



# TSE GROWTH



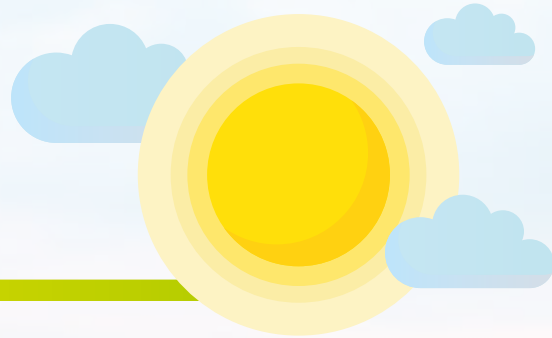
ANNUAL REPORT 2018

[www.thesisolarenergy.com](http://www.thesisolarenergy.com)



## Vision

To become a world-class regional leader in providing renewable energy through reliable technologies to serve both commercial and social societies



# TSE GROWTH

## Mission

To establish a solid footprint in Thailand in the solar power industry and expand into other renewable energies as well as developing an international solar power business focusing in Asia & Oceania regions





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## Message from the Chairman



In 2018, Thai Solar Energy Public Company Limited's operations reached the stage of growth in different areas. This year was regarded as a great year and ready to gain from an investment as the Company had invested in various types of renewable energy business for the last few years. To this, the Company had 38 projects with total selling capacity of 300.42 Megawatts (MW) operated both in Thailand and Japan. In the fourth quarter, the Company started to realize additional revenues from its 22.2 MW biomass power plant projects. This brings about a total of 37 Commercial Operation Date (COD) projects with a combined selling capacity in Thailand and Japan of 145.44 MW. Nevertheless, the Company still endeavors to expand solar power generation and distribution and other types of renewable energies according to the public sector's policy to support investment in renewable energy and seek investment opportunities overseas through experienced and highly skilled personnel, business allies and a strong financial position, highlighted as the Company's strengths.

Thanks to our advancing efforts in business operations, Thai Solar Energy Public Company Limited has received the honorary award of "Asia's Best Performing Companies" at "ACES AWARDS 2018" (The Asia Corporate Excellence & Sustainability Awards) organized by MORS GROUP in Singapore.

On behalf of the Company's Board of Directors, executives, employees and subsidiaries, we would like to thank all our shareholders, clients, partners, business allies, as well as all our stakeholders to place your trust and confidence in our potential and to be an essential part of continuous support. Still, we will run business with honesty, transparency and carefulness under the good corporate governance principles and simultaneously take part in the development of societies, communities and environment in order to together promote stability and sustainable growth in every sector in the future.

(Cathleen Maleenont, Ed.D)  
Chairman of the Board of Directors





## Message from the Vice Chairman

TSE still emphasizes the interests of all shareholders and all stakeholders through the dedication to our mission to run the solar power and other types of renewable energy businesses in Thailand and Asian region. We not only make an effort to seek new opportunities both in Thailand and overseas, but also manage costs efficiently, such as construction investment, operations, financial cost and appropriate risk management. Besides, we will continue to search for new innovation so as to enhance stability and sustainable values to all shareholders.

I absolutely hope that we will earn the trust and confidence from all of our stakeholders who will be a vital support for the Group of Thai Solar Energy Public Company Limited's renewable energy operations for creating the country's energy security, good governance and environmental sustainability.

(Mr. Prommin Lertsuridej)  
Vice Chairman





## Report of the Audit Committee

The Audit Committee has been assigned to perform duties by the Group's Board of Directors according to the requirements of the Office of the Securities and Exchange Commission and the Notification of the Securities Exchange of Thailand, as specified in the charter, prescribed by the Board.

The Audit Committee comprises members who are qualified persons and independent members, i.e., Mrs. Siripen Sitasuwan, Mr. Prasan Chuapanich and Mr. Boonchoo Direksathaporn. The Committee submitted performance report as information and to be reviewed by the Board of Directors at least once in each quarter. The report whose preparation is completed in consultation and with approval of the management, internal audit committee and auditor contains the following essential elements.

1. The review of quarterly and yearly financial reports of the Group in 2018 which was performed to ensure that the financial statement of the Group has been prepared according to the financial report

standard with disclosure of adequate, complete and reliable information, including the audit matters (KAMs).

- During the year 2018, the Company recognized impairment losses in additional thermal power plants in the amount of 296 million baht. As at 31 December 2018, thermal power plants have a book value of 238.47 Million baht after deducting allowance for impairment of assets in the amount of 545.92 million baht.

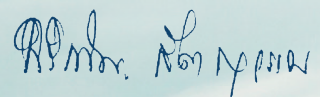
The Audit Committee has met with the auditor without participation of the management in order to consult each other on the independence in performing duties and providing opinion by the auditor.

2. The review of the operation and considered the connected transaction of the company to comply with laws and regulations related to the Stock Exchange of Thailand To ensure that it is reasonable and most beneficial.

3. The review of the internal control system Internal audit system and the risk management system of the company in order to be appropriate and effective.

4. Considered and selected the auditor's remuneration for the company therefore resolved to propose to the Board of Directors To request approval from the shareholders' meeting Appointment of auditors from PricewaterhouseCoopers ABAS Co., Ltd. to be the auditor for the year 2019 for another term

In general, the Audit Committee views that the Board of Directors and the management of the Group have ethics and determination to carry out the duties in order to achieve the group's business goals and realize the importance of operating the business under corporate good governance, transparency and trustfulness.



(Mrs. Siripen Sitasuwan)  
Chairman of the Audit Committee

## Report of the Nomination and Remuneration Committee

The Nomination and Remuneration Committee comprises 3 members and is chaired by Mr. Prasan Chuaphanich, an independent director. In 2018, the Nomination and Remuneration Committee convened 2 meetings and reported the Board on the results of the meetings regularly. Followings are some of important businesses conducted by the Nomination and Remuneration Committee.

1. Qualified persons to be appointed as director and subcommittees to replace those retired by rotation, based on the regulations of the Board of Directors and good corporate governance, considering the proportion and composition of directors. It also includes a variety of expertise and expertise related to the company's business, to drive the business strategy to the most effective and effective.

2. Considered and set remuneration for members of the Board of Directors and committees, based on suitability, duties and responsibilities, performance, business environment, economic conditions and by comparing with the remuneration of other companies in the same or similar business. The shareholders' meeting approved the remuneration as proposed.

3. Considered the remuneration for top management, based on suitability company performance, individual performance, and inflation.

In realizing the importance of corporate good governance principle, the Nomination and Remuneration Committee has reviewed and monitored the operational progress of the management on regular

basis and perform the duties with full ability, carefulness, transparency and independence, based on adequate and appropriate level of corporate good governance that should provide utmost benefit to all stakeholders.



(Mr. Prasan Chuaphanich)  
Chairman of the Nomination and Remuneration Committee



# The Board of Directors and Management



**Cathleen Maleenont, Ed.D.**

Chairman of Board of Directors, Chairman of the Board of Executive Directors, Chief Executive Officer, Nomination and Remuneration Committee, Acting Chief Financial Officer, (Authorized Director)

Age 47 years

#### Education

- ▶ Ed.D. in Institutional Management, Pepperdine University
- ▶ M.S.A. in Multinational Commerce, Boston University
- ▶ B.A. in Mass Communication, Chulalongkorn University

#### Related Training Program held by Thai Institute of Directors Association

- ▶ Directors Accreditation Program (DAP) 9/2004
- ▶ Directors Certification Program (DCP) 150/2011

#### Working experience

- 2017 - present Acting Chief Financial Officer, Thai Solar Energy Public Company Limited
- 2014 - present Chairman of Board of Directors, Chairman of the Board of Executive Directors, Chief Executive Officer, Nomination and Remuneration Committee Thai Solar Energy Public Company Limited
- 2011 - 2013 Chief Operating Officer, Thai Solar Energy Public Company Limited

#### Board member / Management in Listed Company - The Stock Exchange of Thailand

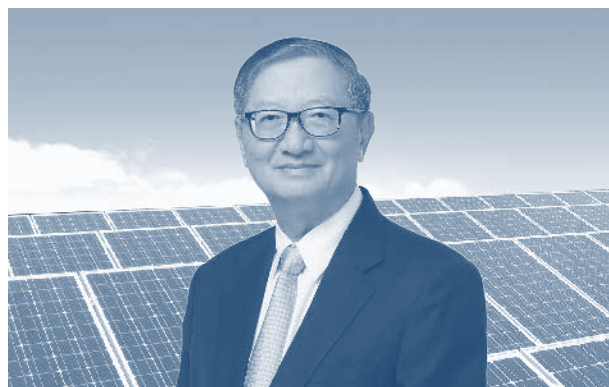
- 2014 - present Chairman of the Risk Management Committee, Wave Entertainment Public Company Limited
- 2006 - present Authorized Director, Wave Entertainment Public Company Limited
- 1999 - present Assistant to Senior Executive Vice President, BEC World Public Company Limited
- 2006 - 2014 Nomination and Remuneration Committee, Wave Entertainment Public Company Limited

#### Board member / Management in Non - Listed Company - The Stock Exchange of Thailand

- 2013 - present Authorized Director, Thai Solar Energy Public Company Limited and Subsidiaries
- 2006 - present Authorized Director, Wave Entertainment Public Company Limited and Subsidiaries

Shareholding (%) ▶ 0.24

Relation among Family with other Directors and Executives ▶ None



**Mr. Prommin Lertsuridej**

Vice Chairman and Independent Director

Age 64 years

#### Education

- ▶ National Health Administration, Japan (May - June 1992)
- ▶ Clinical Preventive Medicine, The Medical Council of Thailand
- ▶ Fellowship in Public Administration Ottawa University and Carleton University, Canada
- ▶ Doctor of Medicine (MD), The Faculty of Medicine Ramathibodi Hospital of Mahidol University
- ▶ Bachelor of Science Degree Program in Medical Science, Mahidol University

#### Working experience

- 2014 - present Independent Director, Vice Chairman of The Board of Directors, Thai Solar Energy Public Company Limited

#### Board member / Management in Listed Company - The Stock Exchange of Thailand

None

#### Position in Other Organization / Institutions

- 2017 - present Advisory Board of Directors, Rama IX Hospital
- 2013 - present Vice President and Chairman of Board of Directors, Shinawatra University
- 2014 - 2017 Board of Directors and Board of Executive Directors, Rama IX Hospital
- 2013 - 2014 Advisor to Strategic Committee for Reconstruction and Future Development (SCRF) Government of Yingluck Shinawatra

#### Political Positions

- March 2005 - September 2006 Secretary - General to the Prime Minister
- February 2003 - March 2005 Ministry of Energy (Thailand)
- October 2002 - February 2003 Deputy prime minister
- February 2001 - October 2002 Secretary-General to the Prime Minister

#### Royal Thai Decoration

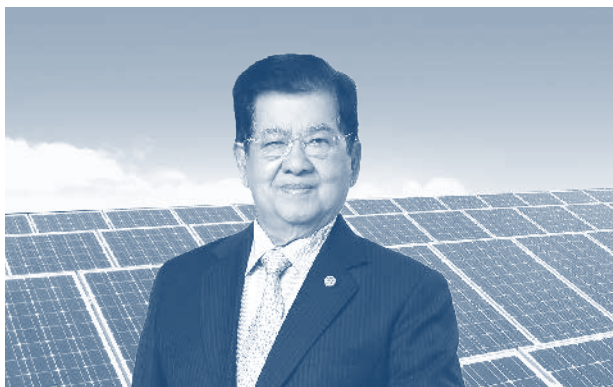
- 2003 Knight Grand Cordon (Special Class) of the Most Exalted Order of the White Elephant.
- 2002 Knight Grand Cordon (Special Class) of the Most Noble Order of the Crown of Thailand.
- 2001 Knight Grand Cross (First Class) of the Most Noble Order of the Crown of Thailand.

#### Other Royal Decoration

The Most Honourable Order of Seri Paduka Mahkota Brunei (3<sup>rd</sup> class) (S.M.B.)

Shareholding (%) ▶ None

Relation among Family with other Directors and Executives ▶ None



**Mr. Pala Sukawesh**

**Independent Director**

Age 78 years

**Education**

- ▶ Honorary Doctorate of Engineering, Chulalongkorn University
- ▶ CERT. in Advanced Management Program (AMP), Harvard University U.S.A.
- ▶ Diploma, National Defence College, The Joint State - Private Sector Course Class 333
- ▶ M.S. Industrial Engineering (Operation Research) Oregon State University U.S.A.
- ▶ CERT. in System Analysis in Water Resource Planning, U.S. Army Corp. of Engineers, U.S.A.
- ▶ M.Eng. (2<sup>nd</sup> Class Honors) in Electrical Engineering, Chulalongkorn University

**Related Training Program held by Thai Institute of Directors Association**

- ▶ Directors Accreditation Program (DAP) 14/2004
- ▶ Role of the Chairman Program (RCP) 2/2001
- ▶ Role of the Compensation Committee (RCC) 3/2007

**Working experience**

2014 - present Independent Director, Thai Solar Energy Public Company Limited

**Board member / Management in Listed Company - The Stock Exchange of Thailand**

2012 - present Chairman of the Board of Director, Union Petrochemical Public Company Limited  
 Director, PTT Exploration and Production Public Company Limited  
 2001 - 2010 Director, IRPC Public Company Limited  
 2001 - 2010 Director, PTT Aromatics and Refining Public Company Limited  
 2008 Director, PTT Global Chemical Public Company Limited  
 2006 - 2008 Chairman, Thai Oleochemicals Company Limited  
 2005 - 2008 Director, Thai Oil Power Company Limited  
 2005 - 2013

**Position in Other Organization / Institutions**

2014 - present President of Thai Resources and Environmental Management Institute (TREMI)  
 Chairman of The Petroleum Institute of Thailand (PTIT)  
 Vice Chairman of Empire Asia Energy Group  
 2002 - 2013 Chairman, Bangkok Polyethylene Company Limited  
 2003 - 2008 Director, Thai Oil Power Public Company Limited

**Royal Thai Decoration**

1999 Knight Commander (Second Class) of the Most Noble Order of the Crown of Thailand.  
 2000 Grand Companion (Third Class, higher grade) of the Most Illustrious Order of Chula Chom Klao.

**Shareholding (%)** ▶ None

**Relation among Family with other Directors and Executives** ▶ None



**Mrs. Siripen Sitasuwan**

**Independent Director, Chairman of Audit Committee**

Age 70 years

**Education**

- ▶ Master of Business Administration (MBA), Wichita State University, Kansas, USA.
- ▶ Bachelor of Art (Commerce), Chulalongkorn University

**Related Training Program held by Thai Institute of Directors Association**

- ▶ Directors Certification Program (DCP) 33/2003
- ▶ Role of the compensation Committee (RCC) 4/2007
- ▶ Audit Committee Program (ACP) 32/2010

**Certifications**

- ▶ Listed Company Director Programme - Risk Management Essentials, Singapore, March 2018
- ▶ Listed Company Director Programme - Remuneration Committee Essentials, Singapore, March 2018
- ▶ Listed Company Director Essential - Understanding the Regulatory Environment in Singapore : What Every Director Ought to Know, Singapore Institute of Directors
- ▶ Listed Company Director Programme - Audit Committee Essentials, Singapore, July 2016
- ▶ Listed Company Director Programme - Nominating Committee Essentials, Singapore, July 2016

**Awards**

The best CFO in Thailand for the year 2002, according to the survey of 10 best CFOs in Asia conducted by Finance Asia magazine for the first year.

**Working experience**

2014 - present Independent Director and Chairman of Audit Committee Thai Solar Energy Public Company Limited  
 1999 - 2007 President and Group CFO Shin Corporation Public Company Limited

**Board member / Management in Listed Company - The Stock Exchange of Thailand**

Present Independent Director, Chairman of Audit Committee, Nomination and Remuneration Committee  
 Thanachart Capital Public Company Limited  
 2012 - Present Independent Director, Member of Audit Committee and Member of Executive Directors  
 Serm Suk Public Company Limited

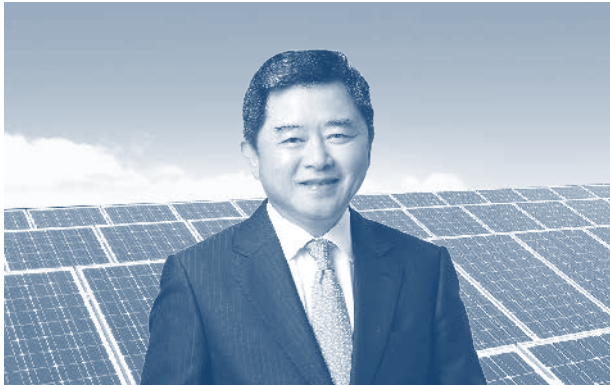
**Position in Other Organization / Institutions**

Present Independent Director, Chairman of the Board of Audit Committee, Nomination and Remuneration Committee, Fraser and Neave Company Limited

**Shareholding (%)** ▶ None

**Relation among Family with other Directors and Executives** ▶ None





**Mr. Prasan Chuaphanich**

Independent Director, Audit Committee, Chairman of Nomination and Remuneration Committee

Age 66 years

#### Education

- ▶ Bachelor of Accounting (Second Class Honor), Chulalongkorn University
- ▶ Certified Public Accountant (Thailand)
- ▶ Executive Management Program, Ivey School of Business, University of Western Ontario, Canada
- ▶ Leading Professional Services Firms Harvard Business School, Boston, U.S.A.

#### Related Training Program held by Thai Institute of Directors Association

- ▶ Director Certification Program (DCP) 119/2009
- ▶ Financial Institution Governance Program (FGP) 6/2013
- ▶ Board Matters and Trends (BMT) 2/2017

#### Working experience

2014 - present      Independent Director, Member Audit Committee, Chairman of Nomination and Remuneration Committee  
Thai Solar Energy Public Company Limited

#### Board member / Management in Listed Company - The Stock Exchange of Thailand

April 2017 - present      Independent Director, Audit Committee and Sustainable Development Management Committee Advanced Info Service Public Company Limited

April 2016 - present      Independent Director / Director to the Audit Committee, PTT Global Chemical Public Company Limited

April 2012 - present      Independent Director and Chairman of the Audit Committee, The Siam Commercial Bank Public Company Limited

#### Position in Other Organization / Institutions

2017 - present      Chairman of the Board of Directors, Thai Institute of Directors (IOD)

2017 - present      Commission Member (Accounting) and Audit Committee, Office of Insurance Commission (OIC)

2014 - present      Expert Member (Accounting) of the Committee on Dumping and Subsidy, Thailand

Shareholding (%)      ▶ None

Relation among Family with other Directors and Executives      ▶ None



**Mr. Boonchoo Direksataporn**

Independent Director, Member of Audit Committee

Age 72 years

#### Education

- ▶ Bachelor Degree (2<sup>nd</sup> Class Honors), Faculty of Commerce and Accountancy, Chulalongkorn University
- ▶ Certified Public Accountant in England
- ▶ Certificate, Program for Management Development [PMD], Harvard Business School USA
- ▶ National Defense College, National Defense Course for the Joint State-Private Sectors (Class 10)

#### Related Training Program held by Thai Institute of Directors Association

- ▶ Directors Certification Program (DCP) 14/2002
- ▶ Directors Diploma Examination (DDE) 6/2002
- ▶ IOD Chartered Director Class (CDC) 5/2009
- ▶ The Board's Role in Mergers and Acquisitions (M&A) 1/2011

#### Working experience

2014 - present      Independent Director, Audit Committee  
Thai Solar Energy Public Company Limited

#### Board member / Management in Listed Company - The Stock Exchange of Thailand

None

#### Position in Other Organization / Institutions

2010 - 2015      Director, Sakol Energy Company Limited

2012 - 2014      Advisor, EGAT International Co., Ltd.

Shareholding (%)      ▶ None

Relation among Family with other Directors and Executives      ▶ None



**Mr. Somphop Prompanapitak**

Director, Board of Executive Directors, Nomination and Remuneration Committee, Chief Operation Officer, Company Secretary, (Authorized Director)

Age 51 years

#### Education

- ▶ Master of Business Administration (Management), Kasetsart University
- ▶ Master Business Administration (Finance), California State University
- ▶ Bachelor of Economics (International Program), Thammasat University

#### Related Training Program held by Thai Institute of Directors Association

- ▶ Director Certification Program (DCP) 106/2008
- ▶ Director Certification Program Update (DCPU) 1/2014
- ▶ Company Secretary Program (CSP) 31/2009
- ▶ Exam-Diploma Examinations 24/2009
- ▶ Executive Development Program

#### Working experience

2014 - present	Director, Board of Executive Directors, Nomination and Remuneration Committee, Company Secretary, Authorized Director Thai Solar Energy Public Company Limited
2012 - 2013	Chief Financial Officer, Thai Solar Energy Company Limited

#### Board member / Management in Listed Company - The Stock Exchange of Thailand

None

#### Board member / Management in Non Listed Company - The Stock Exchange of Thailand

2013 - present	Director, Thai Solar Energy Public Company Limited and Subsidiaries
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Shareholding (%) ▶ 0.03

Relation among Family with other Directors and Executives ▶ None



**Mrs. Angkanee Rerksirisuk**

Director (Authorized Director)

Age 46 years

#### Education

- ▶ Master Degree of Accountancy, Financial accounting, Chulalongkorn University
- ▶ Bachelor of Business Administration, Accounting, Burapha University

#### Related Training Program held by Thai Institute of Directors Association

- ▶ Directors Accreditation Program (DAP) 138/2017
- ▶ Chief Financial Officer Certification Program 19/2015 , organized by the Federation of Accounting Professions. Under the Royal Patronage of his Majesty the King
- ▶ Fundamental Practice for Corporate Secretary, organized by Thai Listed Companies Association

#### Working experience

2017 - present	Director, Thai Solar Energy Public Company Limited
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#### Board member / Management in Listed Company - The Stock Exchange of Thailand

2013 - present	Chief Financial Officer, WAVE Entertainment Public Company Limited
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#### Position in Other Organization / Institutions

Present	Director and Authorized Director, Efficient English Services Company Limited (Change the name to Wall Street English (Thailand) Co., Ltd. on 29 Nov 2018) Director and Authorized Director, Jeffer Restaurant Company Limited
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Shareholding (%) ▶ None

Relation among Family with other Directors and Executives ▶ None





**Mr. Masthawin Charnvirakul**

**Director (Appointed on 27 February 2019)**

Age 47 years

**Education**

- ▶ MBA ( International Business ), University of Southern California, USA
- ▶ B.A. ( Marketing ), Chulalongkorn University

**Related Training Program held by Thai Institute of Directors Association**

- ▶ Director Accreditation Program (DAP) 1/2003

**Training courses**

- ▶ Diploma Senior Executive Program (CMA Program), Class 11/2010, Capital Market Academy
- ▶ Ultra Wealth 2/2559, The Faculty of Economic Chulalongkorn University
- ▶ Academy of Business Creativity: ABC Class 7/2017, Academy of Business Creativity
- ▶ Top Executive Program in Commerce and Trade : TEPCoT Class 11/2018
- ▶ Studying The Story by SPU Model 1/2018
- ▶ Studying high-level management courses on non-service directors, Class 1/2019
- ▶ Capital Market Academy No. 11

**Working experience**

February 2019 - present Director / Thai Solar Energy Public Company Limited

**Board member / Management in Listed Company - The Stock Exchange of Thailand**

2002 - present Director/ Managing Director, STP&I Public Company Limited

1996 - present Director, Sino-Thai Engineering and Construction Plc.

**Position in Other Organization / Institutions**

2019 - present Director, Fill Up Network Co., Ltd.

2002 - present Director/ Managing Director, STIT Co., Ltd.

1996 - 2009 Director, Inter IMC PPE Co., Ltd., Singapore

1996 - 2002 Marketing Manager, Siam Cement - Dow Chemical Joint Venture

**Royal Thai Decoration**

2012 Member (Fifth Class) of the Most Admirable Order of the Direkgunabhorn

**Shareholding (%)**

▶ None

**Relation among Family with other Directors and Executives**

▶ None



**Mr. Kitiphong Thunnom**

**Chief Technical Officer**

Age 51 years

**Education**

- ▶ Master Degree in Business Administration, Chulalongkorn University
- ▶ Bachelor degree in Electrical Engineering, Chulalongkorn University

**Working experience**

August 2017 - present Chief Technical Officer / Thai Solar Energy Public Company Limited

**Board member / Management in Listed Company - The Stock Exchange of Thailand**

2015 - 2017 Vice President, Business Development, Glow Energy Public Company Limited

2005 - 2009 Chief Executive Officer, National Power Supply Public Company Limited

**Position in Other Organization / Institutions**

present Director, Thai Solar Energy Public Company Limited and Subsidiaries

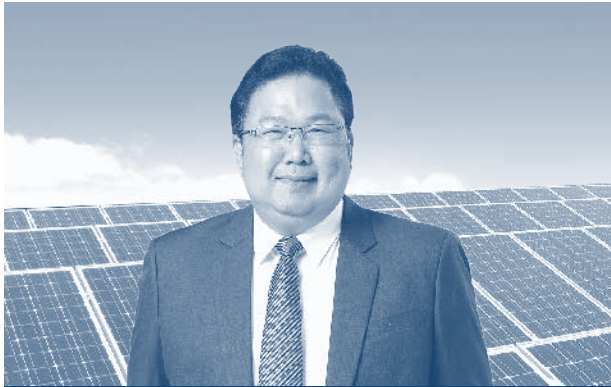
2010 - 2015 Chief Technology Officer, Italian-Thai Power Company Limited (IPC)

**Shareholding (%)**

▶ None

**Relation among Family with other Directors and Executives**

▶ None



**Mr. Nivej Boonwichai**

**Vice President Engineering and Construction**

Age 51 years

**Education**

- Bachelor of Engineering Program in Electrical Engineering,  
King Mongkut's University of Technology North Bangkok

**Working Experience**

2015 - present      Vice President Engineering and Construction,  
Thai Solar Energy Public Company Limited

**Board member / Management in Listed Company - The Stock  
Exchange of Thailand**

2008 - 2015      Director of Engineering and Project Control,  
Gunkul Engineering Public Company Limited

2001 - 2007      Assistant General Manager, Engineering  
Department Yuasa Battery (Thailand) Public  
Company Limited

**Position in Other Organization / Institutions**

None

**Shareholding (%)**

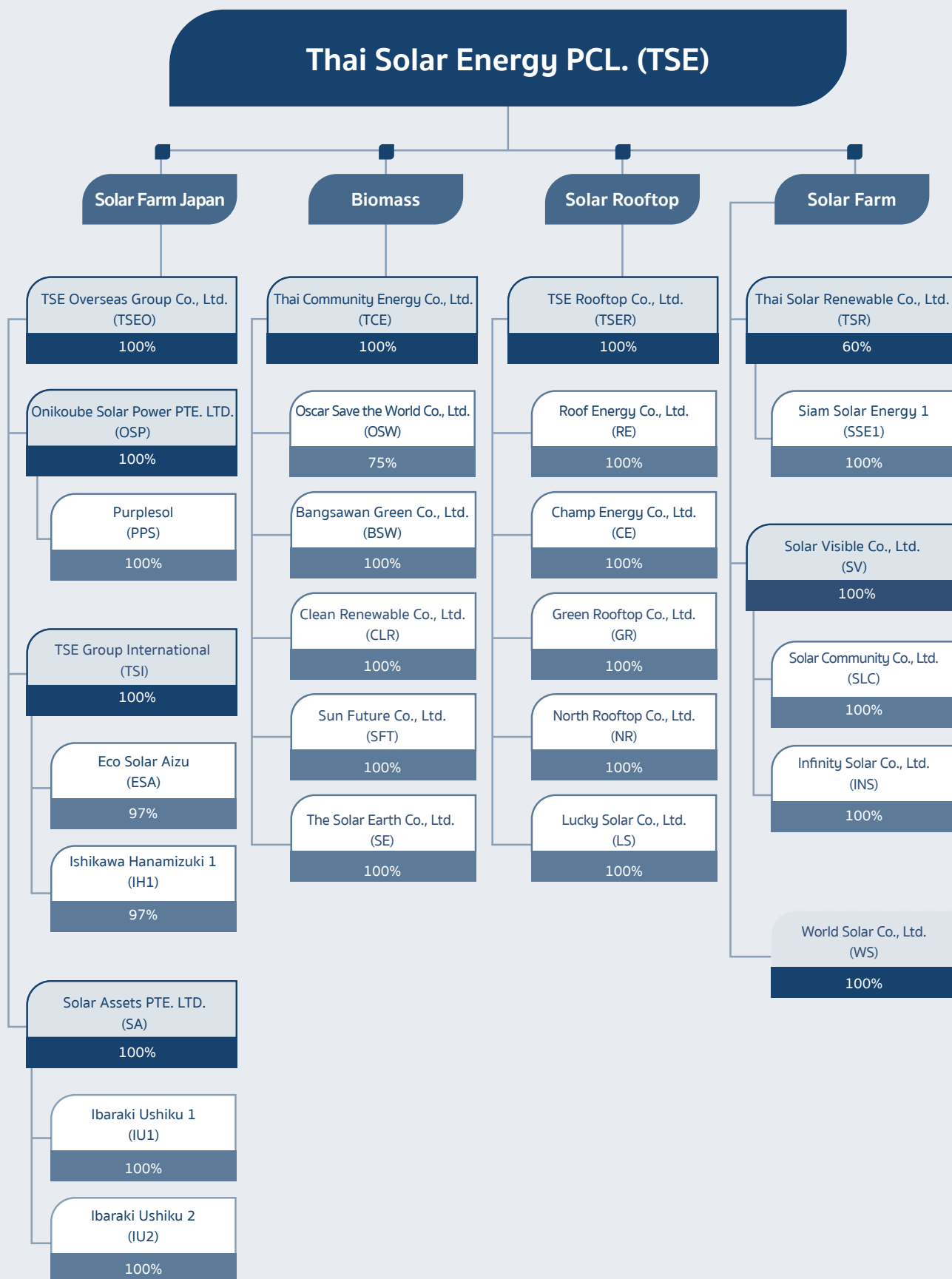
► None

**Relation among Family with other Directors  
and Executives**

► None



## Shareholding Structure



## Key Milestones and Development

The Company transformed into a public limited company under the name of Thai Solar Energy Public Company Limited on 18 February 2014 and is listed securities. Which started trading on the MAI on 30 October 2014, classified as medium-sized businesses Resource Industry Group, with the following significant changes and developments

### Year

### Milestones

2014

#### Transform and prepare to be a listed company

- On 30 October 2014, the ordinary shares of the company became listed securities and traded on the MAI market under the medium-sized business category Industry Group “Resources”

On 31 December 2014, the Company Group had 1 Solar Thermal at total selling capacity of 4.5 MW, 10 Solar PV at total selling capacity of 80 MW and 5 Solar Rooftop at total selling capacity of 5 MW that distributed electricity as Commercial Operation Date (COD) for the Provincial Electricity Authority at a total selling capacity of 89.5 MW

2015

#### Expansion of Business to Asian Region

- Established a subsidiary, the TSE Group International PTE., LTD. (TSI) and Solar Assets PTE., LTD. in Singapore to support the Group’s plan to expand business operation to other countries in Asian region. The Company holds 100% of shares in these companies.
- The company expanded the solar power plant business in Japan.

On 31 December 2015, the Company Group had 1 Solar Thermal at total selling capacity of 4.5 MW, 10 Solar PV at total selling capacity of 80 MW and 14 Solar Rooftop at total selling capacity of 14 MW that distributed electricity as Commercial Operation Date (COD) for the Provincial Electricity Authority at a total selling capacity of 98.5 MW

2016

#### Recognition of additional income

- The Group began to recognize additional incomes from a project in Japan whose power distribution on Commercial Operation Date (COD) of 4 projects have begun in succession. The total production was 5.24 MW.
- The Group had power distribution on Commercial Operation Date (COD) of 1 project, which are projects for government agencies and agricultural cooperatives in 2015, Bang Saphan District of Prachuap Khiri Khan province, totalling 1 MW.
- The Group has invested in 3 biomass power plant business projects with total selling capacity of 22.2 MW in Nakhon Si Thammarat and Surat Thani Provinces.

As of December 31, 2016, the Group has a total of 36 projects under its operation in Thailand and Japan that comprise 1 solar thermal project, 18 solar farm projects (11 in Thailand and 7 in Japan), 14 solar rooftop and 3 biomass power plants with a total selling capacity of 143.68 MW. Of these, 30 projects have distributed electricity commercially, including the selling capacity in Thailand and Japan at the total capacity of 104.74 MW.



## Year

## Milestones

2017

### Additional Expansion of Business Operation in Japan

- The Group recognized additional revenues from 1 more project in Japan. Total production capacity in Japan is now 6.99 MW.
- The Group made 1 additional investment in Onikoube project with production capacity of 154.98 MW.

As of December 31, 2017, the Group has a total of 37 projects under its operation in Thailand and Japan that comprise 1 solar thermal project, 19 solar farm projects (11 in Thailand and 8 in Japan), 14 solar rooftop and 3 biomass power plants with a total selling capacity of 298.42 MW. Of these, 31 projects have distributed electricity commercially, including the selling capacity in Thailand and Japan at the total capacity of 106.49 MW.

2018

### Recognition of additional income and Adjust the structure according to the main business operations by holding shares

- The Group began to recognize additional incomes from a project in Japan whose power distribution on Commercial Operation Date (COD) of 1 project have begun in succession. The total production was 1.25 MW including the selling capacity in Japan 6 projects at the total capacity of 8.24 MW.
- Thai Solar Energy Public Company Limited has received the honorary award of “Asia’s Best Performing Companies” at “ACES AWARDS 2018” (The Asia Corporate Excellence & Sustainability Awards) organized by MORS GROUP in Singapore.
- TSE has implemented restructuring according to the holding company operation to support the operations of the subsidiary by focusing on participation in order to participate in management. The Group has invested in solar power plant project in Ang Thong Province 1 Project, operated by Infinite Solar Co., Ltd., which has distributed electricity commercially since 2015 with total selling capacity of 2 MW

As of December 31, 2018, the Group has a total of 38 projects under its operation in Thailand and Japan that comprise 1 solar thermal project, 20 solar farm projects (12 in Thailand and 8 in Japan), 14 solar rooftop and 3 biomass power plants with a total selling capacity of 300.42 MW. Of these, 36 projects have distributed electricity commercially, including the selling capacity in Thailand and Japan at the total capacity of 131.94 MW.

2019

- As of January 2, 2019, Hanamizuki Project with production capacity of 13.50 MW. have distributed electricity commercially and make the company group began to recognize incomes from a project in Japan, 7 projects, this brings about a total of 37 Commercial Operation Date (COD) projects with a combined selling capacity in Thailand and Japan of 145.44 MW.

## Nature of Business

The Group operates 3 types of solar energy generation and distribution business: Solar Thermal power plant, Solar PV power plants and Biomass power plants.

### **1) Solar Thermal Power Plant Project**

The Company is the first in Southeast Asia to produce electricity using solar thermal technology. Its thermal power plants have generated electricity output and commercially distributed it to the Provincial Electricity Authority (PEA) at a total selling capacity of 4.5 MW.

### **2) Solar PV Power Plants Projects**

Group's PV power plants generate and sell electricity using photovoltaic systems which can be categorized as follows

#### **2.1 Solar PV Farm Projects**

##### Domestic

The Group has 12 solar farm PV power plant projects with a total selling capacity of 83 MW.

##### Overseas

The Group has 8 solar power plants in Japan with total selling production capacity of 176.72 MW. So far, 7 of the projects have already distributed electricity as Commercial Operation Date (COD) with the capacity of 21.74 MW.

#### **2.2 Solar Rooftop Project**

The Group has 14 Solar Commercial Rooftop projects, the highest number in Thailand with a total selling capacity of 14 MW, all of which has been commercially distributed as Commercial Operation Date (COD) to the PEA and MEA.

### **3) Biomass Power Plants Project**

The Group has invested in 3 biomass power plants through subsidiaries, i.e., Bang Sawan Green (BSW) in Surat Thani Provinces and Oscar Save the World (OSW) project 1 and project 2 in Nakhon Si Thammarat Provinces with total selling capacity of 22.2 MW. All three plants have been licensed to engage in biomass power plant business and have already entered into a contract to sell power supply to the Provincial Electricity Authority (PEA).

## **Commercial power distribution projects**

At the beginning of the year 2019 the Group had 38 projects with total selling capacity of 300.42 Megawatts (MW) operated both in Thailand and Japan. Divided into 30 projects in Thailand with a total capacity of 123.7 MW and 8 projects in Japan, with a total capacity of 176.72 megawatts, representing a total production capacity of 300.42 MW.

