

Annual Report 2018

WHA UTILITIES AND POWER PUBLIC COMPANY LIMITED



Integrated **UTILITIES AND POWER** Service Providers



Your Ultimate Solution Partner in **Utilities & Power** with Environmental Care

VISION

To be Asia's leader in utilities and power businesses providing total solutions to partners with good corporate governance as well as environmentally and socially friendly operations.

MISSIONS

1. To develop world class utilities and power solutions fitting customers' needs.
2. To vertically integrate solutions in utilities and power businesses and expand other market segment to increase products and services in Thailand and other Southeast Asia Countries (CLMV Countries)
3. To continuously develop human resources competencies.
4. To nurture an innovative culture in the organization.
5. To add value to communities and the environment with good corporate governance and sustainable development strategies.

GOALS

The Company aims to be a leader in integrated utility and power businesses and to operate in compliance with the principles of good corporate governance with responsibility for the community, society and the environment. It also plans to expand its customer base in the segments of utilities and power services, both domestically and in the South East Asia countries particularly Cambodia, Laos, Myanmar and Vietnam (the CLMV countries) and expand to related businesses in order to widen its range of products and services.



LEADER OF UTILITIES SERVICES
IN THAILAND'S INDUSTRIAL ESTATES AS WELL AS
IN POWER AND ENERGY BUSINESS

WHAUP

WE ARE THE LEADER IN UTILITIES SERVICES
for the Industrial estates in Thailand





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Definition and Abbreviation

The Company or WHAUP	: WHA Utilities and Power Public Company Limited
The Company Group	: WHA Utilities and Power Public Company Limited and its subsidiaries
WHA	: WHA Corporation Public Company Limited
WHA Group	: WHA Corporation Public Company Limited, subsidiaries and associated companies
WHAID	: WHA Industrial Development Public Company Limited (Formally name Hemaraj Land and Development Public Company Limited)
WHAID Group	: WHA Industrial Development Public Company Limited, subsidiaries and associated companies
WHAWT	: WHA Water Company Limited (Formally name Hemaraj Water Company Limited)
WHAEG	: WHA Energy Company Limited (Formally name Hemaraj Energy Company Limited)
WHAET	: WHA Energy 2 Company Limited (Formally name Hemaraj Energy 2 Company Limited)
WUPI	: WHAUP International Co., Ltd.
WHASL	: WHA Solar Company Limited
WUPS1	: WHAUP (SG) 1 PTE. Limited
WUPS2	: WHAUP (SG) 2 PTE. Limited
WHAUP	: WHAUP Nghe An Joint Stock Company
Nghe An JSC	
WHA NGD2	: WHA Eastern Seaboard NGD2 Co., Ltd.
WHA NGD4	: WHA Eastern Seaboard NGD4 Co., Ltd.
Gheco-I	: Gheco-I Company Limited
HHTC	: Houay Ho Thai Company Limited
HHPC	: Houay Ho Power Company Limited (A company incorporated in Lao People's Democratic Republic)
Glow IPP or GIPP	: Glow IPP Company Limited
BPWHA-1	: B.Grimm Power (WHA) 1 Company Limited (Formally name Bowin Clean Energy Company Limited)
Gulf JP NLL	: Gulf JP NLL Company Limited
Gulf NLL 2	: Gulf NLL 2 Company Limited
Gulf TS 1	: Gulf TS 1 Company Limited
Gulf TS 2	: Gulf TS 2 Company Limited
Gulf TS 3	: Gulf TS 3 Company Limited
Gulf TS 4	: Gulf TS 4 Company Limited
Gulf VTP	: Gulf VTP Company Limited
Gulf Solar	: Gulf Solar Company Limited
Gulf Solar BV	: Gulf Solar BV Company Limited
Gulf Solar TS 1	: Gulf Solar TS 1 Company Limited
Gulf Solar TS 2	: Gulf Solar TS 2 Company Limited
Gulf Solar KKS	: Gulf Solar KKS Company Limited
Gulf WHA MT	: Gulf WHA MT Natural Gas Distribution Company Limited
Gulf MP	: Gulf MP Company Limited
ESCE	: Eastern Seaboard Clean Energy Company Limited
CCE	: Chonburi Clean Energy Company Limited
RCE	: Rayong Clean Energy Company Limited
GHW	: Glow Hemaraj Wind Company Limited
WHA Gunkul 1	: WHA Gunkul 1 Green Solar Roof Company Limited
WHA Gunkul 3	: WHA Gunkul 3 Green Solar Roof Company Limited
WHA Gunkul 6	: WHA Gunkul 6 Green Solar Roof Company Limited
WHA Gunkul 17	: WHA Gunkul 17 Green Solar Roof Company Limited
WHA CIE 1	: WHA Chonburi Industrial Estate 1 (Formally name Hemaraj Chonburi Industrial Estate)
WHA CIE 2	: WHA Chonburi Industrial Estate 2 (Formally name Hemaraj Chonburi 2 Industrial Estate)

ESIE	: Eastern Seaboard Industrial Estate (Rayong)
WHA ESIE 1	: WHA Eastern Seaboard Industrial Estate 1 (Formally name Hemaraj Eastern Seaboard Industrial Estate)
WHA ESIE 2	: WHA Eastern Seaboard Industrial Estate 2 (Formally name Hemaraj Eastern Seaboard 2 Industrial Estate)
WHA ESIE 3	: WHA Eastern Seaboard Industrial Estate 3 (Formally name Hemaraj Eastern Seaboard3 Industrial Estate)
WHA ESIE 4	: WHA Eastern Seaboard Industrial Estate 4 (Formally name Hemaraj Eastern Seaboard 4 Industrial Estate)
WHA EIE	: WHA Eastern Industrial Estate (Map Ta Phut) (Formally name Hemaraj Eastern Industrial Estate (Map Ta Phut))
WHA RIL	: WHA Rayong Industrial Land (Formally name Hemaraj Rayong Industrial Land)
WHA SIL	: WHA Saraburi Industrial Land (Formally name Hemaraj Saraburi Industrial Land)
WHA LP 1	: WHA Logistic Park 1 (Formally name Hemaraj Logistic Park 1)
Utilities business	: Water business and providing related utilities service e.g. gas distribution business or waste management business
Water business	: Distribution of raw water, production and distribution of industrial water and wastewater treatment business
Power business	: Generation and distribution of electricity business
COD	: Commercial Operation Date
SCOD	: Scheduled Commercial Operation Date
MW	: Megawatt
TPH	: Ton per hour
RT	: Ton of Refrigeration
IPP	: Independent Power Producer
SPP	: Small Power Producer
VSPP	: Very Small Power Producer
IEAT	: Industrial Estate Authority of Thailand
ERC	: Energy Regulatory Commission
NEPO	: National Energy Policy Office
EGAT	: Electricity Generating Authority of Thailand
PEA	: Provincial Electric Authority
MEA	: Metropolitan Electric Authority
PWA	: Provincial Waterworks Authority
MWA	: Metropolitan Waterworks Authority
Office of the SEC	: Office of the Securities and Exchange Commission of Thailand
SET	: Stock Exchange of Thailand
BOI	: Board of Investment of Thailand
EBITDA	: Earnings before interest, taxes, depreciation and amortization
CAGR	: Cumulative Annual Growth Rate
Glow Group	: Glow Energy Public Company Limited, subsidiaries and associated companies
Gulf Group	: Gulf Energy development Company Limited, subsidiaries and associated companies
B.Grimm	: B.Grimm Power Company Limited, subsidiaries and associated companies
Power Group	: Gunkul Engineering Public Company Limited, subsidiaries and associated companies
Gunkul Group	

Financial Highlight

PROFIT AND LOSS

(million Baht)

Profit and Loss	2016	2017	2018
Revenue from sales and services	1,467.5	1,633.8	1,708.3
Cost of sales and services	(949.5)	(1,092.4)	(1,120.0)
Gross profit	518.0	541.4	588.3
Share of profit from investments in associates and joint ventures	962.5	1,936.1	2,047.4
Net profit attributable to owners of the parent	369.5	1,980.9	2,251.9
Earnings per share (Baht/share)	0.16	0.54	0.59

BALANCE SHEET

(million Baht)

Balance Sheet	2016	2017	2018
Total Assets	18,652.1	21,378.2	23,773.3
Total Liabilities	11,232.6	8,801.2	9,724.0
Total Equity	7,419.5	12,577.0	14,049.3

FINANCIAL RATION

(million Baht)

