its components				
	103-3 Evaluation of the management approach				
	GRI 412 : Human Rights Assessment	412-1 Operations that have been subject to human rights reviews or impact assessments			
	412-2 Employee training on human rights policies or procedures				
WATER					
	GRI 103 : Management approach 2016	103-1 Explanation of the material topic and its Boundary			
	103-2 The management approach and its components				
	103-3 Evaluation of the management approach				
	GRI 303 : Water and Effluents 2018	303-1 Water withdrawal by source			
	303-3 Water recycled and reused				
					
EMISSIONS					
	GRI 103 : Management approach 2016	103-1 Explanation of the material topic and its Boundary			
	103-2 The management approach and its components				
	103-3 Evaluation of the management approach				

Company Policy	GRI Standard	Descriptions	Page Number		SDGs
			AR	SR	
	GRI 305 : Emissions 2016	305-1	Direct (Scope 1) GHG emissions		
		305-2	Energy indirect (Scope 2) GHG emissions		
		305-7	"Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions"		
	EFFLUENTS AND WASTE				
	GRI 103 : Management approach 2016	103-1	Explanation of the material topic and its Boundary		
		103-2	The management approach and its components		
		103-3	Evaluation of the management approach		
	GRI 306 : Effluents and Waste 2016	306-1	Water discharge by Quality and destination		
		306-2	Waste by type and disposal method		
		306-3	Significant spills		
	ENVIRONMENTAL COMPLIANCE				
	GRI 103 : Management approach 2016	103-1	Explanation of the material topic and its Boundary		
		103-2	The management approach and its components		
		103-3	Evaluation of the management approach		
	GRI 307 : Environmental Compliance 2016	307-1	Non-compliance with environmental laws and regulations		
		SUPPLIER ENVIRONMENTAL ASSESSMENT			
We care social	GRI 103 : Management approach 2016	103-1	Explanation of the material topic and its Boundary		
		103-2	The management approach and its components		
		103-3	Evaluation of the management approach		
	GRI 308: Supplier Environmental Assessment 2016	308-2	Negative environmental impacts in the supply chain and actions taken		

Company Policy	GRI Standard	Descriptions	Page Number		SDGs
			AR	SR	
		ENVIRONMENTAL PROTECTION EXPENDITURES AND INVESTMENT			
GRI 103 : Management approach 2016	103-1	Explanation of the material topic and its Boundary			
	103-2	The management approach and its components			
	103-3	Evaluation of the management approach			
		LOCAL COMMUNITIES			
GRI 103 : Management approach 2016	103-1	Explanation of the material topic and its Boundary			
	103-2	The management approach and its components			
	103-3	Evaluation of the management approach			
GRI 413 : Local Communities 2016	413-1	Operations with local community engagement, impact assessment, and development programs			
		SUPPLIER SOCIAL ASSESSMENT			
GRI 103 : Management approach 2016	103-1	Explanation of the material topic and its Boundary			
	103-2	The management approach and its components			
	103-3	Evaluation of the management approach			
GRI 414 : Supplier Social Assessment 2016	414-2	Negative social impacts in the supply chain and actions taken			

Company Policy	GRI Standard	Descriptions	Page Number		SDGs
			AR	SR	
SOCIOECONOMIC COMPLIANCE					
GRI 103 : Management approach 2016	103-1	Explanation of the material topic and its Boundary			
	103-2	The management approach and its components			
		103-3	Evaluation of the management approach		
GRI 419 : Socioeconomic Compliance 2016	419-1	Non-compliance with laws and regulations in the social and economic area			

GUNKUL

not only the energy, we care

GUNKUL ENGINEERING PUBLIC CO., LTD.

1177, 8th Floor , Pearl Bangkok Building, Phahonyothin Road, Phayathai, Phayathai, Bangkok 10400

Tel. 0-2242-5800 (Auto) Fax. 0-2242-5878-9