A total of 36 commercial power distribution projects are divided into 30 projects in Thailand, 7 projects in Japan, representing a total production capacity of 145.44 MW. Details are as follows:

Thailand				Japan			
types	Number	Capacity (MW)	COD	types	Number	Capacity (MW)	COD
Solar Thermal	1	4.5	2011	Solar Farm			
Solar Farm				Kuno	1	0.50	2015
SSE1	10	80.0	2014	Shima	1	1.25	2016
INS	1	2.0	2015	Hikeme	1	1.50	2016
Solar Farm (Co-Op)				Ryugasaki	1	1.75	2016
SLC	1	1.0	2016	Sakura	1	1.99	2017
Solar Rooftop				Jyoso	1	1.25	2018
CE	4	4.0	2015	Hanamizuki	1	13.50	2019
NR	3	3.0	2015	Onikoube	1	154.98	Pre-development
RE	3	3.0	2015				
GR	2	2.0	2015				
LS	2	2.0	2015				
Biomass							
BSW	1	4.6	2018				
OSW 1	1	8.8	2018				
OSW 2	1	8.8	2018				
Total	30	123.7		Total	8	176.72	

COD	30	123.7		COD	7	21.74	
				On progress	1	154.98	

**Projects in Thailand** A total of 30 projects for power supply to the commercial system, totaling 123.7 MW, can be divided into categories as follows:

## 1. Solar Thermal Operated by

### 1.1 Thai Solar Energy PLC. (or “TSE”)

Selling capacity of 4.5 MW, located at Huai Krachao district, Kanchanaburi and has linked the electrical system and commercial electricity (Commercial Operation Date: COD) in December 2011





## 2. Solar Farm Operated by

### 2.1 Siam Solar Energy 1 Co., Ltd. (or “SSE1”)

10 projects with a capacity of 8 MW for each project, totaling 80 MW

**PV 01** Location : Bo Phloi District, Kanchanaburi  
COD : September 2013



**PV 02** Location : Don Chedi District, Suphan Buri  
COD : July 2013



**PV 03** Location : Nong Ya Sai District, Suphanburi  
COD : October 2013



**PV 04** Location : Doem Bang Nang Buat District,  
Suphanburi  
COD : November 2013



**PV 05** Location : Doem Bang Nang Buat District,  
Suphanburi  
COD : November 2013



**PV 06** Location : Dan Makham Tia District,  
Kanchanaburi  
COD : June 2014



**PV 07** Location : Tha Muang District,  
Kanchanaburi  
COD : March 2014



**PV 08** Location : Phanom Tuan District,  
Kanchanaburi  
COD : June 2014



**PV 09** Location : U Thong District, Suphanburi  
COD : April 2014

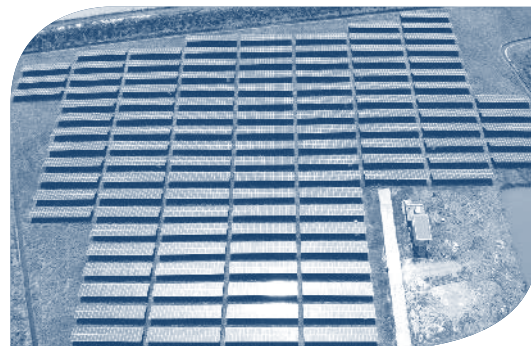


**PV 10** Location : Sam Chuk District, Suphanburi  
COD : May 2014



## 2.2 Infinity Solar Co., Ltd. (or “INS”)

Selling capacity of 2 MW, located at Wiset Chai Chan District, Ang Thong and has linked the electrical system and commercial electricity distribution (Commercial Operation Date: COD) in December 2015





### 3. Solar Farm (Co-Op) Operated by

#### 3.1 Solar Community Co., Ltd. (or “SLC”)

Selling capacity of 1 MW, located at Bang Saphan district, Prachuap Khiri Khan and has linked the electrical system and commercial electricity distribution (Commercial Operation Date: COD) in December 2015



### 4. Solar Rooftop Operated by

#### 4.1 Champ Energy Co., Ltd. (or “CE”)

4 projects with a capacity of 1 MW for each project, totaling 4 MW

**Homepro Chumphon**  
COD : September 2014



**Homepro Nakorn Sri Thammarat**  
COD : July 2015



**Homepro Surat thani**  
COD : December 2014



**Homepro Songklha**  
COD : October 2015





#### 4.2 North Rooftop Cp., Ltd. (or “NR”)

3 projects with a capacity of 1 MW for each project, totaling 3 MW

**Homepro** Lopburi

COD : September 2014



**Homepro** Phrae

COD : February 2015



**Homepro** Nakhon Sawan

COD : June 2015

#### 4.3 Roof Energy Co., Ltd. (or “RE”)

3 projects with a capacity of 1 MW for each project, totaling 3 MW

**The Mall** Thapra, Bangkok

COD : July 2015



**The Mall** Bangkapi, Bangkok

COD : July 2015



**The Mall** Ngamwongwan, Bangkok

COD : August 2015

#### 4.4 Green Rooftop Co., Ltd. (or “GR”)

2 projects with a capacity of 1 MW for each project, totaling 2 MW

**Homepro** Ubon Ratchathani  
COD : March 2015



**Homepro** Nakhon Ratchasima  
COD : November 2014



#### 4.5 Lucky Solar Co., Ltd. (or “LS”)

2 projects with a capacity of 1 MW for each project, totaling 2 MW

**Homepro** Ratchaphruek, Bangkok  
COD : November 2014



**Homepro** Ekamai-Raminthra, Bangkok  
COD : February 2015



### 5. Biomass Operated by

#### 5.1 Bangsawan Green Co., Ltd. (or “BSW”)

Selling capacity of 4.6 MW, located at Phrasaeng District, Surat Thani Province and has linked the electrical system and commercial electricity distribution (Commercial Operation Date: COD) in March 2018





## 5.2 Oscar Save the World Co., Ltd. (or “OSW”)

2 projects with a capacity of 8.8 MW for each project, a total of 17.6 MW, located at Chawang District, Nakhon Si Thammarat Province by Oscar Project 1 and Oscar Project 2 and has linked the electrical system and commercial electricity distribution (Commercial Operation Date: COD) in August 2018 and October 2018



**Projects in Japan** 8 projects, operated by TSE Overseas Group Co., Ltd. (or “TSEO”), divided into 7 projects that have electricity into the commercial system, total 21.74 MW and are in the process of 1 project 154.98 MW, with the following details

### 1. Kuno Project

Selling capacity of 0.5 MW, located at Ibaraki, Japan and has linked the electrical system and commercial electricity distribution (Commercial Operation Date: COD) in August 2015



### 2. Shima Project

Selling capacity of 1.25 MW, located at Toyama, Japan and has linked the electrical system and commercial electricity distribution (Commercial Operation Date: COD) in March 2016





### 3. Hikeme Project

Selling capacity of 1.50 MW, located at Fukui, Japan and has linked the electrical system and commercial electricity distribution (Commercial Operation Date: COD) in April 2016



### 4. Ryugasaki Project

Selling capacity of 1.75 MW, located at Ibaraki, Japan and has linked the electrical system and commercial electricity distribution (Commercial Operation Date: COD) in September 2016



### 5. Sakura Project

Selling capacity of 1.99 MW, located at Toyama, Japan and has linked the electrical system and commercial electricity distribution (Commercial Operation Date: COD) in November 2017



## 6. Jyoso Project

Selling capacity of 1.25 MW, located at Ibaraki, Japan and has linked the electrical system and commercial electricity distribution (Commercial Operation Date: COD) in May 2018



## 7. Hanamizuki Project

Selling capacity of 13.50 MW, located at Ishikawa, Japan and has linked the electrical system and commercial electricity distribution (Commercial Operation Date: COD) in January 2019



## 8. Onikoube Project

Selling capacity of 154.98 MW, located at Miyaki, Japan. Which is currently under development of the project



# Marketing and Competitiveness

## Competitive Strategy

Efficient management by a team that has expertise in engineering and a long experience in energy and electricity generating, including knowledge and skills in all areas of cost management such as construction cost, administrative cost, and financial costs etc.

1. Strict process of EPC Contractors selection. The selected EPC Contractors must be trustworthy and have internationally-accepted professional record to ensure that each power plant is able to produce enough electricity according to the supply contracts that the Group has entered with the MEA and the PEA.
2. The EPC Contractors, hired by the Group shall have a world-class team of experts with experience and expertise in the field of civil engineering and installation of solar power plants, including the technical consultant to help in the process of checking and evaluating the projects during the construction process. This is to ensure that the efficiency and consistency of the Group's electricity generation capability is in high level.
3. Focusing on quality control of electricity generation process in order to ensure maximum efficiency in generating and delivering electricity supply as agreed upon in the contracts.
4. Earning stable and consistent revenue from electricity generation.
5. Establishing business relationship with allies that have good reputation, stable financial status and expertise in energy and related businesses.
6. Acquiring support in the form of loans for the projects from financial institutions.

## Target Customers and Distribution Channels

### ● Domestic

The Group's solar power plant projects are categorized as very small power producer or VSPP that provides electricity supply to Metropolitan Electricity Authority (MEA) and the Provincial Electricity Authority (PEA) according to the contracts, totaling 29 projects. Therefore, the Group's distribution channels are the electricity connection points from each project to the supply stations and electricity system of the MEA and PEA. The amount of power supply, distributed to MEA and PEA is calculated from the electricity units, passing through the meter at the power distribution point of each project. The MEA and PEA then distribute the electricity to the general public.

### ● Overseas

The Group now has solar power plant projects in Japan that generate electricity supply for regional utility Group who oversees public utilities in each region in Japan according to the power supply contract. Therefore, the Group's distribution channels are the electricity connection points from each project to the supply stations and electricity system of each region. From there, the electricity supply is distributed to the general public.

## Products and Services

### 1. Contractors

- Domestic

#### Solar Thermal

The Group is the first one in Southeast Asia to use the Direct Steam CSP technology. This technology uses the steam from a parabolic trough as a thermal conductor instead of oil. Apart from being a cost saving renewable energy, water is safe and does not create pollution. However, it has an inferior quality relating to heat storage. For the beginning phase, the Group has hired a German Group to be the Engineering, Procurement and Construction(EPC) contractor.

#### Solar PV

When hiring EPC Contractors, the Group has a strict process in selecting the contractors in order to ensure that the Group's power plants can efficiently, safely and cost-effectively produce electricity. In addition, for large-scale projects, the Group has hired the OWL technical consultant to provide consultancy from the beginning process of hiring contractors to the completion of the construction. The consultant's duty is to check the scope of work, investing fund and other conditions in the contracts to ensure that they conform to each project's objective and are reasonable. The consultant also needs to ensure that the contractors delivered each project and performed their works according to the contracts. The Group also hired the EPC Contractor who has expertise in designing and construction.

#### Solar Rooftop

The Group procured essential supplies such as solar cells and power converters, etc., directly from suppliers by itself. The Group also hires sub-contractors with experience, skills and potential, appropriate for each location of the projects. Moreover, the Group hired a technical consultant, the Excellence Engineer International to provide the Group with consultancy on contractor's engineering construction design and quality control for the construction from the beginning until completion. This is to ensure that contractors deliver quality work according to the contracts.

#### Biomass Power Plant

The Group has a strict process of EPC Contractors selection to ensure that its power plants will be able to produce electricity efficiently, safely and cost-effectively. For the 3 biomass power plant projects to be implemented at the same time in the country, the Group has hired the Engineering Evolution, JERA Power (Thailand), and Tractable as technical consultants to provide consulting services that ranges from the process of hiring sub-contractors to the construction of the projects until the completion. This is to ensure that the scope of work, investment fund and conditions in the contract are in consistent with the objectives of each project and the project will be completed according to the time frame, specified in the contract. The Group also hired the EPC Contractor who has expertise in designing and construction.



- Overseas

#### Solar PV

For overseas projects, the Group has hired MottMacDonald and VectorCautro to provide the technical consults. The Group also has legal and business consultants to provide consults since the process of applying for license and hiring the contractor and an ally, Prospec Holding Inc., who has expertise and experience in construction of solar power plant.

## **2. Procurement of Raw Materials**

### **Solar Power Plant Projects**

Main raw material

#### Solar PV

The main raw material for power generation is the solar energy whose supply is unlimited, depending on geography and climate. For procurement of main equipment, the Group joins hands with its EPC contractors to select all main equipment used in the Group's power plant projects.

#### Solar Rooftop

As for Commercial Rooftop PV power plant projects, the Group procures the main equipment by itself by purchasing directly from manufacturers using experience gained from the construction of Solar Farm PV power plants.

#### Biomass

The main raw material for biomass power plant project is rubber wood slaps which are abundant in the South. In the case of a shortage in the supply of rubber wood slaps or an increase of their costs, the alternative raw material is the empty palm bunches which are also abundant in the southern regions. The price of rubber wood slaps is relative to the price of raw rubber latex. In the past few years, the price of raw rubber latex was low and thus, causing the price of rubber wood slaps to be low as well. Rubber planters would cut down the rubber trees when they provide lesser rubber latex which is when the trees are 20-25 years old. The price of rubber wood also varies according to the seasons. The price in summer would be relatively lower because it is easier for the planters to cut the tree and make delivery to the buyers than in rainy season. The important equipment, required for the power plant project was jointly selected by the group and the EPS Contractor.

## **3. Hiring of O&M Contractors**

### **Solar Power Plant Projects**

#### Solar PV

In order to ensure the smooth and integrated operations, the Group hired O&M contractors and EPC contractors for the power plants at the same time. For big projects, the EPC contractors are also acting as O&M contractors for that particular project which allows easier management for the projects because they will have the expertise with their own technology. The scope of work operations and the contractors' qualifications are defined in the TOR which is part of the EPC contract.

### Solar Rooftop

As for Commercial Rooftop PV Power Plants, the Group shall take responsibility in the operations and maintenance management by itself, using experienced employees who undergone training for the said management from the EPC contractors.

### Biomass

Since the production process of biomass project is much more complicated than the solar power project, the Group has, therefore, planned to contract out the management and maintenance works to a third party as a comprehensive package. The hiring will be made through a selection process whose detail has been included in the Term of Reference (TOR). The company to be selected must have expertise and experience in biomass project management.

### **Environment Impacts**

The Group complies with the standards related to the studies on preventive and correctional measures for environmental impacts called “Environmental Safety Assessment” or “ESA” which is a measure that plays an important role in environmental impact control. The study has to be strictly implemented before starting construction of the solar power plant projects. In addition, it has to be undertaken according to measures related to environmental impact mitigation and tracking together with examining environmental quality. The said performance needs to be reported to relevant departments regularly. The Group also operates its business based on ISO 9001:2015 and ISO 14001:2015 which are both international standards. As for the Solar thermal and Solar PV power plants, the Group has established regulations and best practices in relation to environmental concerns according to laws, appropriateness and accountability. These are to ensure that the Group’s solar energy productions are operated without creating pollution whether

## Risk Factors

Risk factors related to the Group's operation that may have a significant impact on the Group, and its risks prevention guidelines are as follows:

### **1. Risk related to business operation**

#### **1.1 Risk from the lower-than-expected electricity output**

Usually the electricity output of solar power plants may be affected by both external and internal factors. Significant internal factors include, for example, the efficiency and useful life span of equipment that ranges from solar collectors trough, solar modules, wind turbines, to transformers. Moreover, there are also the loss of output and the technical problems that could occur during the electricity generating process. The significant external factors include solar intensity, changes in climate, and natural disasters such as floods, storms and fire etc. These risk factors can cause the Group to be unable to generate electricity output that is less than expected and may pose a direct effect on the revenue and business performance of the Group and other operators in the industry.

Before commencing the construction of the solar PV power plant, the Group hired Owl Energy Limited ("OWL"), a technical consulting firm with extensive experience in solar power to conduct the feasibility study and to be a consultant for the process of selecting the EPC Contractor including the controlling and overseeing of the construction of the power plant to be in accordance with the construction drawings, time frame and agreement. In addition, the EPC Contractor provides an output performance guarantee to the Group for the period of 10 operating years and also provides warranty to major equipment to minimize this risk.

#### **1.2 Risk from reliance of on EPC Contractor**

In accordance with the construction of a power plant requires expertise both in technology. Construction experience Supply ability and operating personnel Which requires the work process to be coordinated to all parts. The company therefore hires a comprehensive contractor to be able to control the work efficiently. And allow the contractor to be flexible in achieving the goals

Thai Solar Energy Public Company Limited At present, the Group has an internal team that can handle basic repair and maintenance of the equipment. As for backup/replacement equipment, the Group is able to procure enough of them to maintain normal and uninterrupted operation.

The Group has put in place a stringent selection process for EPC Contractor and engages technical consultants with solar power plant experience to act as advisors in the selection and hiring of EPC contractor, including the monitoring and supervising of the construction of power plants to ensure that it is in accordance with the drawing plan and the agreement. In selecting the contractor, the Group initially focuses on each contractor's technical information such as qualifications (experience, expertise, technology know how, and financial status), efficiency and effectiveness of the equipment, warranty (electricity output and equipment), and services. After all of those factors have been considered, the Group, then, concentrates on pricing to ensure that it has hired a contractor of high quality at reasonable price.



### 1.3 Risk from changes in policy of the government or relevant agencies

If the government and government agencies have changed policies related to energy affairs of Thailand or Japan, including the terms and procedures Regarding the request for permission to buy or sell electricity or revise the conditions for purchasing electricity Such changes will affect the power purchase agreement of the Company. Which will affect the operating results and financial position.

The management team and the team with the knowledge, competence and experience have been following news about government policies and related agencies. Change in advance and use the information to create a business plan in the future. In addition, the company There is an internal meeting between the management. To analyze the operating policy always and can adjust business strategies and policies To be consistent with the situation of business and industry

### 1.4 Exchange Rate Risk

In accordance with our expanding in capacity overseas, there are revenue, loan, investment costs and expenses in a foreign rate as a result having the Group an exchange rate risk. In conclusion, the foreign rate from overseas investments could affect the Group performance.

The Group has a main policy to managed the exchange rate risk by financing loan the same foreign rate as its income to minimize the effect of the risk (Natural Hedge). The Company also uses financial instruments to reduce the risk of fluctuations in foreign exchange rates and interest rates. The exchange rate will be used to receive repayment in foreign currency. Financial instruments comprise cross currency swap and forward contracts which help to hedge the risk of both interest rates and foreign exchange rates.

## 2. Business management risks

### 2.1 Risk relating to major shareholders holding more than 50% of total paid-up shares

Group's major shareholder is Dr. Cathleen's group who collectively holds 978,271,650 shares or 51.34% of the total paid-up shares. Thus, this group of shareholders can control the majority of voting rights. As a result, other shareholders of the Group have the risk related to their inability to gather sufficient voting rights to maintain checks and balances with respect to agendas proposed by the major shareholder.

However, the Group has set up management structure that comprises personnel with knowledge and capability, a clear scope of roles and responsibilities, and assigned authorities to the board members and the management, based on clarity and transparency. Moreover, the Group has prescribed measures on transactions related to directors, major shareholders, parties with controlling power as well as parties with conflict of interest. These parties are not allowed to vote when it involves their interests. This is to ensure that the business operation of the Group is carried out transparently. In addition, the Group appoints 5 independent directors from a total of 9 directors to ensure checks and balances as well as effectiveness of the Group's management.

## Organization Chart



## Corporate Governance

The Group operates the business under ethical principles and legal compliance and standard and code of good practices that the Group has laid out as policies for the Board members, executives and employees to comply with according to the corporate good governance and code of good practice guidance. The Group also posts these policies on its web site: [www.thaisolarenergy.com](http://www.thaisolarenergy.com) under the topic: Investment Relation-Corporate Governance. Except for some of the principles that the Company has chosen, it is different from the SET's guidelines.

SET Guideline	The company' explanation
The Chairman of the Board should be an Independent director	Chairman of the Board is not an independent director <ul style="list-style-type: none"> <li>The Chairman of the Board is a visionary, experienced, Knowledgeable in business and can provide independent Opinions.</li> </ul>
The Chairman of the Board and the Chief Executive Officer should not be the same person	The Company has the same person who serves as the Chairman of the Board and the Chief Executive Officer <ul style="list-style-type: none"> <li>Under the Board structure, more than half of the Board members are independent directors and the company has set a clear scope of authority, duties and responsibilities of the Board members and the Chief Executive Officer. Moreover, the approval process and operation of business are in accordance with the rules and regulations on approval process, reviewed and approved by the Board of Directors</li> </ul>
The members of Nomination and Remuneration Committee should all be independent directors	The members of Nomination and Remuneration Committee are independent directors and members of Executive Director <ul style="list-style-type: none"> <li>The Chairman of the Nomination and Remuneration is an independent director who is able to provide independent opinion</li> </ul>

### Guidelines for the practice of the company

#### Rights of Shareholders

Putting the rights of shareholders as the first priority, the Group conducts the business to assure the shareholders that they can fully exercise the following basic rights. Every shareholder is entitled to the rights and equitable treatment detailed below

- Right to purchase, sell, or transfer stocks and to be sufficiently information
- The right to an equitable dividend
- Right to receive sufficient information via the Company website or SET website or other channels indicated by the Company
- The right to propose meeting agenda in advance so that it can be included in the meeting agenda and the right to nominate a person to be member of the board at the annual general meeting of the shareholders.

In order to comply with the aforementioned guidelines, the Company has determined the policies related to the rights of shareholders as follows.



## 1) The Rights of Shareholders

- The Company respects the rights of shareholders and refrains from any action that limits shareholders' rights i.e. the right to trade or transfer shares, the right to receive profit sharing of the Company, the right to receive adequate news, the right to attend shareholders' meeting in order for determining the direction of the Company's operations through the board of directors or the right to make decisions on any matter that has a significant impact on the Company i.e. the appointment or withdrawal of directors, the appointment of auditors, appropriation of dividends, formulation of or amendments to the Company's Articles of Association or Memorandum of Association, capital decrease or capital increase and approval of special transactions, etc.
- The Company will encourage shareholders to exercise their rights at an annual general meeting of shareholders i.e. the right to propose meeting agenda for the shareholders' meeting in advance prior to the meeting, the right to nominate persons to be selected as the Company's directors in advance, the right to submit questions in advance prior to the meeting, the right to express opinions and ask questions at the shareholders' meeting, etc.
- The Company will refrain from any action which shall be considered wrongful acts or restriction of rights or eviction of shareholders to access the Company's information to be disclosed in compliance with related laws, regulations, provisions and notifications of supervisory authorities. In addition, the Company will abstain from any action which shall be wrongful acts or limitation of rights or eviction of shareholders to attend the shareholders' meeting, e.g. the Company does not present additional important materials promptly or not provide additional agenda items or change vital information without prior notice to shareholders except in case of urgent necessity and being undertaken for the Company's benefit.
- The Company has a duty to support and facilitate shareholders to exercise their rights i.e. providing up-to-date important information through the Company's website, etc.

## 2) Information Disclosure on Shareholders' Meeting

- The Company has a policy to provide information about date, time and place, agenda items of the shareholders' meeting, the board of directors' opinions and supporting information used for consideration of each agenda item, as well as all information relating to matters for shareholders' consideration of votes at the shareholders' meeting through the Company's website in advance adequately and in due course.
- For every shareholders meeting, the Company has a policy to provide shareholders the opportunity to study information in advance prior to the meeting through the Company's website. Such information shall be the same as materials submitted to the shareholders.
- Upon the end of the shareholders' meeting, "the minutes of the shareholders' meeting" shall be prepared accordingly with all information included details of each agenda items, resolutions, votes, questions and opinions of shareholders. Such minutes shall be publicized on the Company's website and submitted to the Stock Exchange of Thailand within 14 days from the meeting date pursuant to the notifications of the Office of Securities and Exchange Commission and the Stock Exchange of Thailand, whereas such minutes shall be delivered to the Department of Business Development as specified by laws.
- The Company promotes the exercise of shareholders' rights and abstains from restriction of their rights by disclosing information through the Company's website in advance.
- The Company provides shareholders the opportunity to regularly receive the Company's up-to-date news and information through the Company's website in advance.

## 3) Conduct of Meeting

- The Company has a policy to support and facilitate shareholders to fully exercise their rights to attend the shareholders' meeting and votes at the meeting.

- The Company will provide shareholders guidance and methods for attending the meeting in the notice of the shareholders' meeting. At the meeting, a moderator will again inform such guidance and voting procedures to shareholders. Furthermore, the guidance and voting procedures shall be contained in the minutes of each shareholders meeting.
- The Company will provide shareholders the opportunity to ask questions about the agenda items or relating to the Company and to express their opinions to the shareholders' meeting according to agenda items and proposed matters. The chairman of the meeting will be responsible for inquiring the meeting in each agenda item and ensuring all questions pertaining to agenda items or the Company and shareholders' opinions, as well as the board of directors and/or executives' clarifications to be noted in the minutes of each shareholders' meeting.
- The Company encourages all directors and executives of the Company to attend the shareholders' meeting in order to answer questions and listen to shareholders' opinions unless the Company's directors and executives are engaged.

### **Equitable Treatment of Shareholders**

The Company shall equally and fairly treat all shareholders, including managerial, non-managerial, foreign and individual shareholders under the following principles:

- 1) The Company shall arrange to timely provide the information on date, time, venue and agenda of shareholders' meetings, opinions of the board and detail to support the review of each agenda, including all of the information related to the businesses that the shareholders must review and make a decision in the shareholders' meeting in the Company's website in advance with adequate preparation time. The information is the same as the documents sent to the shareholders who are entitled to attend the meeting and vote.
- 2) The Company shall grant the shareholders the right to propose agenda for the shareholders' meeting in advance of the meeting and to nominate a person to be selected as member of the Board and to submit any question to be responded by the meeting through the Company's website before the meeting.
- 3) The Company shall conduct the meeting according to the agenda, provided in the letter of invitation. The member of management team who are also the shareholders may not propose any unnecessary additional business to the meeting, especially the type of business that requires the shareholders to spend a lot of time to review it before making a decision.
- 4) Company shall facilitate small shareholders who want to nominate member of the Board of Directors by setting up a convenient channel to submit the nominee's background or letter of consent to the Selection and Remuneration Committee, according to the rules and procedures and steps, prescribed by the Company.
- 5) The company will encourage shareholders to use proxy forms in the form that shareholders can determine the direction of voting, agree, disagree and abstain. By appointing proxy forms A, B and C (proxy forms only for custodian) to shareholders
- 6) Company shall facilitate the shareholders who cannot attend the shareholders meeting in person but want to cast the vote through a proxy. For this purpose, Company shall have at least 1 independent director available as proxy to attend the meeting and cast the vote on behalf of the shareholder.
- 7) Company shall require that the voting on all agenda shall use the ballot and shall notify the meeting of how the ballots would be collected, especially on an important agenda such as the appointment of individual
- 8) The company has a policy to encourage shareholders to exercise the right to appoint directors of the company on an individual basis.

## The shareholder's Meeting

The company's board convenes the ordinary shareholders' annual general meeting once within 4 months after the end of the accounting period and may call an extraordinary shareholders' meeting if it is necessary to propose urgent agenda on a special case basis. Such agenda must be one that affects the shareholders' interest or related to legal enforcement.

The Chairman of the Board, executives and auditor shall be present at the meeting to provide information and responses to inquiries related to the agenda. Before the meeting, the company shall inform the shareholders of their rights according to the company's Articles of Association, meeting procedures, voting method and the rights to express opinions or to raise questions in the meeting according to the agenda and proposed businesses.

After the meeting, the Group shall complete the minutes of the shareholders meeting within 14 days. The minutes shall include adequate information, including the questions and answers during the meeting. The shareholders who did not attend the meeting may read the minutes from the company's web site.

## Roles of Stakeholders

The Group realizes the importance roles of stakeholder and equally treats all stakeholders including internal stakeholders such as employees, and external stakeholders such as customers, trading partners, creditors, competitors and the public. The group establishes policies and guidelines for dealing with each group of stakeholders as part of its corporate governance policy and ethics. The details are as follow;

- **Shareholders**

The Group shall equally treat all shareholders and shall provide related information that significantly benefits the shareholders. Moreover, the Group also realizes the importance of the shareholders' benefits and be responsible for them by operating the business with integrity, transparency and fairness.

- **Employees**

In realizing that the employees are the key factor that drives target achievement, the Company formulates the policies to fairly treat the employees in many aspects, including opportunity, remuneration, appointment, transfer, and capacity development. The Company offers the compensation, based on a fair and measurable assessment of performance under the regulations, prescribed by the Company. The remuneration and benefits of employees are examined and reviewed to ensure that they are in line with the industry's standard. The Company also promotes and develops its employees to be knowledgeable and capable on a regular basis by sending them to attend training in related work units.

The Group announces policies on remuneration and welfare in the working rules and regulations, including the provision of additional welfare during the year.

- **Customers**

The Group adheres to the principles of good faith, credibility and mutual trust, focuses on the problems and needs of the customers, be responsible and cares for their maximum satisfaction and emphasizes a long-term relationship and cooperation with the customers.

- **Creditors**

The Group shall make an utmost effort to honor all the conditions that it has agreed with the creditors, based on good faith and strict compliance to contractual obligations. It also follows up on the related financial ratio in order to protect mutual benefits and success. In a case that the Group is unable to comply with any of the obligations, it shall inform the creditor in advance in order to jointly find a solution.

- **Business Partners**

The Group treats business partner in good faith and equal manner in order to ensure appropriate and fair business transaction, sustainable development and long-term partnership. The selection of our partner is based on



conditions such as pricing, quality, environmental protection and prevention, technical and legal expertise, trust-worthiness, adherence on correctness and not detrimental to our company's reputation.

- **Business Competitors**

The Company treats the competitors under fair rules and refrains from violating secret or dishonestly or improperly seeking competitors' confidential information or slandering them.

- **Communities and Society**

The Company and employees adhere to the principle of conducting the business responsibly and for the benefits the society and communities. The Company also has the duty to cordially treat and support the local communities to improve their quality of life as well as to be responsible for a fair and equitable operation of its business. Moreover, the Company also uses green technology to promote sustainable development.

- **Related Government Agencies**

It is the Company's duty to comply with the related and enacted law and regulations and to support activities of the government agencies on appropriate occasions. The Company also adheres to conducting the business that is fair and in compliant with the related laws, rules, regulations and notifications in countries where the Company operates the business.

## **Disclosure and transparency**

The Company has a policy to fully, accurately, promptly and transparently disclose the related and important information, either financial or non-financial information, and other information that may affect the stock prices or the investor's or stakeholders' decision in compliance with the standard of The Stock Exchange of Thailand or the Security and Exchange Commission. Therefore, all parties will equally receive the information through various channels, such as the report to The Stock Exchange of Thailand or the Security and Exchange Commission and the Company's website. The Company also has the investor relations officers to communicate with the investors or shareholders, including institutional and individual investors.

The Company has the policy to prevent and eliminate any potential conflicts of interest that may occur in the future and to review the connected transactions between the Company and/or subsidiaries and any potential conflicting individuals to ensure compliance with related laws, regulations and declarations.

In a case that board members, executives and/or major shareholders of the Group in a manner that may cause a conflict of interest with the Group and/or its subsidiaries, it must be reported to the Board.

The Group has a policy to restrain board members, executives and/or major shareholders from engaging in similar or competing business that may affect the competitiveness of the Group.

In a case that the board member, executive and/or major shareholder holds shares in other company whose business is similar to that of the Group or its subsidiaries, it must be reported to the audit committee to provide opinions and propose the case for a review by the Board.

## **Communication with Shareholders or Investors.**

The company has provided channels for receiving complaints and / or comment and add a channel for email to senior executives directly at [info@thaisolarenergy.com](mailto:info@thaisolarenergy.com) The company has specified the protection of the complainant / comment. by not disclosing information of the complainant and will keep various information confidential. The Investor Relations unit will act as a summary of such complaints and present to the senior management.

## **Responsibilities of the Board**

The Board of Directors is responsible for the shareholders by conducting and supervising the operation of the business to ensure that it is in compliance with the objectives, and guideline to maximize the benefits for the

shareholders, by taking into account the benefits of all stakeholders, including compliance with the laws, objectives, articles of association of the Company and resolution of the shareholders meeting in good faith. The Board shall also protect the short-term and long-term interest of the stakeholders.

## Board of Directors

As of February 28, 2019, Board of Directors consisted of the following 9 directors:

Name	Surname	Position	Date First Appointed
Cathleen	Maleenont, Ed.D.	Chairman of the Board Member of Nomination and Remuneration Committee	18 February 2014
Mr. Prommin	Lertsuridej	Vice Chairman of the Board Independent Director	18 February 2014
Mr. Pala	Sookawesh	Independent Director	18 February 2014
Mrs. Siripen	Sitasuwan	Independent Director Chairman of the Audit Committee	18 February 2014
Mr. Prasan	Chuaphanich	Independent Director Member of the Audit Committee Chairman of Nomination and Remuneration Committee	18 February 2014
Mr. Boonchoo	Direksathapon	Independent Director Member of the Audit Committee	18 February 2014
Mr. Somphop	Prompanapitak	Director Member of Nomination and Remuneration Committee	18 February 2014
Mr. Masthawin	Charnvirakul	Director	27 February 2019
<i>To replace Mr. Anutin Charnvirakul resigned on 25 January 2019</i>			
Mrs. Angkanee	Rerksirisuk	Director	23 May 2017

## Authorized Signatories

Cathleen Maleenont, Ed.D. and Mr. Somphop Prompanapitak or Mrs. Angkanee Rerksirisuk have been designated as the Company's authorized signatories.

## The roles and responsibilities of the Board

### Board Authority

Authority of the Board shall comply with specified laws, objectives and articles of association as well as the shareholders meeting's resolution. The Board authority shall also include:

1. Appointing a chief executive officer, the Board Committees and a company secretary, whereas determining the Board Committees' remuneration (not exceeding the total amount approved by shareholders).
2. Considering and approving actions taken by the Company and its subsidiaries in accordance with the Company's Articles of Association of each company that cover the following matters:
  - 2.1 Vision, mission, policy and strategic plan
  - 2.2 Annual business plan

- 2.3 Annual budget plan
- 2.4 Quarterly and yearly financial statements
- 2.5 Interim dividend payment
- 2.6 Significant acquisition, disposition / transfer or suppression of assets or any business of the Company
- 2.7 Changes in any Board authority which assign other persons to act
- 3. Considering authorizing a sub-committee to perform some matters occasionally
- 4. Ensuring that the Company and its subsidiaries have proper and efficient accounting systems and provide reliable financial reports and auditing, adequate and suitable internal control and audit system.

## **Duties and Responsibilities**

The Board's duties and responsibilities shall comply with specified laws, memorandum of association, articles of association and the shareholders meeting's resolution, including the following actions:

1. Define vision, mission, policy, strategy and financial goals of the Company and consider and approve policies and operational directions proposed by the management. Oversee and control the management to perform in accordance with vision, mission, policy, strategy and financial goals with the aim of increasing an economic value to the shareholders and all related stakeholders.
2. Set up the Company's structure and procedures to ensure compliance with those procedures, articles of association, the Board's resolution, the shareholders' resolution with honesty and caution.
3. Set up the Company's structure and procedures to ensure proper risk management, compliance and audit and internal control systems.
4. Oversee to ensure preparation of accounting and keeping accounting and related documents as well as proper information disclosure to the shareholders and general public.
5. Oversee to ensure that the Company shall comply with ethics as specified by the Board and define the Company's policy on good corporate governance and social responsibility.
6. Have the authority to appoint persons to be directors or executives of subsidiaries according to a proportion of shareholding in subsidiaries, at least. Clearly determine a scope of duties and responsibilities of appointed directors and executives. Control management to comply with the Company's policy and various transactions made correctly in accordance with laws, and disclose financial positions, operating results, related party transactions and significant acquisition and disposition of assets completely and accurately.

However, the delegation of authority and responsibilities shall not be made in the manner that the Board or other persons delegated or sub-delegated by the Board enable to approve transactions, which they or others may have stake in, or receive benefit, or have conflicts of interest (as defined in the notifications of the Securities and Exchange Commission ("SEC") or the Capital Market Supervisory Board) with the Company or subsidiaries, except for approval of transactions according to the policy and criteria approved by the shareholders meeting or the Board.

## **Composition of the Board**

The Board consists of the number of directors determined by the shareholders meeting, but not less than five people. In addition, at least three Board members or one-third of the total number of directors (whichever it is higher) shall be independent directors.

## **Qualifications**

1. All directors must have qualifications and possess no prohibited characteristics under the Public Limited Company Act. and the Securities and Exchange Commission Act. and have qualifications as prescribed in the Company's Articles of Association.