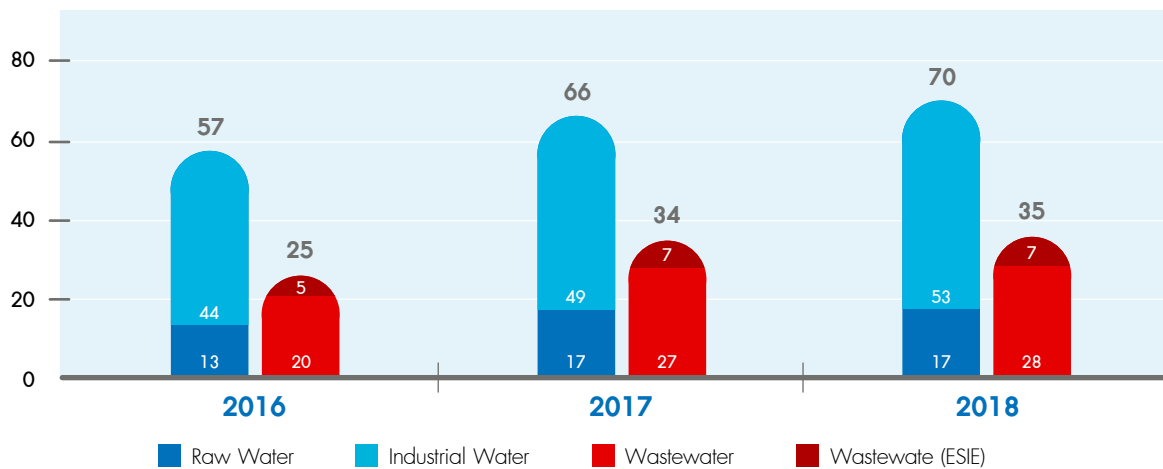
Financial Ratio	2016	2017	2018
Gross Profit Margin	35.3%	33.1%	34.4%
Net Profit Margin ¹	14.7%	53.5%	57.5%
Return on Equity ²	4.2%	19.8%	16.9%
Debt/Equity Ratio	1.51x	0.70x	0.69x
Net Interest-bearing Debt/Equity Ratio	1.38x	0.58x	0.58x

¹ Net profit margin is calculated by dividing the Net Profit attributable to Owners of the Parent by Revenue from Sales and Services and Share of Profit from Investments in Associates and Joint Ventures and other income

² Return on Equity is calculated by dividing the Net Profit attributable to Owners of the Parent by average equity

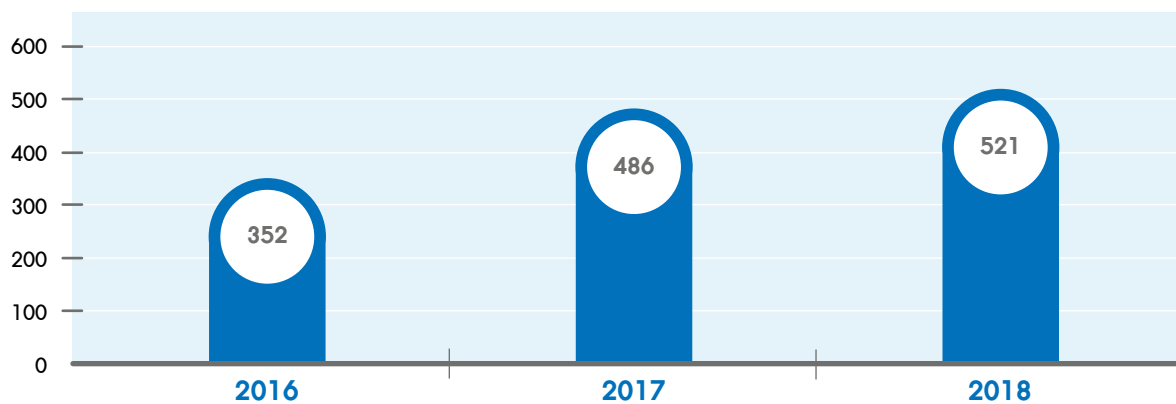
TOTAL SALE & MANAGEMENT VOLUME

(million m3)

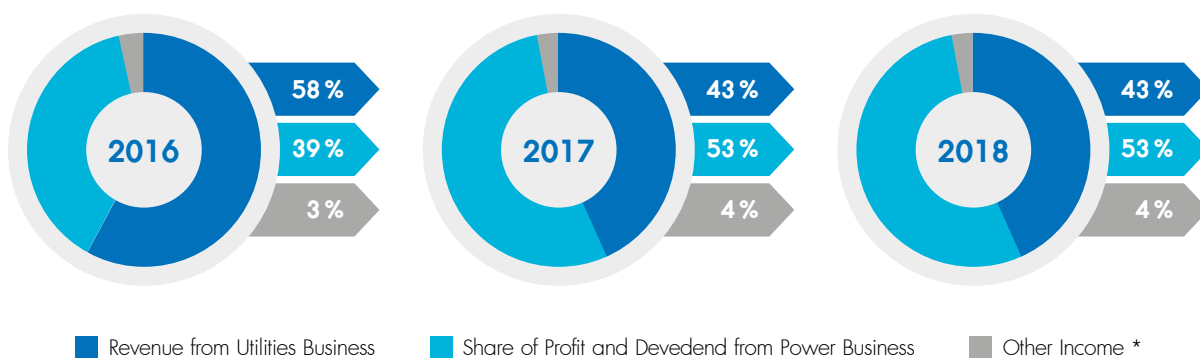


TOTAL EQUITY MW

(MW)



REVENUE STRUCTURE



NOTE : * Other Income is interest income from loan to Gheco-I in proportion to the shareholding

Message from Chairman



2018 was another memorable year for the company, taking into consideration the outstanding performance. The revenue from utilities businesses was 1,708 million Baht and share of profit from investment in power business was 2,047 million Baht, resulting in the Net Income of 2,252 million Baht which achieved the growth of 14% increase year on year. Such excellent performance was thank to the continuing growth of utilities demand from the customers and the significantly higher dispatch level of the power plants.

Moreover, 2018 marked the first step of other businesses such as utilities business in WHA Industrial Zone 1, Nghe An where all the permits and licenses are granted, allowing the company to set foot in Vietnam. On the other hand, the Solar Rooftop business to supply electricity directly to the customers under the roof, called Independent Power Supply (IPS), also had a satisfactory result. A number of customers signed up for Solar Rooftop power supply in fourth quarter last year while a lot more showing interests. Last but not the least, the natural gas retail supply business that the company had started achieved the commercial operation in the WHA Eastern Seaboard Industrial Estates 2 (WHA ESIE 2) on 1st December and ready for more customers in the near future. At the same time, similar project in WHA Eastern Seaboard Industrial Estates 4 (WHA ESIE 4) was progressing as planned and will be ready to supply the 1st customer in April 2019.

Lastly, on behalf of the Board of Directors of WHA Utilities and Power Public Company Limited, I would like to thank all the shareholders and business partners who continue to support the company, as well as the management and all the employees for the efforts in 2018. We will uphold the mission on sustainable growth with good corporate governance and awareness on social and environment responsibilities.



Ms. Jareeporn Jarukornsakul
Chairman of the Board of Directors

Message from CEO

The Company's performance in 2018 was generally good, from both utilities and power business. The company recorded the sale of 70 million cubic meters of industrial water, resulting in recording the service of 35 million cubic meters of wastewater treatment from all the industrial estates combined. In addition, the Wastewater Reclamation Pilot Project at WHA Eastern Industrial Estate (Map Ta Phut) can operate well so that the company can reduce the use of natural water by 7,500 cubic meters per day (CMD). As a result, the Phase 2 of the Wastewater Reclamation was implemented with the aim to reduce another 2,500 CMD of natural water in 2nd quarter of 2019. For investment overseas, the Company has started the implementation of water plant and wastewater treatment plant in WHA Nghe An Industrial Estate, Vietnam which will be ready to operate in 2019.

For the overall performance of energy business, the company recorded the significant increase of share of profits from investment in power plants when comparing to 2017. Main reason was that all the SPP power plants had a full year operation in 2018 and the company accumulated the investment in power business to 521 MW equity while there are another SPP Power Project with installed capacity of 127MW and an Industrial Waste to Energy with installed capacity of 8.6 MW under construction. In addition, the company has executed a number of power purchase agreements with industrial customers for the Solar Rooftop power generation system for the supply of clean energy. For the natural gas retail business, a joint venture of the company has achieved the Commercial Operation by successfully supplying natural gas to the first industrial customer in WHA Eastern Seaboard Industrial Estate 2 (WHA ESIE 2) on 1 December 2018 with the next target in WHA Eastern Seaboard Industrial Estate 4 (WHA ESIE 4).

As at 31 December 2018, the company recorded the asset of 23,773 million Baht with liability of 9,724 million Baht and the equity of 14,049 million Baht. The debt to equity ratio was 0.69 times and the interest bearing debt to equity was 0.58 times

Lastly, on behalf of the management team, I would like to thank all the shareholders who have trust in the Company and all the employees who worked hard to achieve the targeted goal.



Mr. Wisate Chungwatana
Chief Executive Officer

Detail of Directors



MS.JAREEPORN JARUKORNSAKUL

CHAIRMAN OF THE BOARD OF DIRECTORS
CHAIRMAN OF THE EXECUTIVE COMMITTEE
CHAIRMAN OF THE RISK MANAGEMENT COMMITTEE
NOMINATION AND REMUNERATION COMMITTEE MEMBER

AGE 51 Years

APPOINTED DATE

- Chairman of the Board of Directors : Dated 9 February 2018
- Director
 - Hemaraj Clean Water Co., Ltd.(Formerly name before registered as a public company): 25 March 2015
 - WHA Utilities and Power PLC.: 10 August 2016 (Date of registered as a public company)

EDUCATIONAL QUALIFICATION / TRAINING

- Master of Business Administration, Bangkok University
- Honorary Doctorate (Logistics and Supply Chain Management), Christian University of Thailand
- Bachelor of Science (Public Health), Mahidol University
- The National Defence College (Class 60/2018)
- Director Accreditation Program (DAP 210/2015) Thai Institute of Directors (IOD)
- Director Certification Program (DCP 94/2012), Thai Institute of Directors (IOD)
- Corporate Governance for Capital Market Intermediaries (CGI 17/2016) Thai Institute of Directors (IOD)
- Senior Executives on Justice Administration Program (Class 20/2015), National Justice Academy, Office of Judiciary
- Top Executive Program (Class 18/2014), Capital Market Academy (CMA)

CURRENT POSITION

OTHER LISTED COMPANIES

- Chairman of the Board of Directors WHA Corporation PLC.
- Chairman of the Executive Committee WHA Corporation PLC.
- Group Chief Executive Officer WHA Corporation PLC.

OTHER ORGANIZATIONS

- Chairman and Director in 70 Other Organizations

SHAREHOLDING PROPORTION (ON 31 DECEMBER 2018)

- Own : 34,499,800 shares
- Spouse : None
- Minor child : None
- Legal entity hold shares at an amount exceeding 30% : 72,581,665 shares

• **TOTAL SHARES : 107,081,465 SHARES**

• **TOTAL SHARE PROPORTION : 2.80 %**

FAMILY RELATIONSHIP BETWEEN THE DIRECTOR AND THE MANAGEMENT : - None -



MR.DAVID RICHARD NARDONE

DIRECTORS
EXECUTIVE COMMITTEE MEMBER
RISK MANAGEMENT COMMITTEE MEMBER

AGE 63 Years

APPOINTED DATE

- Director
 - Hemaraj Clean Water Co., Ltd.(Formerly name before registered as a public company): 30 June 2008
 - WHA Utilities and Power PLC.: 10 August 2016 (Date of registered as a public company)

EDUCATIONAL QUALIFICATION / TRAINING

- Master of Business Administration, Northeastern University, Boston, U.S.A.
- Director, Certification Program (DCP 57/2005), Thai Institute of Director (IOD)

CURRENT POSITION

OTHER LISTED COMPANIES

- Directors WHA Corporation PLC.
- Executive Committee member WHA Corporation PLC.

OTHER ORGANIZATIONS

- Director in 28 Other Organizations

SHAREHOLDING PROPORTION (ON 31 DECEMBER 2018)

- - None -

FAMILY RELATIONSHIP BETWEEN THE DIRECTOR AND THE MANAGEMENT : - None -



MR. VIVAT JIRATIKARNSAKUL

DIRECTOR
EXECUTIVE COMMITTEE MEMBER
CORPORATE GOVERNANCE COMMITTEE MEMBER

AGE 62 Years

APPOINTED DATE

- Director
 - Hemaraj Clean Water Co., Ltd.(Formally name before registered as a public company): 25 March 2015
 - WHA Utilities and Power PLC. : 10 August 2016
(Date of registered as a public company)

EDUCATIONAL QUALIFICATION / TRAINING

- Bachelor of Engineering (Sanitary Engineering), Chulalongkorn University
- Director Accreditation Program (DAP 2/2003), Thai Institute of Directors (IOD)
- Director Certification Program (DCP 38/2003), Thai Institute of Directors (IOD)
- Anti-Corruption for Executive Program (ACEP 2/2014), Thai Institute of Directors (IOD)
- IOD Luncheon briefing 1/2013 : Thailand Economic Outlook 2013

CURRENT POSITION

OTHER LISTED COMPANIES

- Directors WHA Corporation PLC.
- Executive Committee member WHA Corporation PLC.

OTHER ORGANIZATIONS

- Director in 26 Other Organizations

SHAREHOLDING PROPORTION (%)

- - None -

FAMILY RELATIONSHIP BETWEEN THE DIRECTOR AND THE MANAGEMENT : - None -



MR. WISATE CHUNGWATANA

DIRECTOR
EXECUTIVE COMMITTEE MEMBER

AGE 51 Years

APPOINTED DATE

- Director
 - Hemaraj Clean Water Co., Ltd.(Formally name before registered as a public company): 28 March 2016
 - WHA Utilities and Power PLC. : 10 August 2016
(Date of registered as a public company)

EDUCATIONAL QUALIFICATION / TRAINING

- Master of Science (Mechanical Engineering), Missouri University of Science and Technology, Rolla, MO, U.S.A
- Bachelor of Engineering (Mechanical Engineering), Chulalongkorn University
- Director Certification Program (DCP 189/2014), Thai Institute of Directors (IOD)
- Petroleum Development and Operations, Stavanger, Norway
- Management of Electric Power Utilities, Stockholm, Sweden

CURRENT POSITION

OTHER LISTED COMPANIES

- - None -

OTHER ORGANIZATIONS

- Director in 35 Other Organizations

SHAREHOLDING PROPORTION (%)

- Own : 100,000 shares
- Spouse : None
- Minor child : None
- Legal entity hold shares at an amount exceeding 30% : None

• **Total Shares : 100,000 shares**

• **Total Share proportion : 0.003 %**

FAMILY RELATIONSHIP BETWEEN THE DIRECTOR AND THE MANAGEMENT : - None -



MR. SURATHIAN CHAKTHRANONT

DIRECTOR
RISK MANAGEMENT COMMITTEE MEMBER

AGE 66 Years

APPOINTED DATE

- Director
 - Hemaraj Clean Water Co., Ltd.(Formally name before registered as a public company): 25 April 2016
 - WHA Utilities and Power PLC.: 10 August 2016
(Date of registered as a public company)

EDUCATIONAL QUALIFICATION / TRAINING

- Bachelor of Engineering (Environment), Chulalongkorn University
- Honorary Doctorate (Technology), Shinawatra University
- Director, Accreditation Program (DAP 2012), Thai Institute of Director (IOD)

CURRENT POSITION

OTHER LISTED COMPANIES

- - None -

OTHER ORGANIZATIONS

- Director in 5 Other Organizations

SHAREHOLDING PROPORTION (ON 31 DECEMBER 2018)

- - None -

**FAMILY RELATIONSHIP BETWEEN THE DIRECTOR
AND THE MANAGEMENT : - None -**



MR. WEIDT NUCHJALEARN

INDEPENDENT DIRECTOR
CHAIRMAN OF THE AUDIT COMMITTEE
CHAIRMAN OF THE NOMINATION AND REMUNERATION COMMITTEE

AGE 65 Years

APPOINTED DATE

- Independent Director
 - Hemaraj Clean Water Co., Ltd.(Formally name before registered as a public company): 2 December 2015
 - WHA Utilities and Power PLC.: 10 August 2016
(Date of registered as a public company)

EDUCATIONAL QUALIFICATION / TRAINING

- Master of Business Administration, Thammasat University
- Bachelor of Science (Agricultural Economics), Kasetsart University
- Director Accreditation Program (DAP SEC/2015), Thai Institute of Directors (IOD)
- Role of the Chairman Program (RCP 31/2013), Thai Institute of Directors (IOD)
- Top Executive Program (Class 18), Capital Market Academy (CMA)
- Top Executive Program in Commerce and Trade : TEPCoT (Class 3/2010), Commerce Academy
- Financial Executive Development Program (Class 14/2016) , Thai Institute of Banking and Finance Association
- Commercial Credit Skills Assessment , Chulalongkorn University

CURRENT POSITION

OTHER LISTED COMPANIES

- Director Srisawad Finance PLC.
- Director Srisawad Corporation PLC.
- Independent Director / Chairman of the Audit Committee
Thaifoods Group PLC.
- Advisor Dhipaya Insurance PLC.