2. Having knowledge of the Company's businesses, devoting the sufficient time and using knowledge and ability to perform duties for the Company's benefits.
3. Directors shall be able to hold directorship in other companies listed in the Stock Exchange of Thailand ("SET"), but it shall not obstruct performing duties of the Company's director. Every director must not hold directorship of more than five listed companies. In the case that any director is necessary to hold directorship over the specified number, the Board shall be able to consider and approve on a case-by-case basis along with clarification of reasons and necessity and performances of such director in the checklist form (Form 56-1) and the annual report (Form 56-2) of the Company for the shareholders' acknowledgement.
4. Having qualifications as specified in the SET Notification and the Office of the Securities and Exchange Commission's Notification and notifications to be amended in the future.
  - The Company has determined the scope of authority and duties of the Board of Directors And the Chief Executive Officer clearly
  - The company requires the directors and top executives of the company Has a duty to report information on being a director, an executive, a controlling person in a limited company or other public company Being a managing partner in an ordinary partnership Or being a limited liability partner in a limited partnership for the company to know in accordance with the criteria and methods set by the board of directors
  - Each director is able to perform duties and use independent discretion in making decisions on various matters. Can ask questions Comment Or objecting in the event of a conflict of interest that affects the interests of shareholders or stakeholders Without being under the influence of any group of people
  - The company has a policy to appoint a company secretary. To perform various functions As required by law And perform other duties as assigned by the Board of Directors

## Election of Directors

1. The Board shall select a qualified person pursuant to related procedures and laws as the Company's director replacing a vacant director seat, then propose such a nominated person for the shareholders' election.
2. Voting of shareholders for election of directors is as follows:
  - 2.1 Each shareholder shall have one vote for each share he/she holds.
  - 2.2 In the event that nominated persons to be directors exceed a required number of directors at that time, vote for each director individually shall be applied. Thus, in voting, each nominated person shall receive votes equal to the number of shares held by each shareholder. Such shareholder cannot allot his/her votes to each unequally. The persons receiving the highest votes in their respective order of the votes shall be eligible as directors at the number equal to the number of directors required at that time. In case of an equality of votes among the persons elected in order of respective high numbers of votes, which number exceeds the required number of directors of the Company at that time, the chairman of the meeting shall be entitled to a casting vote.

## Board Tenure

At every annual ordinary meeting of shareholders, one-third of directors shall vacate office. If the number of directors cannot be divided exactly into three parts, directors in a number closest to one-third shall vacate office. However, directors vacating office may be re-elected. Except for independent directors, each of them shall hold a position of not more than nine consecutive years. In case for the existence of reasons and necessity and maximum benefits of the Company, the Board shall be able to consider extending term lengths for the independent director on an individual basis by proposing reasons and necessity for the shareholders meeting's approval.

The selection of new director must be screened and approved by the Nomination and Remuneration Committee.

#### ***The Reappointment of Retiring Board Member***

The Nomination and Remuneration Committee shall consider many factors such as experience, expertise, time to devote to the duty, meeting attendance, etc. In the General Shareholders Meeting in 2018, Mr. Pala Sookawesh, Mr. Prasan Chuaphanichand and Mr. Somphop Prompanapitakwere reappointed to the serve one more term according to the opinions and reviewing process of the Nomination and Remuneration Committee.

#### ***The Board Meetings***

The Company sets the rules and regulations for the Board meetings as follows:

1. At a meeting of the Board, the presence of not less than one half of the total number of directors is required to constitute a quorum.
2. The Board meetings shall be held at least four times in a year and at least once every three months. Directors must thus attend every Board meeting and an annual general meeting of shareholders, except in case of necessity.
3. The materials for the Board meeting shall be submitted to directors at least five days in advance prior to the meeting so that the directors have the sufficient time to study information, except in case of urgency.
4. The decisions at the meeting shall be by a majority of votes. Each director shall have one vote. In case of an equality of votes, the chairman of the meeting shall give a casting vote.

#### ***The reserve key matters for the Board***

- Annual Business Plan and Investment
- Review the Company's investment project
- The spending of management spending budget
- Entering into important contract that contain general trading conditions.
- Borrowing and guarantee agreement with the bank
- Organizational structure and appointment of Chief Executive Officer and senior management
- Dividend and interim dividend payment

#### ***Enhancing the Directors' knowledge and business outlook***

The Board focuses its endeavour on enhancing the directors' knowledge. Each director shall have a chance to attend training courses, hosted by various agencies to increase the knowledge and expand point of view.

#### ***Board's self-evaluation***

The Company shall arrange self- evaluation for the Board members every year in order to allow them to evaluate their performance in the past year and to find a way to improve their efficiency for the following years.

#### ***Business Ethics***

The Board of Directors operates the business under ethical principle and complies with standard laws and code of good practice as follows;

1. Operate the business by adhering to the principle of good faith, transparency and equity under the law, rules and regulations related to the business operation.
2. Perform duties with knowledge, skills, determination and cautiousness and strive to improve knowledge and fully apply the knowledge and skills to the management.
3. Disclose data and information completely, correctly and transparently according to the law, rules and regulations of corporate governance.

4. Treat the stakeholders such as shareholders, customers, competitors, partners, creditors, employees and the general public fairly and equally and correctly and completely disclose information to related parties.
5. Respect and adhere to the practices under the basic principle of human right and dignity without depriving or discriminating against the right of any individual.
6. Arrange to set up adequate and proper internal control system and develop a clear and effective system and mechanism for auditing, controlling and balancing the use of authority.
7. Adhere to business practices that are in compliance with the laws related to safety and health in the work place.
8. Promote and support activities that are beneficial to society, culture and tradition.
9. Set the rules to ensure that all employees have the duties and responsibilities to comply with the working rules and regulations of the Company and related laws.

\* The company discloses detail on Business Ethics in the website: [www.thaisolarenergy.com](http://www.thaisolarenergy.com) under the topic of “Investors Relations-Corporate Good Governance”.

### Meeting Attendance

In 2018, the Board of Directors held 10 meetings.

Name	Surname	AGM 2017	BOD Meeting
1. Cathleen	Maleenont, Ed.D.	attend	10/10
2. Mr. Prommin	Lertsuridej	attend	7/10
3. Mr. Pala	Sookawesh	attend	9/10
4. Mrs. Siripen	Sitasuwan	attend	8/10
5. Mr. Prasan	Chuaphanich	absent	9/10
6. Mr. Boonchoo	Direksathapon	attend	10/10
7. Mr. Somphop	Prompanapitak	attend	10/10
8. Mr. Anutin	Charnvirakul	attend	4/10
9. Mrs. Angkanee	Rerksirisuk	attend	9/10

### The Audit Committee

Review the Group’s financial reporting, the Group’s internal control system, risk management system, compliance, select a person to be the Group’s auditor, the connected transactions or the transactions that are required in the laws and regulations of the stock exchange or capital market in order to ensure that the disclosure of information by the Group and the report, prepared by the Audit Committee is correct and transparent.

As of 31 December 2018, the Audit Committee consists of 3 directors as follows:

Name	Surname	Position	Meeting Attended
1. Mrs. Siripen	Sitasuwan	Chairman of the Audit Committee Independent Director	5/5
2. Mr. Prasan	Chuaphanich	Member of the Audit Committee Independent Director	5/5
3. Mr. Boonchoo	Direksathapon	Member of the Audit Committee	5/5



Ms. Nittaya Tuaksa as Secretary of Audit Committee Appointed on August 2018

All three members of Audit Committee possess sufficient accounting and financial knowledge and experience to review the accuracy of the Company's financial statement.

1. Mrs. Siripen Sitasuwan is currently a Chairman of Audit Committee and Independent Director for other leading companies in Thailand and overseas. She received the Best CFO Award in 2002 from the Asia Best CFO survey conducted by Finance Asia magazine.
2. Mr. Prasan Chuapanich is currently the President of the Federation of Accounting Professions. He also serves as a member of Audit Committee and Independent Director for leading listed companies. He holds many key positions in various organizations in insurance business, education sector and associations. In addition, he used to serve as an Executive Chairman of Price Waterhouse Coopers, Thailand and Co-Executive Chairman of Price Waterhouse Coopers, Southeast Asia Peninsula Region.
3. Mr. Boonchoo Direksatapon has experience in auditing financial report. He is a CPA (Certified Public Accountant) in England and used to hold key position in accounting and finance departments of power generating business, e.g., Deputy Director of Accounting Department, Deputy Governor of Accounting and Finance Department of Electricity Generating Authority of Thailand. In addition, he used to serve as director, member of audit committee and independent director for many leading listed companies in Thailand.

### **Scope of authority, duties and responsibilities of the Audit Committee**

1. Review the financial reporting and ensure that it is accurate and adequate.
2. Review the internal control system, internal audit system and enterprise risk to ensure that they are suitable and effective. Ensure the independence of internal audit unit as well as to approve the appointment, transfer and dismissal of the chief of an internal audit unit or any other units in charge of an internal audit
3. Review the Company's compliance with the securities and exchange law, the regulations of the Stock Exchange of Thailand, and laws relating to the Company's business
4. Consider, select, and nominate an independent person to be the auditor, and to propose remuneration for the auditor.
5. Review the connected transactions or the transactions that may cause conflicts of interest to ensure that they are in compliance with the laws and regulations of the Stock Exchange of Thailand and that the transactions are reasonable and for the utmost benefit.
6. Perform other action, assigned by the Board of Directors with the consent of the Audit Committee.
7. In performing the duty, if it is found or suspected that the following transaction or action have been made and may pose significant impact on the financial and operational standing of the Group, the Audit Committee shall report to the Board of Directors to improve or make correction within a time frame, deemed appropriate by the Audit Committee.
  - (1) Transactions that may cause conflict of interest
  - (2) Corruption or irregularity or key weaknesses in the internal control
  - (3) Breach of the regulations of the securities and exchange law and regulations of the Stock Exchange of Thailand or other regulations related to its business operation

If the Board of Directors or management does not improve or rectify the situations within the above-specified period, one of the Audit Committee's members may report the matters to the Securities and Exchange Commission or the Stock Exchange of Thailand. In performing duties, the Audit Committee may seek advice from independent advisor or specialist of other professions as deemed appropriate under the expense of the Group and will be used as an input for the Audit Committee to make decision.

## Nomination and Remuneration Committee

Consider and select a qualified person to be nominated as a new member of the Board or chief of staff, based on the selection criteria or methods that are appropriate and transparent to the board meeting or the shareholders meeting for approval. The committee also has a duty to review the direction and set the remuneration for members of the Board and chief executive officer, based on remuneration criteria and methods that are just, reasonable and approved by the board or shareholders meeting.

As of December 31, 2018, the Nomination and Remuneration Committee consisted of 3 members as follows:

Name	Surname	Position	Meeting Attended
1. Mr. Prasan	Chupanich	Chairman of Nomination and Remuneration Committee and Independent Director	2/2
2. Cathleen	Maleenont, Ed.D.	Member of Nomination and Remuneration Committee	2/2
3. Mr. Somphop	Prompanapitak	Member of Nomination and Remuneration Committee	2/2

Ms. Wannaporn Srinives as Secretary of Nomination and Remuneration Committee Appointed on March 2018

## Scope of authority, duties and responsibilities of the Nomination and Remuneration Committee

### 1.1 Selection

- 1.1.1 Consider the organization structure, qualifications of directors, chief executive officer and members of sub-committees appropriate to the Company's business.
- 1.1.2 Determine reliable and transparent criteria or methods for a selection and nomination of qualified persons to be new directors or chief executive officer of the Company and proposed for the Board of Directors and/or the shareholders meeting's further approval.

### 1.2 Remuneration

- 1.2.1 Consider a guideline on determination of remuneration and other benefits both cash and noncash to the Board of Directors, Executive Committee and Chief Executive Officer by setting up fair and reasonable criteria or methods for remuneration payments in accordance with operating results of the Company and other companies in the same industry and proposed for the Board of Directors and/or the shareholders meeting's approval.
- 1.2.2 Consider and approve the Company and its subsidiaries' overall annual remuneration policy.
- 1.2.3 Consider and approve the determination of rewards, salary increase, remuneration and special bonus other than annual bonus to the Company's top executives.

### 1.3 Others

Perform other tasks, as assigned by the Board of Directors, which are relevant to a selection and consideration of remuneration of the directors, executive committee and the chief executive officer of the Company.

## The Executive Committee

Oversee the management and day-to-day business operation for the benefit of the Group and to ensure that they are in line with the policies, vision, mission, objectives, business plan, business strategies and budget agreed and approved by Board of Directors. In addition, Executive Committee is in charge of screening all the businesses before proposing them to Board of Directors for approval or consent.

As of December 31, 2018, the Executive Committee consisted of 3 directors as follows:

Name	Surname	Position	Meetings Attended
1. Cathleen	Maleenont, Ed.D.	Chairman of The Executive Committee	15/15
2. Mr. Somphop	Prompanapitak	Member of Executive Committee	15/15
3. Mr. Kitiphong	Thunnom	Member of Executive Committee	12/15

Ms. Nottaporn Thiengprathes as Secretary of Executive Committee

### Scope of authority, duties and responsibilities of Executive Committee

1. Oversee the management and day-to-day business operation for the benefit of the Company and to ensure that they are in line with the policies, vision, mission, objectives, business plan, business strategies and budget agreed and approved by Board of Directors. In addition, Executive Committee is in charge of screening all the businesses before proposing them to Board of Directors for approval or consent
2. Oversee to ensure that there is internal control system and appropriate and careful risk control and management system which align with recommendations of Audit Committee.
3. Review business plan, budget, annual expenditure, investment plan, and corporate social responsibility (CSR) plan of the Group to be in line with the laid out policies and strategies and propose to Board of Directors for approval
4. Review the Company's operating performance summary report and present it to Board of Directors quarterly
5. Employ, appoint, transfer or dismiss top executive management
6. Determine overall annual remuneration policy of the Group in order to propose to Nomination and Remuneration Committee for approval
7. Determine reward, salary adjustment, remuneration and special bonus other than annual bonus for top executive management level in order to propose to Nomination and Remuneration Committee for approval
8. Negotiate and enter into the contract and/or any transactions, which are regarded as the normal business operation, within the budget limit per transaction and per year as authorized by the Board of Directors
9. Approve loan/ loan between Group and subsidiaries within credit limit per transaction and per year as authorized by Board of Directors
10. Approve the entering into loan contract between the Company and any commercial banks within credit limit per transaction and per year as authorized by Board of Directors
11. Order, issue rules, criteria, notification and internal memorandum concerning business operation to ensure that it is in line with the Company's policies and to the benefit as well as to maintain the well-regarded rules of the organization
12. The meeting of the Executive Committee to consider any operations under the scope of power, as prescribed in this order must consist of at least half of the Executive members to be considered as a quorum that can undertake any aforesaid businesses.
13. In casting the voting at Executive Committee meeting, each director has the right to give 1 vote. If the number of votes is equal, the Chairman of Executive Committee will exercise the right to give 1 vote and that will determine the final result.
14. Any resolution of Executive Committee requires a supporting vote of at least half of all the eligible voters in that particular meeting.

15. An Executive Committee Meeting should be called only when needed and deemed appropriate. Any of directors may call for special meeting other than regular one provided that he informs the agenda of the meeting well in advance to allow enough time for other directors to review the agenda
16. Executive Committee may appoint a working committee and/or any individuals to take charge of screening matters to be presented to Executive Committee or undertaking any tasks beneficial to the working of Executive Committee or to act on behalf as delegated by Executive Committee under its scope of authority and duties
17. Perform other tasks, assigned and authorized by Board of Directors
18. Issue sub-power of attorney and/or authorize other individual to undertake the tasks on behalf of Executive Committee. Such sub-power of attorney and/or authorization must be under the scope authority, stated in the Group's power of attorney and/ or regulations, rules or resolution of Board of Directors.

However, such authorization under the scope of authority of the Executive Committee must not be a granting of sub-power of attorney to any director or attorney who may have conflict of interest with the Group in any forms to approve the transactions. In such case, the Executive Committee shall not have the authority to approve the transactions. Instead, the committee needs to propose the transactions to Board of Directors meeting and /or shareholders meeting to evaluate and give consent except if that transaction is regarded as normal businesses of the Company and have the same criteria as when dealing with outside parties (arm's length transactions)

## Management Team

As of December 31, 2018, The Company has 4 executives according to the definition of the “management” of the Office of the Securities as follows:

Name	Surname	Position
1. Cathleen	Maleenont, Ed.D.	Chief Executive Officer
2. Mr. Somphop	Prompanapitak	Chief Operating Officer
3. Mr. Kitiphong	Thunnom	Chief Technical Officer
4. Mr. Nivej	Boonwichai	Vice President Engineering and Construction

## Scope of authority, duties and responsibilities of Chief Executive Officer

1. Manage overall business, finance, marketing, human resources and other operations in pursuance to the policies and business plan as agreed and authorized by Executive Committee and/or Board of Directors
2. Consider to set up a working committee to assist in business operation or problem solving in pursuance to the policies of the Company
3. Approve all the expenses incurred in the plans which have been approved by Board of Directors and/or Executive Committee
4. Arrange to ensure that the Group has a suitable internal control system in pursuance to the directions given of the Audit Committee
5. Arrange to ensure that there is suitable risk management and control system that comply with the direction given by Executive Committee and/or Audit Committee
6. Carry out overall Management of human resource, oversee the tasks undertaken by the employees to ensure that they are in compliance with the policies and rules including the principle of corporate good governance and encourage the employees to acquire more knowledge, competency and capability in order to increase capability of the organization



7. Appoint and dismiss employee or staff in the position below Chief Executive Officer and to dismiss employees or staff, approved by Board of Directors or Executive Committee
8. Negotiate and enter into a contract and/or any transaction, regarded as normal business operation, within the budget limit per transaction and per year as authorized by Board of Directors
9. Approve the opening of the branch and/or new representative office and establish new subsidiary under relevant laws/rules and regulations
10. Approve a borrowing/ loan between Group and subsidiaries within credit limit per transaction and per year as authorized by Board of Directors
11. Approve the entering into a loan contract between Group and any commercial bank within credit limit per transaction and per year as authorized by Board of Directors
12. Approve the opening of bank account with any commercial bank
13. Making order, issue rules, criteria, notification and memorandum concerning business operation in pursuance to the policies and for the benefit of the Company
14. Summarize and report important transactions, undertaken within the scope of authority of Chief Executive Officer to Executive Committee and/or Board of Directors respectively.
15. Approve the connected transactions that are under normal business conditions, e.g., trading goods at market price and with the same conditions as general customers, under policies approved by Board of Directors and in pursuance with the regulations of Stock Exchange of Thailand
16. Perform other tasks as delegated and authorized by Executive Committee and/or the Board of Directors.
17. Issue sub-power of attorney and/or authorize other individual to undertake the tasks on behalf of Executive Committee. Such sub-power of attorney and/or authorization must be under the scope authority, stated in the Company's power of attorney and/ or regulations, rules or resolution of Board of Directors.

However, such authorization under the scope of authority of the Executive Committee must not be a granting of sub-power of attorney to any director or attorney who may have conflict of interest with the Group in any forms to approve the transactions. In such case, the Executive Committee shall not have the authority to approve the transactions. Instead, the committee needs to propose the transactions to Board of Directors meeting and/ or shareholders meeting to evaluate and give consent except if that transaction is regarded as normal businesses of the Group and have the same criteria as when dealing with outside parties (arm's length transactions)

## **Company Secretary**

Mr. Sompop Prompapitak, Chief Operating Officer, acting as a company secretary, with the requirement of the Securities and Exchange Act, B.E. 2535 (and its amendment). Mr. Somphop Prompanapitak graduated with an MBA in Management from Kasetsart University, Master Business Administration (Finance) from California State University and a Bachelor Degree in Economics (English program) from Thammasat University. And has completed the 31/2009 Company Secretary Program, organized by the Institute of Directors (IOD).

## **Duties and responsibilities of the Company Secretary**

1. report of the Company, notices of meeting appointment of shareholders, minutes of shareholders meeting
2. Keep the report relating to stakes holding, submitted by the directors or the management
3. Perform other businesses as prescribed by Capital Market Supervisory Board
4. Submit copy of stakes holding report as prescribed in Section 89/14 of the Securities and Exchange Commission Act B.E. 2535 (amended), prepared by directors, to Chairman of Audit Committee within 7 business days from the day the Company has received the report

5. Perform any other duties and responsibilities specified in the Securities and Exchange Commission Act B.E. 2535 (amended)

### Connected transactions

The Company realizes the importance of conducting business transaction transparently and in a manner that is beneficial to the company. It, therefore, strives to prevent transaction that may cause a conflict of interest, connected transaction or inter-transaction by setting the following policies.

- 1) The management and employees shall comply with the Company's Ethical Guidelines which must be strictly adhered to so that the operation shall be credible and trustful by all stakeholders. The Company also publish the information to ensure that all employees comply with the guideline.
2. The directors and the management shall informed of the relations and connected transactions related to activities that may cause a conflict of interest.
3. The connected transactions shall be presented to be reviewed by the Audit Committee before further submitting to be approved by the Board of Directors in pursuance to the corporate good governance policy and the rules and regulations on supervision on corporate governance, prescribed by the Stock Exchange of Thailand and the Office of the Securities and Exchange Commission.

### Internal Control

The Audit Committee, at its meeting on November 13, 2018, reviewed the adequacy of the Group's internal control system in pursuance to the concept of COSO1 (The Committee of Sponsoring Organization of the Treadway Commission) and the internal control adequacy assessment form, prepared by the Office of the Securities and Exchange Commission which comprises 5 components and 17 sub-principles. This has enabled the Group to lay out practical guidelines that are appropriate with the operation of the Group. The Group's Board of Directors viewed that the Group's internal control system is adequate and efficient and found no significant weakness in the internal control system. The Board also arranged to set up adequate and efficient monitoring system to follow up and control the operation of the Group and its subsidiaries.

#### **Followings are the components of internal control system:**

##### **1. Control Environment.**

The Board of Directors is independent from the management team and has set a clear and appropriate scope of approval authority of board members, chief executive officer and the Group's personnel. The Board also developed organizational structure that includes a clear line of command and responsibility.

##### **2. Risk Assessment**

The Group operates its business under acceptable risk appetite in order to achieve the objectives and to respond to the expectation of all stakeholders.

##### **3. Control Activities**

The Group includes control activities in policies and operational steps at all level of operation in the organization and under the control environment that includes approval authority, reviewing and allocation of responsibilities.

##### **4. Information & Communication**

The Group supports the use of quality information and adequate disclosure of information to the connected parties both inside and outside of the organization.

##### **5. Monitoring Activities**

Monitoring and assessment activities are implemented on a regular basis in the Group by manager of each department. The Group has internal audit work unit that provides support to the Internal Audit Committee in

the area of internal control supervision to ensure that the Group's internal control is adequately efficient and effective.

## **Recruiting and Appointing the Directors and Top Management**

The Nomination and Remuneration Committee has a duty to review the expertise and qualifications of the director to be appointed by preferring person who has ability, experience, good career record, outstanding leadership, vision, good moral, ethics and positive attitude towards the organization and can contribute enough time to the operation of the business.

### **Criteria for the Nomination**

#### **1. Director**

The Nomination and Remuneration Committee considers candidates for the position of director from the business-related knowledge or considers from among the major shareholders, whose experience can benefit the Group or from the shareholder who holds voting shares at a total of not less than 5% of the total number of voting shares of the Group on the date that the agenda is submitted or nominates a person who is qualified to be appointed as a director in advance. The person must be fully qualified as specified in the Public Limited Group Act, B. E. 2535, the Securities and Exchange Act, the notifications of the Securities and Exchange Commission, the notice of Capital Market Supervisory Board, and the related notifications, rules and/or regulations. However, the appointment of new director must be approved by the Board and/or the shareholders' meeting according to the Company's articles of associations.

#### **2. Independent Director**

The Nomination and Remuneration Committee shall select a person to serve as an independent director by considering his/her qualifications, stipulated in the Public Limited Companies Act B.E. 2535, the Securities and Exchange Act, the Notifications of the Securities and Exchange Commission, the notifications of the Capital Market Supervisory Board, and other related notifications, rules and/or regulations. The number of independent directors should be more than three or at least one third of total directors, depending on which one is higher.

### **The qualifications of independent directors**

Independent directors must not own, take part in managing, or have benefit in the Group that may affect their independent decision. The Independent directors should have the following qualifications:

1. Holdings share not more than 1% of the total number of voting shares of the Company, its parent company, subsidiary, affiliate, major shareholder or controlling person including shares held by related persons of the independent director
2. Not be nor have been an executive director, officer, employee, controlling person or advisor who receives a salary, of the Company, subsidiary, affiliate, major shareholder or controlling person, unless the foregoing status ended not less than two years prior to the date of appointment. This restriction shall not apply to an independent director who has been a government officer or an advisor to a government authority that is a major shareholder or controlling person of the Company.
3. Not be a person related by blood or registration under law, such as a father, mother, spouse, sibling, or child, including spouses of children, executives, major shareholders, controlling persons, or persons to be nominated as executives or controlling persons of the Company or its subsidiaries
4. Not have nor have had a business relationship with the Company, subsidiary, affiliate, major shareholder or controlling person, in a manner which may interfere with his or her independent judgment, and neither being nor having been a substantial shareholder or controlling person of any entity having business relationship with the Company, subsidiary, affiliate, major shareholder or controlling person who may have a conflict of interest unless the foregoing status ended not less than two years prior to the date of appointment. The term "business relationship" mentioned above includes any normal business transaction, rental or lease

of immovable property, transaction relating to assets or services or grant or receipt of financial assistance through receiving or extending loans, guarantee, providing assets as collateral, including any other similar actions, which result in the Company or its counterparty being subject to indebtedness payable to the other party in the amount of three percent or more of the net tangible assets of the Company or twenty million baht or more, whichever is lower. The amount of such indebtedness shall be calculated according to the calculation method for the value of connected transactions under the Notification of the Capital Market Supervising Committee Re: Rules on Connected Transactions *mutatis mutandis*. The combination of such indebtedness shall include indebtedness occurring during the course of one year prior to the date on which the business relationship with the person commences.

5. Neither be nor have been an auditor of the Company, subsidiary, affiliate, major shareholder or controlling person nor be a substantial shareholder, controlling person or partner of an audit firm which employs auditors of the Company, subsidiary, affiliate, major shareholder or controlling person, unless the foregoing relationship ended not less than two years from the date of appointment.
6. Neither be nor have been any kind of professional advisor including a legal advisor or financial advisor who receives an annual service fee exceeding two million baht from the Company, subsidiary, affiliate, major shareholder or controlling person, and neither be nor have been a substantial shareholder, controlling person or partner of the professional advisor unless the foregoing relationship ended not less than two years from the date of appointment.
7. Not be appointed as a representative of the Company's directors, the major shareholder or any other shareholder who is a related person to the major shareholder.
8. Not conduct any business which of the same nature as the Company's or its subsidiaries' businesses and is in competition with them in any material respect, nor be a substantial partner, shareholder holding more than one percent of the voting shares, director, employee, officer or advisor of any company whose business is of the same nature as the Company's or its subsidiaries' businesses, and is in competition with them in any material respect.
9. Not have any characteristics which make him or her incapable of expressing independent opinions with regard to the Company's business affairs. The independent directors may be appointed by the Board to make a decision on the operation as the collective decision.

In case that the appointed independent directors have/had the business relations or provide/provided professional service whose fee is higher than that, specified in No 4 or No 6, the Board may provide leniency if it deems that the appointment does not affect the performance or independent judgment and the Company discloses the following information in the invitation letter to the shareholders' meetings under the agenda for appointing the independent directors.

- A. The nature of business relations or professional service that disqualifies the nominees
- B. The reason and necessity for appointing that nominee as an independent director
- C. The Board's opinion in nominating that particular person as an independent director

### 3. Audit Committee

The Audit Committee must be appointed by the Board of Directors and must be the Company's directors. The Committee consists of at least three independent committee members and the Board appoints one Audit Committee member as the Chairman of Audit Committee. At least one member must know and have experience in accounting or finance to review the credibility of the financial report.

The Audit Committee's qualifications must meet the criteria of the Securities and Exchange Commission, the Office of the Securities and Exchange Commission, the Stock Exchange of Thailand, and other related laws.



### The qualifications of the Audit Committee Members:

1. Appointed by the Board or shareholders' meetings as Audit Committee members
2. All of them must be the independent directors
3. Not being the director assigned by the Board to make a decision on the operation of the Company, subsidiary, affiliate, same-level subsidiary, major shareholder or person with management power.
4. Not being a director in the holding company, subsidiary, affiliate, same-level subsidiary (only listed company)
5. Having the same duties as prescribed in the notification of the stock exchange of Thailand, under the rule of Audit Committee's qualifications and scope of work
6. Having enough knowledge and experience to work as an Audit Committee members. However, at least one knowledgeable and experienced Audit Committee member must be able to review the credibility of financial report.
7. The Board appoints the Chairman of Audit Committee or allows all appointed Audit Committees members to elect the Chairman.

### **4. Executive Committee**

The Board of Directors appoints the Executive Committee, based on knowledge, ability and experience related to the business.

### **5. Top Management**

The Executive Committee shall consider and select persons to serve as top management, based on their knowledge, ability and experience related to the business.

### **Corporate Governance Policy for subsidiary, affiliate and Joint-Ventured**

The Company supervises the operation of subsidiary, affiliate and joint-ventured as follows:

1. Assigning the qualified or experienced director or the management, approved by the Board, to serve as a representing director in a subsidiary, affiliate and joint-ventured in order to set the key policy in management and control the operation of those companies.
2. Supervising the subsidiary, affiliate and joint-ventured to formulate the connected transaction policy with the potential stakeholders or the parties with potential conflicts of interest. The policy must be in line and in compliance with the related laws, rules, regulations, notices and memos.
3. Supervising the subsidiary, affiliate and joint-ventured to prepare financial report that reflects the financial status and actual business performance, based on the accurate, comprehensive and sufficient accounting information that meets the generally accepted accounting standard. Also, the report on connected transactions between those companies and the potential stakeholders or the parties with potential conflicts of interest as well as report on acquisition and disposition assets should be prepared and presented to the Board of Directors for their acknowledgement at least twice a year.
4. Arranging for the subsidiary, affiliate and joint-ventured to request the internal audit unit or outsourced auditors to formulate and monitor the annual internal audit plan, approved by the Audit Committee and the report on audit outcome and suggestions on internal audit system to see how effective the Group's internal control is and how well the employees, management and directors comply with the internal control system. These findings are, then, submitted to the Board of subsidiary and affiliate on a case-by-case basis and in proper timeline.

## Supervising on the Usage of Internal Information

To ensure the company's corporate good governance system, the Board considers and approves the good governance policy on the usage of inside information, as follows:

1. To educate the Board and the management, including the manager of accounting or finance department or equivalent and higher level, about the preparation and submission of the reports on securities holding and the change of securities holding to the Securities and Exchange Commission based on Section 59 and Penalty Section 257 of the Securities and Exchange Act B.E. 2535 (as amended). The company secretary must be informed every time in order to further inform the related parties.
2. To ensure that the directors, management, internal auditors and the management-level staff who are accounting or finance manager or higher prepare and submit the reports on their and their spouse's holding of the company's security, including the holding by their children under legal age, starting from the date they are appointed as the director and/or management. They must also report any changes in security holding to The Securities and Exchange Commission. Everything must be done within the indicated timeline or within 30 days after they are appointed as the director and/or management. The report on changing security holding must be made within three days, starting from the date of purchasing, selling, transferring, and receiving the stocks. The company's secretary must summarize and report the security holding and any changes to the Board Meeting within the proper time.
3. To ensure that the executive directors and the management-level staff who are accounting or finance manager or higher and related operators should be informed of the significant inside information that affects the change in stock price. They must suspend the company's stock trade before publicizing the financial report or status until the company discloses the information to the public. The company will inform the director and management in writing, including the management-level staff who are accounting or finance manager or higher, to stop trading the stocks at least 30 days before disclosing the information to the public and another 24 hours at least after the disclosure. Furthermore, they are not allowed to disclose the significant information to other parties.
4. To ensure that the Board, management, employees and workers shall maintain internal information confidential unless when using that information for managing the company's business or for complying with the related law.
5. The Board, management, employees and workers will neither directly or indirectly disclose the inside information nor use its title to bring inside information or significant information that they have learned during the operation but has not been publicly disclosed to illegally seek the benefits or disclose the information to outside parties for their own benefits and the related parties'. They must do it without any regards for the return or their own benefits.
6. To ensure that the Board, management, employees and workers will not sell, purchase, transfer or receive the company's stocks by using its confidential and/or inside information and/or will not do any transactions by using the confidential and/or inside information in the way that may either directly or indirectly damage the company. This includes the spouse and children under legal age of the Board, management, employees and workers. Anyone who violates this rule is considered serious misconduct.
7. To lay down the guideline on ethics in using the company's information technology and internal communication are set to control and maintain the information safety in the information technology system and/or prevent the outsiders from accessing the information. In additional, the access level is set for each level of employees and workers to suit their titles, roles and responsibilities
8. Set the penalty measures according to the company's regulations when the management, employees, workers or related parties use the internal information to act in the way that may damage the company. The penalty is based on the intention and severity of that misconduct

## Compliance Unit

The Company has established a Compliance Department headed by Ms. Nottaporn Thiengprathes. Her main responsibility is to ensure that the Company complies with the Securities & Exchange Act and all related regulations

## **Corporate Social Responsibility**

The Company Group have the policy to operate the business under the principle Corporate Social Responsibility (CSR) with an awareness and realization on the importance of promoting activities for the benefits of surrounding communities and for protection of environment on a continuing basis. It is our intention to collaborate with those concerned and to foster good relationship that is the result of mutual acceptance and trust, including the realization on the impacts on those stakeholders such as shareholders, employees, local community, customers, partners, government agencies, general public and the country. We also strive to promote attitude and organizational culture so that our employees have social responsibility with the ultimate goal of happy co-existence between the business, community and society and to make a sustainable progress towards the future together.

## Operation and Preparation of Report

In realizing the Company Group's emphasis on responsibility, the Board of Director has adopted policy guideline on social responsibility for the management to implement as follows.

1. Manage the business operation of the Group honestly with transparency and accountability aiming for business growth and the quality of life of employees, community, social and environment protection, including the protection of interest of all stakeholders.
2. Give priority to basic human rights to promote the respect of rights and freedom without discrimination, promote equality, no unfair treatment, based on gender and class. Not employing child labor and opposing all kinds of corruptions.
3. Promote and educate all employees on social and environment responsibility to be used as guideline to jointly develop social and environmental responsibility throughout the organization.
4. Promote a two-way communication and public relations on project or social and environment activities between community and stakeholders by giving them the opportunity to participate in such activities as deemed appropriate, e.g., the public hearings in surrounding community to find the initial environmental effect (IEE) and to inform and create awareness among the people in the community on the impacts of the construction of power plant and energy production process on people who live in the community and on environment.
5. Publicize the innovation in generating electricity from renewable energy of the Company group for those who are interested in developing it for the benefit of society and environment. Presently, people who are interested in learning about solar energy generation technology are attending the classes.

## CSR and Environment Promotion Activities

Thai Solar Energy Group has operated the business that includes the participation in social, community and environmental activities as part of our goal to develop a sustainable organization. Moreover, the Group also recognize the importance of creating and providing happiness to school-age children and youth who would be an important force in taking care of the society and the country in the future.



Oscar Save the World Co., Ltd. Participating in CSR activities “Pan Rak Pan Namjai Thai Solar Energy Group To Chumporn School No. 1 “ Delivering table tennis and computers at Ban Khok Makham School, Na Khliang District, Nakhon Si Thammarat Province



Oscar Save the World Co., Ltd. Participating in CSR activities “Pan Rak Pan Namjai Thai Solar Energy Group To Chumporn School No. 1 “Providing table tennis and computer at Wat Samakkhi Nukun, Sai Ra Sub-district, Nakhon Si Thammarat Province



Bang Sawan Green Co., Ltd. Donate candy and drink dolls In the Children’s Day event, 2018 At the Child Development Center Bang Sawan Subdistrict Municipality Surat Thani Province



Siam Solar Energy 1 Co., Ltd., SSE1 - PV07 branche Support sports series, anti-drug sports program At Rangsale Subdistrict, Tha Muang District, Kanchanaburi Province



The Group also organized other activities to promote social and environment well-being throughout 2017 such as:

#### January 2018

- Oscar Save the World Co., Ltd. made a donation to help to help the victims of natural disaster in Nakhon Si Thammarat province.
- Community Co., Ltd. made a donation to help the victims of natural disaster in Prachuap Khiri Khan province.
- Oscar Save the World Co., Ltd. supports golf Charity Preparatory Students, Class 33, Nakhon Si Thammarat Province

#### February 2018

- Siam Solar Energy 1 Co., Ltd., SSE1-PV02 and PV07 branches supported a charity bowling tournament, organized by the Manager Club of the Provincial Electricity Authority
- Bang Sawan Green Co., Ltd. supports sporting events Of the project
- Bang Sawan Green Co., Ltd. supports competition prizes Ban Ko Noi School Football Surat Thani Province

#### April 2018

- Solar Energy 1 Co., Ltd., SSE1-PV03 branch donated sport wears to Moo Ban Banlang in Nong Ya Sai Sub-district, Nong Ya Sai district, Suphan Buri province.
- Oscar Save the World Co., Ltd., Support charity-run activities, Sai Sara Subdistrict, Nakhon Si Thammarat Province

#### June 2018

- Bang Sawan Green Co., Ltd. made a donation to support the “Thod Phapa” religious ceremony at Wat Manao Wan Temple in Nakhon Si Thammarat province.
- Thai Solar Energy Pcl. supports Event organizing the festival of candle parade, Huai Krachao District, Kanchanaburi Province

#### July 2018

- Oscar Save the World Co., Ltd. made a donation to support a charity bowling tournament, organized by the Department of Industrial Works.