OTHER ORGANIZATIONS

- Director in 5 Other Organizations

SHAREHOLDING PROPORTION (ON 31 DECEMBER 2018)

- - None -

**FAMILY RELATIONSHIP BETWEEN THE DIRECTOR
AND THE MANAGEMENT : - None -**



MR.EKAJAI TIVUTANOND

INDEPENDENT DIRECTOR
AUDIT COMMITTEE MEMBER
CORPORATE GOVERNANCE COMMITTEE MEMBER
NOMINATION AND REMUNERATION COMMITTEE MEMBER

AGE 66 Years

APPOINTED DATE

- Independent Director
 - Hemaraj Clean Water Co., Ltd. (Formally name before registered as a public company): 2 December 2015
 - WHA Utilities and Power PLC.: 10 August 2016 (Date of registered as a public company)

EDUCATIONAL QUALIFICATION / TRAINING

- Master of Laws, Columbia University, New York, U.S.A.
- Bachelor of Laws (First Class Honor), Thammasat University
- Thai Bar Association
- Director Accreditation Program (DAP 127/2016), Thai Institute of Directors (IOD)

CURRENT POSITION

OTHER LISTED COMPANIES

- - None -

OTHER ORGANIZATIONS

- Director in 1 Other Organizations

SHAREHOLDING PROPORTION (ON 31 DECEMBER 2018)

- - None -

FAMILY RELATIONSHIP BETWEEN THE DIRECTOR

AND THE MANAGEMENT : - None -



MRS.PUNNEE WORAWUTHICHONGSATHIT

INDEPENDENT DIRECTOR
AUDIT COMMITTEE MEMBER
CHAIRMAN OF THE CORPORATE GOVERNANCE COMMITTEE

AGE 66 Years

APPOINTED DATE

- Independent Director
 - Hemaraj Clean Water Co., Ltd.(Formally name before registered as a public company): 2 December 2015
 - WHA Utilities and Power PLC.: 10 August 2016 (Date of registered as a public company)

EDUCATIONAL QUALIFICATION / TRAINING

- Master of Accountancy, Chulalongkorn University
- Bachelor of Accountancy, Chulalongkorn University
- Certified Public Accountant (CPA), Federation of Accounting Professions
- Certified Professional Internal Auditors (CPIA), The Institute of Internal Auditors of Thailand
- Qualified Internal Auditors (QIA), The Institute of Internal Auditors of Thailand
- Certified Internal Auditor (CIA), The Institute of Internal Auditors (IIA)
- Driving Company Success with IT Governance (ITG 4/2017), Thai Institute of Directors (IOD)
- Ethical Leadership Program (ELP 2/2015), Thai Institute of Directors (IOD)
- Anti-Corruption the Practical Guide (ACPG 10/2014), Thai Institute of Directors (IOD)
- Anti-Corruption for Executive Program (ACEP 10/2014), Thai Institute of Directors (IOD)
- Role of the Nomination & Governance Committee (RNG 1/2011), Thai Institute of Directors (IOD)
- Role of the Chairman Program (RCP 25/2011), Thai Institute of Directors (IOD)
- DCP Refresher Course (RE DCP 2/2009), Thai Institute of Directors (IOD)
- Monitoring Fraud Risk Management (MFM 1/2009), Thai Institute of Directors (IOD)
- Role of the Compensation Committee (RCC 7/2008), Thai Institute of Directors (IOD)
- Chartered Director Class (CDC 7/2008), Thai Institute of Directors (IOD)
- Monitoring the System of Internal Control and Risk Management (MIR 2/2008), Thai Institute of Directors (IOD)
- Monitoring the Internal Audit Function (MIA 1/2007), Thai Institute of Directors (IOD)
- Improve the Quality of Financial Reporting (MFR 5/2007), Thai Institute of Directors (IOD)
- Audit Committee Program (ACP 2/2004), Thai Institute of Directors (IOD)
- Director Certification Program (DCP 38/2003), Thai Institute of Directors (IOD)
- Director Accreditation Program (DAP 2/2003), Thai Institute of Directors (IOD)

CURRENT POSITION

OTHER LISTED COMPANIES

- Independent Director / Audit Committee member Saha Pathana Inter-Holding PLC.
- Independent Director / Audit Committee member Thai Wacoal PLC.
- Independent Director / Chairman of the Audit Committee Mono Technology PLC.
- Independent Director / Audit Committee member The Brooker Group PLC.

OTHER ORGANIZATIONS

- Director in 7 Other Organizations

SHAREHOLDING PROPORTION (ON 31 DECEMBER 2018)

- - None -

FAMILY RELATIONSHIP BETWEEN THE DIRECTOR

AND THE MANAGEMENT : - None -

Detail of Management and Corporate Secretary



1 MR. WISATE CHUNGWATANA CHIEF EXECUTIVE OFFICER

AGE 51 Years

EDUCATIONAL QUALIFICATION / TRAINING

- Master of Science (Mechanical Engineering), Missouri University of Science and Technology, Rolla, MO, U.S.A
- Bachelor of Engineering (Mechanical Engineering), Chulalongkorn University
- Director Certification Program (DCP 189/2014), Thai Institute of Directors (IOD)
- Petroleum Development and Operations, Stavanger, Norway
- Management of Electric Power Utilities, Stockholm, Sweden

SHAREHOLDING PROPORTION (ON 31 DECEMBER 2018)

- Own : 100,000 shares
- Spouse : None
- Minor child : None
- Legal entity hold shares at an amount exceeding 30% : None
- **Total Shares : 100,000 shares**
- **Total Share proportion : 0.003 %**

FAMILY RELATIONSHIP BETWEEN THE DIRECTOR AND THE MANAGEMENT - None -

2 MR. PAOPITAYA SMUTRAKALIN EXECUTIVE COMMITTEE MEMBER CHIEF FINANCIAL OFFICER

AGE 47 Years

EDUCATIONAL QUALIFICATION / TRAINING

- Master of Science (Finance), Drexel University
- Bachelor of Business Administration, Assumption University
- Leadership Development Program
- Business Development Program on MBA Approach
- Leadership Skill, Dale Carnegie Training

SHAREHOLDING PROPORTION (ON 31 DECEMBER 2018)

- Own : 380,500 shares
- Spouse : None
- Minor child : None
- Legal entity hold shares at an amount exceeding 30% : None
- **Total Shares : 380,500 shares**
- **Total Share proportion : 0.01 %**

FAMILY RELATIONSHIP BETWEEN THE DIRECTOR AND THE MANAGEMENT - None -

3 MR. KHAMHOUNG RATSAMANY VICE PRESIDENT OF BUSINESS OPERATION

AGE 52 Years

EDUCATIONAL QUALIFICATION / TRAINING

- Master of Business Administration, Bangkok University
- Bachelor of Science (Mechanical Engineering), University of Waterloo, Canada
- Safety Officer Certificate, Ministry of Labour
- Certificate, ISO 9001/14001 Lead Auditor, BVQI

SHAREHOLDING PROPORTION (ON 31 DECEMBER 2018) - None -

FAMILY RELATIONSHIP BETWEEN THE DIRECTOR AND THE MANAGEMENT - None -

4 MR. SAKVITHU SAEDAN DIRECTOR OF BUSINESS OPERATION

AGE 50 Years

EDUCATIONAL QUALIFICATION / TRAINING

- Bachelor of Science (public health) major in sanitation science, Mahidol University
- Wastewater Treatment Plant Controller, Department of Industrial Work
- Solid Waste Treatment Plant Controller, Department of Industrial Work Certificates
- Environmental Manager, Department of Industrial Work Certificates
- The Boss (80/2013), Management and Psychology Institute (MPI)
- Safety Department Manager, Department of Welfare and Labor Protection
- Occupational Health, Safety and Working Environmental Committee, of Welfare and Labor Protection
- Confined Space Work Approver, Supervisor, Rescuer and Operator, of Welfare and Labor Protection
- Fire Fighting Commander
- Advance Fighting

SHAREHOLDING PROPORTION (ON 31 DECEMBER 2018) - None -

FAMILY RELATIONSHIP BETWEEN THE DIRECTOR AND THE MANAGEMENT - None -

5 MR. VARANON LAOSUWAN DIRECTOR OF UTILITIES PROJECT DEVELOPMENT

AGE 38 Years

EDUCATIONAL QUALIFICATION / TRAINING

- Master of Science (Management of Technology) Murray State University, KY, USA
- Bachelor of Engineering (Environmental Engineering), Chulalongkorn University

SHAREHOLDING PROPORTION (ON 31 DECEMBER 2018) - None -

FAMILY RELATIONSHIP BETWEEN THE DIRECTOR AND THE MANAGEMENT - None -



6 MR.PUNRAPEE NOPARUMPA
DIRECTOR OF POWER PROJECT DEVELOPMENT

AGE 37 Years

EDUCATIONAL QUALIFICATION / TRAINING

- Master of Science (Global Market Economics), London School of Economics, University of London, UK
- Bachelor of Economics, London School of Economics, University of London, UK
- The Young Executive program 2017, Thailand Energy Academy
- Understanding the Petrochemical Industry & the lurking issues 2010, Petroleum Institute of Thailand
- Solar Power Generation System: Regulation, Design, Installation, Operation and Maintenance 2017, IEEE Thailand
- Power Generation from Municipal Waste: Regulation, Design, Installation, Operation and Maintenance 2017, IEEE Thailand
- Natural Gas & Business in its Value Chain 2008, Petroleum Institute of Thailand
- Understanding the Oil Business 2008, Petroleum Institute of Thailand

SHAREHOLDING PROPORTION (ON 31 DECEMBER 2018) - None -

FAMILY RELATIONSHIP BETWEEN THE DIRECTOR AND THE MANAGEMENT - None -

9 MS.NUTCHA RATTANAJITBANJONG
CORPORATE SECRETARY

AGE 34 Years

EDUCATIONAL QUALIFICATION / TRAINING

- Master Degree Computer Science, Computer and Information Technology (English Program), Chulalongkorn University
- Bachelor Degree Computer Science, University of the Thai Chamber of Commerce
- IEEE Certificate: Computer Science and Information Technology (The International Conference), Beijing Technology and Business University, Beijing, China
- Company Reporting Program (CRP 22/2018), Thai Institute of Directors (IOD)
- Director Accreditation Program (DAP 107/2014), Thai Institute of Directors (IOD)
- Anti-Corruption: The Practical Guide (ACPG 7/2013), Thai Institute of Directors (IOD)
- Effective Minute Taking (EMT 26/2013), Thai Institute of Directors (IOD)
- Board Reporting Program (BRP 11/2013), Thai Institute of Directors (IOD)
- Company Secretary Program (CSP 54/2013), Thai Institute of Directors (IOD)
- Management Psychology (9/2013), Management and Psychology Institute (MPI)
- The Boss (80/2013), Management and Psychology Institute (MPI)
- Fundamental Practice for Corporate Secretary (FPCS 19/2008), Corporate Secretary Club of Thai Listed Companies Association
- Corporate Secretary Development Program (17/2008), Thai Listed Companies Association and The Securities Exchange of Thailand