#### August 2018

- Thai Solar Energy Pcl. made a donation to help victims of natural disaster through the Office of the Prime Minister.
- Oscar Save the World Co., Ltd. made a donation to the Red Cross activity, organized by the Land Department
- Oscar Save the World Co., Ltd. Wat Hat Sung, Chawang District, Nakhon Si Thammarat Province

#### September 2018

- Bang Sawan Green Co., Ltd. donated sport wears to Bang Sawan Tambon Municipality.
- Bang Sawan Green Co., Ltd. made a donation to support the “Thod Kathin” religious ceremony at Wat Chanthanaram Temple, Bang Sawan Sub-district, Phra Sang district, Surat Thani province.

- Siam Solar Energy 1 Co., Ltd. SSE1-PV06 Branch Supporting the retirement day for teachers Nong Phai School
- Oscar Save the World Co., Ltd. made a donation to support the “Thod Kathin” religious ceremony at Wat Na Chaliang Temple, Nakhon Si Thammarat province.

#### October 2018

- Siam Solar Energy 1 Co., Ltd., SSE1-PV08 branch made a donation to support the “Thod Kathin” religious ceremony at Wat Ko Sai Charoen Temple, Rang Wai Sub-district, Phanom Tuan district, Kanchanaburi province.
- Siam Solar Energy 1 Co., Ltd., SSE1-PV04 branch made a donation to support the “Thod Kathin” religious ceremony at Wat Nong Kratum Temple, Nong Kratum Sub-district, Doem Bang Nang Buat district, Suphan Buri province.
- Siam Solar Energy 1 Co., Ltd. SSE1-PV03 Branch Supporting budget for the Futsal Competition in 2018 Village of Lotus Pond, Moo 7, Nong Ya Sai Subdistrict, Nong Ya Sai District Suphan Buri Province
- Siam Solar Energy 1 Co., Ltd. (Head Office) Supporting co-host of Kathin Department staff Khlong Toei Customs

#### November 2018

- Siam Solar Energy 1 Co., Ltd., SSE1-PV07 branch made a donation to support the Red Cross activity at Kanchanaburi province.
- Thai Solar Energy Public Company Limited supports the Thai Wooden Economy Day, Faculty of Forestry Kasetsart University
- Siam Solar Energy 1 Co., Ltd., SSE1-PV07 branch Support Kathin Samakkhi Temple, Khun Thai Tharam Temple, Kanchanaburi Province
- Siam Solar Energy 1 Co., Ltd., SSE1-PV04-05 branch Supporting co-host Kathin, Wat Nong Krathum Amphur Derm Bang Nang Buat, Suphan Buri Province
- Bang Sawan Green Co., Ltd. Supporting Loi Krathong Day activities in 2018, Bang Sawan Subdistrict Municipality Surat Thani Province
- Oscar Save the World Co., Ltd. Supporting contestants Miss Nakhon Si Thammarat, Chawang District, year 2018
- Oscar Save the World Co., Ltd. Support Loi Krathong tradition Nakhon Si Thammarat Province
- Bang Sawan Green Co., Ltd. Support Kathin, Wat Khao Phra, Bang Sawan Subdistrict, Surat Thani Province

#### December 2018

- Siam Solar Energy 1 Co., Ltd., SSE1-PV07 branch made a donation to support the Red Cross activity at Kanchanaburi province.

## Anti-Corruption Policy

The Company manages the business by adhering on the principle of corporate food governance with transparency, fairness and accountability. The places a priority on social and environmental responsibilities and all of stakeholders regularly reviews compliance with its anti-corruption policy as well as improving the guidelines and regulations in doing its business in accordance with changes in business environment, rules, regulations and laws. The Group requires the directors, management team, and all employees of the Company / subsidiaries/ jointly controlled entities/ and affiliates to strictly follow the anti-corruption policy in order to create a clear practical guideline and to develop the Company as a sustainable organization.

## Roles and Responsibilities

1. The Board of Directors has duty and responsibility to lay out policies and to ensure that an effective system is set up to support anti-corruption policies, including the reviewing of the appropriateness of the systems and other measures in accordance with changes in business, rules, regulations and laws.
2. The audit committee has the responsibility to review the financial and accounting reporting system, internal control and internal auditing to ensure that the business operation is up to international standard of high precision, appropriateness, modern and efficient.
3. CEO and the management team have the duties and responsibilities to promote and support the anti-corruption policy in order to ensure that the management realizes and communicates with all staffs and relevant parties on the importance of anti-corruption policy.

## Practical Guidelines

1. The Board of Directors, management team, and employees at all levels must comply with the anti - corruption policy and are prohibited to be involved with corruption either directly or indirectly.
2. Employees shall not ignore or neglect when witnessing any act which can be considered as a corruption. If such incidents occur, the employees must report those suspicious acts to their supervisors or responsible party, including giving full cooperation in the investigation of the case.
3. The Company will protect and provide a fair treatment to employees who refuse to participate in corruption and employees who inform the corruption cases.
4. The Company will keep confidential and protect informants from harassment both during the process of investigation and afterwards.
5. The person who committed a corruption act is also considered as violating the code of ethics which is subject to disciplinary action, prescribed in the rules and regulations. In addition, if such conduct is against the laws, the offender shall also be subject to legal penalty.

6. The Board of Directors, the management team, and employees at all level must beware and proceed with careful discretion of the following issues:

**6.1** The giving of gifts and entertaining the clients. Giving or receiving of gifts and entertaining the clients must be arranged in accordance with the Company's rules and regulations.

**6.2** Charity donations or supporting funds. Giving or receiving a charity donation or supporting fund must be made transparently and accordance with the laws

the Group has signed the Declaration of the Collective Action Coalition of Thai Private Sector Against Corruption with a view to provide cooperation to the social sector, the press and international organization in creating a standard for transparent business practice. At present, the Group is in the process of preparing and improving the anti-corruption policies to cover all the related criteria, based on discretion and appropriate consideration.

## Dividend Policy

### *The Company's dividend policy*

The dividend policy is to pay dividends at a rate of not less than 40% of the net profit on the Company's financial statement after deduction of corporate income tax, and all reserves required by law and the Company's articles of association. However, the dividend payment is subject to change depending on cash flow, financial performance, future business plans, terms and conditions for business expansion, the needs for capital spending each year, and any other terms and conditions in relevant agreements or contracts for which the Company has contractual obligations, as well as other necessity and appropriateness, deemed by Board of Directors.

The dividend payment mentioned above must be approved by the shareholders meeting, except in the case of an interim dividend payment which the Board of Directors may consider paying from time to time if the Board deems that the Company has earned reasonable profit and can afford to do so.

### *The subsidiaries dividend policy*

The dividend payment policy for subsidiaries and jointly controlled entities is based on cash flow, financial performance, future business plan, terms and conditions for business expansion, funding needs, and financial position of each subsidiary and jointly controlled entity, and any other dividend restriction stipulated in loan agreements, debentures or other relevant agreements each subsidiary or jointly controlled entity obliges, as well as, the necessity and appropriateness that may be deemed by the Board of Directors of each entity.

The dividend payment mentioned above must get approval from shareholders at the general meeting of shareholders based on each subsidiary's/ jointly controlled entity's Board of Directors' proposal.

## Securities Holding of Directors & Executives

Name - Surname	Position	Shareholding (%)	Changes during 2017		Shareholding (%)
		31 Dec 2017	Increase	Decrease	31 Dec 2018
Cathleen Maleenont, Ed.D.	Chairman of the Board Chairman of the Executive Committee Member of Nomination and Remuneration Committee	0.24	---	---	0.24
Mr. Prommin Lertsuridej	Independent Director Vice Chairman of the Board	---	---	---	---
Mr. Pala Sookawesh	Independent Director	---	---	---	---
Mrs. Siripen Sitasuwan	Independent Director Chairman of the Audit Committee	---	---	---	---
Mr. Prasan Chuapanich	Independent Director Member of the Audit Committee Chairman of Nomination and Remuneration Committee	---	---	---	---
Mr. Boonchoo Direksathaporn	Independent Director Member of the Audit Committee	---	---	---	---
Mr. Somphop Prompanapitak	Director Member of the Executive Committee Member of Nomination and Remuneration Committee	0.03	---	---	0.03
Mr. Anutin Charnvirakul	Director	---	---	---	---
Mrs. Angkanee Rerksirisuk	Director	---	---	---	---
Mr. Kitiphong Thunnom	Chief Technical Officer Member of the Executive Committee	---	---	---	---
Mr. Nivej Boonwichai	Vice President Engineering and Construction	---	---	---	---

**Note:** Information on shareholding of the first 4 directors and the management is in accordance with the definition of the Securities and Exchange Commission, including the shareholding of spouse and children who have not reached legal age.

## Remuneration for Directors and Executives

The Board of Directors assigns the Nomination and Remuneration Committee to determine and set the remuneration and other benefits both monetary and non-monetary remuneration for the directors, members of the Executive Committee and chief executive officer by determining the criteria and payment methods that are fair and reasonable and in consistent with the business operational performance of the Group and other companies in the industry. The recommendations of the Nomination and Remuneration Committee are submitted for a review and decision by the Board of Directors or the shareholders meeting.

### Director's Remuneration

At the Annual General Meeting of Shareholders for 2018, held on 20 April 2018, the shareholders approved total remuneration for members of the Board and its board committees in the forms of monthly remuneration and meeting allowance according to the number of meeting actually attended. Followings are the detail of the remuneration.

Position	Monthly retainer	Meeting Allowance
<b>Board of Directors</b>		
- Chairman	35,000	35,000
- Vice Chairman	30,000	25,000
- Directors	20,000	20,000
<b>Audit Committee</b>		
- Chairman	25,000	35,000
- Directors	20,000	20,000
<b>Nomination and Remuneration Committee</b>		
- Chairman	--	30,000
- Directors	--	15,000



In 2018, the Company paid Director's Compensation for the amount 5.44 million baht.

Name	Surname	Position	Remuneration 2018
1. Cathleen	Maleenont, Ed.D.	Chairman of the Board Chairman of the Executive Committee Member of Nomination and Remuneration Committee	800,000
2. Mr. Prommin	Leartsuridej	Vice Chairman of the Board Independent Director	535,000
3. Mr. Pala	Sookawesh	Independent Director	420,000
4. Mrs. Siripen	Sitasuwan	Independent Director Chairman of the Audit Committee	875,000
5. Mr. Prasan	Chupanich	Independent Director Member of the Audit Committee Chairman of Nomination and Remuneration Committee	820,000
6. Mr. Boonchoo	Direksathaporn	Independent Director Member of the Audit Committee	780,000
7. Mr. Somphop	Prompanapitak	Director Member of the Executive Committee Member of Nomination and Remuneration Committee	470,000
8. Mr. Anutin	Charnvirakul*	Director	320,000
9. Mrs. Angkanee	Rerksirisuk	Director	420,000

\* Resigned on 25 January 2019

#### ■ Executives' Remuneration

	Nature of Remuneration	Objective
Salary	Salary and other fringe benefits such as provident fund	To maintain knowledgeable and capable executives
Annual remuneration	Annual Bonus	enhance morale and encouragement in return for their diligence, industrious efforts and devotion to the success and performance of the Group

In 2018, the Company paid a monetary remuneration including salary, bonus and other remuneration to top management for a total of 21.75 million baht.

Remuneration	2018	
	Number (Person)	Remuneration (Million Baht)
Salary and Bonus	4	21.00
Other remuneration such as providence fund	4	0.75
<b>Total</b>	<b>4</b>	<b>21.75</b>

## The Board of Directors' Responsibility for Financial Reporting

The Board of Directors is responsible for the preparation of consolidated and separate financial statements of Thai Solar Energy Public Company Limited and its subsidiaries and jointly controlled entity, including the financial information presented in this annual report. The aforementioned financial statements are prepared in accordance with Thai Financial Reporting Standards, using careful judgment and the best estimations. Important information is adequately and transparently disclosed in the notes to financial statements for the Company's shareholders and investors. The Board is also responsible for internal control activities that the Board deemed necessary for the preparation of overall and specific financial statements that do not contain any information that is significantly contradictory to the fact, either by fraudulent intention or by mistake.

The Board of Directors has appointed the Audit Committee to be responsible for reviewing the accounting policy, financial reports, risk management, internal controls, internal audit and disclosure of connected transactions. All the Audit Committee's opinions on these issues have been presented in the 2018 Audit Committee Report, included in this annual report.

The consolidated and separate financial statements of the Company and its subsidiaries and jointly controlled entity have been examined by an external auditor, Mr. Kajornkiet Aroonpirodkul (CPA No. 3445) of PricewaterhouseCoopers ABAS Limited. To facilitate the auditing process, the Group's Board of Directors provided information and documents so the auditor is able to audit and express an opinion in accordance with generally accepted auditing standards. The external auditor's opinion is presented in the auditor's report included in this annual report.

The Board of Directors believes that the Company's overall internal control system has functioned at a satisfactory level and rendered credibility and reliability to the financial statements of the consolidated and separate financial statements of the Company and its subsidiaries and jointly controlled entity for the year ended 31 December 2018. The Board of Directors also believes that all these financial statements have been prepared in accordance with the related Thai Financial Reporting Standards and related regulations.



(Cathleen Maleenont, Ed.D.)  
Chairman of the Board

## Auditing

- **Appointment of Auditor**

The Audit Committee has the responsibility to screen and select the auditor and auditing fee by inviting auditing firms to submit their past works to be selected and proposed to the Board of Directors who would further submit the recommended auditor and auditor's fee to be approved by the ordinary shareholders meeting each year. The appointed audit firm and auditor must be able to work independently without any relation or stake with the Group, major shareholder or any party, related to these persons.

The 2018 ordinary shareholders meeting resolved to appoint the following persons on behalf of PricewaterhouseCoopers ABAS Co., Ltd. as the Company's auditors:

### Auditors

Name	Surname	CPA No.
1. Mr. Kajornkiet	Aroonpirodkul	3445
2. Miss Sakuna	Yaemsakul	4906
3. Mr. Pisit	Tangthanakul	4095

Any person is allowed to be an auditor and provide opinions toward the Company's financial statements. In the event that such certified public accountants cannot perform duties, PricewaterhouseCoopers ABAS Co., Ltd. can replace with other certified public accountants of PricewaterhouseCoopers ABAS Co., Ltd.

- **Audit Fee**

In 2018, the Group paid audit fees as follows.

	2018
Thai Solar Energy Public Company Limited	1,815,500
Subsidiaries	6,898,500
<b>Total Audit Fee</b>	<b>8,714,000</b>

- **Non - Audit Fee**

The Group has paid a fee to the auditor from the PricewaterhouseCoopers ABAS Ltd., to audit and prepare audit report related to the compliance audit of BOI certificate, issued by the Thailand Board of Investment at an amount of 980,000 Baht

## Related Party Transaction

Persons which may have conflict of interest / nature of business / nature of relationship	Nature of Transactions	Transaction Value		Necessity and Reasonableness of the transaction
		2017	2018	
<p>1. P.M. Energy Company Limited (“PME”)</p> <p><b>Nature of the business</b> Investment in renewable energy with the Head Office located at 725 Metropolis, 19<sup>th</sup> floor, Sukhumvit Road, KlongtanNua, Wattana Bangkok</p> <p><b>Relationship with the Company</b> - A major shareholder of the Company. As of 31 December 2018 PME held 41.1% share in TSE - The director who is in the management team:</p> <p><b>Cathleen Maleenont, Ed.D.</b> (Director, Chairman of Executive Committee and Chief Executive Officer of TSE) is a director and major shareholder of PME. Dr. Cathleen held 100% of PME as of 31 December 2018</p> <p><b>Mr. Somphop Prompanapitak</b> (Director, Executive Committee and Chief Operating Officer of TSE) is a director of PME</p>	<p><b>Guarantee without Charge</b></p> <p>PME shares of the company Holding some 100,000,000 shares with a par value of THB 1 per share to be pledged with a commercial bank To be part of the loan guarantee for the company</p>	-	208*	<p>The Group had a loan from one commercial bank to be used for development of thermal power plant. Part of the loan was guaranteed by the company's shares, held by PME which was in consistent with the requirement of the commercial bank that provided the loan and there was no cost incurred from such guarantee.</p> <p><u>Opinions of the Audit Committee</u></p> <p>Such transaction is to receive assistance from major shareholders. For use in project development for the company Therefore, the transaction is necessary and reasonable and beneficial to the company.</p>

\*The transaction value was based on the market value of shares as of December 31, 2018, i.e., 2.08 Baht/share

### Measures or procedures for approving related party transactions and policy for potential related party transactions in the future

The Company established measures and procedures for approving related party transactions of the Company and/ or its subsidiaries with stakeholders or persons which may have a conflict of interest or a potential conflict of interest in the future. These measures and procedures are to ensure transparency and fairness and to prevent the transfer of interest from the Company and/ or its subsidiaries. They consist of following measures:

1. The Company's/subsidiaries' related party transactions with stakeholders or persons who may have a conflict of interest with the Company and / or its subsidiaries are required to be processed according to laws, regulations, announcements or notifications, rules and requirements, and related circular letters as per the following:
  - 1) Securities and Exchange Act B.E.2535
  - 2) Notification of the Capital Market Supervisory Board, Tor Chor. 21/2551: Rules on Connected Transactions



- 3) Notification of the SEC on Disclosure of Information and Operation of Listed Company for Related Parties Transactions B.E., 2546
  - 4) Regulations of SET on Guidelines, Conditions, and Practice Relating to Information and Operations Disclosure of Listed Companies
  - 5) Requirements related to disclosure of information of connected transactions in the note to financial statements which are prepared by a certified audit committee, and form of company's annual report (56-1 form), including related notifications from Capital Market Supervisory Board and SEC, circular letter and other related laws and regulations
2. Any related party transaction which may be considered as a transaction needing an approval from the Company's Board of Directors or resolution from a general shareholders meeting must be screened and considered by Audit Committee before presenting them to the Company's Board of Directors or general shareholders meeting for approval, depending on the cases. This is to ensure that the said related party transactions do not have an aim to transfer the Company's and/or its subsidiaries' assets. The Audit Committee's point of views must at least cover the following issue:
- 1) Whether the transaction reflects proper rationale and mutual benefit to the Company and/or subsidiaries.
  - 2) Whether the pricing and mutual conditions of transaction reflect fairness by comparing the price and other returns with the market price or price offered from external parties of price valuation by an independent appraiser.
  - 3) Whether conditions related to the transaction are appropriate by comparing conditions on payment and other returns to normal business conditions.

In a case where the Audit Committee has no expertise in screening related party transactions, the committee may seek advice from an independent expert or the Company's auditor to use as supporting material for its consideration before presenting the transactions to the Company's Board of Directors or general meeting of shareholders, whichever case may be.

3. The Company and or/its subsidiaries must prevent directors and stakeholder who have interests in such transactions to participate in the meeting and/or vote on that agenda. The company shall disclose information on related party transactions in note to financial statements which are already reviewed or certified by the Company's auditor
4. For all of related party transactions, the management may have authority to approve such transactions if the transactions have business agreements and conditions as if a person of ordinary prudence may proceed with contractor counterpart within the same situation based on business bargaining power without using authority of director, management, or related person. The Company also needs to prepare a summary report on related party transactions which have a value of more than THB 10 million baht and report to the Company's Board of Directors within an appropriate timeframe.

The Company has established an approval procedure for related party transactions of the Company, jointly controlled entities and/or subsidiaries, directors, management, stakeholder or persons who may have a conflict of interest that have normal business conditions as follows:

1. In the case of minor connected or related transactions that have normal business conditions, the management is obliged to consider and give approval.
2. In the case of medium and large connected or related transactions that have normal business conditions, the Company's Board of Directors will be the one to consider and give approval.
  - Minor transaction refers to transactions with a value equal to or less than THB 1 million, or equal to or less than 0.03% of net tangible assets whichever is higher.
  - Medium transaction refers to transactions with a value of more than THB 1 million but less than THB 20 million, or more than 0.03% but less than 3% of net tangible assets whichever is higher.
  - Large transaction refers to transactions with a value equal to or more than THB 20 million or more than 3% of net tangible assets whichever is higher.

## Financial Highlights

	2018	2017	2016
OPERATING RESULTS AND FINANCIAL POSITIONS - CONSOLIDATED			
Revenues from sales of goods and rendering of services	561.17	229.00	421.73
Share of profits of associates and joint ventures	610.19	586.96	575.92
Total revenues	1,327.75	855.27	1,013.13
Profit for the year attributed to owners of the Company	173.95*	415.76	617.23
<i>* Due to the impairment of Thermal project amount 296 million baht and the amortization of deferred tax assets amounting to 76 million baht</i>			
Total assets	14,689.24	12,218.44	8,374.87
Total liabilities	9,774.61	7,437.70	3,789.45
FINANCIAL RATIOS - CONSOLIDATED			
Return on equity (%)	3.71	9.06	14.36
Return on assets (%)	2.90	5.14	10.70
Debt-to-equity ratio (times)	2.05	1.61	0.83
Basic earning per share (Baht)	0.09	0.22	(0.10)
Net Profit Margin (%)	13.10	48.61	60.96

### Revenue Structure



# Management Discussion and Analysis

## Major events in 2018 that affect the Financial Statements

### 1. The Commercial Operation Distribution of Biomass projects

In March 2018, August 2018 and October 2018, Biomass 4.6 MW in Surat Thani province and 17.60 MW in Nakhon Sri Thammarat province was completed and the Commercial Operation Distribution has already started.

### 2. Increase in Commercial Operation Distribution of Solar power plants in Japan.

In May 2018, the Group has started Commercial Operation Distribution (COD) 6 projects, total selling capacity of 8.24 MW, another project will start Commercial Operation Distribution in January 2019 and the project with production capacity of 154.98 MW is under construction and arrangements.

## Report on the analysis of operational performance under the Consolidated Financial Statements

### 1. Revenue from sales and services

The Company has revenue increased amounting of THB 309.81 million from distribution of electricity of 3 Biomass projects which was completed and started operation date since March 2018, August 2018 and October 2018, respectively, total production and selling capacity of 22.2 MW.

The 6 projects land-based solar power projects in Japan have started Commercial Operation Distribution (COD), total production and selling capacity increased from 6.99 MW last year to 8.24 MW. As a result, the Group recognized revenue from distribution of electricity in Japan amounting of THB 91.55 million in 2018, increased by THB 18.37 million or 25.10% compared to THB 73.18 million last year.

The Group has acquired a new solar power project with a capacity of 2 MW in Angthong province and recognized revenue from distribution of electricity THB 3.78 million in 2018.

The Company generated total revenue from sales and services for year 2018 amounting of THB 561.37 million, which increased by THB 332.37 million or 145.14% compared to THB 229 million last year. (The total amount is exclusive of the amount of THB 601.19 million revenue from 80 MW solar power project whose operational result has been recognized as the share of profit from the jointly controlled entities.)

In addition, the Group has other income increased by THB 116.88 million which mainly from the compensation for cancellation of share purchase agreement and insurance claims.

### 2. Cost of sales and services

Total cost of sales and services for the year 2018 amounting of THB 435.17 million, which increased by THB 257.93 million or 145.53% compared to THB 177.24 million last year. The increment mainly came from cost of production of Biomass projects and depreciation from the land-based solar power plant projects in Japan which has started commercial operation date.

The Company's gross profit margin for 2018 was 22.48% which decreased from 22.60% in 2017, the decreased came from the lower of gross profit of Biomass projects compared to solar power plant's gross profit.

### 3. Administrative expenses

Total administrative expenses for the year 2018 amounting of THB 206.69 million, which increased by THB 58 million or 39% compared to THB 148.69 million last year due to the increased in employee expenses and professional fee to support future projects.

In 2018, the Company recognized impairment loss of Thermal project assets amounting of THB 296 million since the project cannot generate revenue effectively. The impairment is considered as non-cash transaction and does not affect the Company's cash management. Although the transaction caused the significantly decrease in net

profit but it will also cause the decrease in future depreciation and expenses by approximately THB 40 million each year.

#### 4. Finance costs

Total finance costs for the year 2018 amounting of THB 123.24 million, which increased by THB 10.74 million or 9.55% compared to THB 112.50 million. The increment mainly came from interest expenses of the projects that start operation date during the year 2018.

#### 5. Share of Profit from Investment in Jointly Controlled Entities

According to Thai Accounting Standards with regards to an investment in joint controlled entities, the company recognizes an investment in joint controlled entities based on equity method. This concept was applied for the 80 MW solar PV farm. The details are as followed;

##### *Financial Performance of joint controlled entities based on equity method*

Unit : THB million

Items	31 December		Increase (Decrease)	
	2018	2017	Amount	%
Revenue	1,487.76	1,555.59	(67.83)	(4.36)
Cost and expenses	(470.78)	(577.33)	106.55	18.46
Net Profit	1,016.98	978.26	38.72	3.96
Share of Profit from Investment in Jointly Controlled Entities (60%)	610.19	586.95	23.24	3.96

The company has consistent strong operation performance with the consistent net profit. Net profit of joint controlled entities for the year 2018 amounting of THB 1,016.98 million, increased by THB 38.72 million or 3.96% compared to THB 978.26 million last year. Net profit from jointly controlled entities would be categorized by the equity method in terms of share of profit from jointly controlled entities. In 2018, the amount of share of profit from jointly controlled entities amounting to THB 610.19 million, increased by THB 23.24 million or 3.96%, comparing to THB 586.95 million last year.

#### 6. Total comprehensive income for the year

In 2018, the Company has net profit for the year amounting of THB 183.07 million, decreased by THB 230.79 million or 55.76% compared to THB 413.86 million last year due to non-cash transactions in 2018 which are impairment loss of Thermal project amounting of THB 296 million and written-off Deferred tax assets amounting of THB 76 million.

Total comprehensive income for the year 2018 amounting THB 178.89 million, compared to THB 253.75 million last year, the decrease came from the non-cash transactions as stated above.

#### 7. Return on Equity (ROE)

The Company's return on equity has decreased, the ROE in 2018 and 2017 was 3.54% and 8.66%, respectively, the decrease came from the non-cash transaction expenses in 2018 total amounting of THB 372 million.

## Analysis of Financial Position under the Consolidated Financial Statements

### 1. Analysis of assets

As at 31 December 2018 and 2017, the total assets were THB 14,689.23 million and THB 12,218.44 million, respectively. The total asset of the Company increased by THB 2,470.79 million or 20.22 %. The details were as follows;

Unit : THB million

Items	31 December		Increase (Decrease)	
	2018	2017	Amount	%
Current assets	1,462.16	899.58	562.58	62.54
Non-current assets	13,227.07	11,318.86	1,908.21	16.86
<b>Total assets</b>	<b>14,689.23</b>	<b>12,218.44</b>	<b>2,470.79</b>	<b>20.22</b>

- 1) As at 31 December 2018, the current assets amounting of THB 1,462.16 million, increased by THB 562.58 million or 62.54%, compared to THB 899.58 million as at 31 December 2017. The increase mainly came from trade receivables of Biomass projects and insurance receivables.
- 2) As at 31 December 2018, the non-current assets amounting of THB 13,227.07 million, increased by THB 1,908.21 million or 16.86%, compared to THB 11,318.86 million as at 31 December 2017. The increase mainly came from the progress of the projects under construction both domestic and overseas.

### 2. Analysis of liabilities and shareholders' equity

As at 31 December 2018, total liabilities and shareholders' equity were THB 14,689.23 million, which increased by THB 2,470.79 million or 20.22%, compared to THB 12,218.44 million as at 31 December 2017. The details were as follows;

Unit : THB million

Items	31 December		Increase (Decrease)	
	2018	2017	Amount	%
Liabilities	9,774.62	7,437.70	2,336.92	31.42
Equity	4,914.61	4,780.74	133.87	2.80
<b>Total liabilities and equity</b>	<b>14,689.23</b>	<b>12,218.44</b>	<b>2,470.79</b>	<b>20.22</b>

- 1) As at 31 December 2018, total liabilities amounting of THB 9,774.62 million, increased by THB 2,336.92 million or 31.42%, compared to THB 7,437.70 million as at 31 December 2017. Main increase came from loan from financial institutions of subsidiaries to support investment projects.
- 2) As at 31 December 2018, total equity amounting of THB 4,914.61 million, increased by THB 133.87 million or 2.80%, compared to THB 4,780.74 million as at 31 December 2017. The increase in equity came from continuous profit, the profit for the year 2018 amounting of THB 173.95 million increased the retained earnings from THB 2,135.19 million in 2017 to THB 2,207.23 million in 2018. In addition, the Annual General Meeting of Shareholders approved a dividend payment to shareholders in forms of shares dividend at the ratio of 20 ordinary shares: 1 dividend share, totaling THB 90.75 million and cash dividend at THB 0.00556 per share, totaling THB 10.09 million. Total dividend payment amounting of THB 100.84 million.



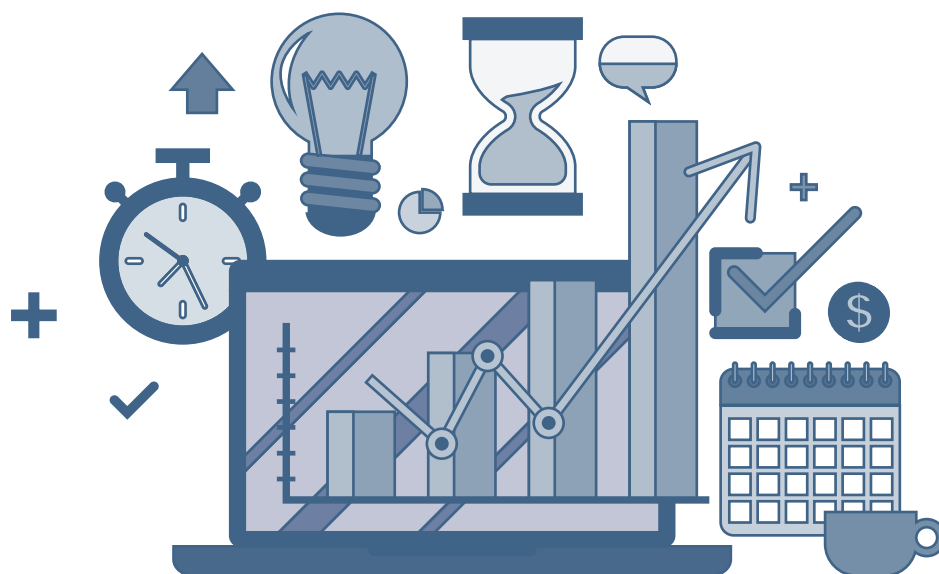
### 3. Appropriateness of Capital Structure

The Company's debt/equity ratio was still low at 1.99 in 2018 which is higher than 1.56 in 2017, the change in debt/equity ratio mainly came from the non-cash transaction expenses total amounting of THB 372 million that lower the expected increase in equity.

### Analysis Report on Cash Flow under the Consolidated Financial Statements

The balance of cash and cash equivalent in the consolidated financial statement as of 31 December 2018 was THB 561.02 million, decreased by THB 136.27 million, compared to THB 424.75 million as at 31 December 2017 due to the following reasons.

- 1) Net cash used in operating activities amounting of THB 204.32 million.
- 2) Net cash used in investing activities amounting of THB 1,543.01 million.
- 3) Net cash from financing activities amounting of THB 1,946.40 million.
- 4) Effect of exchange rate changes on translation of financial statements, loss amounting of THB 62.80 million.



# Independent Auditor's Report

To the shareholders and the Board of Directors of Thai Solar Energy Public Company Limited

## My opinion

In my opinion, the consolidated financial statements of Thai Solar Energy Public Company Limited (the Company) and its subsidiaries (the Group) and the separate financial statements of the Company present fairly, in all material respects, the consolidated and separate financial position of the Group and of the Company as at 31 December 2018, and its consolidated and separate financial performance and its consolidated and separate cash flows for the year then ended in accordance with Thai Financial Reporting Standards (TFRSs).

## What I have audited

The consolidated financial statements and the separate financial statements comprise:

- the consolidated and separate statements of financial position as at 31 December 2018;
- the consolidated and separate statements of comprehensive income for the year then ended;
- the consolidated and separate statements of changes in equity for the year then ended;
- the consolidated and separate statements of cash flows for the year then ended; and
- the notes to the consolidated and separate financial statements, which include a summary of significant accounting policies.

## 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 Federation of Accounting Professions under the Royal Patronage of his Majesty the King's Code of Ethics for Professional Accountants together with the ethical requirements that are 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. I determine one key audit matter : Impairment of asset - Thermal power plant. The matter was 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 the matter.

Key audit matter	How my audit addressed the key audit matter
<p><b>Impairment of asset - Thermal power plant</b></p> <p>Refer to note 4.1 Accounting policies for critical accounting estimates and judgements and note 15 Property plant and equipment.</p> <p>The management determined that the thermal power plant is a cash-generating unit (CGU), which was subject to impairment test because the electricity production did not meet the expected plan and the thermal power plant has now ceased the operation. Management plans to sell the thermal power plant to third parties.</p> <p>Management assessed the recoverable amount of the assets based on fair value less cost to sell. The fair value was determined from market price of equivalent assets and appraisal report from independent valuer.</p> <p>During 2018, management recognised an additional provision for impairment loss on the thermal power plant amounting to Baht 296 million. At 31 December 2018, the thermal power plant had a net book value of Baht 238.47 million, after the provision for impairment of Baht 545.92 million. Management believed that the provision for impairment was adequate and reflecting the approximate recoverable value of assets.</p> <p>I focused on this area because the assessment of the recoverable amount involved management's judgment about identification of assets expected to be disposed and the carrying value of thermal power plant and loss from impairment were significant to the Group and the separate financial statements.</p>	<p>I understood and evaluated management's impairment models and management's judgments on key assumptions as follows:</p> <ul style="list-style-type: none"> <li>• Inquired management on their plan for disposal of the thermal power plant including identification of assets expected to be disposed.</li> <li>• Assessed the methodologies used by both the management and the independent valuer to estimated fair value of assets.</li> <li>• Tested the accuracy of the data used in calculation model.</li> <li>• Tested the calculation of impairment of asset amount.</li> </ul> <p>I found that the management's key assumptions used in assessing the fair value less cost to sell were justifiable and appropriate in light of the current circumstances.</p>

## Other information

The directors are 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 the audit committee.

## **Responsibilities of the directors for the consolidated and separate financial statements**

The directors are responsible for the preparation and fair presentation of the consolidated and separate financial statements in accordance with TFRSs, and for such internal control as the directors determine 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, the directors are responsible for assessing the Group 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 the directors either intend to liquidate the Group and the Company or to cease operations, or has no realistic alternative but to do so.

The audit committee assists the directors in discharging their responsibilities for overseeing the Group 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 scepticism 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 and the Company's internal control.
- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the directors.
- Conclude on the appropriateness of the directors' 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 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 the audit committee 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 the audit committee 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 the audit committee, 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.

PricewaterhouseCoopers ABAS Ltd.