SHAREHOLDING PROPORTION (ON 31 DECEMBER 2018) - None -

FAMILY RELATIONSHIP BETWEEN THE DIRECTOR AND THE MANAGEMENT - None -

7 MRS.RATTANA SHINAWATTRA
DIRECTOR OF ACCOUNTING

AGE 56 Years

EDUCATIONAL QUALIFICATION / TRAINING

- Bachelor of Accountancy, Ramkhamhaeng University
- Taxation Law Certificate, Judicial Training Institute
- Business Development Program on MBA Approach, Chulalongkorn University

SHAREHOLDING PROPORTION (ON 31 DECEMBER 2018) - None -

FAMILY RELATIONSHIP BETWEEN THE DIRECTOR AND THE MANAGEMENT - None -

8 MS.ARPASINEE CHANWANGSA
ASSISTANT DIRECTOR OF FINANCE AND INVESTOR RELATIONS

AGE 43 Years

EDUCATIONAL QUALIFICATION / TRAINING

- Master of Business Administration, Assumption University
- Bachelor of Arts (Political Science), Chulalongkorn University

SHAREHOLDING PROPORTION (ON 31 DECEMBER 2018) - None -

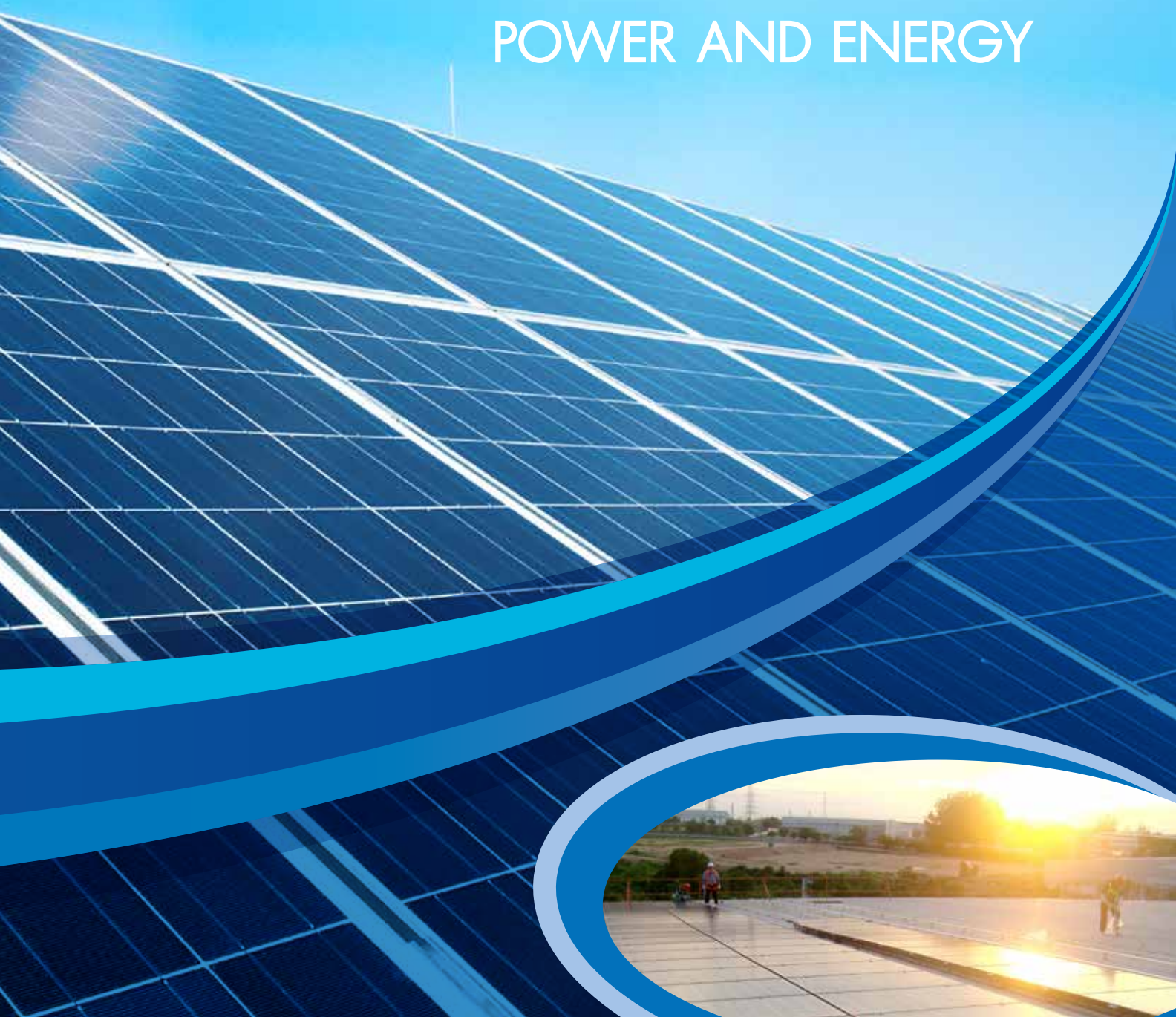
FAMILY RELATIONSHIP BETWEEN THE DIRECTOR AND THE MANAGEMENT - None -





WHAUP

WE INVEST IN
POWER AND ENERGY





Overview of Business

OVERVIEW OF BUSINESS

WHA Utilities and Power Public Company Limited (the Company or WHAUP) was established on June 30, 2008. As at the date of this prospectus, WHA Industrial Development Public Company Limited (“WHAID”) (Formerly name Hemaraj Land and Development Public Company Limited) holds a majority stake of 68.86 percent. The Company’s core business relates to the: (i) utility business, i.e. procurement and distribution of raw water, production and distribution of industrial water and providing wastewater treatment services to operators in industrial estates and industrial lands; and (ii) power business through investment in power generation business, both domestically and abroad.

In addition to the exclusivity rights granted by the WHAID Group’s to operate water business, i.e. business relating to procurement, logistic, production and distribution of raw water, process water and wastewater treatment business in its industrial estates in Thailand, the Company has also obtained the right of first refusal to invest in the gas distribution business and waste disposal business in those industrial estates and industrial lands in Thailand for 50 years, starting from March 30, 2016 (as stated in the Strategic Partnership Agreement). WHAID Group and WHA Corporation Public Company Limited Group (“WHA”) have agreed not to compete with the Company in conducting water business and power business in Thailand, Cambodia, Laos, Myanmar and Vietnam (the CLMV countries) for an indefinite term (as stated in the WHA Industrial Development Non-competition Agreement and the WHA Non-competition Agreement).