**Kajornkiet Aroonpirodkul**

Certified Public Accountant (Thailand) No. 3445

Bangkok

27 February 2019



# Statement of Financial Position

As at 31 December 2018

	Notes	Consolidated financial statements		Separate financial statements	
		2018	2017	2018	2017
		Baht	Baht	Baht	Baht
<b>Assets</b>					
<b>Current assets</b>					
Cash and cash equivalents	7	561,020,761	424,752,306	209,557,883	32,023,034
Short-term restricted bank deposits	8	74,399,234	77,853,761	11,602,676	8,860,152
Short-term investments	9	459,753	71,053,273	459,753	71,053,273
Trade and other receivables	10	478,067,350	190,957,206	258,869,056	417,606,198
Short-term loans to others		-	13,041,270	-	-
Short-term loans to subsidiaries	31 c)	-	-	335,287,932	2,276,372,707
Inventories		14,452,830	-	-	-
Refundable Value Added Tax		181,178,565	92,768,461	-	241,228
Short-term derivatives assets	11	-	10,194,000	-	10,194,000
Other current assets	12	152,581,949	18,957,229	11,977,634	10,914,187
<b>Total current assets</b>		<b>1,462,160,442</b>	<b>899,577,506</b>	<b>827,754,934</b>	<b>2,827,264,779</b>
<b>Non-current assets</b>					
Long-term restricted bank deposits	8	12,008,535	25,870,000	1,050,000	24,070,000
Long-term loans to subsidiaries	31 d)	-	-	4,333,468,428	2,232,305,697
Receivables from disposal of investments	31 b)	-	-	1,383,683,149	-
Investments in subsidiaries	13.2	-	-	1,198,749,905	2,339,249,267
Investments in jointly controlled entities	13.1	1,787,086,887	1,750,548,509	350,000,130	350,000,130
Investment property	14	89,977,885	88,399,605	89,977,885	88,399,605
Property, plant and equipment	15	6,928,083,195	5,153,099,831	280,233,690	594,804,630
Goodwill	16	17,726,430	-	-	-
Intangible assets	17	4,376,580,242	4,129,634,953	7,679,330	5,626,613
Deferred tax assets	18	2,409,825	73,702,662	-	73,173,307
Long-term derivatives assets	11	-	71,587,462	-	71,587,462
Other non-current assets		13,201,756	26,022,513	2,652,339	3,909,921
<b>Total non-current assets</b>		<b>13,227,074,755</b>	<b>11,318,865,535</b>	<b>7,647,494,856</b>	<b>5,783,126,632</b>
<b>Total assets</b>		<b>14,689,235,197</b>	<b>12,218,443,041</b>	<b>8,475,249,790</b>	<b>8,610,391,411</b>

The accompanying notes are an integral of these consolidated and separate financial statements.

## Statement of Financial Position (Cont'd)

As at 31 December 2018

	Notes	Consolidated		Separate	
		financial statements		financial statements	
		2018 Baht	2017 Baht	2018 Baht	2017 Baht
<b>Liabilities and equity</b>					
<b>Current liabilities</b>					
Short-term borrowings from financial institutions	20.1	98,794,277	2,233,047,945	98,794,277	2,233,047,945
Construction and other payables	19	278,445,782	269,486,370	42,593,513	85,418,000
Current portion of finance lease liabilities	20.2	2,619,884	2,523,423	2,619,884	2,523,423
Current portion of long-term borrowings	20.3	437,241,304	57,186,730	175,888,656	-
Shore-term loan from subsidiary	31 e)	-	-	22,500,000	22,500,000
Current portion of debentures	20.5	2,048,530,153	-	2,048,530,153	-
Income tax payable		1,349,856	1,726,427	-	-
Other current liabilities		15,484,548	13,253,458	966,918	683,651
<b>Total current liabilities</b>		<b>2,882,465,804</b>	<b>2,577,224,353</b>	<b>2,391,893,401</b>	<b>2,344,173,019</b>
<b>Non-current liabilities</b>					
Finance lease liabilities	20.2	7,979,672	10,599,556	7,979,672	10,599,556
Long-term borrowings from financial institutions	20.3	5,922,634,037	1,846,101,127	2,062,779,803	-
Debentures	20.5	949,065,843	2,995,173,493	949,065,843	2,995,173,493
Employee benefit obligations	21	8,606,509	6,075,757	8,606,509	6,075,757
Provision for decommissioning costs		2,454,578	2,454,578	2,454,578	2,454,578
Deferred tax liabilities	18	1,335,446	-	1,266,952	-
Other non-current liabilities		72,000	72,000	72,000	72,000
<b>Total non-current liabilities</b>		<b>6,892,148,085</b>	<b>4,860,476,511</b>	<b>3,032,225,357</b>	<b>3,014,375,384</b>
<b>Total liabilities</b>		<b>9,774,613,889</b>	<b>7,437,700,864</b>	<b>5,424,118,758</b>	<b>5,358,548,403</b>
<b>Equity</b>					
Share capital					
Authorised share capital					
Ordinary shares 2,450,250,000 shares of par Baht 1 each (2017: 2,359,500,000 shares of par Baht 1 each)	22	2,450,250,000	2,359,500,000	2,450,250,000	2,359,500,000
Issued and paid-up share capital					
Ordinary shares 1,905,749,580 shares of paid-up Baht 1 each (2017: 1,815,000,000 shares of paid-up Baht 1 each)	22	1,905,749,580	1,815,000,000	1,905,749,580	1,815,000,000
Premium on ordinary shares	22	727,554,273	727,554,273	727,554,273	727,554,273
Retained earnings					
Appropriated-legal reserve	23	63,972,012	62,894,012	50,894,012	50,894,012
Unappropriated retained earnings		2,207,230,671	2,135,195,319	366,933,167	658,394,723
Other components of equity		(134,119,095)	(122,052,836)	-	-
Equity attributable to owners of the parent		4,770,387,441	4,618,590,768	3,051,131,032	3,251,843,008
Non-controlling interests		144,233,867	162,151,409	-	-
<b>Total equity</b>		<b>4,914,621,308</b>	<b>4,780,742,177</b>	<b>3,051,131,032</b>	<b>3,251,843,008</b>
<b>Total liabilities and equity</b>		<b>14,689,235,197</b>	<b>12,218,443,041</b>	<b>8,475,249,790</b>	<b>8,610,391,411</b>

The accompanying notes are an integral of these consolidated and separate financial statements.

Thai Solar Energy Public Company Limited  
**Statement of Comprehensive Income**  
As at 31 December 2018

	Notes	Consolidated financial statements		Separate financial statements	
		2018	2017	2018	2017
		Baht	Baht	Baht	Baht
Revenue from sales		496,417,874	188,422,145	1,242,355	-
Subsidy for adders		22,339,621	-	1,499,520	-
Management service fee income		42,610,585	40,581,506	74,351,127	67,865,420
Cost of sales and services		(435,172,853)	(177,237,832)	(88,386,181)	(84,233,186)
<b>Gross profit (loss)</b>		126,195,227	51,765,819	(11,293,179)	(16,367,766)
Dividends income	31 a)	53	41	586,572,101	451,500,080
Other income	24	156,191,219	39,304,761	69,461,144	86,659,935
Administrative expenses		(206,690,163)	(148,685,912)	(204,779,510)	(153,461,091)
Other expenses	15	(296,000,000)	-	(296,000,000)	-
Finance costs	26	(123,240,033)	(112,497,729)	(260,140,885)	(148,751,520)
Share of profit from jointly controlled entities		610,188,427	586,956,733	-	-
<b>Profit (loss) before income tax</b>		266,644,730	416,843,713	(116,180,329)	219,579,638
Income tax	27	(83,576,890)	(2,985,333)	(74,440,259)	(2,216,106)
<b>Profit (loss) for the year</b>		183,067,840	413,858,380	(190,620,588)	217,363,532
<b>Other comprehensive income (loss) for the year:</b>					
Items that will not be reclassified to profit or loss					
Remeasurements of post-employment benefit obligations	21	-	(62,261)	-	(62,261)
Income tax on the above item	18	-	12,452	-	12,452
Items that will be reclassified subsequently to profit or loss:					
Currency translation differences		(4,177,321)	(160,062,057)	-	-
<b>Total comprehensive income (loss) for the year</b>		178,890,519	253,746,514	(190,620,588)	217,313,723
<b>Profit (loss) attributable to:</b>					
Owners of the parent		173,954,320	415,758,694	(190,620,588)	217,363,532
Non-controlling interests		9,113,520	(1,900,314)	-	-
		183,067,840	413,858,380	(190,620,588)	217,363,532
<b>Total comprehensive income (loss) attributable to:</b>					
Owners of the parent		169,656,984	255,663,679	(190,620,588)	217,313,723
Non-controlling interests		9,233,535	(1,917,165)	-	-
		178,890,519	253,746,514	(190,620,588)	217,313,723
<b>Earnings (loss) per share</b>					
Basic earnings (loss) per share	29	0.09	0.22	(0.10)	0.11

The accompanying notes are an integral of these consolidated and separate financial statements.

Thai Solar Energy Public Company Limited

## Statement of Changes in Equity

For the year ended 31 December 2018

Consolidated financial statements										
Notes	Attributable to owners of the parent									
	Issued and paid-up share capital	Premium on ordinary share capital	Retained earnings		Other components of equity			Total owners of the parent	Non-controlling interests	Total Baht
			Appropriated - legal reserve	Unappropriated	Changes in parent's ownership interest in subsidiary	Translation of financial statements				
	Baht	Baht	Baht	Baht	Baht	Baht	Baht	Baht	Baht	Baht
Opening balance at 1 January 2017	1,815,000,000	727,554,273	46,825,835	1,935,202,673	-	37,992,370	4,562,575,151	22,843,574	4,585,418,725	
Change in equity for the year										
Non-controlling interests invested in subsidiary	-	-	-	-	-	-	-	141,225,000	141,225,000	
Appropriation of legal reserve	23	-	16,068,177	(16,068,177)	-	-	-	-	-	
Cash dividends	30	-	-	(199,648,062)	-	-	(199,648,062)	-	(199,648,062)	
Total comprehensive income for the year	-	-	-	415,708,885	-	(160,045,206)	255,663,679	(1,917,165)	253,746,514	
Closing balance at 31 December 2017	1,815,000,000	727,554,273	62,894,012	2,135,195,319	-	(122,052,836)	4,618,590,768	162,151,409	4,780,742,177	
Opening balance at 1 January 2018										
Opening balance at 1 January 2018	1,815,000,000	727,554,273	62,894,012	2,135,195,319	-	(122,052,836)	4,618,590,768	162,151,409	4,780,742,177	
Change in equity for the year										
Additional investment in subsidiaries by purchasing shares from non-controlling interests	13.2	-	-	-	(7,768,923)	-	(7,768,923)	(27,151,077)	(34,920,000)	
Appropriation of legal reserve	23	-	1,078,000	(1,078,000)	-	-	-	-	-	
Share dividends	22	90,749,580	-	(90,749,580)	-	-	-	-	-	
Cash dividends	30	-	-	(10,091,388)	-	-	(10,091,388)	-	(10,091,388)	
Total comprehensive income for the year	-	-	-	173,954,320	-	(4,297,336)	169,656,984	9,233,535	178,890,519	
Closing balance at 31 December 2018	1,905,749,580	727,554,273	63,972,012	2,207,230,671	(7,768,923)	(126,350,172)	4,770,387,441	144,233,867	4,914,621,308	

The accompanying notes are an integral of these consolidated and separate financial statements.





## Statement of Cash Flows

For the year ended 31 December 2018

	Notes	Consolidated		Separate	
		financial statements		financial statements	
		2018	2017	2018	2017
		Baht	Baht	Baht	Baht
<b>Cash flows from operating activities</b>					
Profit (loss) before income tax		266,644,730	416,843,713	(116,180,329)	219,579,638
Adjustments for:					
Depreciation	15, 25	145,968,764	81,404,797	26,131,299	20,405,088
Amortisation	17	11,073,552	837,843	1,111,493	484,530
Share of profit from investments in jointly controlled entities	13.1	(610,188,427)	(586,956,733)	-	-
Provision for employee benefits obligations	21	2,652,204	3,895,076	2,652,204	3,895,076
Unrealised (gain) loss on exchange		(2,024,288)	(3,252,884)	(73,463,351)	129,916,369
Fair value loss on trading securities	9	-	675,160	-	675,160
Gain on disposal of trading securities	24	(1,349,250)	(8,649,867)	(1,349,250)	(8,649,867)
Loss (gain) from disposal/write-off equipment		37,848	3,163,848	(18,515)	3,163,848
Loss from impairment of assets	15	296,000,000	-	296,000,000	-
Loss from write-off withholding tax		17,528	494,059	-	76,204
Dividends income	31 a)	(53)	(41)	(586,572,101)	(451,500,080)
Interest income	24	(23,090,909)	(18,911,219)	(24,495,479)	(69,962,781)
Other income		(1,578,280)	-	(3,030,593)	-
Finance cost	26	123,240,033	112,497,729	260,140,885	148,751,520
		207,403,452	2,041,481	(219,073,737)	(3,165,295)
<b>Changes in operating assets and liabilities</b>					
Trade and other receivables		(393,228,292)	204,693,313	(10,822,156)	220,843,324
Inventories		(14,452,830)	-	-	-
Value added tax refundable		(67,167,834)	(16,584,036)	241,228	742,014
Derivatives assets		81,781,462	(81,781,462)	81,781,462	(81,781,462)
Other current assets		(57,076,636)	(3,356,254)	(324,323)	(177,290)
Other non-current assets		13,923,480	(3,939,919)	1,259,199	(2,058,971)
Other payables		35,085,118	(207,140,087)	315,560	(16,799,755)
Other current liabilities		773,786	9,469,212	283,267	(1,513,683)
Employee benefit payments		(121,452)	(3,564,336)	(121,452)	(3,564,336)
Cash flows (used in) from operating activities		(193,079,746)	(100,162,088)	(146,460,952)	112,524,546
Add Income tax received		1,546,610	1,848,081	1,546,610	1,723,967
Less Income tax paid		(12,787,837)	(8,794,601)	(2,279,665)	(8,780,499)
Net cash (used in) from operating activities		(204,320,973)	(107,108,608)	(147,194,007)	105,468,014

The accompanying notes are an integral of these consolidated and separate financial statements.

Thai Solar Energy Public Company Limited  
**Statement of Cash Flows (Cont'd)**  
For the year ended 31 December 2018

	Notes	Consolidated		Separate	
		financial statements		financial statements	
		2018	2017	2018	2017
		Baht	Baht	Baht	Baht
Cash flows from investing activities					
Acquisition of subsidiary, net of cash acquired	13.2	(45,909,210)	(4,097,762,928)	(488,700,475)	(1,073,275,386)
Proceeds from disposals of investment in subsidiaries		-	-	424,249,995	
Payment to subscription payables		-	(179,635,000)	-	(179,635,000)
Increase in restricted bank deposits		(5,603,737)	(40,650,522)	(2,742,524)	(8,860,152)
Purchase of short-term investments	9	(510,971,859)	(2,317,233,343)	(510,971,859)	(2,317,233,343)
Proceeds from disposals of short-term investments		605,934,630	3,996,101,228	605,934,630	3,996,101,228
Short-term loan repayments received from third party		-	6,958,730	-	-
Short-term loans made to subsidiaries	31 c)	-	-	(663,484,810)	(2,450,286,600)
Short-term loan repayments received from subsidiaries	31 c)	-	-	380,741,723	502,963,001
Long-term loans made to subsidiaries	31 d)	-	-	(563,736,515)	(1,822,252,003)
Long-term loan repayments received from subsidiaries	31 d)	-	-	704,565,291	-
Purchase of property, plant and equipment		(2,255,191,134)	(1,718,824,863)	(6,927,944)	(28,755,657)
Proceeds from disposals of equipment		10,118,121	8,763,416	262,615	8,748,354
Purchase of intangible asset		(46,566,950)	(17,749,262)	(3,121,581)	(2,058,379)
Interest received		34,960,193	9,420,715	35,815,425	14,089,685
Dividends received		670,222,116	411,250,074	570,822,098	415,700,073
Net cash (used in) from investing activities		(1,543,007,830)	(3,939,361,755)	482,706,069	(2,944,754,179)
Cash flows from financing activities					
Proceeds from short-term loans from financial institutions, net of financial service fee	20.1	85,986,004	2,227,500,000	85,986,004	2,227,500,000
Repayment to short-term loans from financial institutions	20.1	(2,250,000,000)	(490,000,000)	(2,250,000,000)	(490,000,000)
Repayment to finance lease liabilities	20.2	(2,973,324)	(4,404,112)	(2,973,324)	(4,404,112)
Proceeds from long-term borrowings, net of financial service fee		4,617,387,743	1,234,816,926	2,237,654,703	-
Repayment to long-term borrowings	20.3	(240,296,891)	(120,358,694)	-	-
Proceeds from issuance of debentures	20.5	-	947,862,500	-	947,862,500
Non-controlling interests made additional investment in subsidiaries		-	141,225,000	-	-
Addition investment in subsidiary by purchasing shares from non-controlling interests		(34,920,000)	-	-	-
Cash dividends payment		(10,181,324)	(199,614,803)	(10,181,324)	(199,614,794)
Interest expenses and financial service fee		(218,601,959)	(171,997,193)	(220,489,723)	(107,040,411)
Net cash from (used in) financing activities		1,946,400,249	3,565,029,624	(160,003,664)	2,374,303,183

The accompanying notes are an integral of these consolidated and separate financial statements.

Thai Solar Energy Public Company Limited  
**Statement of Cash Flows (Cont'd)**  
For the year ended 31 December 2018

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
<b>Net increase (decrease) in cash and cash equivalents</b>	199,071,446	(481,440,739)	175,508,398	(464,982,982)
Cash and cash equivalents at beginning of the year	424,752,306	977,037,378	32,023,034	497,007,854
Exchange gain/loss on cash and cash equivalents	1,084,230	7,127,778	2,026,451	(1,838)
Effect of exchange rate changes on translation of financial statements	(63,887,221)	(77,972,111)	-	-
<b>Cash and cash equivalents at end of the year</b>	<b>561,020,761</b>	<b>424,752,306</b>	<b>209,557,883</b>	<b>32,023,034</b>
<b>Non-cash transactions</b>				
Significant non-cash transactions are as follows:				
Payable arising from purchase of investment in subsidiary	-	-	249,995	50,249,985
Payable arising from construction and purchase of equipment	119,907,294	194,559,625	2,086,003	62,498
Receivables from disposal of investments	-	-	1,383,683,149	174,499,985
Share dividends	90,749,580	-	90,749,580	-

The accompanying notes are an integral of these consolidated and separate financial statements.

## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

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### 1 General information

Thai Solar Energy Public Company Limited ("the Company") is a Public Company Limited which is incorporated and domiciled in Thailand. The Company is listed on the Stock Exchange of Thailand. Its parent company is P.M. Energy Company Limited (incorporated in Thailand) ("Parent Company"). The address of the Company's registered office is as follows:

725 Metropolis Building, 19<sup>th</sup> Floor, Sukhumvit Rd., Klongton Nua, Wattana, Bangkok.

For reporting purposes, the Company, its subsidiaries and Jointly Controlled Entity are referred to as the Group.

The principal business operations of the Group are generation and distribution of electricity from solar power and biomass to government and private sector.

These consolidated and separate financial statements have been approved for issue by the Board of Directors on 27 February 2019.

### 2 Accounting policies

The principal accounting policies applied in the preparation of these consolidated and separate financial statements are set out below:

#### 2.1 Basis of preparation

The consolidated and separate financial statements have been prepared in accordance with Thai generally accepted accounting principles under the Accounting Act B.E. 2543, being those Thai Financial Reporting Standards issued under the Accounting Profession Act B.E. 2547, and the financial reporting requirements of the Securities and Exchange Commission under the Securities and Exchange Act.

The consolidated and separate financial statements have been prepared under the historical cost convention except trading investments as disclosed in accounting policy.

The preparation of financial statements in conformity with Thai generally accepted accounting principles requires the use of certain critical accounting estimates. It also requires management to exercise its judgement in the process of applying the Group's accounting policies. The areas involving a higher degree of judgement or complexity, or areas where assumptions and estimates are significant to the consolidated financial statements are disclosed in Note 4.

An English version of the consolidated and separate financial statements have been prepared from the statutory financial statements that are in the Thai language. In the event of a conflict or a difference in interpretation between the two languages, the Thai language statutory financial statements shall prevail.

## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

### 2 Accounting policies (Cont'd)

#### 2.2 Revised accounting standards, revised financial reporting standards, and related interpretations

2.2.1 Revised financial reporting standards are effective for annual periods beginning on or after 1 January 2018 which have significant changes and are relevant to the Group.

TAS 7 (revised 2017)	Statement of cash flows
TAS 12 (revised 2017)	Income taxes

TAS 7 (revised 2017), the amendments require additional disclosure of changes in liabilities arising from financing activities. This includes changes arising from cash and non-cash.

TAS 12 (revised 2017), the amendments clarify the accounting for deferred tax where an asset is measured at fair value and that fair value is below the asset's tax base. Specifically, the amendments confirm that:

- A temporary difference exists whenever the carrying amount of an asset is less than its tax base at the end of the reporting period.
- An entity can assume that it will recover an amount higher than the carrying amount of an asset to estimate its future taxable profit.
- Where the tax law restricts the source of taxable profits against which particular types of deferred tax assets can be recovered, the recoverability of the deferred tax assets can only be assessed in combination with other deferred tax assets of the same type.
- Tax deductions resulting from the reversal of deferred tax assets are excluded from the estimated future taxable profits.

The Group's management assessed and considered that the above revised standards do not have a significant impact on the Group except for disclosure.

2.2.2 New and revised financial reporting standards and interpretation which have been issued but not yet effective.

2.2.2.1 The FAP has issued new standard, TFRS15 Revenue from contracts with customers. This standard will become effective for annual periods beginning on or after 1 January 2019. The Group has not early adopted this standard.

TFRS 15 Revenue from contracts with customers will supersede the following standards:

TAS 11 (revised 2017)	Construction contracts
TAS 18 (revised 2017)	Revenue
TSIC 31 (revised 2017)	Revenue - barter transactions involving advertising services
TFRIC 13 (revised 2017)	Customer loyalty programmes
TFRIC 15 (revised 2017)	Agreements for the construction of real estate
TFRIC 18 (revised 2017)	Transfers of assets from customers

The new standard is based on the principle that revenue is recognized when control of a good or service transfers to a customer - so the notion of control replaces the existing notion of risks and rewards.

An entity recognizes revenue in accordance with that core principle by applying the following steps:

- Step 1: Identify the contract(s) with a customer
- Step 2: Identify the performance obligations in the contract
- Step 3: Determine the transaction price
- Step 4: Allocate the transaction price to the performance obligations in the contract
- Step 5: Recognizes revenue when (or as) the entity satisfies a performance obligation



# Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

## 2 Accounting policies (Cont'd)

### 2.2 Revised accounting standards, revised financial reporting standards, and related interpretations (Cont'd)

2.2.2 New and revised financial reporting standards and interpretation which have been issued but not yet effective. (Cont'd)

2.2.2.1 The FAP has issued new standard, TFRS15 Revenue from contracts with customers. This standard will become effective for annual periods beginning on or after 1 January 2019. The Group has not early adopted this standard. (Cont'd)

Key changes to current practice are:

- Any bundled goods or services that are distinct must be separately recognised, and any discounts or rebates on the contract price must generally be allocated to the separate elements
- Revenue may be recognised earlier than under current standards if the consideration varies for any reasons (such as for incentives, rebates, performance fees, royalties, success of an outcome etc.) - minimum amounts must be recognised if they are not at significant risk of reversal
- The point at which revenue is able to be recognised may shift: some revenue which is currently recognised at a point in time at the end of a contract may have to be recognised over the contract term and vice versa
- There are new specific rules on licenses, warranties, non-refundable upfront fees and, consignment arrangements
- As with any new standard, there are also increased disclosures.

Entities will have a choice to apply this standard retrospectively in accordance with TAS 8 *Accounting Policies, Changes in Accounting Estimates and Errors*, subject to the expedients or retrospectively with the cumulative effect recognized as an adjustment to the opening balance of retained earnings of the annual reporting period that includes the date of initial application with additional disclosures.

Management has assessed the effects of applying the new standard and considered that the above revised standards do not have impact on the Group.

2.2.2.2 Revised financial reporting standards will become effect for annual periods beginning on or after 1 January 2019 and are relevant to the Group. The Group has not yet adopt these standards.

TAS 28 (revised 2018)	Investments in associates and joint ventures
TAS 40 (revised 2018)	Investment Property

TAS 28, the amendment clarifies that the election by venture capital organisations, mutual funds, unit trusts and similar entities to measure investments in associates or joint ventures at fair value through profit or loss should be made separately for each associate or joint venture at initial recognition.

TAS 40, the amendments clarify that transfers to, or from, investment property can only be made if there has been a change in use that is supported by evidence. A change in use occurs when the property meets, or ceases to meet, the definition of investment property. A change in intention alone is not sufficient to support a transfer.

## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

### 2 Accounting policies (Cont'd)

#### 2.2 Revised accounting standards, revised financial reporting standards, and related interpretations (Cont'd)

2.2.2 New and revised financial reporting standards and interpretation which have been issued but not yet effective. (Cont'd)

2.2.2.3 The group of financial reporting standards related to financial instruments is effective for annual periods beginning on or after 1 January 2020. They comprise accounting standards and financial reporting standards as shown below. The early application is permitted only for the period beginning on or after 1 January 2019.

TAS 32	Financial instruments: Presentation
TFRS 7	Financial Instruments: Disclosures
TFRS 9	Financial Instruments
TFRIC 16	Hedges of a Net Investment in a Foreign Operation

The above new standards will supersede the following standards:

TAS 101	Bad and Doubtful Debts
TAS 105	Accounting for Investment in Debts and Equity securities
TAS 107	Financial Instruments: Disclosure and Presentation

TAS 32 Financial Instruments: Presentation, provides the requirements for the presentation financial instruments as liabilities or equity and for offsetting financial assets and financial liabilities. It applies to the classification of financial instruments, from the perspective of the issuer, into financial assets, financial liabilities and equity instruments; the classification of related interest, dividends, losses and gains; and the circumstances in which financial assets and financial liabilities should be offset.

TFRS 7 Financial Instruments: Disclosures, provides the requirements for the disclosure that are intended to enable users to evaluate the significance of financial instruments for an entity's financial position and performance, and to understand the nature and extent of risks arising from those financial instruments to which the entity is exposed during the period and at the end of the reporting period, and how the entity manages those risks.

TFRS 9 Financial Instruments, establishes principles for the classification, measurement and derecognition of financial assets and financial liabilities, impairment requirement and hedge accounting as follows:

- Classification and measurement:
  - The classification and measurement of debt instrument financial assets has three classification categories, which are amortised cost, fair value through profit or loss and fair value through other comprehensive income. Classification of debt assets will be driven by the entity's business model for managing the financial assets and contractual cash flows characteristics of the financial assets.
  - Equity instrument financial assets shall be measured at fair value through profit or loss. An entity can make an irrevocable election to recognise the fair value change in other comprehensive income without subsequent recycling to profit or loss.
  - Financial liabilities are classified and measured at amortised cost. An entity can choose to measure a liability at fair value through profit or loss when the conditions are met.
  - Derivatives are classified and measured at fair value through profit or loss.

## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

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### 2 Accounting policies (Cont'd)

#### 2.2 Revised accounting standards, revised financial reporting standards, and related interpretations (Cont'd)

2.2.2 New and revised financial reporting standards and interpretation which have been issued but not yet effective. (Cont'd)

2.2.2.3 The group of financial reporting standards related to financial instruments is effective for annual periods beginning on or after 1 January 2020. They comprise accounting standards and financial reporting standards as shown below. The early application is permitted only for the period beginning on or after 1 January 2019. (Cont'd)

TFRS 9 Financial Instruments, establishes principles for the classification, measurement and derecognition of financial assets and financial liabilities, impairment requirement and hedge accounting as follows: (Cont'd)

- The impairment requirements relating to the accounting for an entity's expected credit losses on its financial assets measured at amortised cost, investments in debt instruments measured at fair value through other comprehensive income, lease receivables, loan commitments and financial guarantee contracts. It is no longer necessary for a credit event to have occurred before credit losses are recognised. The entity always accounts for expected credit losses which involves a three stage approach. The stage dictates how the entity measures impairment losses and applies the effective interest rate method. Except for trade receivables and contractual assets which apply in TFRS 15 and are no significant financial components and lease receivables, they are permitted to measure by simplified approach for credit impaired consideration.
- The objective of hedge accounting is to represent, in the financial statements, the effect of an entity's risk management activities that use financial instruments to manage exposures arising from particular risks that could affect profit or loss (or other comprehensive income, in the case of investments in equity instruments for which an entity has elected to present changes in fair value in other comprehensive income). This approach aims to convey the context of hedging instruments for which hedge accounting is applied in order to allow insight into their purpose and effect.

TFRIC 16 Hedges of a Net Investment in a Foreign Operation, clarifies the accounting treatment in respect of net investment hedging, provides guidance on identifying the foreign currency risks that qualify as a hedged risk. Clarifying that hedging instruments that are hedges of a net investment in a foreign operation may be held anywhere in the group not only by the parent. This includes the guidance on how an entity should determine the amount to be reclassified from equity to profit or loss for both the hedging instrument and the hedged item.

The Group's management is currently assessing the impact of initial adoption of these standards.

## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

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### 2 Accounting policies (Cont'd)

#### 2.3 Group accounting - investments in subsidiaries and in joint arrangements

##### (1) Subsidiaries

Subsidiaries are all entities (including structured entities) over which the Group has control. The Group controls an entity when the Group 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. Subsidiaries are fully consolidated from the date on which control is transferred to the Group. They are deconsolidated from the date that control ceases.

The Group applies the acquisition method to account for business combinations. The consideration transferred for the acquisition of a subsidiary is the fair value of the assets transferred, the liabilities incurred to the former owners of the acquiree and the equity interests issued by the Group. The consideration transferred includes the fair value of any asset or liability resulting from a contingent consideration arrangement. Acquisition-related costs are expensed as incurred. Identifiable assets acquired and liabilities and contingent liabilities assumed in a business combination are measured initially at their fair values at the acquisition date. On an acquisition-by-acquisition basis, the Group recognises any non-controlling interest in the acquiree either at fair value or at the non-controlling interest's proportionate share of the acquiree's net assets.

The excess of the consideration transferred, the amount of any non-controlling interest in the acquiree and the acquisition-date fair value of any previous equity interest in the acquiree over the fair value of the identifiable net assets acquired is recorded as goodwill. If the total of consideration transferred, non-controlling interest recognised and previously held interest measured is less than the fair value of the net assets of the subsidiary acquired in the case of a bargain purchase, the difference is recognised directly in profit or loss.

Intercompany transactions, balances and unrealised gains on transactions between group companies are eliminated. Unrealised losses are also eliminated unless the transaction provides evidence of an impairment of the transferred asset. Accounting policies of subsidiaries have been changed where necessary to ensure consistency with the policies adopted by the Group.

In the separate financial statements, investments in subsidiaries are accounted for at cost less impairment. Cost is adjusted to reflect changes in consideration arising from contingent consideration amendments. Cost also includes direct attributable costs of investment.

##### (2) Transactions and non-controlling interests

The Group treats transactions with non-controlling interests as transactions with equity owners of the Group. For purchases from non-controlling interests, the difference between any consideration paid and the relevant share acquired of the carrying value of net assets of the subsidiary is recorded in equity. Gains or losses on disposals to non-controlling interests are also recorded in equity.

##### (3) Joint arrangements

Investments in joint arrangements are classified as either joint operations or joint ventures depending on the contractual rights and obligations of each investor. The Group has assessed the nature of its joint arrangements and determined them to be joint ventures. Joint ventures are accounted for using the equity method.

List of joint ventures are disclosed in note 13.1.

##### (4) Separate financial statement

In the separate financial statements, investments in subsidiaries, associates and joint ventures are accounted for at cost less impairment. Cost is adjusted to reflect changes in consideration arising from contingent consideration amendments. Cost also includes direct attributable costs of investment.

## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

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### 2 Accounting policies (Cont'd)

#### 2.4 Foreign currency translation

##### (a) Functional and presentation currency

Items included in the financial statements of each of the group's entities are measured using the currency of the primary economic environment in which the entity operates ('the functional currency'). The consolidated financial statements are presented in Thai Baht, which is the company's functional and the group's presentation currency.

##### (b) Transactions and balances

Foreign currency transactions are translated into the functional currency using the exchange rates prevailing at the dates of the transactions or valuation where items are re-measured. Foreign exchange gains and losses resulting from the settlement of such transactions and from the translation at year-end exchange rates of monetary assets and liabilities denominated in foreign currencies are recognised in the profit or loss.

When a gain or loss on a non-monetary item is recognised in other comprehensive income, any exchange component of that gain or loss is recognised in other comprehensive income. Conversely, when a gain or loss on a non-monetary item is recognised in profit and loss, any exchange component of that gain or loss is recognised in profit and loss.

##### (c) Group companies

The results and financial position of all the group entities (none of which has the currency of a hyper-inflationary economy) that have a functional currency different from the presentation currency are translated into the presentation currency as follows:

- Assets and liabilities for each statement of financial position presented are translated at the closing rate at the date of that statement of financial position;
- Income and expenses for each statement of comprehensive income are translated at average exchange rates; and
- All resulting exchange differences are recognised in other comprehensive income.

Goodwill and fair value adjustments arising on the acquisition of a foreign operation are treated as assets and liabilities of the foreign operation and translated at the closing rate.

#### 2.5 Financial instruments

The Company uses financial instruments to reduce risk from fluctuations of foreign currency and interest rates by establishing the rate which foreign currency asset and liability will be settled. Financial instruments comprise cross currency swap agreements and forward contracts which are recorded in the financial statements on the contract date. Foreign currency transactions are recorded as receivable and payable using average closing rate. Swap are recorded as swap receivable and payable on contract date using average closing date and translated at the end of the period. Unrealised gain or loss from translation is recognised in profit and loss, interest income or expenses from the agreement is recognised based on accrual basis.

#### 2.6 Cash and cash equivalents

In the consolidated and separate statement of cash flows, cash and cash equivalents includes cash in hand, deposits held at call with banks, other short-term highly liquid investments with original maturities of three months or less and bank overdrafts. In the statement of financial position, bank overdrafts are shown within borrowings in current liabilities.



## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

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### 2 Accounting policies (Cont'd)

#### 2.7 Restricted bank deposits

Restricted bank deposits means all types of bank deposits that are under condition of withdrawal process for specific purpose according to financial agreement and loan facilities agreement with financial institution which provide credit to the Group.

#### 2.8 Investments

Investments other than investments in subsidiaries, and joint ventures are classified into the following three categories: (1) trading investments; (2) held-to-maturity investments; and (3) general investments. The classification is dependent on the purpose for which the investments were acquired. Management determines the appropriate classification of its investments at the time of the purchase and re-evaluates such designation on a regular basis.

- (1) Investments that are acquired principally for the purpose of generating a profit from short-term fluctuations in price are classified as trading investments and included in current assets.
- (2) Investments with fixed maturity that the management has the intent and ability to hold to maturity are classified as held-to-maturity and are included in non-current assets, except for maturities within 12 months from the statement of financial position date which are classified as current assets.
- (3) Investments in non-marketable equity securities are classified as general investments.

All categories of investment are initially recognised at cost, which is equal to the fair value of consideration paid plus transaction cost.

Trading investments are subsequently measured at fair value. The fair value of investments is based on quoted bid price at the close of business on the statement of financial position date by reference to the Stock Exchange of Thailand. The unrealised gains and losses of trading investments are recognised in income statement.

Held-to-maturity investments are carried at amortised cost using the effective yield method less impairment loss.

General investments are carried at cost less impairment loss.

A test for impairment is carried out when there is a factor indicating that an investment might be impaired. If the carrying value of the investment is higher than its recoverable amount, impairment loss is charged to the income statement.

On disposal of an investment, the difference between the net disposal proceeds and the carrying amount is charged or credited to the profit or loss. When disposing of part of the Company's holding of a particular investment in debt or equity securities, the carrying amount of the disposed part is determined by the weighted average carrying amount of the total holding of the investment.

#### 2.9 Trade accounts receivable

Trade accounts receivable are carried at the original invoice amount and subsequently measured at the remaining amount less any allowance for doubtful receivables based on a review of all outstanding amounts at the year-end. The amount of the allowance is the difference between the carrying amount of the receivable and the amount expected to be collectible. Bad debts are written-off during the year in which they are identified and recognised in profit or loss within selling and administrative costs.

#### 2.10 Inventories

Inventories are stated at the lower of cost and net realisable value. Cost is determined by the weighted average method. The cost of purchase comprises both the purchase price and costs directly attributable to the acquisition of the inventory, such as transportation charges, less all attributable discounts.

## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

### 2 Accounting policies (Cont'd)

#### 2.11 Investment property

Property that is held for long-term rental yields or for capital appreciation or both, and that is not occupied by the companies in the consolidated Group, is classified as investment property. Investment property also includes property that is being constructed or developed for future use as investment property.