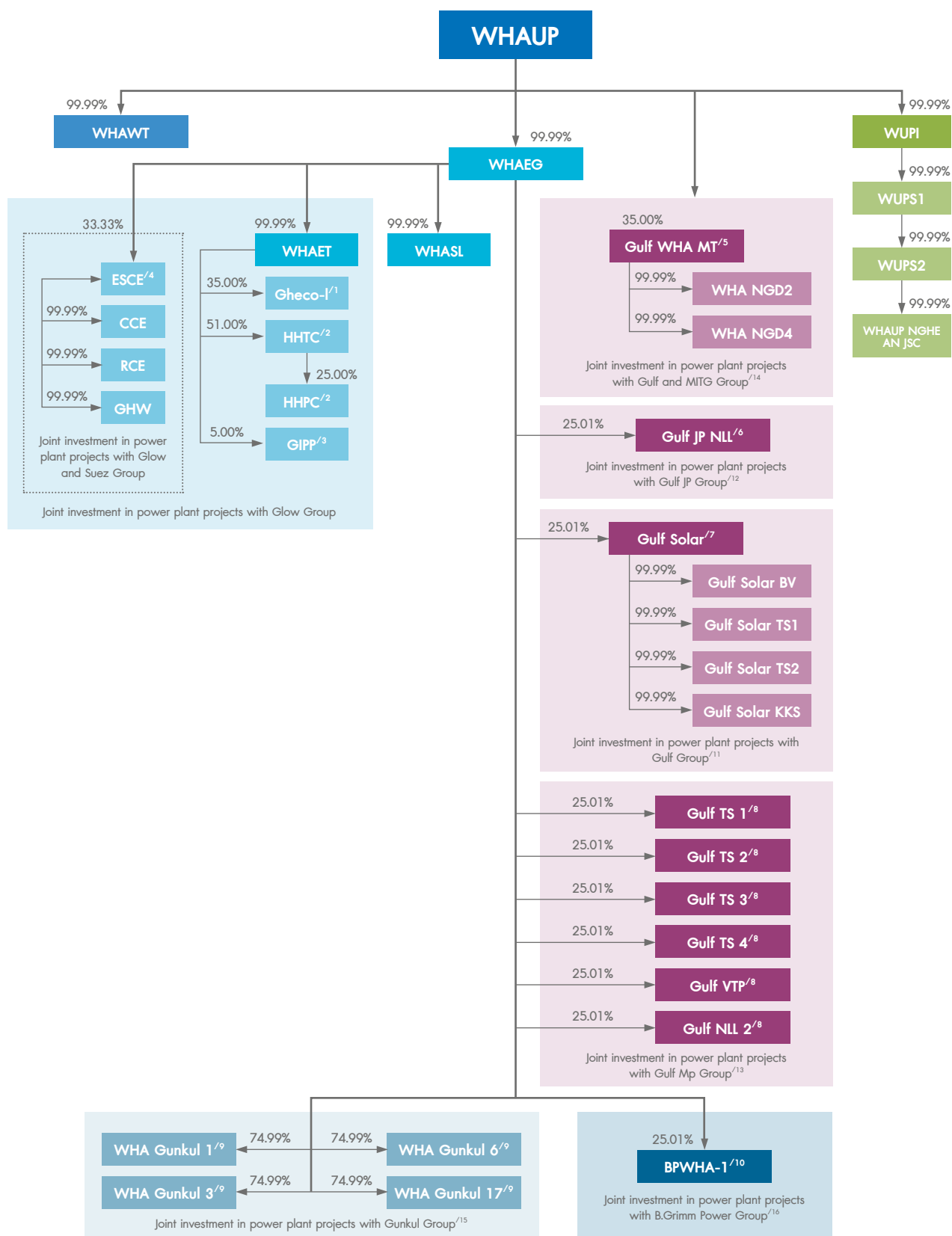
In relation to the utility business, the Company and WHA Water Company Limited (a subsidiary in which the Company has a stake of 99.99 percent.) are one of the major utilities service providers to companies in Thailand industrial estates. The Company’s aggregate maximum industrial water production capacity in all industrial estates and industrial lands is 284,976 cubic meters per day, with an aggregate maximum wastewater treatment capacity in all industrial estates of 118,956 cubic meters per day.

In 2018, the Company’s and its subsidiaries’ aggregate average distribution quantity of raw water and industrial water in all industrial estates and industrial lands was 69.5 million cubic meters per year representing 192,927 cubic meters per day and an aggregate average wastewater treatment in all industrial estates and industrial lands was 35.05 million cubic meters per year representing 91,192 cubic meters per day. The Company and its subsidiaries also plan to provide other public utilities to industrial operators such as gas distribution systems and waste management service in which WHA Group have agreed to grant the right to operate such businesses to the Company (as stated in the Strategic Partnership Agreement). In addition, the Company has a plan to provide utility service to customers outside industrial estates in the future. The Company has been awarded ISO 9001:2008 for quality standards and ISO 14001:2004 for environmental standards.

In relation to the power business, WHA Energy Company Limited, a subsidiary in which the Company has a stake of 99.99 percent has jointly invested with leading power operators in conventional and Renewable Energy generation businesses, both domestically and abroad. As at December 31, 2018, the Company’s aggregate power generating capacity in proportion to its equity in the commercially operating power plants was 521 MW and in the power plants under construction was at 43 MW. In addition, there is a natural gas distribution business, a joint venture between WHAEG and partnership by holding 35 percent, which the WHA Eastern Seaboard NGD 2 Project at WHA ESIE 2 achieved the commercial operation date on December 2018

BUSINESS STRUCTURE

The Company's investment structure as at 31 December 2018 is set out in the following diagram:



- NOTE :**
- ^{1/} About 65 percent of total issued and paid-up shares in Gheco-I are held by the Glow Group.
 - ^{2/} HHTC is a holding company, in which 49 percent of total issued and paid-up shares are held by the Glow Group, which also Holds 55 percent of total issued and paid-up shares in HHPC.
 - ^{3/} About 95 percent of total issued and paid-up shares in GIPP are held by the Glow Group.
 - ^{4/} About 66.67 percent of total issued and paid-up shares in ESCE are held by the Glow Group and Suez (South East Asia) Limited.
 - ^{5/} About 35 and 30 percent of total issued and paid-up shares in Gulf WHA MT are held by the Glow Group and MITG Group respectively. Afterwards, Gulf WHA MT increased its registered capital from 49 Million Baht to 126.4 Million Baht and the Company and Gulf agreed to have new one strategic partner, MITG (Thailand) Limited. Cause, the shareholding is as follows: MITG hold 30 percent, the company hold 35 percent and Gulf Group hold 35 percent.
 - ^{6/} About 74.99 percent of total issued and paid-up shares in Gulf JP NLL are held by the Gulf JP Group.
 - ^{7/} About 74.99 percent of total issued and paid-up shares in Gulf Solar are held by the Gulf Group.
 - ^{8/} About 74.99 percent of total issued and paid-up shares in each of Gulf TS1, Gulf TS2, Gulf TS3, Gulf TS4, Gulf VTP and Gulf NLL2 are held by Gulf MP Group.
 - ^{9/} About 74.99 percent of total issued and paid-up shares in each of WHA Gunkul 1, 3, 6 and 17 are held by Gunkul Group.
 - ^{10/} About 74.99 percent of total issued and paid-up shares in BPWHA-1 are held by the B.Grimm Power Group.
 - ^{11/} Gulf Group means Gulf Energy Development Company Limited, its subsidiaries and related companies.
 - ^{12/} Gulf Group means Gulf Company Limited. which is a joint venture company between Gulf Energy Development Company Limited and J Power Company Limited.
 - ^{13/} Gulf MP Group means Gulf MP Company Limited which is a joint venture company between Gulf Energy Development Company Limited and Mitsui Group.
 - ^{14/} MITG Group means MITG (Thailand) Company Limited which is a joint venture company between Mitsui Company Limited and Tokyo Gas Company Limited.
 - ^{15/} Gunkul Group means Gunkul Engineering Public Company Limited, its subsidiaries and related companies.
 - ^{16/} B.Grimm Group means B.Grimm power Public Company Limited, its subsidiaries and related companies.

Key Changes and Developments

2008

JUNE

The Company was established on June 30, 2008 under the name of Hemaraj Clean Water Company Limited with a registered capital of THB 645 million to produce and distribute industrial water for use in industrial estates owned by WHA Industrial Development Public Company Limited ("WHAID").

JULY

The Company entered into the Right Lease Agreement with WHAID and its subsidiaries to produce and distribute industrial water for use in four industrial estates owned by WHAID, namely WHA CIE 1, WHA EIE, ESIE and WHA ESIE 1 with an aggregate industrial water production capacity of 121,200 cubic meters per day.

The Company acquired 99.99 percent of shares in WHA Water Company Limited ("WHAWT"). WHAWT has a registered capital of THB100 million and produces and distributes clarified water in WHA EIE having an aggregate clarified water production capacity of 43,200 cubic meters per day and wastewater treatment capacity of 30,000 cubic meters per day.

2011

MARCH

WHA Energy Company Limited ("WHAEG"), a subsidiary of the Company, was incorporated on March 2, 2011 under the name of Hemaraj Energy Company Limited with a registered capital of THB100 million and was formed to invest in other companies engaging in power business. The Company holds 99.99 percent of shares in WHA Energy Company Limited.

2012

MARCH

WHAWT, a subsidiary of the Company, increased its clarified water production capacity in WHA EIE from 43,200 cubic meters per day to 86,400 cubic meters per day.

NOVEMBER

The Company increased its industrial water production capacity in WHA ESIE from 12,000 cubic meters per day to 30,000 cubic meters per day.

2013



APRIL

The Company increased its industrial water production capacity in ESIE from 36,000 cubic meters per day to 48,000 cubic meters per day. May 2013

MAY

The Gas-fired Small Power Producer by Gulf JP NLL Power Plant, a joint venture between WHAEG and Gulf MP Company Limited ("Gulf MP") at shareholding 25.01 percent and 74.99 percent respectively. Gulf JP NLL Power Plant has an installed power capacity of 123 MW, located in WHA RLI which achieved the Commercial Operation Date (COD) on May 2013.



2014



AUGUST

- The Company was assigned from WHAID for the production and distribution of industrial water in WHA CIE 2. Its production capacity is 6,000 cubic meters per day.

2015

JANUARY

- The Company increased its industrial water production capacity in WHA ESIE 1 from 30,000 cubic meters per day to 54,000 cubic meters per day.

2016

MARCH

- On March 30, 2016, the Company and the WHAID Group's signed the Strategic Partnership Agreement and the Right Lease Agreements for the production and distribution of industrial water and the operation of wastewater treatment services in seven current projects namely WHA EIE, WHA CIE 1, WHA CIE 2, WHA ESIE 1, WHA ESIE 2, WHA SIL and WHA RIL. The lease term is 50 years from the signing date.
- The Company increased its registered capital from THB 645 million to THB 1,645 million for payment for the right lease for the production and distribution of industrial water and the operation of wastewater treatment services in seven current industrial estate projects of the WHAID Group's.

MAY

- The Company increased its registered capital from THB 1,645 million to THB 3,200 million in order to receive all shares transferred of WHAEG.
- The Gas-fired Small Power Producer by Gulf VTP Power Plant, a joint venture between WHAEG and Gulf MP at shareholding 25.01 percent and 74.99 percent respectively. Gulf VTP Power Plant has an installed power capacity of 137 MW, located in ESIE which achieved the Commercial Operation Date (COD) on May 2016.

JUNE

- WHAEG accepted a transfer of 74.99 percent. of each of the total shares of 11 solar rooftop power companies, which are WHA Gunkul 1-6, 8-10, 16 and 17, from WHA Corporation Public Company Limited Group's ("WHA")

JULY

- The Company set up Chonburi Clean Energy Company Limited ("CCE") to bid for a contract to sell electricity generated from industrial waste.
- On July 21, 2016, the Company's shareholders, during extraordinary general meeting No. 3/2016, resolved to approve the following matters: (i) the Company's conversion into a public limited company named WHA Utilities and Power Public Company Limited, (ii) the change in par value of THB 5 per share, and (iii) the capital increase from THB 3,200 million to THB 3,825 million by issuing 125 million ordinary shares with a par value of THB 5 each for an initial public offering. The Company's conversion into a public limited company was registered with the Ministry of Commerce on August 10, 2016.

AUGUST

- WHAEG acquired a stake of 33.33 percent. in Eastern Seaboard Clean Energy Company Limited ("ESCE"). ESCE will hold all the shares of Chonburi Clean Energy Company Limited ("CCE") and Rayong Clean Energy Company Limited ("RCE"), in order to participate in a special bid to sell electricity generated from industrial waste.

Key Changes and Developments (Continued)

2016

SEPTEMBER

- Glow Hemaraj Wind Company Limited (“GHW”) restructured its shareholding and results in ESCE holding 100 percent of GHW shares.

NOVEMBER

- The Gas-fired Small Power Producer by B.Grimm Power (WHA) 1 Power Plant, a joint venture between WHAEG and B.Grimm Power Public Company Limited (“BPWHA-1”) at shareholding 25.01 percent and 74.99 percent respectively. B.Grimm Power (WHA) 1 Power Plant has an installed power capacity of 130 MW, located in WHA CIE 1 which achieved the Commercial Operation Date (COD) on November 2016

DECEMBER

- WHAEG, the Company’s subsidiary, has a joint investment with Gulf MP in one SPP, by holding equity of 25.01 in Gulf NLL2 Company Limited having a contracted power generating capacity of 120 MW.

2017

MARCH

- CCE, a joint venture company established by Glow Group, SUEZ and the Company, has signed a Power Purchase Agreement (PPA) with the Provincial Electricity Authority (PEA) for the 8.63 MW industrial-waste-to-energy power plant, located in the WHA Chonburi Industrial Estate, Chonburi Province with a contracted capacity of 6.90 MW

APRIL

- The Company listed shares on the Stock Exchange of Thailand with registered capital of 3,825,000,000 Baht

MAY

- The Gas-fired Small Power Producer by Gulf VTP Power Plant, a joint venture between WHAEG and Gulf MP at shareholding 25.01 percent and 74.99 percent respectively. Gulf VTP Power Plant has an installed power capacity of 137 MW, located in ESIE which achieved the Commercial Operation Date (COD) on May 2017.

JULY

- The Extraordinary General Meeting on 30 June, 2017 approved the changing of par value from 5 Baht to 1 Baht and the company ‘shares had been traded with the new par value starting from July 13, 2017.
- The Gas-fired Small Power Producer by Gulf TS1 Power Plant, a joint venture between WHAEG and Gulf MP at shareholding 25.01 percent and 74.99 percent respectively. Gulf TS1 Power Plant has an installed power capacity of 134 MW, located in ESIE which achieved the Commercial Operation Date (COD) on July 2017.

2017

AUGUST

- The Company issued 4,000 million of bond issuance to refinance existing bank loan to reduce finance cost.

SEPTEMBER

- The Gas-fired Small Power Producer by Gulf TS2 Power Plant, a joint venture between WHAEG and Gulf MP at shareholding 25.01 percent and 74.99 percent respectively. Gulf TS1 Power Plant has an installed power capacity of 134 MW, located in ESIE which achieved the Commercial Operation Date (COD) on September 2017.

OCTOBER

- The Company obtained right to develop the distribution and retail trade of natural gas projects from WHAID.

NOVEMBER

- The Gas-fired Small Power Producer by Gulf TS3 Power Plant, a joint venture between WHAEG and Gulf MP at shareholding 25.01 percent and 74.99 percent respectively. Gulf TS3 Power Plant has an installed power capacity of 130 MW, located in WHA ESIE 1 which achieved the Commercial Operation Date (COD) on November 2017.



2018

JANUARY

- The Gas-fired Small Power Producer by Gulf TS4 Power Plant, a joint venture between WHAEG and Gulf MP at shareholding 25.01 percent and 74.99 percent respectively. Gulf TS4 Power Plant has an installed power capacity of 130 MW, located in WHA ESIE 1 which achieved the Commercial Operation Date (COD) on
- On January 2018, the Company entered in to the Shareholder Agreement with Gulf Energy Development Public Company Limited and MITG (Thailand) Co., Ltd at shareholding 35 percent, 35 percent and 30 percent respectively, in order to conduct the distribution of natural gas to customer in the WHA ESIE 2 and WHA ESIE 4
- The Company was assigned from WHAID for the production and distribution of industrial water in WHA ESIE 4. Its production capacity is 3,600 cubic meters per day.

MAY

- WHAUP Nghe An Joint Stock Company ("WHAUP Nghe An JSC"), the subsidiary of WHAUP was established since 2 MAY 2018 with the registered capital of 29,950,800,000 VND to invest in utilities business.

2018

MAY

- WHAUP Nghe An JSC entered into the Right Lease and Land sublease agreement with WHA Industrial Nghe An Joint Stock Company on 28 May 2018, WHAUP Nghe An JSC shall invest and operate in the water utilities in WHA Industrial Zone1, Nghe An in Vietnam.

JUNE

- The Company issued 5,000 million of bond issuance. 4,000 million of bond issuance to refinance existing bank loan to reduce finance cost and 1,000 million of bond issuance for working capital for operation and support the development of projects in the future.

AUGUST

- The Company was established WHA Solar Company Limited ("WHASL") under WHAEG which is a subsidiary of the Company to carry out solar power business with a registered capital of THB 200 million

NOVEMBER

- WHAUP entered into the 50 years Right Lease agreement with WHA Industrial Estate Rayong Co., Ltd. (the joint venture company between WHAID. and IRPC) on 28 November 2018 to invest and operate in the water utilities in WHA Industrial Estate Rayong.

2018

DECEMBER

- WHA Eastern Seaboard NGD 2, a joint venture company between Gulf Energy Development Public Company Limited and MITG (Thailand) Limited. In order to conduct the distribution and retail trade of natural gas to Industrial customers in WHA ESIE 2 achieved the Commercial Operation Date (COD) on December 2018
- WHASL Signed Private PPA with Electrolux, ZF Lemforder, Hitachi TST, Umicore, JJR, Nikkei Siam, Danieli, Sabina, DSG, Somboon Group and other is total amount of 11.26 MW which achieved the Commercial Operation Date (COD) on May - December 2018 of 2.64 MW

UTILITY BUSINESS

Nature of products and services

The Company and its subsidiaries engage in the utility business by providing utility services mainly to operators in industrial estates and industrial lands. Utilities services provided are fundamental services for industrial estates and industrial lands. The nature of the Company's products and services is detailed as follows:

1. Procurement and distribution of raw water

The WHAUP Group procures and distributes raw water to industrial operators in WHA Industrial Development Public Company Limited Group ("WHAID") industrial areas. The Company offers raw water as an alternative of water consumption for industrial operators. The WHAUP Group's core customers are operators in steel industry, IPPs and SPPs.

2. Production and distribution of industrial water

The WHAUP Group produces and distributes industrial water to industrial operations. This product can be divided into two categories:

- (1) Process Water: Process water is industrial water that has undergone the processes of sedimentation, filtration and chlorination for disinfection. The final product is used in the production process in industrial plants in general. The WHAUP Group's core customers include the automotive industry (e.g. automotive assembly plants and auto part manufacturing plants), food industry and electronics industry.
- (2) Clarified Water: Clarified water is produced through the processes of sedimentation, filtration and chlorination. Lower quantity and concentration of chlorine is used in chlorination process for clarified water, compared to process water, so that a very small amount of chlorine is left in the clarified water product when it is distributed to customers. This product is in great demand for customers in heavy industries such as petrochemical, given that chlorine may cause corrosion in machinery and equipment used in those industries.

3. Wastewater treatment

The WHAUP Group provides wastewater treatment services to industrial plants to ensure that the wastewater is treated in accordance with applicable standards imposed by the Ministry of Industry before being discharged into natural sources of water or being recycled into the production process.