Investment property is measured initially at its cost, including related transaction costs.

Subsequent expenditure is capitalised to the asset's carrying amount only when it is probable that future economic benefits associated with the expenditure will flow to the Group and the cost of the item can be measured reliably. All other repairs and maintenance costs are expensed when incurred. When part of an investment property is replaced, the carrying amount of the replaced part is derecognised.

After initial recognition, investment property is carried at cost less any accumulated depreciation and any accumulated impairment losses.

Land is not depreciated.

#### 2.12 Property, plant and equipment

Property, plant and equipment is stated at historical costs less any accumulated depreciation and any accumulated impairment loss. Historical cost includes expenditure that is directly attributable to the acquisition of the items.

Subsequent costs are included in the asset's carrying amount or recognised as a separate asset, as appropriate, only when it is probable that future economic benefits associated with the item will flow to the Group and the cost of the item can be measured reliably. The carrying amount of the replaced part is derecognised. All other repairs and maintenance are charged to profit or loss during the financial period in which they are incurred.

Land is not depreciated. Depreciation on other assets is calculated using the straight line method to allocate their cost to their residual values over their estimated useful lives, as follows:

Land improvement	15 years 4 months - 25 years
Power plants	15 years 4 months - 25 years
Office buildings	25 years
Tools and equipment	5 - 10 years
Office equipment	3 - 5 years
Vehicles	5 years

The assets' residual values and useful lives are reviewed, and adjusted if appropriate, at the end of each reporting period.

The asset's carrying amount is written-down immediately to its recoverable amount if the asset's carrying amount is greater than its estimated recoverable amount (Note 2.15).

Gains or losses on disposals are determined by comparing the proceeds with the carrying amount and are recognised within 'Other (losses)/gains - net' in profit or loss.

## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

### 2 Accounting policies (Cont'd)

#### 2.13 Goodwill

At the date of acquisition, Goodwill on acquisitions of subsidiaries Note 2.3 (1) is separately reported in the consolidated statement of financial position.

Goodwill is tested annually for impairment and carried at cost less accumulated impairment losses. Impairment losses on goodwill are not reversed. Gains and losses on the disposal of an entity include the carrying amount of goodwill relating to the entity sold.

Goodwill is allocated to cash-generating units for the purpose of impairment testing. The allocation is made to those cash-generating units or groups of cash-generating units that are expected to benefit from the business combination in which the goodwill arose, identified according to operating segment.

#### 2.14 Intangible assets

##### 2.14.1 Computer software

Acquired computer software is capitalised on the basis of the costs incurred to acquire and bring to use the specific software. These costs are amortised over their estimated useful lives of 5 years.

##### 2.14.2 Right in Power Purchasing Agreement

Right in Power Purchasing Agreements ("PPAs") comprise of PPA for renewable energy (Biomass project) and PPA for generating electricity from solar farm which the Group signed with Provincial Electricity Authority (PEA) and PPA for generating electricity from solar farm as specified in certification for power distribution granted by Ministry of Economy, Trade and Industry, Japan (METI Certificate). The Group acquired those PPAs from acquisition of subsidiaries.

The Right in Power Purchasing Agreements acquired from the business will be recorded as the asset at its fair value on the date of acquisition. The Right in Power Purchasing Agreements which are not acquired from the business will be recorded as the asset at its cost. The PPAs were amortised by using the straight-line method over the contractual period. Amortisation starts when the Group start their commercial operation as follows:

Right in Power Purchasing Agreements - solar farm	20 years and 25 years
Right in Power Purchasing Agreements - biomass	15 years 4 months and 20 years

##### 2.14.3 Right in use of land

Land for the location of The Electricity Generating Authority of Thailand Installed on the ground for government agencies and agricultural cooperatives that is a joint project between a subsidiary with a cooperative in Thailand. A subsidiary agreed to transfer the ownership in this plot of land to that cooperative by the end of the project. The Group remain the right to use such land over the agreement period. Right in use of land was amortised using straight-line method over the contractual period of 25 years.

##### 2.14.4 Right to use transmission line

The right to use transmission line is the transmission line which is used to connect with the system of Provincial Electricity Authority (PEA) for the Group's benefit of electricity distribution. The ownership in the transmission line will be transferred to the PEA by the end of the project. The Group remains the right to use such transmission line over the agreement period. Right in use of transmission line was amortised using straight-line method over the contractual period of 15 years 4 months and 20 years, respectively. Amortisation starts when the Group start their commercial operation.

## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

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### 2 Accounting policies (Cont'd)

#### 2.15 Impairment of assets

Assets that have an indefinite useful life, for example goodwill, are not subject to amortisation and are tested annually for impairment. Assets that are subject to amortisation are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognised for the amount by which the carrying amount of the assets exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs to sell and value in use. For the purposes of assessing impairment, assets are grouped at the lowest level for which there are separately identifiable cash flows. Non-financial assets other than goodwill that suffered an impairment are reviewed for possible reversal of the impairment at each reporting date.

#### 2.16 Leases - where a Group company is the lessee

Leases in which a significant portion of the risks and rewards of ownership are retained by the lessor are classified as operating leases. Payments made under operating leases (net of any incentives received from the lessor) are charged to profit or loss on a straight-line basis over the period of the lease.

The Group leases certain property, plant and equipment. Leases of property, plant or equipment where the Group has substantially all the risks and rewards of ownership are classified as finance leases. Finance leases are capitalised at the inception of the lease at the lower of the fair value of the leased property and the present value of the minimum lease payments.

Each lease payment is allocated between the liability and finance charges so as to achieve a constant rate on the finance balance outstanding. The corresponding rental obligations, net of finance charges, are included in other long-term payables. The interest element of the finance cost is charged to profit or loss over the lease period so as to achieve a constant periodic rate of interest on the remaining balance of the liability for each period. The property, plant or equipment acquired under finance leases is depreciated over the shorter period of the useful life of the asset and the lease term.

#### 2.17 Borrowings

Borrowings are recognised initially at the fair value, net of transaction costs incurred. Borrowings are subsequently stated at amortised cost; any difference between proceeds (net of transaction costs) and the redemption value is recognised in profit or loss over the period of the borrowings using the effective yield method.

Fees paid on the establishment of loan facilities are recognised as transaction costs of the loan to the extent that it is probable that some or all of the facility will be drawn down. In this case, the fee is deferred until the draw-down occurs. To the extent that there is no evidence that it is probable that some or all of the facility will be drawn down, the fee is capitalised as a pre-payment for liquidity services and amortised over the period of the facility to which it relates.

Borrowings are classified as current liabilities unless the Group has an unconditional right to defer settlement of the liability for at least 12 months after the end of reporting date.

#### 2.18 Borrowing costs

General and specific borrowing costs directly attributable to the acquisition, construction or production of qualifying assets, which are assets that necessarily take a substantial period of time to get ready for their intended use or sale, are added to the cost of those assets, until such time as the assets are substantially ready for their intended use or sale or suspended if the development of the asset is suspended.

Investment income earned on the temporary investment of specific borrowings pending their expenditure on qualifying assets is deducted from the borrowing costs eligible for capitalisation.

All other borrowing costs are recognised in profit or loss in the period in which they are incurred.



## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

### 2 Accounting policies (Cont'd)

#### 2.19 Current and deferred income taxes

The tax expense for the period comprises current and deferred tax. Tax is recognised in profit or loss, except to the extent that it relates to items recognised in other comprehensive income or directly in equity. In this case the tax is also recognised in other comprehensive income or directly in equity, respectively.

The current income tax charge is calculated on the basis of the tax laws enacted or substantively enacted at the end of reporting period in the countries where the Company and its subsidiaries operate and generate taxable income. Management periodically evaluates positions taken in tax returns with respect to situations in which applicable tax regulation is subject to interpretation. It establishes provisions where appropriate on the basis of amounts expected to be paid to the tax authorities.

Deferred income tax is recognised, using the liability method, on temporary differences arising from differences between the tax base of assets and liabilities and their carrying amounts in the financial statements.

However, the deferred income tax is not accounted for if it arises from initial recognition of an asset or liability in a transaction other than a business combination that at the time of the transaction affects neither accounting nor taxable profit or loss. Deferred income tax is determined using tax rates (and laws) that have been enacted or substantially enacted by the end of the reporting period and are expected to apply when the related deferred income tax asset is realised or the deferred income tax liability is settled.

Deferred income tax assets are recognised only to the extent that it is probable that future taxable profit will be available against which the temporary differences can be utilised. Deferred income tax is provided on temporary differences arising from investments in subsidiaries, associates and joint arrangements, except where the timing of the reversal of the temporary difference is controlled by the Group and it is probable that the temporary difference will not reverse in the foreseeable future.

Deferred income tax assets and liabilities are offset when there is a legally enforceable right to offset current tax assets against current tax liabilities and when the deferred income tax assets and liabilities relate to income taxes levied by the same taxation authority on either the same taxable entity or different taxable entities where there is an intention to settle the balance on a net basis.

#### 2.20 Employee Benefits

##### (a) Defined contribution - provident fund

A defined contribution plan is a plan under which the Group pays fixed contributions into a separate entity. The Group has no legal or constructive obligations to pay further contributions once the contributions have been paid even if the fund does not hold sufficient assets to pay all employees the benefits relating to employee service in the current and prior periods. The Group pays contributions to a separate fund which is managed by an external fund manager in accordance with the Provident Fund Act, B.E. 2530. The contributions are recognised as employee benefit expense when they are due. Prepaid contributions are recognised as an asset to the extent that a cash refund or a reduction in the future payments is available.

##### (b) Retirement benefits

The Group operates a defined benefit retirement plan that is not a defined contribution plan. Typically defined benefit plans define an amount of retirement benefit that an employee will receive on retirement, usually depends on one or more factors such as age, years of service and compensation.

The liability recognised in the statement of financial position in respect of defined benefit retirement plans is the present value of the defined benefit obligation at the end of the reporting period less the fair value of plan assets. The defined benefit obligation is calculated annually by independent actuaries using the projected unit credit method. The present value of the defined benefit obligation is determined by discounting the estimated future cash outflows using market yield of government bonds that are denominated in the currency in which the benefits will be paid, and that have terms to maturity approximating to the terms of the related retirement liability.

Remeasurement gains and losses arising from experience adjustments and changes in actuarial assumptions are charged or credited to equity in other comprehensive income in the period in which they arise and are included in retained earnings in the statements of changes in equity.

Past-service costs are recognised immediately in profit or loss.



## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

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### 2 Accounting policies (Cont'd)

#### 2.21 Provisions

Provisions, which provisions for employee benefits is not included, are recognised when the Group has a present legal or constructive obligation as a result of past events; it is probable that an outflow of resources will be required to settle the obligation; and the amount has been reliably estimated. Provisions are not recognised for future operating losses.

Provisions are measured at the present value of the expenditures expected to be required to settle the obligation using a pre-tax rate that reflects current market assessments of the time value of money and the risks specific to the obligation. The increase in the provision due to passage of time is recognised as interest expense.

#### 2.22 Government Grants

Grants from the government are recognised according to price subsidy policy where there is a reasonable assurance that the grant will be received and the Group will comply with all attached conditions.

Government grants relating to the sales of electricity generated from solar power is recognised as profit or loss systematically throughout the period. Moreover, the Group recognised expenses related to cost which is compensated.

#### 2.23 Share Capital

Ordinary shares are classified as equity.

Incremental costs directly attributable to the issue of new shares or options are shown in equity as a deduction, net of tax, from the proceeds.

#### 2.24 Revenue recognition

Revenue comprises the fair value of the consideration received or receivable for the sale of goods and service in the ordinary course of the Company's activities. Revenue including electricity tariff adders, net of fuel adjustment (Ft) and the Provincial Electricity Authority's operating charges, are the invoiced value, excluding valued added tax of electricity supplied, and after eliminating sales within the Group. Revenue from sales of goods is recognised when significant risks and rewards of ownership of the goods are transferred to the buyer.

Management service income is recognised when service is completed.

Interest income is recognised using the effective interest method.

Dividend income is recognised when the right to receive payment is established.

#### 2.25 Dividend distribution

Dividend distribution to the Company's shareholders is recognised as a liability in the Group's financial statements in the period in which the dividends are approved by the Company's shareholders and the interim dividend are approved by the Board of Directors.

#### 2.26 Segment reporting

Operating segments are reported in a manner consistent with the internal reporting provided to the chief operating decision-maker. The chief operating decision-maker, who is responsible for allocating resources and assessing performance of the operating segments, has been identified as the Chief Executive Officer and the Executive Committee that make strategic decisions.

## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

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### 3 Financial risk management

#### 3.1 Financial risk factors

The Group's activities expose it to a variety of financial risks: market risk (including currency risk, fair value interest rate risk, cash flow interest rate risk and price risk), credit risk and liquidity risk. The Group's overall risk management programme focuses on the unpredictability of financial markets and seeks to minimise potential adverse effects on the Group's financial performance.

Risk management is carried out under policies approved by the Board of Directors. The Group Treasury identifies, evaluates and hedges financial risks in close co-operation with the Group's operating units. The Board provides written principles for overall risk management, as well as written policies covering specific areas, such as foreign exchange risk, interest rate risk, credit risk, use of derivative and non-derivative financial instruments, and investment excess liquidity.

##### 3.1.1 Foreign exchange risk

As the Group generates and distributes electricity from solar power, the Group has entered into Power Plant construction agreement with supplier in foreign countries. The Group is exposed to foreign exchange risk arising from various currency exposures, primarily with respect to US Dollar and Japanese Yen, in terms of foreign exchange risk arises from future commercial transactions, recognition of assets and liabilities and net investments in foreign operations. However, the Group does not hedge foreign exchange risk as investments and borrowings were made in the same currency with future cash inflow.

The Company has granted loans denominated in Japanese Yen to its subsidiaries which expose the Company to a currency translation risk. The Company uses a cross currency and interest rate swap contract with a local commercial bank to hedge their exposure to foreign currency risk in connection with the risk.

##### 3.1.2 Interest rate risk

Interest rate risk of company occurs from credit facilities of commercial bank which is floating rate. Credit terms and interest rates depend on each borrower's creditability that cause the Company exposing to cash flow risk from interest rate.

##### 3.1.3 Major customer reliance risk

The Group relies on Provincial Electricity Authority (PEA) and Metropolitan Electricity Authority (MEA) who purchase of all electricity generated in specific quantities at specific price based on each specific period according to Power Purchase Agreement, in accordance with Ministry of Energy's policy to encourage production and usage of renewable energy. As a result, agreement termination may significantly impact the Group's operations.

##### 3.1.4 Risk from generated electricity lower than estimation

The electricity volume generated from solar power plants might be affected by climate change and natural disaster, forming as a risk of production volume is lower than estimation. In consequence, it may impact to revenue and operating results of the Group as well as other electricity generators in this industry.

##### 3.1.5 Debt settlement ability risk

According to credit facilities conditions with commercial bank, the Group has to comply with financial covenants stated in the agreement such as to maintain Debt-to-Equity ratio and maintain Debt service coverage ratio. If the Group cannot maintain those financial covenant, the Group might be called up for immediate debt settlement.

#### 3.2 Fair value estimation

See disclosure of fair value of financial instruments, fair value of investment property and fair value of borrowings and in notes 11, 14 and 20 respectively.

## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

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### 4 Critical accounting estimates and judgements

Estimates and judgements are continually evaluated and are based on historical experience and other factors, including expectations of future events that are believed to be reasonable under the circumstances.

#### 4.1 Critical accounting estimates and assumptions

The Group makes estimates and assumptions concerning the future. The resulting accounting estimates will, by definition, seldom equal the related actual results. The estimates and assumptions that have a significant risk of causing a material adjustment to the carrying amounts of assets and liabilities within the next financial year are outlined below.

(a) Estimated impairment of goodwill

The Group tests annually whether goodwill has suffered any impairment, in accordance with the accounting policy stated in note 2.13. The recoverable amounts of cash-generating units have been determined based on value-in-use calculations. These calculations require the use of estimates (note 16).

(b) Property plant and equipment

Management has estimated useful lives and residual value of property plant and equipment. The assets' residual values and useful lives are reviewed, and adjusted if appropriate, at the end of each reporting period and their carrying values are written-down immediately to its recoverable amount if the asset's carrying amount is greater than its estimated recoverable amount or it will write off technically obsolete or assets that have been abandoned or sold.

(c) Estimated impairment of assets

The Group tests whether asset has suffered any impairment, in accordance with the accounting policy stated in Note 2.15. The recoverable amounts of cash-generating units have been determined based on fair value less costs to sell which was determined with reference to market prices for equivalent assets.

(d) Income taxes

The Group is subject to income taxes in numerous jurisdictions. Significant judgement is required in determining the worldwide provision for income taxes. There are many transactions and calculations for which the ultimate tax determination is uncertain. The Group recognises liabilities for anticipated tax audit issues based on estimates of whether additional taxes will be due. Where the final tax outcome of these matters is different from the amounts that were initially recorded, such differences will impact the current and deferred income tax assets and liabilities in the period in which such determination is made.

(e) Deferred taxes

Deferred tax assets and liabilities are recognised for temporary difference arising between tax bases of assets and liabilities and their carrying amount for accounting purposes as at the end of reporting date. Significant management judgment is used in considering whether it is highly probable that the Group will generate sufficient taxable profits from its future operations to minimise these deferred tax assets. The Group's assumptions regarding the future taxable profits and the anticipated timing of minimise of deductible temporary differences and significant changes in these assumptions from period to period may have a material impact on financial position and results of operations.

## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

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### 4 Critical accounting estimates and judgements (Cont'd)

#### 4.1 Critical accounting estimates and assumptions (Cont'd)

##### (f) Pension benefits

The present value of the pension obligations depends on a number of factors that are determined on an actuarial basis using a number of assumptions. The assumptions used in determining the net cost (income) for pensions include the discount rate. Any changes in these assumptions will have an impact on the carrying amount of pension obligations.

The Group determines the appropriate discount rate at the end of each year. This is the interest rate that should be used to determine the present value of estimated future cash outflows expected to be required to settle the retirement benefits obligations. In determining the appropriate discount rate, the Group considers the market yield of government bonds that are denominated in the currency in which the benefits will be paid, and that have terms to maturity approximating the terms of the related retirement benefits liability.

Additional information of other key assumptions for retirement benefits obligations other is disclosed in note 21.

Were the discount rate used to differ by 1% from management's estimates, the carrying amount of retirement benefits obligations would be an estimated Baht 1.08 million higher or Baht 0.93 million lower.

#### 4.2 Critical judgements in applying the entity's accounting policies

Consolidation of entities in which the Group holds less than 50%.

Management consider that the Group has de facto control of Bangsawan Green Co., Ltd. Even though the Group has less than 50% of share interests, it is the only shareholder who has the voting right.

### 5 Capital risk management

The Group's objectives when managing capital are to safeguard the Group's ability to continue as a going concern in order to provide returns for shareholders and benefits for other stakeholders and to maintain an optimal capital structure to reduce the cost of capital.

In order to maintain or adjust the capital structure, the Group may adjust the amount of dividends paid to shareholders, return capital to shareholders, issue new shares, or sell assets to reduce debt. In addition, under loan agreement, the Company has to maintain of certain covenants (Note 20).

## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

### 6 Operating segments

The principal business operations of the Group are generation and distribution of electricity from solar power and biomass, and operating its business in Thailand and in Japan. Segment information is presented in respect of the Group's geography segments which are domestic and international. The two segments presented were classified and reviewed by authorised persons which are Chief Executive Officer and the Executive Committee. The following information is used by authorised persons to evaluate operation of each segment.

#### Financial information by geography segment

	For the year ended 31 December (Million Baht)							
	Domestic		International		Total		Elimination	
	2018	2017	2018	2017	2018	2017	2018	2017
Revenue from operations	501.52	183.10	93.56	76.01	595.08	259.11	(33.76)	(30.11)
Other income	70.68	94.45	89.01	2.35	159.69	96.80	(3.51)	(57.49)
Dividends income	586.57	451.50	-	-	586.57	451.50	(586.57)	(451.50)
Cost of operations	(383.25)	(139.33)	(64.44)	(44.20)	(447.69)	(183.53)	12.52	6.29
Operating profit	775.52	589.72	118.13	34.16	893.65	623.88	(611.32)	(532.81)
Selling and administrative expenses	(443.28)	(112.20)	(51.84)	(26.73)	(495.12)	(138.93)	7.09	3.97
Profit (loss) before finance cost, taxes, depreciation and amortisation	332.24	477.52	66.29	7.43	398.53	484.95	(604.23)	(528.84)
Depreciation and amortisation	(14.61)	(5.48)	-	-	(14.61)	(5.48)	-	-
Finance costs	(317.40)	(169.96)	(18.76)	(62.21)	(336.16)	(232.17)	212.92	119.67
(Loss) gain from exchange rate	(95.37)	(69.22)	-	(10.05)	(95.37)	(79.27)	95.37	71.03
Share of profit from investments in jointly controlled entity	610.19	586.96	-	-	610.19	586.96	-	-
Operating results before taxes	515.05	819.82	47.53	(64.83)	562.58	754.99	(295.94)	(338.14)
Income tax	(73.93)	(2.25)	(9.64)	(0.74)	(83.57)	(2.99)	-	-
<b>Net profit (loss)</b>	<b>441.12</b>	<b>817.57</b>	<b>37.89</b>	<b>(65.57)</b>	<b>479.01</b>	<b>752.00</b>	<b>(295.94)</b>	<b>(338.14)</b>
<b>Total assets</b>								
							14,689.24	12,218.44
<b>Total liabilities</b>								
							9,774.61	7,437.70



**Notes to the Consolidated and Separate Financial Statements**

For the year ended 31 December 2018

**7 Cash and cash equivalents**

	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	<b>2018 Baht</b>	<b>2017 Baht</b>	<b>2018 Baht</b>	<b>2017 Baht</b>
Cash on hand	2,077,931	117,924	60,000	60,000
Cash at bank	558,942,830	424,634,382	209,497,883	31,963,034
	<b>561,020,761</b>	<b>424,752,306</b>	<b>209,557,883</b>	<b>32,023,034</b>

The average effective interest rate on short-term bank deposits was 0.375% per annum (2017: 0.4%).

**8 Restricted bank deposits**

Short-term restricted bank deposits comprise saving deposits specially for repayment of debenture's principals and interest, pledged saving deposits and pledged deposits in current accounts of subsidiaries and the transfer of claims in the deposit accounts to the lender according to the specified expenditure conditions to secure the credit facilities.

The long-term restricted bank deposits consist of the pledged saving bank deposits of the Company to guarantee its electricity consumption, the pledged saving bank deposits of the subsidiaries for the specific purpose specified in the credit facility agreement, a fixed deposit of the Company pledged to the lender to guarantee the credit facilities of its two subsidiaries and a fixed deposit of one of the subsidiaries which the deposit is bound with a letter of guarantee in respect of certain performance bonds with Provincial Electricity Authority.

**9 Short-term investments**

The movements in short-term investments during the year are as follows:

	<b>Consolidated and separate financial statements</b>		
	<b>Trading Baht</b>	<b>Held-to-maturity due within 1 year Baht</b>	<b>Total Baht</b>
At 1 January 2017	520,966,451	1,244,000,000	1,764,966,451
Additions	2,310,000,000	7,233,343	2,317,233,343
Disposals	(2,799,902,056)	(1,187,549,305)	(3,987,451,361)
Transfer out	-	(23,020,000)	(23,020,000)
Re-measuring of investments	(675,160)	-	(675,160)
At 31 December 2017	30,389,235	40,664,038	71,053,273
Additions	510,851,113	120,746	510,971,859
Disposals	(541,240,348)	(63,345,031)	(604,585,379)
Transfer in	-	23,020,000	23,020,000
At 31 December 2018	-	459,753	459,753

During 2017, the Company classified a fixed deposit amounting to Baht 23.02 million to be restricted deposits because the deposit was used to guarantee the credit facilities for a subsidiary. In 2018, such guarantee is no longer required, therefore the deposit was classified back to be short-term investment.

At 31 December 2018, the fair value of short-term investment is as follows:

	<b>Consolidated and separate financial statements</b>
	<b>Held-to-maturity due within 1 year Baht</b>
Investment in securities	<b>459,753</b>

The fair value of investments are based on bid price in liquidity market as at financial statement date. The fair values are within level 2 of the fair value hierarchy.

## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

### 10 Trade and other receivables

Trade and other receivables as at 31 December 2018 and 2017 comprise the following:

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Trade receivable	168,206,169	18,946,067	56,518	-
<u>Less</u> Provision for impairment of trade receivables	-	-	-	-
Total trade receivable, net	168,206,169	18,946,067	56,518	-
Amounts due from and advances to related parties (Note 31 b)	3,860,725	3,676,881	93,031,887	90,317,119
Receivable from disposal of investments (Note 31 b)	-	-	-	174,499,990
Prepaid Expenses	31,725,556	14,344,448	1,259,912	2,524,886
Dividends receivable (Note 31 b)	134,750,024	119,000,021	134,750,024	119,000,021
Other receivables	138,769,231	15,898,621	29,277,829	14,382,726
Advance payment	755,645	19,091,168	492,886	16,881,456
Total other receivables	309,861,181	172,011,139	258,812,538	417,606,198
<u>Less</u> Provision for impairment of other receivables	-	-	-	-
Total other receivables, net	309,861,181	172,011,139	258,812,538	417,606,198
Total trade and other receivables	478,067,350	190,957,206	258,869,056	417,606,198

All outstanding trade receivable are not yet due.

### 11 Derivative Assets

The Company has loaned to subsidiaries denominated in Japanese Yen and has entered into cross currency and interest rate swap contracts with the local commercial bank to hedge the exposure on foreign currency risk.

As at 31 December 2018 and 2017, net swap contracts receivable are as follows:

	Consolidated and separate financial statements	
	31 December 2018 Baht	31 December 2017 Baht
Swap contracts receivable	-	2,261,992,000
Swap contracts payable	-	(2,180,210,538)
Net swap contracts receivable	-	81,781,462

## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

### 11 Derivative Assets (Cont'd)

Swap contracts receivable are due as follows:

	Consolidated and separate financial statements	
	31 December 2018 Baht	31 December 2017 Baht
Short-term derivative assets	-	10,194,000
Long-term derivative assets	-	71,587,462
Total swap contracts receivable	-	81,781,462

#### Net fair values of swap contracts

As at 31 December 2018 and 2017, the net fair values of swap contracts are as follows:

	Consolidated and separate financial statements	
	Fair values	
	31 December 2018 Baht	31 December 2017 Baht
Contracts with positive fair values:	-	82,303,085

During 2018, the Company cancelled the above cross currency swap and interest rate swap contracts and received interest upon the cancellation amounting to Baht 12.77 million.

### 12 Other current assets

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Withholding tax deducted at sources	11,310,857	10,344,497	11,066,233	10,327,109
Input VAT undue	140,513,997	8,357,936	211,345	390,618
Others	757,095	254,796	700,056	196,460
	152,581,949	18,957,229	11,977,634	10,914,187

# Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

## 13 Investments in subsidiaries and investment in jointly controlled entities

### 13.1 Investment in jointly controlled entities

#### Movement in investments in jointly controlled entities

	Consolidated financial statements Baht	Separate financial statements Baht
<b>For the year ended 31 December 2018</b>		
Opening net book amount	1,750,548,509	350,000,130
Share of profit	610,188,427	-
Dividends received	(573,650,049)	-
Closing net book amount	1,787,086,887	350,000,130

Details of jointly controlled entities in 2018 and 2017 are as follows:

	Business	Country of incorporation	% Ownership		Measurement method
			2018	2017	
Jointly controlled entity directly held by the Company					
Thai Solar Renewable Co., Ltd.	Investment holdings	Thailand	60	60	Equity
Jointly controlled entity held by Thai Solar Renewable Co., Ltd.					
Siam Solar Energy 1 Co., Ltd.*	Generation and distribution of electricity	Thailand	60	60	Equity

\* The Company directly holds one share and the remaining shareholding portions are held by Thai Solar Renewable Company Limited.

Thai Solar Renewable Co., Ltd. is investment holding company and Siam Solar Energy 1 Co., Ltd. engages in the generation and distribution of electricity from solar energy. These companies are private companies and their shares are not traded. These companies were joint controlled entities held by the Company and Global Power Synergy Public Company Limited.

#### Summarised financial information for jointly controlled entities

Financial statements of Siam Solar Energy 1 Co., Ltd., subsidiary of Thai Solar Renewable Co., Ltd., was included in the consolidated financial statements of Thai Solar Renewable Co., Ltd.

## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

### 13 Investments in subsidiaries and investment in jointly controlled entities (Cont'd)

#### 13.1 Investment in jointly controlled entities (Cont'd)

Set out below are the summarised consolidated financial statements for Thai Solar Renewable Co., Ltd.

##### Summarised statement of financial positions

Consolidated financial statements of Thai Solar Renewable Co., Ltd. As at 31 December		
	2018 Baht	2017 Baht
<b>Current</b>		
Cash and cash equivalents	1,553,598	2,281,196
Other current assets (excluding cash)	595,092,763	578,058,285
Total current assets	596,646,361	580,339,481
Current financial liabilities (excluding trade payables)	(321,750,000)	(537,750,000)
Other current liabilities (including trade payables)	(265,893,085)	(242,049,395)
Total current liabilities	(587,643,085)	(779,799,395)
Total current net assets	9,003,276	(199,459,914)
<b>Non-current</b>		
Assets	5,016,204,510	5,377,680,138
Financial liabilities	(2,183,290,574)	(2,397,040,574)
Total non-current net assets	2,832,913,936	2,980,639,564
<b>Net assets</b>	<b>2,841,917,212</b>	<b>2,781,179,650</b>

##### Summarised statement of comprehensive income

Consolidated financial statements of Thai Solar Renewable Co., Ltd. For the year ended 31 December		
	2018 Baht	2018 Baht
Revenue from sales	485,947,325	476,376,575
Subsidy for adders	994,678,516	1,004,356,047
Cost of sales	(297,952,787)	(337,836,613)
<b>Gross profit</b>	<b>1,182,673,054</b>	<b>1,142,896,009</b>
Other income	7,130,872	74,863,474
Administrative expenses	(46,533,713)	(82,182,508)
Finance costs	(124,892,644)	(150,235,956)
<b>Profit before income tax expense</b>	<b>1,018,377,569</b>	<b>985,341,019</b>
Income tax	(1,396,858)	(7,079,798)
<b>Profit from continuing operations after income tax</b>	<b>1,016,980,711</b>	<b>978,261,221</b>

The information above reflects the amounts presented in the financial statements of the Jointly Controlled Entity (and not the Group's share of those amounts). Under equity method (Note 2.3), the Group recognised profit or loss of the Jointly Controlled Entities in Statement of Comprehensive Income within "Share of profit from investments in jointly controlled entities" according to the Group's interest in the Jointly Controlled Entity.



## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

### 13 Investments in subsidiaries and investment in jointly controlled entities (Cont'd)

#### 13.1 Investment in jointly controlled entities (Cont'd)

##### Reconciliation of summarised financial information

Reconciliation of the summarised financial information presented to the carrying amount of its interest in jointly controlled entities.

		Thai Solar Renewable Co., Ltd. For the year ended 31 December	
		2018 Baht	2017 Baht
<b>Summarised financial information</b>			
<b>Closing net assets</b>		2,841,917,212	2,781,179,650
<b>Reconciliation:</b>			
The difference from restructuring business under common control		136,730,717	136,564,757
Non-controlling interests		(169,784)	(163,558)
<b>Closing net assets after reconciliation</b>		2,978,478,145	2,917,580,849
Interest in joint controlled entity (60%)		1,787,086,887	1,750,548,509
Carrying value		1,787,086,887	1,750,548,509

As at 31 December 2018, Thai Solar Renewable Company Limited has pledged share certificates of Siam Solar Energy 1 Company Limited, amounting to Baht 1,080 million (2017: Baht 1,080 million) as collateral for its subsidiary's credit facilities granted by a commercial bank. In addition, Siam Solar Energy 1 Company Limited has mortgaged land with construction thereon and machinery with a total net book value of Baht 4,974.74 million (2017: Baht 5,205 million) and pledged bank deposits amounting to Baht 360 million (2017: Baht 489 million) as collateral for credit facilities granted by a commercial bank.

The Company has pledged all share certificates of the investment in the jointly controlled entities with the lender as the collateral for the credit facilities which the jointly controlled entity are granted from the commercial bank.

#### 13.2 Investments in subsidiaries

Details of investments as at 31 December 2018 and 2017 are as follows:

	Business	Country of incorporation	Proportion of ordinary shares directly held by parent (%)		Proportion of shares held by non-controlling interests (%)	
			2018	2017	2018	2017
Subsidiaries directly held by the Company						
TSE Rooftop Co., Ltd.	Investment	Thailand	100	100	-	-
Solar Visible Co., Ltd.	Provision of maintenance service for power plants	Thailand	100	100	-	-
TSE Overseas Group Co., Ltd.	Investment	Thailand	100	100	-	-
World Solar Co., Ltd.	Production and distribution of electricity	Thailand	100	100	-	-
Thai Community Energy Co., Ltd.	Production and distribution of electricity	Thailand	100	100	-	-
Solar Community Co., Ltd.	Production and distribution of electricity	Thailand	-	100	-	-
TSE Group International. Pte. Ltd.	Investment	Singapore	-	100	-	-
Solar Assets Pte. Ltd.	Investment	Singapore	-	100	-	-
Oscar Save The World Co., Ltd.	Production and distribution of electricity	Thailand	-	70	-	30

# Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

## 13 Investments in subsidiaries and investment in jointly controlled entities (Cont'd)

### 13.2 Investments in subsidiaries (Cont'd)

Details of investments as at 31 December 2018 and 2017 are as follows: (Cont'd)

	Business	Country of incorporation	Proportion of ordinary shares directly held by parent (%)		Proportion of shares held by non-controlling interests (%)	
			2018	2017	2018	2017
Subsidiaries held by TSE Rooftop Co., Ltd.						
Green Rooftop Co., Ltd.	Production and distribution of electricity	Thailand	100	100	-	-
North Rooftop Co., Ltd.	Production and distribution of electricity	Thailand	100	100	-	-
Lucky Solar Co., Ltd.	Production and distribution of electricity	Thailand	100	100	-	-
Champ Energy Co., Ltd.	Production and distribution of electricity	Thailand	100	100	-	-
Roof Energy Co., Ltd.	Production and distribution of electricity	Thailand	100	100	-	-
Subsidiaries held by Solar Visible Co., Ltd.						
Solar Community Co., Ltd.	Production and distribution of electricity	Thailand	100	-	-	-
Infinity Solar Co., Ltd.	Production and distribution of electricity	Thailand	100	-	-	-
Subsidiaries held by Thai Community Energy Co., Ltd.						
Sun Future Co., Ltd.	Production and distribution of electricity	Thailand	100	100	-	-
The Solar Earth Co., Ltd.	Production and distribution of electricity	Thailand	100	100	-	-
Clean Renewable Co., Ltd.	Production and distribution of electricity	Thailand	100	100	-	-
Bangsawan Green Co., Ltd.	Production and distribution of electricity	Thailand	49	49	51	51
Oscar Save The World Co., Ltd.	Production and distribution of electricity	Thailand	75	-	25	-
Subsidiaries held by TSE Overseas Group Co., Ltd.						
TSE Group International. Pte. Ltd.	Investment	Singapore	100	-	-	-
Solar Assets Pte. Ltd.	Investment	Singapore	100	-	-	-
Onikoube Solar Power Pte. Ltd.	Investment	Singapore	100	100	-	-
Solar Mountain Pte. Ltd.	Investment	Singapore	-	100	-	-
Subsidiaries held by TSE Group International. Pte. Ltd.						
Eco Solar Aizu GK	Production and distribution of electricity	Japan	97	97	3	3
Ishikawa Hanamizuki 1 GK	Production and distribution of electricity	Japan	97	97	3	3
Subsidiaries held by Solar Assets Pte. Ltd.						
Ibaraki Ushiku 1 GK	Land lease	Japan	100	100	-	-
Ibaraki Ushiku 2 GK	Land lease	Japan	100	-	-	-
Subsidiaries held by Onikoube Solar Power Pte. Ltd. * (previously “Solar Mountain Pte. Ltd.”)						
PurpleSol GK (previously “SolarOne GK”)	Production and distribution of electricity	Japan	100	100	-	-
Subsidiaries held by Onikoube Solar Power Pte. Ltd.						
PurpleSol GK **	Production and distribution of electricity	Japan	-	100	-	-

\* Onikoube Solar Power Pte. Ltd. merged into Solar Mountain Pte. Ltd. on 21 June 2018.

\*\* PurpleSol GK merged into SolarOne GK on 1 July 2018.

## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

### 13 Investments in subsidiaries and investment in jointly controlled entities (Cont'd)

#### 13.2 Investments in subsidiaries (Cont'd)

**Movements of investments in subsidiaries during the year are as follow:**

	<b>Separate financial statements Baht</b>
Opening net book amount	2,339,249,267
Acquisitions	438,700,485
Transfer debts to equity	52,781,017
Reduction due to restructuring	(1,631,980,864)
Closing net book amount	<u>1,198,749,905</u>

#### **Changes in investments under Thai Solar Energy Plc.**

On 15 March 2018, the Group restructured its investments by the Company selling all shares of a subsidiary being Oscar Save The World Co., Ltd. to Thai Community Energy Co., Ltd. at book value of investments.

On 20 June 2018, the Group restructured its investments by the Company selling all shares of 2 subsidiaries being Solar Assets Pte. Ltd. and TSE Group International Pte. Ltd. to TSE Overseas Group Co., Ltd. at book value of investments.

On 22 October 2018, the Group restructured its investments by the Company selling all shares of a subsidiaries being Solar Community Co., Ltd. to Solar Visible Co., Ltd. at book value of investments.

Details are as follows:

<b>Subsidiaries</b>	<b>Investment amount Baht Million</b>
Oscar Save The World Co., Ltd.	629.16
Solar Assets Pte. Ltd.	129.37
TSE Group International Pte. Ltd.	848.45
Solar Community Co., Ltd.	25.00
	<u>1,631.98</u>

Settlement amounting to Baht 251 million was made, and there is Baht 1,380.98 million outstanding as at 31 December 2018.

#### **Investment in Solar Assets Pte. Ltd.**

Solar Assets Pte. Ltd. increased its share capital amounting to Baht 13.70 million from Baht 62.89 million to Baht 76.59 million and the Company made a full payment to subscribe for the increased capital on 21 May 2018.

On 6 June 2018, the Company entered into Loan Conversion Agreement with Solar Assets Pte. Ltd. to transfer long-term loan amounting to JPY 184.19 million, equivalent to Baht 52.78 million, to subscribe for 184.19 million ordinary shares at par value of JPY 1 each in Solar Assets Pte. Ltd. Solar Assets Pte. Ltd. registered the capital increase on 8 June 2018.

## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

### 13 Investments in subsidiaries and investment in jointly controlled entities (Cont'd)

#### 13.2 Investments in subsidiaries (Cont'd)

##### Investment in Thai Community Energy Co., Ltd.

On 18 October 2018, the Company paid for additional called-up capital of Thai Community Energy Co., Ltd. for 10,000,000 shares at Baht 75 each to the full amount of par value, totalling Baht 75 million and paid for subscription of 35,000,000 newly issued shares with par value of Baht 100 each, totalling Baht 350 million.

##### Additional investment under Thai Community Energy Co., Ltd.

##### Investment in Oscar Save The World Co., Ltd.

On 5 October 2018, the Group further acquired 291,000 ordinary shares of Oscar Save The World Co., Ltd. from Thainakorn Parawood Co., Ltd. at Baht 120 per share totalling Baht 34.92 million, resulting in an increase in the investment proportion of the Group from 70% to 75%. Loss from change in holding interest amounting to Baht 7.77 million was recognised directly in equity attributed to the owners of parent in the consolidated financial statements.

##### Additional investment under Solar Visible Co., Ltd.

##### Investment in Infinity Solar Co., Ltd.

On 16 October 2018, the Group acquired 300,000 ordinary shares representing 100% interests in Infinity Solar Company Limited, which operates a ground-mounting solar power plant with the production capacity of 2 MW for a consideration of Baht 50 million. The acquisition is considered as an acquisition of business.

Details of acquisition are as follows:

Consideration at 16 October 2018	Baht
Cash	50,000,000
Contingent consideration	7,000,000
	<u>57,000,000</u>
Recognised amounts of identifiable assets acquired and liabilities assumed	Baht
Cash and cash equivalents	4,090,790
Short-term restricted bank deposits	100,272
Trade receivables	1,554,505
Other current assets	2,598,308
Power Purchase Agreement	31,000,000
Property, plant and equipment	95,400,000
Deferred tax assets	6,214,693
Other non-current assets	1,093,352
Bank overdraft and short-term borrowings from financial institutions	(98,253)
Construction and other payables	(37,149,265)
Long-term borrowings from financial institutions	(58,689,870)
Other current liabilities	(1,457,304)
Deferred tax liabilities	(5,383,658)
Total identifiable net assets	<u>39,273,570</u>
Goodwill (Note 16)	<u>17,726,430</u>
Total	<u><u>57,000,000</u></u>

## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

### 13 Investments in subsidiaries and investment in jointly controlled entities (Cont'd)

#### 13.2 Investments in subsidiaries (Cont'd)

##### Additional investment under Solar Assets Pte. Ltd.

##### Investment in Ibaraki Ushiku 2 GK

On 15 February 2018, the Group acquired 100 percent of ordinary shares of Ibaraki Ushiku 2 GK totaling JPY 9,999 equivalent to Baht 2,888. The purpose of acquisition is to obtain land for operating solar power plant in Ishikawa Hanamizuki 1 GK.

Details of acquisition are as follows:

Consideration at 15 February 2018	Baht
Cash	2,888
Recognised amounts of identifiable assets acquired and liabilities assumed	Baht
Cash	2,888
Land	12,996,315
Long-term loan from TSE Group International Pte. Ltd.	(12,996,315)
Net fair value	2,888
Total identifiable net assets	2,888

##### Changes in investment under TSE Overseas Group Co., Ltd.

On 21 June 2018, Onikoube Solar Power Pte. Ltd. ("Onikoube") merged into Solar Mountain Pte. Ltd. ("Solar Mountain") by transferring its assets and liabilities at net book value amounting to Baht 2,412.94 million to Solar Mountain without consideration, and all shares of Onikoube are cancelled. On 3 August 2018, Solar Mountain Pte. Ltd. changed its name to Onikoube Solar Power Pte. Ltd.

##### Changes in investments under Onikoube Solar Powers Pte. Ltd. (formerly "Solar Mountain Pte. Ltd.")

On 1 July 2018, PurpleSol GK ("PurpleSol") merged into SolarOne GK ("SolarOne") (both are subsidiaries of Onikoube Solar Power Pte. Ltd. (formerly "Solar Mountain Pte. Ltd.)) by transferring PurpleSol's assets and liabilities at net book value amounting to Baht 122.35 million to SolarOne without consideration, and all shares of PurpleSol are cancelled. SolarOne GK then changed its name to PurpleSol GK on the same day.

##### Additional investments under TSE Group International Pte. Ltd.

##### Investment in Ishikawa Hanamizuki 1 GK

During 2018, the Group made additional investments in Ishikawa Hanamizuki 1 GK totaling JPY 16 million. The form of investment follows the Godo Kaisha Agreement (GK agreement)\*.

##### Investment in Eco Solar Aizu GK

On 17 April 2018, the Group converted long-term loan amounting to JPY 52.59 million to additional investments in Eco Solar Aizu GK.

On 14 September 2018, the Group made additional investments amounting to JPY 10.67 million and a reduction amounting to JPY 156.30 million in investments in Eco Solar Aizu GK, to reduce the excess of investment requirement.

The form of the above investments follows the Godo Kaisha Agreement (GK Agreement)\*.

\* The Godo Kaisha Agreement (GK Agreement) agrees that operating profits and losses will be distributed between the investors and the operator at the proportion of 97 percent and 3 percent, respectively.



## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

### 13 Investments in subsidiaries and investment in jointly controlled entities (Cont'd)

#### 13.2 Investments in subsidiaries (Cont'd)

##### Summarised financial information on subsidiaries with material non-controlling interests

Set out below are the summarised financial information for a subsidiary that has material non-controlling interests being Oscar Save The World Co., Ltd.

##### Summarised statement of financial position

	Oscar Save The World Co., Ltd.	
	As at 31 December 2018 Baht	As at 31 December 2017 Baht
Current		
Assets	266,842,246	162,855,480
Liabilities	(306,256,436)	(157,695,782)
Total current net assets	(39,414,190)	5,159,698
Non-current		
Assets	1,868,702,223	1,054,340,799
Liabilities	(1,264,264,590)	(519,698,163)
Total non-current net assets	604,437,633	534,642,636
Net assets	565,023,443	539,802,334
Non-controlling interests (25%, 30%)	141,225,860	161,940,700

##### Summarised statement of comprehensive income

	Oscar Save The World Co., Ltd.	
	For the year ended 31 December 2018 Baht	For the period from 26 August to 31 December 2017 Baht
Revenue	187,133,898	970,753
Net profit (loss)	25,221,109	(6,929,247)
Other comprehensive income	-	-
Total comprehensive income (expense)	25,221,109	(6,929,247)
Total comprehensive expense allocated to non-controlling interests	6,466,237	(2,078,774)
Dividends paid to non-controlling interests	-	-

# Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

## 13 Investments in subsidiaries and investment in jointly controlled entities (Cont'd)

### 13.2 Investments in subsidiaries (Cont'd)

#### Summarised statement of cash flows

	Oscar Save The World Co., Ltd.	
	For the year ended 31 December 2018 Baht	For the period from 26 August to 31 December 2017 Baht
<b>Cash flow from operating activities</b>		
Net cash used in operating activities	(111,080,464)	(153,003,001)
Net cash used in investing activities	(826,843,764)	(695,044,421)
Net cash generated from financing activities	860,965,691	946,075,803
Net (decrease) increase in cash and cash equivalents	(76,958,537)	98,028,381
Cash and cash equivalents at beginning of year	101,058,797	3,030,416
Cash and cash equivalents at end of year	24,100,260	101,058,797

## 14 Investment property

	Consolidated and Separate financial statements	
	2018 Baht	2017 Baht
Cost	110,193,203	108,614,923
<u>Less</u> Provision for impairment	(20,215,318)	(20,215,318)
Net book amount	89,977,885	88,399,605
Fair value	124,420,100	112,493,525

The fair value of investment properties are based on property valuation using market comparison approach. The fair values are within level 2 of the fair value hierarchy.

Amounts recognised in profit and loss that are related to investment property are as follows:

	Consolidated and Separate financial statements	
	2018 Baht	2017 Baht
Rental income	418,500	418,500
Direct operating expense relating to rental income	6,612	6,612
Operating expense not relating to rental income	9,577	7,898

Thai Solar Energy Public Company Limited

**Notes to the Consolidated and Separate Financial Statements**

For the year ended 31 December 2018

**15 Property, plant and equipment**

	Consolidated financial statements								
	Land Baht	Land improvement Baht	Power plants Baht	Office buildings Baht	Tools and equipment Baht	Office equipment Baht	Vehicles Baht	Asset under construction Baht	Total Baht
<b>At 1 January 2017</b>									
Cost	250,211,940	3,141,059	2,131,153,239	11,206,916	12,658,579	9,987,056	21,236,363	865,754,588	3,305,349,740
Less Accumulated depreciation	-	(424,092)	(188,598,093)	(1,519,088)	(1,857,595)	(4,947,946)	(7,510,907)	-	(204,857,721)
Less Provision for impairment	-	(882,014)	(245,318,953)	(3,159,461)	(294,212)	(140,356)	(205,004)	-	(250,000,000)
<b>Net book amount</b>	<b>250,211,940</b>	<b>1,834,953</b>	<b>1,697,236,193</b>	<b>6,528,367</b>	<b>10,506,772</b>	<b>4,898,754</b>	<b>13,520,452</b>	<b>865,754,588</b>	<b>2,850,492,019</b>
<b>Year ended 31 December 2017</b>									
Opening net book amount	250,211,940	1,834,953	1,697,236,193	6,528,367	10,506,772	4,898,754	13,520,452	865,754,588	2,850,492,019
Exchange differences	(14,163,766)	-	(30,972,023)	-	-	-	-	(74,439,960)	(119,575,749)
Acquisition of subsidiaries	322,183,609	-	-	-	-	-	-	113,753,459	435,937,068
Additions	5,621,179	-	85,500	-	724,725	1,050,699	39,089,245	2,034,859,276	2,081,430,624
Disposals/write-off.net	-	-	-	-	(15,082)	(56)	(11,912,126)	-	(11,927,264)
Transfer-in (out)	-	-	38,829,898	-	226,361	(175,693)	-	(40,732,636)	(1,852,070)
Depreciation charge	-	(60,352)	(74,935,770)	(224,715)	(1,420,141)	(2,467,962)	(2,295,857)	-	(81,404,797)
<b>Closing net book amount</b>	<b>563,852,962</b>	<b>1,774,601</b>	<b>1,630,243,798</b>	<b>6,303,652</b>	<b>10,022,635</b>	<b>3,305,742</b>	<b>38,401,714</b>	<b>2,899,194,727</b>	<b>5,153,099,831</b>
<b>At 31 December 2017</b>									
Cost	563,852,962	3,141,059	2,139,096,614	11,206,916	13,319,317	10,405,613	39,796,007	2,899,194,727	5,680,013,215
Less Accumulated depreciation	-	(484,444)	(263,533,863)	(1,743,803)	(3,054,582)	(6,990,307)	(1,189,807)	-	(276,996,806)
Less Provision for impairment	-	(882,014)	(245,318,953)	(3,159,461)	(242,100)	(109,564)	(204,486)	-	(249,916,578)
<b>Net book amount</b>	<b>563,852,962</b>	<b>1,774,601</b>	<b>1,630,243,798</b>	<b>6,303,652</b>	<b>10,022,635</b>	<b>3,305,742</b>	<b>38,401,714</b>	<b>2,899,194,727</b>	<b>5,153,099,831</b>

## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

### 15 Property, plant and equipment (Cont'd)

	Consolidated financial statements								
	Land Baht	Land improvement Baht	Power plants Baht	Office buildings Baht	Tools and equipment Baht	Office equipment Baht	Vehicles Baht	Asset under construction Baht	Total Baht
Year ended 31 December 2018									
Opening net book amount	563,852,962	1,774,601	1,630,243,798	6,303,652	10,022,635	3,305,742	38,401,714	2,899,194,727	5,153,099,831
Exchange differences	5,017,022	-	7,627,681	-	-	64	-	19,990,700	32,635,467
Acquisition of subsidiaries (Note 13.2)	23,196,315	7,540,000	77,660,000	-	-	-	-	-	108,396,315
Additions	17,367,078	178,674	9,136,691	111,159	969,161	2,814,187	13,364,486	2,136,597,367	2,180,538,803
Disposals/write-off, net	-	-	(9,685,535)	-	-	(470,434)	-	-	(10,155,969)
Transfer-in (out)	-	47,336,150	2,351,878,007	18,765,158	5,677,570	3,614,636	13,701,477	(2,535,435,486)	(94,462,488)
Depreciation charge	-	(1,005,757)	(128,230,827)	(3,767,902)	(2,121,573)	(2,260,216)	(8,582,489)	-	(145,968,764)
Impairment charge	-	(1,021,094)	(291,254,193)	(3,620,918)	(26,749)	(74,698)	(2,348)	-	(296,000,000)
Closing net book amount	609,433,377	54,802,574	3,647,375,622	17,791,149	14,521,044	6,929,281	56,882,840	2,520,347,308	6,928,083,195
At 31 December 2018									
Cost	609,433,377	58,195,883	4,574,328,943	30,083,233	19,966,047	14,872,170	66,861,970	2,520,347,308	7,894,088,931
Less Accumulated depreciation	-	(1,490,201)	(390,380,175)	(5,511,705)	(5,176,154)	(7,758,627)	(9,772,296)	-	(420,089,158)
Less Provision for impairment	-	(1,903,108)	(536,573,146)	(6,780,379)	(268,849)	(184,262)	(206,834)	-	(545,916,578)
Net book amount	609,433,377	54,802,574	3,647,375,622	17,791,149	14,521,044	6,929,281	56,882,840	2,520,347,308	6,928,083,195

Thai Solar Energy Public Company Limited

**Notes to the Consolidated and Separate Financial Statements**

For the year ended 31 December 2018

**15 Property, plant and equipment (Cont'd)**

	Separate financial statements								
	Land Baht	Land improvement Baht	Power plants Baht	Office buildings Baht	Tools and equipment Baht	Office equipment Baht	Vehicles Baht	Asset under construction Baht	Total Baht
<b>At 1 January 2017</b>									
Cost	37,552,064	3,141,059	872,007,952	11,206,916	2,767,908	7,478,657	21,236,363	11,604,513	966,995,432
Less Accumulated depreciation	-	(424,092)	(118,755,994)	(1,519,088)	(1,647,118)	(4,678,789)	(7,510,907)	-	(134,535,988)
Less Provision for impairment	-	(882,014)	(245,318,953)	(3,159,461)	(294,212)	(140,356)	(205,004)	-	(250,000,000)
Net book amount	37,552,064	1,834,953	507,933,005	6,528,367	826,578	2,659,512	13,520,452	11,604,513	582,459,444
<b>Year ended 31 December 2017</b>									
Opening net book amount	37,552,064	1,834,953	507,933,005	6,528,367	826,578	2,659,512	13,520,452	11,604,513	582,459,444
Additions	-	-	-	-	215,999	1,042,353	22,760,760	20,643,364	44,662,476
Disposals/write-off, net	-	-	-	-	(20)	(56)	(11,912,126)	-	(11,912,202)
Depreciation charge	-	(60,352)	(16,850,775)	(224,715)	(298,024)	(1,044,599)	(1,926,623)	-	(20,405,088)
Closing net book amount	37,552,064	1,774,601	491,082,230	6,303,652	744,533	2,657,210	22,442,463	32,247,877	594,804,630
<b>At 31 December 2017</b>									
Cost	37,552,064	3,141,059	872,007,952	11,206,916	2,594,244	8,188,508	23,467,522	32,247,877	990,406,142
Less Accumulated depreciation	-	(484,444)	(135,606,769)	(1,743,803)	(1,607,611)	(5,421,734)	(820,573)	-	(145,684,934)
Less Provision for impairment	-	(882,014)	(245,318,953)	(3,159,461)	(242,100)	(109,564)	(204,486)	-	(249,916,578)
Net book amount	37,552,064	1,774,601	491,082,230	6,303,652	744,533	2,657,210	22,442,463	32,247,877	594,804,630
<b>Year ended 31 December 2018</b>									
Opening net book amount	37,552,064	1,774,601	491,082,230	6,303,652	744,533	2,657,210	22,442,463	32,247,877	594,804,630
Additions	-	-	-	111,159	22,300	1,855,113	-	5,815,887	7,804,459
Disposals/write-off, net	-	-	-	-	-	(244,100)	-	-	(244,100)
Transfer-in (out)	-	-	15,440,387	18,765,158	-	3,614,636	-	(37,820,181)	-
Depreciation charge	-	(60,423)	(17,574,610)	(3,767,902)	(288,378)	(1,876,338)	(2,563,648)	-	(26,131,299)
Impairment charge	-	(1,021,094)	(291,254,193)	(3,620,918)	(26,749)	(74,698)	(2,348)	-	(296,000,000)
Closing net book amount	37,552,064	693,084	197,693,814	17,791,149	451,706	5,931,823	19,876,467	243,583	280,233,690
<b>At 31 December 2018</b>									
Cost	37,552,064	3,141,059	887,448,339	30,083,233	2,616,544	12,227,812	23,467,522	243,583	996,780,156
Less Accumulated depreciation	-	(544,867)	(153,181,379)	(5,511,705)	(1,895,989)	(6,111,727)	(3,384,221)	-	(170,629,888)
Less Provision for impairment	-	(1,903,108)	(536,573,146)	(6,780,379)	(268,849)	(184,262)	(206,834)	-	(545,916,578)
Net book amount	37,552,064	693,084	197,693,814	17,791,149	451,706	5,931,823	19,876,467	243,583	280,233,690



**Notes to the Consolidated and Separate Financial Statements**

For the year ended 31 December 2018

**15 Property, plant and equipment (Cont'd)**

Borrowing costs incurring from the borrowings for the construction of the power plants during the year were capitalised and included as "Additions" for Baht 75.95 million (2017: Baht 34.13 million). The Group used the capitalisation rates of 1.25% to 6.07% per annum (2017: 1.25% to 6.00% per annum) to calculate the borrowing costs for the capitalisation. The capitalisation rate is the actual rate of the borrowings which were used for the construction.

Depreciation expense has been recognised in the statement of comprehensive income as follows;

	Consolidated financial statements		Separate financial statements	
	2018 Baht million	2017 Baht million	2018 Baht million	2017 Baht million
Cost of sales and services	131.36	76.42	17.92	17.21
Administrative expense	14.61	4.98	8.21	3.20
	145.97	81.40	26.13	20.41

In 2018, an additional provision for impairment on a thermal power plant amounting to Baht 296 million has been provided because the recoverable amount was lower than the carrying value. Provision for impairment as at 31 December 2018 was amounting to Baht 545.92 million (2017: Baht 249.92 million). The recoverable amount represents fair value with referencing to market price of equivalent assets, less costs to sell, and appraisal report from an independent appraiser.

Leased assets included above, where the Group is a lessee under finance leases, comprise vehicles:

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Cost of assets under the finance lease	22,760,759	22,760,759	22,760,759	22,760,759
<u>Less</u> Accumulated depreciation	(2,885,886)	(371,334)	(2,885,886)	(371,334)
Net book amount	19,874,873	22,389,425	19,874,873	22,389,425

**Capital commitments**

Capital commitments exist as at the date of the statement of financial position but not included in the financial statements are as follows:

	Currency	Consolidated financial statements		Separate financial statements	
		2018	2017	2018	2017
Power plants	Baht	64,400,000	787,915,670	64,400,000	-
Power plants	USD	400	457,023	-	-
Power plants	Yen	201,500,000	4,544,111,562	-	-
Machinery	Euro	-	51,503	-	51,503

The subsidiaries have pledged assets with the net book value amounting to Baht 5,522 million (2017: Baht 3,680 million) as collaterals for credit facilities which they received from the commercial bank.

## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

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### 16 Goodwill

Goodwill of Baht 17.73 million arising from the acquisition of Infinity Solar Co., Ltd. which operates a ground-mounting solar power plant (Note 13.2).

The recoverable amount of a CGU is determined based on value-in-use calculations. These calculations use pre-tax cash flow projections based on financial budgets approved by management covering a contractual period. The growth rate does not exceed the long-term average growth rate for the business in which the CGU operates.

The key assumptions used for value-in-use calculations are as follows:

Gross margin <sup>1</sup>	64.0 %
Growth rate <sup>2</sup>	(0.5) %
Discount rate <sup>3</sup>	9.0 %

<sup>1</sup> Budgeted gross margin.

<sup>2</sup> Weighted average growth rate used to extrapolate cash flows beyond the budget period.

<sup>3</sup> Pre-tax discount rate applied to the cash flow projections.

Management determined budgeted gross margin based on past performance. The weighted average growth rates used are consistent with the forecasts throughout contractual period. The discount rates used are pre-tax and reflect specific risks relating to the relevant segments.

**Notes to the Consolidated and Separate Financial Statements**

For the year ended 31 December 2018

**17 Intangible assets**

	Consolidated financial statements				
	Software Baht	Power purchase agreement Baht	Right to use - land Baht	Right to use - transmission line Baht	Works in progress Baht
<b>At 1 January 2017</b>					
Cost	2,760,512	472,231,571	9,144,026	-	2,852,000
Less Accumulated amortisation	(1,446,554)	-	-	-	-
<b>Net book amount</b>	<b>1,313,958</b>	<b>472,231,571</b>	<b>9,144,026</b>	<b>-</b>	<b>2,852,000</b>
<b>Year ended 31 December 2017</b>					
Opening net book amount	1,313,958	472,231,571	9,144,026	-	2,852,000
Exchange differences	-	(82,089,946)	-	-	-
Additions	706,159	46,317,008	-	15,690,883	1,249,500
Acquisition of subsidiary	-	3,663,057,637	-	-	-
Amortisation charge	(490,518)	-	(347,325)	-	-
<b>Closing net book amount</b>	<b>1,529,599</b>	<b>4,099,516,270</b>	<b>8,796,701</b>	<b>15,690,883</b>	<b>4,101,500</b>
<b>At 31 December 2017</b>					
Cost	3,466,671	4,099,516,270	9,144,026	15,690,883	4,101,500
Accumulated amortisation	(1,937,072)	-	(347,325)	-	-
<b>Net book amount</b>	<b>1,529,599</b>	<b>4,099,516,270</b>	<b>8,796,701</b>	<b>15,690,883</b>	<b>4,101,500</b>
<b>Year ended 31 December 2018</b>					
Opening net book amount	1,529,599	4,099,516,270	8,796,701	15,690,883	4,101,500
Exchange differences	-	40,566,161	-	-	-
Additions	806,090	181,226,617	-	2,021,852	2,398,121
Transfer - in (out)	4,677,500	-	-	-	(4,677,500)
Acquisition of a subsidiary (Note 13.2)	-	31,000,000	-	-	-
Amortisation charge	(1,117,659)	(9,276,290)	(365,761)	(313,842)	-
<b>Closing net book amount</b>	<b>5,895,530</b>	<b>4,343,032,758</b>	<b>8,430,940</b>	<b>17,398,893</b>	<b>1,822,121</b>
<b>At 31 December 2018</b>					
Cost	8,950,261	4,352,309,049	9,144,026	17,712,734	1,822,121
Less accumulated amortisation	(3,054,731)	(9,276,290)	(713,086)	(313,842)	-
<b>Net book amount</b>	<b>5,895,530</b>	<b>4,343,032,759</b>	<b>8,430,940</b>	<b>17,398,892</b>	<b>1,822,121</b>
					<b>4,376,580,242</b>
					<b>4,376,580,242</b>

**Notes to the Consolidated and Separate Financial Statements**

For the year ended 31 December 2018

**17 Intangible assets (Cont'd)**

	<b>Separate financial statements</b>		
	<b>Computer software Baht</b>	<b>Works in progress Baht</b>	<b>Total Baht</b>
<b>At 1 January 2017</b>			
Cost	2,730,552	2,852,000	5,582,552
<u>Less</u> accumulated amortisation	(1,427,068)	-	(1,427,068)
Net book amount	1,303,484	2,852,000	4,155,484
<b>Year ended 31 December 2017</b>			
Opening net book amount	1,303,484	2,852,000	4,155,484
Additions	706,159	1,249,500	1,955,659
Amortisation charge	(484,530)	-	(484,530)
Closing net book amount	1,525,113	4,101,500	5,626,613
<b>At 31 December 2017</b>			
Cost	3,436,711	4,101,500	7,538,211
Accumulated amortisation	(1,911,598)	-	(1,911,598)
Net book amount	1,525,113	4,101,500	5,626,613
<b>Year ended 31 December 2018</b>			
Opening net book amount	1,525,113	4,101,500	5,626,613
Additions	766,090	2,398,120	3,164,210
Transfer-in (out)	4,677,500	(4,679,500)	-
Amortisation charge	(1,111,493)	-	(1,111,493)
Closing net book amount	5,857,210	1,822,120	7,679,330
<b>At 31 December 2018</b>			
Cost	8,880,301	1,822,120	10,702,421
<u>Less</u> accumulated amortisation	(3,023,091)	-	(3,023,091)
Net book amount	5,857,210	1,822,120	7,679,330

Borrowing costs incurring from the borrowings specifically for developing the power plant projects to its intended use were capitalised and included as "Additions" for Baht 181.23 million (2017: Baht 46.32 million). The Group used the capitalisation rates of 3.42% to 6.07% per annum (2017: 4.23% to 5.57% per annum) to calculate the borrowing costs for the capitalisation. The capitalisation rate is the actual rate of the borrowings which were used for developing the power plant projects to its intended use.

Amortisation expense has been recognised in the statement of comprehensive income as follows;

	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	<b>2018 Baht million</b>	<b>2017 Baht million</b>	<b>2018 Baht million</b>	<b>2017 Baht million</b>
Cost of sales and services	9.96	0.35	-	-
Administrative expense	1.11	0.49	1.11	0.48
	11.07	0.84	1.11	0.48

# Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

## 18 Deferred income taxes

The analysis of deferred tax assets and liabilities is as follows:

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
<b>Deferred tax assets:</b>				
Deferred tax asset to be recovered within 12 months	-	36,249,760	-	36,249,760
Deferred tax asset to be recovered after more than 12 months	11,080,917	43,359,403	1,721,301	41,279,259
	11,080,917	79,609,163	1,721,301	77,529,019
<b>Deferred tax liabilities:</b>				
Deferred tax liabilities to be recovered within 12 month	(1,504,410)	(3,874,602)	(1,504,410)	(3,874,602)
Deferred tax asset to be recovered after more than 12 month	(8,502,128)	(2,031,899)	(1,483,843)	(481,110)
	(10,006,538)	(5,906,501)	(2,988,253)	(4,355,712)
<b>Deferred taxes - net</b>	<b>1,074,379</b>	<b>73,702,662</b>	<b>(1,266,952)</b>	<b>73,173,307</b>

The gross movement and the deferred income tax account is as follows:

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
At 1 January	73,702,662	76,002,161	73,173,307	75,376,961
Charged/(credited) to profit or loss	(73,457,736)	(2,309,022)	(74,440,259)	(2,216,106)
Charged/(credited) directly to equity	831,035	12,452	-	12,452
Exchange differences	(1,582)	(2,929)	-	-
At 31 December	<b>1,074,379</b>	<b>73,702,662</b>	<b>(1,266,952)</b>	<b>73,173,307</b>



**Notes to the Consolidated and Separate Financial Statements**

For the year ended 31 December 2018

**18 Deferred income taxes (Cont'd)**

The movements in deferred tax assets and liabilities during the year are as follows:

	Consolidated financial statements			
	Tax losses Baht	Retirement benefits Baht	Others Baht	Total Baht
<b>Deferred tax assets</b>				
At 1 January 2018	76,313,867	1,215,152	2,080,144	79,609,163
Charged/(credited) to profit or loss	(76,187,070)	506,149	938,316	(74,742,605)
Charged/(credited) directly to equity	-	-	6,214,693	6,214,693
Exchange differences	(1,421)	-	1,087	(334)
At 31 December 2018	125,376	1,721,301	9,234,240	11,080,917
At 1 January 2017	75,405,201	1,136,551	1,913,826	78,455,578
Charged/(credited) to profit or loss	909,409	66,149	179,802	1,155,360
Charged/(credited) directly to equity	-	12,452	-	12,452
Exchange differences	(743)	-	(13,484)	(14,227)
At 31 December 2017	76,313,867	1,215,152	2,080,144	79,609,163
<b>Consolidated financial statements</b>				
	Deferred debt issuance Baht	Depreciation expense of Power plant Baht	Other Baht	Total Baht
<b>Deferred tax liabilities</b>				
At 1 January 2018	(4,355,712)	(6,875,768)	5,324,979	(5,906,501)
Charged/(credited) to profit or loss	(51,154)	(327,307)	1,663,330	1,284,869
Charged/(credited) directly to equity	-	-	(5,383,658)	(5,383,658)
Exchange differences	(854,613)	1,620,393	(767,028)	(1,248)
At 31 December 2018	(5,261,479)	(5,582,682)	837,623	(10,006,538)
At 1 January 2017	(1,025,000)	(3,675,048)	2,246,631	(2,453,417)
Charged/(credited) to profit or loss	(3,330,712)	(3,527,283)	3,393,613	(3,464,382)
Exchange differences	-	326,563	(315,265)	11,298
At 31 December 2017	(4,355,712)	(6,875,768)	5,324,979	(5,906,501)

# Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

## 18 Deferred income taxes (Cont'd)

The movements in deferred tax assets and liabilities during the year are as follows: (Cont'd)

	Separate financial statements		
	Tax losses Baht	Retirement benefits Baht	Total Baht
<b>Deferred tax assets</b>			
At 1 January 2018	76,313,867	1,215,152	77,529,019
Charged/(credited) to profit or loss	(76,313,867)	506,149	(75,807,718)
At 31 December 2018	-	1,721,301	1,721,301
At 1 January 2017	75,265,410	1,136,551	76,401,961
Charged/(credited) to profit or loss	1,048,457	66,149	1,114,606
Charged/(credited) directly to equity	-	12,452	12,452
At 31 December 2017	76,313,867	1,215,152	77,529,019

	Separate financial statements	
	Deferred debt issuance cost Baht	
<b>Deferred tax liabilities</b>		
At 1 January 2018	(4,355,712)	
Charged/(credited) to profit or loss	1,367,459	
At 31 December 2018	(2,988,253)	
At 1 January 2017	(1,025,000)	
Charged/(credited) to profit or loss	(3,330,712)	
At 31 December 2017	(4,355,712)	

Presentation in the statements of financial position is as follows:

At 31 December	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Deferred income tax assets	2,409,825	73,702,662	-	73,173,307
Deferred income tax liabilities	(1,335,446)	-	(1,266,952)	-
Deferred income tax, net	1,074,379	73,702,662	(1,266,952)	73,173,307

Deferred income tax assets and liabilities are offset when the income taxes related to the same fiscal authority. Deferred tax assets and deferred tax liabilities in the consolidated financial position are presented at net amount of assets and liabilities incurred in each entity.

Deferred income tax assets are recognised for tax loss carry forwards only to the extent that realisation of the related tax benefit through the future taxable profits is probable. The Group did not recognise deferred income tax assets of Baht 175.41 million (2017: Baht 57.40 million) in respect of losses carry forward amounting to Baht 877 million (2017: Baht 287 million).

## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

### 18 Deferred income taxes (Cont'd)

A summary of the tax losses carried forward and the expiry dates are set out below:

Expiry year	Consolidated financial statements Baht	Separate financial statements Baht
2019	508,710,830	497,480,676
2020	87,991,426	76,722,994
2021	62,981,427	53,390,602
2022	217,347,964	210,429,201
	<u>877,031,647</u>	<u>838,023,473</u>

### 19 Construction and other payables

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Amounts due to related parties (Note 31 b)	667,187	702,187	-	-
Construction payables and retention guarantee	119,949,922	194,559,625	2,086,003	62,498
Other payables	55,966,786	14,873,570	4,907,315	5,998,955
Payables from acquisition of investments (Note 31 b)	-	-	249,995	50,249,985
Accrued expenses	101,861,887	59,350,988	35,350,200	29,106,562
	<u>278,445,782</u>	<u>269,486,370</u>	<u>42,593,513</u>	<u>85,418,000</u>

### 20 Borrowings

#### 20.1 Short-term borrowings from financial institutions

	Consolidated and Separate financial statements	
	2018 Baht	2017 Baht
Short-term borrowings from financial institutions	98,794,277	2,233,047,945

Movements in short-term borrowings from financial institutions during 2018 and 2017 are analysed as follows:

	Consolidated and separate financial statements	
	2018 Baht	2017 Baht
Opening amount as at 1 January	2,233,047,945	488,996,539
Cash inflows (outflows):		
Additions	100,000,000	2,250,000,000
Financial service fee	(11,250,000)	(22,500,000)
Discount on note payables	(2,763,996)	-
Repayment of borrowings	(2,250,000,000)	(490,000,000)
Non-cash changes:		
Amortisation of financial service fee	28,202,055	5,547,945
Amortisation of discount on note payables	1,558,273	1,003,461
Closing amount as at 31 December	<u>98,794,277</u>	<u>2,233,047,945</u>

## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

### 20 Borrowings (Cont'd)

#### 20.2 Finance lease liabilities

The present value of finance lease liabilities is as follows:

	Consolidated and Separate financial statements	
	2018 Baht	2017 Baht
Not later than 1 year	2,619,884	2,523,423
Later than 1 year but not later than 5 years	7,979,672	10,599,556
	<u>10,599,556</u>	<u>13,122,979</u>

The movements in finance lease can be analysed as follows:

	Consolidated and Separate financial statements		
	Finance lease payables	Deferred interest	Finance lease liabilities
At 1 January 2017	3,908,558	(80,104)	3,828,454
Cash outflows:			
Repayment	(4,404,112)	-	(4,404,112)
Non-cash changes:			
Additions under finance lease	14,866,620	(1,289,820)	13,576,800
Amortised deferred interest	-	121,837	121,837
At 31 December 2017	<u>14,371,066</u>	<u>(1,248,087)</u>	<u>13,122,979</u>
At 1 January 2018	14,371,066	(1,248,087)	13,122,979
Cash outflows:			
Repayment	(2,973,324)	-	(2,973,324)
Non-cash changes:			
Amortised deferred interest	-	449,901	449,901
At 31 December 2018	<u>11,397,742</u>	<u>(798,186)</u>	<u>10,599,556</u>

#### 20.3 Long-term borrowings from financial institutions

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Current portion of long-term borrowings	437,241,304	57,186,730	175,888,656	-
Long-term borrowings payable between 1 to 5 years	3,482,748,527	1,040,655,504	175,888,656	-
Long-term borrowings payable more than 5 years	2,439,885,510	805,445,623	1,886,891,147	-
	<u>6,359,875,341</u>	<u>1,903,287,857</u>	<u>2,238,668,459</u>	<u>-</u>

The long-term borrowings from financial institution are secured by the pledge and the assignment of rights over the Group's bank deposits, certain shares held by the subsidiaries and the jointly controlled entity's shares held by the Company, pledge of the Company's shares that held by P.M. Energy Company Limited, shares of subsidiaries, and the right to receive dividends from subsidiaries and jointly controlled companies.

The loan agreements contain covenants imposed on the Group as specified in the agreements, related to such matters as dividend payment, reduction of share capital, merger or consolidation with any other entities.

**Notes to the Consolidated and Separate Financial Statements**

For the year ended 31 December 2018

**20 Borrowings (Cont'd)****20.3 Long-term borrowings from financial institutions**

Movements in long-term borrowings from financial institutions during 2018 and 2017 are analysed as follows:

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Opening amount as at 1 January	1,903,287,857	790,434,160	-	-
Cash inflows (outflows):				
Additions	4,644,151,500	1,274,479,236	2,250,000,000	-
Financial service fee	(26,763,757)	(43,299,015)	(12,345,297)	-
Repayment of borrowings	(240,296,891)	(120,358,694)	-	-
Non-cash changes:				
Foreign currency translation differences	13,446,774	-	-	-
Acquisition of subsidiary (Note 13.2)	58,689,870	-	-	-
Amortisation of financial service fee	7,359,988	2,032,170	1,013,756	-
Closing amount as at 31 December	6,359,875,341	1,903,287,857	2,238,668,459	-

The contractual interest rates of the long-term borrowings at the statement of financial position date are as follows :

	Consolidated financial statements	
	31 December 2018 %	31 December 2017 %
Long-term loans for the construction of solar power plants	MLR - 1.5 TIBOR + 3.00 TIBOR + 2.00 TIBOR + 1.22	MLR - 1.5 - TIBOR + 2.85 TIBOR+1.22
Long-term loans for the construction of biomass power plants	4.75	4.75

**20.4 Borrowing Facilities**

The Group and the Company have the following undrawn committed borrowing facilities:

	Currency	Consolidated financial statements		Separate financial statements	
		2018 Baht	2017 Baht	2018 Baht	2017 Baht
Floating rate					
Expiring beyond one year	Baht Thousand	448,926,230	1,174,467,657	200,000,000	-
Floating rate					
Expiring beyond one year	Yen Thousand	390,000,000	3,300,000,000	-	-
Fixed rate					
Expiring beyond one year	Baht Thousand	7,241,041	67,053,731	-	-



## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

### 20 Borrowings (Cont'd)

#### 20.5 Debentures

	Consolidated and Separate financial statements	
	2018 Baht	2017 Baht
Current portion of debentures	2,048,530,153	-
Debentures payable between 1 to 5 years	949,065,843	2,995,173,493
	<u>2,997,595,996</u>	<u>2,995,173,493</u>

Movements in debentures during 2018 and 2017 are analysed as follows:

	Consolidated and Separate financial statements	
	2018 Baht	2017 Baht
Opening amount as at 1 January	2,995,173,493	2,044,875,000
Cash inflows (outflows):		
Issuance of debentures	-	950,000,000
Deferred issuance cost	-	(2,137,500)
Non-cash changes:		
Amortisation of issuance cost	2,422,503	2,435,993
Closing amount as at 31 December	<u>2,997,595,996</u>	<u>2,995,173,493</u>

As at 31 December 2018, outstanding debentures comprise name-registered certificate of unsubordinated and unsecured debentures totalling 2,050,000 units and 950,000 units with the fixed interest of 4.20% and 4.50% per annum, respectively, with the interest payable every 6 months. Debentures have the face value of Baht 1,000. The debentures amounting to Baht 2,050 million and Baht 950 million will be redeemed on 28 October 2019 and 5 April 2020, respectively.

**Notes to the Consolidated and Separate Financial Statements**

For the year ended 31 December 2018

**20 Borrowings (Cont'd)****20.6 Fair value**

The carrying amounts and fair values of certain long-term borrowings are as follows:

	<b>Consolidated financial statements</b>			
	<b>Carrying amounts</b>		<b>Fair value</b>	
	<b>2018 Baht</b>	<b>2017 Baht</b>	<b>2018 Baht</b>	<b>2017 Baht</b>
Long-term borrowings	6,359,875,341	1,903,287,857	6,230,409,722	1,821,525,742
Debentures	2,997,595,996	2,995,173,493	2,999,409,190	3,014,102,581
<b>Separate financial statements</b>				
	<b>Carrying amounts</b>		<b>Fair value</b>	
	<b>2018 Baht</b>	<b>2017 Baht</b>	<b>2018 Baht</b>	<b>2017 Baht</b>
Long-term borrowings	2,238,668,459	-	2,167,492,686	-
Debentures	2,997,595,996	2,995,173,493	2,999,409,190	3,014,102,581

The fair value of current borrowings equal their carrying amount, as the impact of discounting is not significant.

The fair values of non-current borrowings are based on discounted cash flows using a discount rate based upon the borrowing rates of 1.87% - 6.15% (2017: 1.87% - 4.84%) and are within level 2 of the fair value hierarchy.

**20.7 Interest rates**

The effective interest rates at the statement of financial position date were as follows:

	<b>Consolidated financial statements</b>		<b>Separate financial statements</b>	
	<b>2018</b>	<b>2017</b>	<b>2018</b>	<b>2017</b>
Bank borrowings	1.87% - 6.15%	1.87% - 4.84%	3.05%	-
Financial lease liabilities	3.76%	3.76%	3.76%	3.76%
Debentures	4.29% - 4.58%	4.23% - 4.58%	4.29% - 4.58%	4.23% - 4.58%

**21 Employee benefit obligations**

	<b>Consolidated and Separate financial statements</b>	
	<b>2018 Baht</b>	<b>2017 Baht</b>
Statement of financial position:		
Retirement benefits		
Liability in the statement of financial position	8,606,509	6,075,757
Profit or loss charge included in operating profit for:		
Retirement benefits	2,652,204	3,895,076
Remeasurement for:		
Retirement benefits	-	62,261

## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

### 21 Employee benefit obligations (Cont'd)

The movement in the defined benefit obligation over the year is as follows:

	Consolidated and Separate financial statements	
	2018 Baht	2017 Baht
At 1 January	6,075,757	5,682,756
Current service cost	2,486,936	1,610,694
Past service cost	-	2,100,262
Interest expense	165,268	184,120
Remeasurements:		
Gain from change in demographic assumptions	-	(744,700)
Loss from change in financial assumptions	-	398,821
Experience loss	-	408,140
Payment from plan:		
Benefit payment	(121,452)	(3,564,336)
At 31 December	8,606,509	6,075,757

The principal actuarial assumptions used were as follows:

	Consolidated and Separate financial statements	
	2018 %	2017 %
Discount rate	2.72	2.72
Salary growth rate	3.00 - 4.00	3.00 - 4.00

The sensitivity analyses of significant actuarial assumptions in pension liability calculations.

	Change in assumption		Impact on defined benefit obligation			
	2018	2017	Increase in assumption		Decrease in assumption	
			2018	2017	2018	2017
Discount rate	1%	1%	Decrease by 10.80%	Decrease by 11.26%	Increase by 12.54%	Increase by 13.15%
Salary growth rate	1%	1%	Increase by 13.33%	Increase by 12.84%	Decrease by 11.63%	Decrease by 11.23%

The above sensitivity analyses are based on a change in an assumption while holding all other assumptions constant. In practice, this is unlikely to occur, and changes in some of the assumptions may be correlated. When calculating the sensitivity of the defined benefit obligation to significant actuarial assumptions the same method (present value of the defined benefit obligation calculated with the projected unit credit method at the end of the reporting period) has been applied as when calculating the pension liability recognised within the statement of financial position.

The methods and types of assumptions used in preparing the sensitivity analysis did not change compared to the previous year.

**Notes to the Consolidated and Separate Financial Statements**

For the year ended 31 December 2018

**21 Employee benefit obligations (Cont'd)**

Through its defined benefit retirement plans, the Group is exposed to a number of risks, the most significant of which are detailed below:

Changes in bond yields	A decrease in Government bond yields will increase plan liabilities.
Inflation risk	Some of the Group pension obligations are linked to inflation, and higher inflation will lead to higher liabilities.

The weighted average duration of the defined benefit obligation is 25.20 years.

Expected maturity analysis of undiscounted retirement:

As at 31 December 2018

	Consolidated and Separate financial statements			
	Less than a year Baht	Between 1-2 years Baht	Between 2-5 years Baht	Over 5 years Baht
Retirement benefits	-	-	1,236,565	181,457,520
				182,694,085

**22 Share capital**

	Consolidated and Separate financial statements			
	Number of shares Shares	Issued and paid Shares	Issued and paid up Baht	Share premium Baht
At 1 January 2017	1,815,000,000	1,815,000,000	1,815,000,000	727,554,273
Register new ordinary shares	(544,500,000)	-	-	-
At 31 December 2017	2,359,500,000	1,815,000,000	1,815,000,000	727,554,273
Capital reduction	(544,500,000)	-	-	-
Register new ordinary shares	635,250,000	-	-	-
Share dividends	-	90,749,580	90,749,580	-
At 31 December 2018	2,450,250,000	1,905,749,580	1,905,749,580	727,554,273
				2,633,303,853

On 11 May 2017, the shareholders at the Extraordinary Shareholders' Meeting passed a resolution to increase the authorised and registered 544,500,000 new ordinary shares with a par value of Baht 1 each.

On 20 April 2018, the shareholders at the Annual General Meeting of Shareholders passed a resolution to reduce 544,500,000 ordinary shares and to increase the authorised and registered 635,250,000 new ordinary shares with a par value of Baht 1 each. The shareholders also approved share dividends in respect of operating results of 2017 distributed to the shareholders at the ratio of 20 ordinary shares: 1 dividend share with the total amount of Baht 90.75 million.

At 31 December 2018, the total authorised number of ordinary shares is 2,450,250,000 shares (2017: 2,359,500,000 shares) with a par value of Baht 1 each (2017: Baht 1 each). 1,905,749,580 shares are issued and fully paid (2017: 1,815,000,000 shares).

## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

### 23 Legal reserve

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
At 1 January	62,894,012	46,825,835	50,894,012	40,025,835
Appropriation during the year	1,078,000	16,068,177	-	10,868,177
At 31 December	63,972,012	62,894,012	50,894,012	50,894,012

Under the Public Limited Company Act., B.E. 2535, the Company is required to set aside as a legal reserve at least 5% of its net profit after accumulated deficit brought forward (if any) until the reserve is not less than 10 percent of the registered capital. The legal reserve is non-distributable.

### 24 Other income

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Rental income	962,014	1,213,693	962,014	1,210,155
Service income	1,591,580	239,770	1,591,580	239,770
Gain on disposal of assets	18,515	-	18,515	-
Interest income	23,090,909	18,911,219	24,495,479	69,962,781
Realised gain on disposal of trading securities	1,349,250	8,649,867	1,349,250	8,649,867
Compensation for cancellation of share purchase agreement	38,000,000	-	38,000,000	-
Insurance claims	65,669,217	-	-	-
Other income	25,509,734	10,290,212	3,044,306	6,597,362
	156,191,219	39,304,761	69,461,144	86,659,935

### 25 Expense by nature

The following expenditure items, classified by nature, have been charged in arriving at the operating profit:

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Salary ,wages and employees benefits	139,061,637	108,022,470	116,784,030	96,928,907
Depreciation	145,968,764	81,404,797	26,131,299	20,405,088
Loss on exchange rate	47,475	8,244,402	65,893,001	52,098,877
Loss from disposals	-	3,163,848	-	3,163,848
Professional fees	97,675,990	43,975,050	36,800,546	23,615,804
Operation and maintenance of power plants	14,196,444	1,957,309	375,402	140,856



**Notes to the Consolidated and Separate Financial Statements**

For the year ended 31 December 2018

**26 Finance costs**

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Interest on bank borrowings	80,363,882	103,811,498	228,502,571	140,645,744
Financial service fees	42,876,151	8,564,394	31,638,314	7,983,939
Others	-	121,837	-	121,837
	<u>123,240,033</u>	<u>112,497,729</u>	<u>260,140,885</u>	<u>148,751,520</u>

**27 Income tax**

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Current tax on profits for the year	3,618,329	676,311	-	-
Deferred tax (Note 18)	73,457,736	2,309,022	74,440,259	2,216,106
Adjustments in respect of prior year	6,500,825	-	-	-
	<u>83,576,890</u>	<u>2,985,333</u>	<u>74,440,259</u>	<u>2,216,106</u>

The tax on the Group's profit before tax differs from the theoretical amount that would arise using the basic tax rate as follows:

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Profit (loss) before tax	266,644,730	416,843,713	(116,180,329)	219,579,638
Tax calculated at a tax rate of 20% (2017: 20%)	53,328,946	83,368,743	(23,236,066)	43,915,928
Tax effect of:				
Foreign tax rate difference	(6,096,144)	(1,706,211)	-	-
Jointly controlled entities' results reported net of tax	(122,037,685)	(117,391,346)	-	-
Tax exemption for income under BOI	(11,299,288)	(6,819,329)	-	-
Income subject to tax	27,152,630	8,533,585	20,017,086	8,447,441
Income not subject to tax	(11)	(8)	(117,314,420)	(90,300,016)
Expenses not deductible for tax purpose	66,127,315	2,825,480	64,350,602	688,345
Expense deducted at greater amount	(6,637,074)	(4,323,993)	(5,035,118)	(2,620,108)
Tax losses for which no deferred income tax asset was recognised	68,318,456	46,002,175	61,217,916	42,084,516
Utilisation of previously unrecognised tax losses	(64,447)	(273,432)	-	-
Deferred tax expense relating to the origination and reversal of temporary differences	73,457,736	92,916	74,440,259	-
Unrealised (loss) gain from intercompany transactions	(65,174,369)	(10,735,669)	-	-
Adjustment in respect of prior periods	6,500,825	-	-	-
Tax charge	<u>83,576,890</u>	<u>2,985,333</u>	<u>74,440,259</u>	<u>2,216,106</u>

## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

### 28 Promotional privileges

The Group is granted with 30 certificates of promotional privileges from the Board of Investment for the production of electricity generated from solar power and biomass, the privilege include an exemption of import duty on imported machinery, an exemption for corporate income tax for a period of 8 years from the date the promoted operation commenced generating revenue (the commercial operation date).

The Group's operating revenue from sales and subsidy for adders as per the statements of comprehensive income for the years ended 31 December 2018 and 2017 wholly derive from promoted operations.

### 29 Earnings (loss) per share

Basic earnings (loss) per share is calculated by dividing the net profit (loss) attributable to ordinary shareholders of the Company by the weighted average number of ordinary shares in issue 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 shares dividends (Note 22). For comparison purposes, the number of ordinary shares used in the calculations of earnings per share for the year ended 31 December 2017 are adjusted as if the shares dividends had been distributed at the beginning of 2017.

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
Net profit (loss) attributable to ordinary shareholders of the company (Baht)	173,954,320	415,758,694	(190,620,588)	217,363,532
Weighted average number of ordinary shares outstanding (Shares)	1,905,749,580	1,905,749,580	1,905,749,580	1,905,749,580
Basic earnings (loss) per share (Baht per share)	0.09	0.22	(0.10)	0.11

There are no potential dilutive ordinary shares issuing during 2018 and 2017.

### 30 Dividends

#### 2018

On 20 April 2018, the Annual General Meeting of Shareholders approved a dividend payment in respect of operating results for the year 2017 to shareholders in forms of shares dividend at the ratio of 20 ordinary shares: 1 dividend share, totaling Baht 90.75 million and cash dividend at Baht 0.00556 per share, totaling 10.09 million. The dividends were paid on 18 May 2018.

#### 2017

On 19 April 2017, the Annual General Meeting of Shareholders approved a dividend payment in respect of operating results for the year 2016 to shareholders at Baht 0.11 per share, totaling Baht 199.65 million. The dividends were paid on 17 May 2017.

## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

### 31 Related party transactions

The Company is controlled by P.M. Energy Company Limited (incorporated in Thailand) which owns 41% of the Company's shares. The remaining 59% of the shares are held by Wave Entertainment (Public) Company Limited, Sino-Thai Engineering & Construction Public Company Limited and individual shareholders. The significant investments in subsidiaries, and joint ventures are set out in Note 13.

The following material transactions were carried out with related parties:

#### a) Sales of goods and services

For the year ended 31 December	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
<b>Subsidiaries</b>				
Management service income	-	-	30,060,541	25,603,911
Operation and maintenance income	-	-	1,680,000	1,680,000
Service income	-	-	-	52,028
Dividends income	-	-	12,921,999	-
	-	-	44,662,540	27,335,939
<b>Jointly Controlled Entity</b>				
Management service income	42,610,585	40,581,509	42,610,585	40,581,509
Rental income	453,600	432,000	453,600	432,000
Other income	1,531,637	-	1,531,637	-
Dividends income	53	41	573,650,102	451,500,080
	44,595,875	41,013,550	618,245,924	492,513,589
<b>Related parties</b>				
Rental income	69,472	277,889	69,472	277,889
Service income	46,315	185,259	46,315	185,259
Other income	10,205	30,521	10,205	30,521
	125,992	493,669	125,992	493,669

# Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

## 31 Related party transactions (Cont'd)

The following material transactions were carried out with related parties: (Cont'd)

### b) Outstanding balances arising from sales/purchases of goods/services

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
<b>Amounts due from and advances to related parties (Note 10)</b>				
Subsidiaries	-	-	89,171,162	86,640,238
Jointly controlled entities	3,860,725	3,676,881	3,860,725	3,676,881
Related parties	-	-	-	-
	<u>3,860,725</u>	<u>3,676,881</u>	<u>93,031,887</u>	<u>90,317,119</u>
<b>Dividends receivable (Note 10)</b>				
Jointly controlled entities	134,750,024	119,000,021	134,750,024	119,000,021
	<u>134,750,024</u>	<u>119,000,021</u>	<u>134,750,024</u>	<u>119,000,021</u>
<b>Receivables from disposal of investments</b>				
Subsidiaries				
- Including in trade and other receivables (Note 10)	-	-	-	174,499,990
- Including in non-current assets	-	-	1,383,683,149	-
	<u>-</u>	<u>-</u>	<u>1,383,683,149</u>	<u>174,499,990</u>

Receivables from disposal of investments were made from the Group's restructuring (Note 13.2).

<b>Amounts due to related parties (Note 19)</b>				
Related parties	667,187	702,187	-	-
	<u>667,187</u>	<u>702,187</u>	<u>-</u>	<u>-</u>
<b>Payables from acquisition of investments (Note 19)</b>				
Subsidiaries	-	-	249,995	50,249,985
	<u>-</u>	<u>-</u>	<u>249,995</u>	<u>50,249,985</u>

## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

### 31 Related party transactions (Cont'd)

The following material transactions were carried out with related parties: (Cont'd)

#### c) Short-term loans to subsidiaries

##### For the year ended 31 December

Short-term loans to subsidiaries

Movements in loans to subsidiaries are analysed as follows:

	Separate financial statements	
	2018 Baht	2017 Baht
Short-term loans to subsidiaries	335,287,932	2,276,372,707
Opening net book amount	2,276,372,707	868,172,050
Additions	663,484,810	2,450,286,600
Repayment received	(380,741,723)	(502,963,001)
Transferred to long-term loan (Note 31 d)	(2,226,045,802)	(508,771,942)
Foreign currency translation differences	2,217,940	(30,351,000)
Closing net book amount	335,287,932	2,276,372,707

Loans to subsidiaries are non-bearing interest promissory notes denominated in Thai Baht with maturity within December 2019.

Loans to subsidiaries are promissory notes denominated in Thai Baht due for repayment at call. Loans carry interest at the rate of 6% per annum.

#### d) Long-term loans to subsidiaries

##### For the year ended 31 December

Long-term loans to subsidiaries

Movements in loans to subsidiaries are analysed as follows:

	Separate financial statements	
	2018 Baht	2017 Baht
Long-term loans to subsidiaries	4,333,468,428	2,232,305,697
Opening net book amount	2,232,305,697	-
Additions	563,736,515	1,822,252,003
Repayment received	(704,565,291)	-
Transferred from short-term loan (Note 31 c)	2,226,045,802	508,771,942
Transferred debts to equity (Note 13.2)	(52,781,017)	-
Foreign currency translation differences	68,726,722	(98,718,248)
Closing net book amount	4,333,468,428	2,232,305,697

Long-term loans to subsidiaries are in form of 4 loan agreements, denominated in Japanese Yen with no interest. 3 agreements are due for repayment at call and 1 agreement have maturity within June 2021.

Long-term loans to another subsidiary are in form of loan agreements denominated in Thai Baht with no interest and due for repayment at call.

Long-term loans to another subsidiary are in form of loan agreements denominated in Japanese Yen and US Dollar with no interest and due for repayment at call.

The management do not have intention to call these loans within next 12 months.



# Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

## 31 Related party transactions (Cont'd)

The following material transactions were carried out with related parties: (Cont'd)

### e) Short-term loan from subsidiary

	Separate financial statements	
	2018 Baht	2017 Baht
Short-term loan from subsidiary	22,500,000	22,500,000

Short-term loan from subsidiary is in form of a promissory note with no interest and due for repayment within September 2019.

### f) Key management compensation

For the year ended 31 December	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Short-term employee benefits	43,181,211	31,980,423	22,085,600	21,209,375
Post-employment benefits	1,254,474	164,860	1,254,475	164,860
	44,435,685	32,145,283	23,340,075	21,374,235

## 32 Commitments and contingencies

### 32.1 Power purchase agreements

#### Domestic

As at 31 December 2018, the Group has 30 power purchase agreements with the Provincial Electricity Authority ("PEA") and the Metropolitan Electricity Authority ("MEA") (2017: 29 agreements). Currently, the Group has commenced the production and distribution of electricity under 30 power purchase agreements. The agreements are summarised as follows:

The electricity generated system	Company	Number of agreement	Production capacity MW	Electricity rate (Baht/kilowatt-hour)	The term of the agreements
Renewable energy	Company	1	4.5	Peak period amounting to Baht 4.21 and off-peak period amounting to Baht 2.63 for the quantity which do not exceed the capacity factor and peak period amounting to Baht 4.22 and off-peak period amounting to Baht 2.36 for the quantity which exceed the capacity factor and the Company had also been granted an adder amounting to Baht 8 granted for a period of 10 years commencing from commercial operation date (COD).	The agreements are for a period of 5 years and will be automatically renewed every 5 years until the contract termination.
Solar	Jointly controlled entities	10	80	Peak period amounting to Baht 4.21 and off-peak period amounting to Baht 2.63 for the quantity which do not exceed the capacity factor and peak period amounting to Baht 4.22 and off-peak period amounting to Baht 2.36 for the quantity which exceed the capacity factor and the Company had also been granted an adder amounting to Baht 6.50 granted for a period of 10 years commencing from commercial operation date (COD).	The agreements are for a period of 5 years and will be automatically renewed every 5 years until the contract termination.
Solar rooftops	Subsidiaries	14	14	Feed-in Tariff system (FIT) amounting to Baht 6.16.	The agreements are for a period of 25 years commencing from commercial operation date (COD).
Solar	Subsidiary	2	3	Feed-in Tariff system (FIT) amounting to Baht 5.66.	The agreements are for a period of 25 years commencing from commercial operation date (COD).
Biomass energy	Subsidiary	1	4.6	Feed-in Tariff system (FIT) amounting to Baht 4.24 and Feed-in Tariff system (FIT) Premium amounting to Baht 0.3 granted for a period of 8 years commencing from commercial operation date (COD).	The agreements are for a period of 20 years commencing from commercial operation date (COD).
Biomass energy	Subsidiary	2	17.6	Feed-in Tariff system (FIT) amounting to Baht 4.24 and Feed-in Tariff system (FIT) Premium amounting to Baht 0.3 granted for a period of 8 years commencing from commercial operation date (COD).	The agreements are for a period of 15 years 4 months commencing from commercial operation date (COD).

**Notes to the Consolidated and Separate Financial Statements**

For the year ended 31 December 2018

**32 Commitments and contingencies (Cont'd)****32.1 Power purchase agreements (Cont'd)****Overseas**

As at 31 December 2018, subsidiaries operating in Japan have 6 power purchase agreements (2017: 4 agreements) with the power purchasing agencies, of which the power plants have already commenced generating and distributing the electricity. In addition, the subsidiaries have another 2 power purchase agreements and right to develop for the power purchase agreement (2017: 3 agreements) for the projects which have not yet commenced generating and distributing the electricity. The agreements are summarised as follows:

	The electricity generated system	Company	Number of agreement	Production capacity MW	Electricity rate (Baht/kilowatt-hour)	The term of the agreements
Production and distribution of electricity	Solar	Subsidiary	6	8.24	Feed-in Tariff system (FIT) amounting to Yen 32 - 36.	The agreements are for a period of 20 years starting from commercial operation date (COD).
Under development and construction	Solar	Subsidiary	2	168.48	Feed-in Tariff system (FIT) amounting to Yen 32 - 36.	The agreements are for a period of 20 years starting from commercial operation date (COD).

**32.2 Operating lease commitments - where the Group is the lessee**

The Company and its subsidiaries have entered into several lease agreements in respect of the lease of office building space, motor vehicles, equipment and the lease of rooftop space and other building space in order to install solar cells. The terms of the agreements are generally between 3 and 26 years.

As at 31 December 2018 and 2017, future minimum lease payments required under these operating lease contracts were as follows:

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Not later than 1 year	20,088,646	22,057,238	12,086,704	12,805,532
Later than 1 year but not later than 5 years	43,486,307	53,195,076	10,069,239	17,216,088
Later than 5 years	137,247,452	145,696,274	-	-
	<u>200,822,405</u>	<u>220,948,588</u>	<u>22,155,943</u>	<u>30,021,620</u>

In addition, under agreements of leasing rooftop spaces and other building spaces, subsidiaries have commitments to pay rent at the higher of a percentage of sales and the minimum amounts specified in the agreements.

## Notes to the Consolidated and Separate Financial Statements

For the year ended 31 December 2018

### 32 Commitments and contingencies (Cont'd)

#### 32.3 Contracts and other commitments

- a) A jointly controlled entity has commitments in respect of a management service agreement with the other venture amounting to Baht 6 million per annum for a period of 10 years from May 2013, with the service fee to increase on an annual basis at the rate specified in the agreement. The fees for the year ended 31 December 2018 amounting to Baht 4 million (2017: Baht 3 million) (in proportionate of the Company's interest in the jointly controlled entity) were recognised as expenses.
- b) A jointly controlled entity has commitments in respect of the operation and maintenance agreements of seven power plants with a company, amounting to Baht 9 million per annum for the period of 10 years from the commercial operation date. The fees for the year ended 31 December 2018 amounting to approximately Baht 5 million (2017: Baht 5 million) (in proportionate of the Company's interest in the jointly controlled entity) were recognised as expenses.
- c) A jointly controlled entity has commitments in respect of the operation monitoring and maintenance agreements of ten power plants with a company since January 2013, amounting to Baht 2 million per annum for the period of 7 years from the commercial operation dates.
- d) A jointly controlled entity has commitments in respect of the operation and maintenance agreements of three power plants with a company, amounting to Baht 8 million per annum for the period of 5 years from June 2017. The fees for the year ended 31 December 2018 amounting to Baht 5 million per annum (2017: Baht 3 million) (in proportionate of the Company's interest in the jointly controlled entity) were recognised as expenses.
- e) A subsidiary has an obligation to pay management fee to its capital investor totalling Baht 8 million per annum since September 2016. The management fee will be increased annually according to the percentage specified in the contract. For the year ended 31 December 2018, the subsidiary has recognised the total management expenses based on the specified contract as construction in progress during the year amounting to Baht 8 million (2017: Baht 8 million).
- f) A subsidiary has the commitment according to the operation monitoring and maintenance agreement of power plants with a company with the fee of USD 200 (2017: USD 62,500).

#### 32.4 Guarantees

As at 31 December 2018, there were outstanding bank guarantees of approximately Baht 8 million (2017: Baht 9 million) issued by banks on behalf of the Company and its subsidiaries in respect of certain performance bonds as required in the normal course of business.

### 33 Events after the reporting period

- a) On 21 January 2019, the Board of Directors' Meeting of the subsidiary approved a dividend payment in respect of operating results for the year 2018 to the shareholders at Baht 0.65 per share, totalling Baht 11.83 million. The dividends will be paid on 13 February 2019.
- b) On 31 January 2019, the Executive Committee's meeting of the Company approved to cease operations of the thermal power plant. The Company announced to the plant's employees on 11 February 2019 and cease its operation on 16 February 2019.
- c) On 27 February 2019, the Board of Directors' Meeting approved the reduction of registered capital by reducing 544,500,420 unissued and non-offering shares, and approved the issuance of new shares of 571,724,874 shares at par value of 1 Baht each for General Mandate. The registered share capital will be amounting to Baht 2,477.47 million.
- d) On 27 February 2019, the Board of Directors' Meeting approved the issuance and offering of debentures for the amount not exceeding Baht 3,000 million.

# General Information

## Capital and Major Shareholders

### Securities

As of December 31 2018, the company registered capital is 2,450,250,000.00 Baht, divided into 2,450,250,000.00 million shares with a par value of 1 Baht. The paid - up capital was 1,905,749,580.00 Baht.

### Shareholders

The company's shareholding structure as of the latest book closure date on December 28 2018, prepared by Thailand Securities Depository Co., Ltd. is as follows:

	Number of shareholders	Number of shares	Percentage
Thai securities holders	6,922	1,699,767,256	89.19
Foreign securities holders	23	205,982,324	10.81
<b>Total</b>	<b>6,945</b>	<b>1,905,749,580</b>	<b>100.00</b>

## List of top ten major shareholders of the Company

	Name	Number of shares	Percentage
1.	Cathleen Maleenont, Ed.D. Group* P.M. Energy Co., Ltd. ("PME") <sup>/1</sup>	710,584,150	37.29
	UBS AG SINGAPORE BRANCH <sup>/2</sup>	72,450,000	3.80
	Wave Entertainment Public Co., Ltd. ("WAVE") <sup>/3</sup>	190,837,500	10.01
	Cathleen Maleenont, Ed.D.	4,400,000	0.24
	<b>Total</b>	<b>978,271,650</b>	<b>51.34</b>
2.	Shino - Thai Engineering & Construction Public., Ltd.	190,575,000	10.00
3.	CREDIT SUISSE AG, SINGAPORE BRANCH	73,874,955	3.88
4.	CITIBANK NOMINEES SINGAPORE PTE LTD-S.A PBG CLIENTS SG	39,900,000	2.09
5.	Bualuang Long Term Equity Fund	24,188,690	1.27
6.	The Bualuang infrastructure Retirement Mutual Fund	23,918,685	1.26
7.	Ms. Nattawan Piyamahachote	20,536,480	1.08
8.	Ms. Benjamas Nanthaveerawat	17,495,100	0.92
9.	Ms. Uraiwan Saelee	14,265,200	0.75
10.	Ms. Orayaporn Karnchanacharee	12,390,000	0.65

\* The grouping is referred to the definition of related persons according to Kor.Jor.17/2551 dated 15 December 2009; not referring related persons under section 258 of The Securities Exchange of Thailand Act B.E. 2535 (including the adjustment)

/1 PME operates its business by investing in renewable energy companies. Its major shareholder as of December 31, 2018 was Cathleen Maleenont, Ed.D. holding 100.00 %

/2 UBS AG Singapore is the custodian of TSE - F for PME

/3 WAVE operates its business by copyright owner and distributor Thai dramas of Channel 3, Organizer of concerts and other event.

## Information of the Company Group and reference persons

	Nature of Business	Registered Capital (Million Baht)	Paid - up Capital (Million Baht)	Percentage
<b>The companies held by Thai Solar Energy PLC. (“the Company”)</b>				
1. Thai Solar Renewable Co., Ltd. - TSR	Holding Company	583.33	583.33	60
2. Solar Visible Co., Ltd. - SV	Solar Farm	202	51.5	100
3. World Solar Co., Ltd. - WS	Solar Farm	1	0.25	100
4. TSE Rooftop Co., Ltd. - TSER	Holding Company	182	182	100
5. Thai Community Energy Co., Ltd. - TCE	Holding Company	450	450	100
6. TSE Overseas Group Co., Ltd. - TSEO	Holding Company	515	515	100
<b>The companies held by Thai Solar Renewable Co., Ltd. - TSR</b>				
7. Siam Solar Energy 1 Co., Ltd. - SSE1	Solar Farm	1,800	1,800	100
<b>The companies held by Solar Visible Co., Ltd. - SV</b>				
8. Solar Community Co., Ltd. - SLC	Solar Co-Op	100	25	100
9. Infinity Solar Co., Ltd. - INS	Solar Farm	30	30	100
<b>The companies held by TSE Rooftop Co., Ltd. - TSER</b>				
10. Champ Energy Co., Ltd. - CE	Solar Rooftop	52	52	100
11. North Rooftop Cp., Ltd. - NR	Solar Rooftop	39	39	100
12. Roof Energy Co., Ltd. - RE	Solar Rooftop	39	39	100
13. Green Rooftop Co., Ltd. - GR	Solar Rooftop	26	26	100
14. Lucky Solar Co., Ltd. - LS	Solar Rooftop	26	26	100
<b>The companies held by Thai Community Energy Co., Ltd. - TCE</b>				
15. Oscar Save the World Co., Ltd.- OSW	Biomass	582	582	75
16. Bangsawan Green Co., Ltd. - BSW	Biomass	174	174	100



	Nature of Business	Registered Capital (Million Baht)	Paid - up Capital (Million Baht)	Percentage
<b>The companies held by Thai Community Energy Co., Ltd. - TCE</b>				
17. Clean Renewable Co., Ltd. - CLR	Biomass	1	0.25	100
18. Sun Future Co., Ltd. - SFT	Biomass	1	0.25	100
19. The Solar Earth Co., Ltd. - SE	Biomass	1	0.25	100
<b>The companies held by TSE Overseas Group Co., Ltd. - TSEO</b>				
20. Onikoube Solar Power PTE.LTD - OSP	Holding Company	7,815.95 Million JPY	7,815.95 Million JPY	100
21. TSE Group International PTE. LTD. - TSI	Holding Company	2,845.77 Million JPY	2,845.77 Million JPY	100
22. Solar Assets PTE. LTD. - SA	Holding Company	431.78 Million JPY	431.78 Million JPY	100
<b>The companies held by Onikobe Solar Power PTE.LTD - OSP</b>				
23. Purplesol, Godo Kaisha - PPS	Solar Farm	393.9 Million JPY	393.9 Million JPY	100
<b>The companies held by TSE Group International PTE. LTD. - TSI</b>				
24. Eco Solar Aizu Godo Kaisha - ESA	Solar Farm	10,000 JPY	10,000 JPY	97
25. Ishikawa Hanamizuki No.1 Godo Kaisha - IH1	Solar Farm	10,000 JPY	10,000 JPY	97
<b>The companies held by Solar Assets PTE. LTD. - SA</b>				
26. Ibaraki Ushiku 1 Godo Kaisha - IU1	Land Lease	10,000 JPY	10,000 JPY	100
27. Ibaraki Ushiku 2 Godo Kaisha - IU2	Land Lease	46,510,000 JPY	46,510,000 JPY	100

## ■ Reference persons

### Security registrar

The Thailand Securities Depository Co., Ltd.  
93 Ratchadaphisek Road, Dindaeng, Bangkok 10400  
Tel : 02 009 9000 Fax : 02 009 9991  
Call Center : 02 009 9999  
Website : [www.set.or.th/tsd](http://www.set.or.th/tsd)

### Auditor

Mr. Kajornkiet Aroonpirodkul (CPA No. 3445)  
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179/74-80 South Sathorn Road, Bangkok, 10120  
Tel : 02 344 1000 , 02 824 5000  
Fax : 02 286 5050 Website : [www.pwc.com/th](http://www.pwc.com/th)

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333 Silom Road, Bangrak, Bangkok 10500  
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- Siam Commercial Bank Public Company Limited  
9 Ratchadapisek Road, Jatujak Bangkok 10900  
Tel : 0 2777 7777
- Bank of Ayudhya Public Company Limited  
1222 Rama III Road, Bang Phongphang,  
Yan Nawa, Bangkok 10120  
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- Kasikorn Bank Public Company Limited  
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