Products and services

Industrial water production plants and wastewater treatment facilities

Currently, the Company and its subsidiaries have 17 industrial water production plants and 13 wastewater treatment facilities located in nine industrial estates and industrial lands operated by the WHAID Group. The aggregate maximum industrial water production capacity is 284,976 cubic meters per day and the aggregate maximum wastewater treatment capacity is 118,956 cubic meters per day.



Industrial estates and industrial lands	Location	Industrial water production capacity ^{1/} (cubic meters/day)	Wastewater treatment capacity ^{1/} in which the Company has the right to operate (cubic meters/day)
WHA Eastern Industrial Estate (Map Ta Phut)	Map Ta Phut, Rayong	98,400 ^{2/}	60,000
Eastern Seaboard Industrial Estate (Rayong)	Pluakdaeng, Rayong	48,000 ^{3/}	- ^{4/}
WHA Eastern Seaboard Industrial Estate 1	Pluakdaeng, Rayong	54,000	10,000
WHA Chonburi Industrial Estate 1	Sriracha, Chonburi	18,000	8,400
WHA Chonburi Industrial Estate 2	Sriracha, Chonburi	6,000	1,600
WHA Saraburi Industrial Land	Nongkhae, Saraburi	30,576	14,976
WHA Rayong Industrial Land	Bankhai, Rayong	14,400	12,480
WHA Eastern Seaboard Industrial Estate 2	Pluakdaeng, Rayong	12,000	10,000
WHA Eastern Seaboard Industrial Estate 4	Pluakdaeng, Rayong	3,600	1,500
Total		284,976	118,956

Notes : ^{1/} Most of the industrial water production plants and wastewater treatment plants in the above table are owned by the WHAID Group. On March 30, 2016, the Company and the WHAID Group entered into the Right Lease Agreement, which allows the Company to use those facilities to conduct its business for 50 years from the signing date.

^{2/} Two clarified water production plants in WHA EIE are owned by WHA Water Company Limited ("WHAWT"), a subsidiary of the Company. Those plants have tax exemption privileges granted by the BOI

^{3/} On July 1, 2008, the Company and Eastern Seaboard Industrial Estate (Rayong) Company Limited entered into the Right Lease Agreement for the operation and distribution of industrial water in ESIE, which has a term of 25 years ending on June 30, 2033.

^{4/} The Company has not leased the right to conduct wastewater treatment in ESIE (Rayong). However, the Company provides wastewater management services in ESIE (Rayong) having wastewater treatment capacity of 32,000 cubic meters per day.

The operation and distribution of industrial water in ESIE (Rayong) is a joint investment and business arrangement agreed between WHAID and Siam Food Public Company Limited since 1994; therefore, there has been no amendment to any agreement between the parties.

In addition to the procurement of raw water, operation and distribution of industrial water and provision of wastewater treatment services, the Company also provides utility management service. The Company conducts wastewater management service in ESIE having wastewater treatment capacity of 32,000 cubic meters per day and utility management service in WHA LP 1, which are operation and distribution of industrial water having capacity of 120 cubic meters per day and wastewater treatment services. The Company receives service fee on a cost-plus basis for the services provided to the two aforementioned areas.

TOTAL SALES AND MANAGEMENT VOLUME

(million cubic metres/year)



In 2018, the industrial water production quantity in which the Company takes a lease right from WHAID Group was 52.6 million cubic meters, an increase 7% from 2017.

The wastewater treatment quantity in all industrial estates in which the Company takes the right to operate from WHAID Group was 35.0 million cubic meters, an increase 2% from 2017.

The raw water procurement and distribution quantity in areas of WHAID Group was 16.9 million cubic meters, an increase 2% from 2017.

The Company has a policy to adequately provide utility services to meet to the increase of customer's demand and the expansion of industrial areas where the Company operates in. If the customer demand or the expansion of industrial areas reaches of 70 percent of its production capacity or of its storage capacity of the system, which is also in line with the IEAT's criteria, the Company will consider increasing its service capacities by either expanding the current production capacity at its existing plants or establishing new facilities to ensure its adequate services.

Marketing strategies

In conducting utility business, the Company and its subsidiaries pursue the following key marketing strategies:

1. Continuous expansion of utilities services in tandem with the new WHAID's Industrial Estates

WHAUP will continue to expand its utilities facilities in the new WHAID's industrial estates both in Thailand and in regional countries in order to provide industrial water distribution and wastewater management services to industrial customers as well as introduce other water solutions to satisfy the needs of customers in term of operation management and financial.

2. Proactive in expanding utilities business outside WHAID's industrial estates

WHAUP aims to capture business opportunities from the increasing demand of raw water, industrial water and wastewater management in both industrial and non-industrial markets particularly in the EEC area. The company is developing business alliances with other industrial estate developers to expand utilities business in non-WHA industrial estates by leveraging on its expertise and experience in utilities business, the ability to control cost as well as its well understanding of industrial customers' need. For non-industrial market, the company plans to build up strong relationship with local authorities as well as communities to develop potential collaborations on utilities distribution and management services to serve growing water consumptions.

3. Introduction of new solutions, innovation of utilities business to the market

In order to satisfy various and sophisticated needs of industrial customers, WHAUP targets to offer a more variety of products to customers with a focus on membrane technology and reclamation concept adoption in creating new types of industrial water such as Recycled Water/Reclamation Water, Demineralized Water, Desalination System, Wastewater Pre-treatment, etc. These new solutions or innovations will help reduce raw water cost and offer alternative raw water sources which will not only to serve existing customers but will also help create new customer base.

4. Expansion to CLMV, particularly in Vietnam as the highest potential market

The company plans to expand its utilities business to regional countries, especially to the countries with high utilities consumption, so it targets on CLMV countries especially Vietnam which is high potential country since the number of populations is growing, the economic growth is strong leading to the increasing manufacturing activities. Currently, WHAUP has started operate Utilities business in Vietnam by establishing a subsidiary to operate since May 2018 and exploring M&A opportunities and sourcing potential companies for investment.

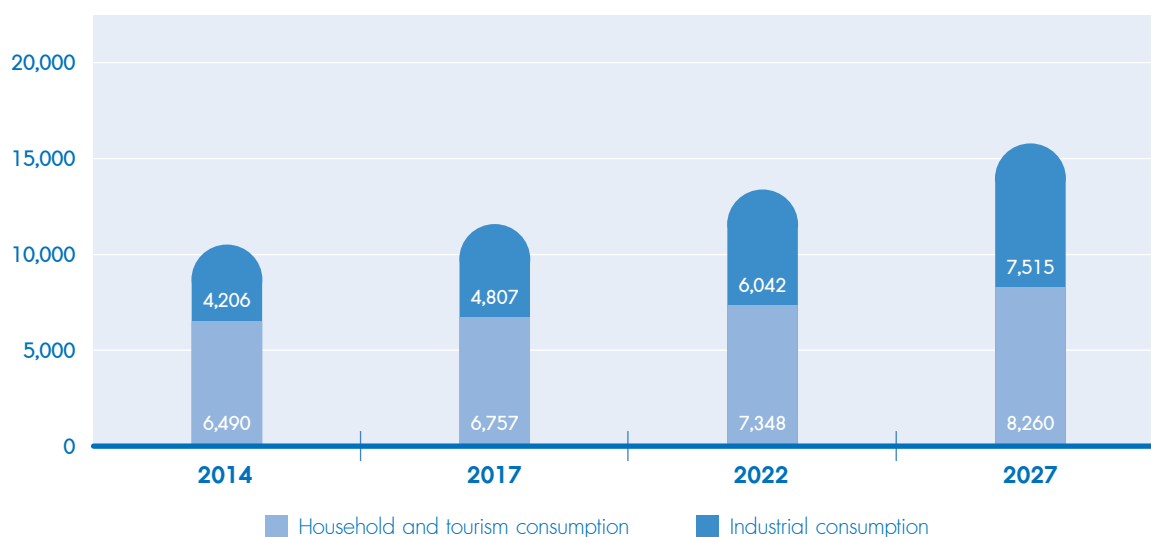
Industry condition and competition

Overview of industrial condition for the use of water in Thailand

Thailand is one of the largest consumers of water in South East Asia. Water consumption can be divided according to two main purposes: (i) household consumption, which means the use of water by households and in the tourism business; and (ii) industrial consumption, which means the use of water by industrial factories, based on the strategic plan on water resources management prepared by the Water Resources Policy and Management Commission, Department of Water Resources. The quantities of household consumption and industrial consumption are expected to increase from 2014 to 2027 at the rate of 1.9 and 4.6 percent per annum, respectively. Water consumption tends to grow significantly in the densely populated zones of industrial factories, namely Bangkok and nearby provinces, including the eastern part of Thailand, which is the heart of the industrial area of the country. Other parts of the country are mainly domiciled with agro-related industries and local manufacturing businesses.

QUANTITY OF WATER CONSUMPTION CLASSIFIED BY PURPOSES OF USE

(Unit: Million cubic metres per annum)



Source : Strategic plan on water resources management for years 2015-2026 prepared by the Water Resources Policy and Management Commission, Department of Water Resources

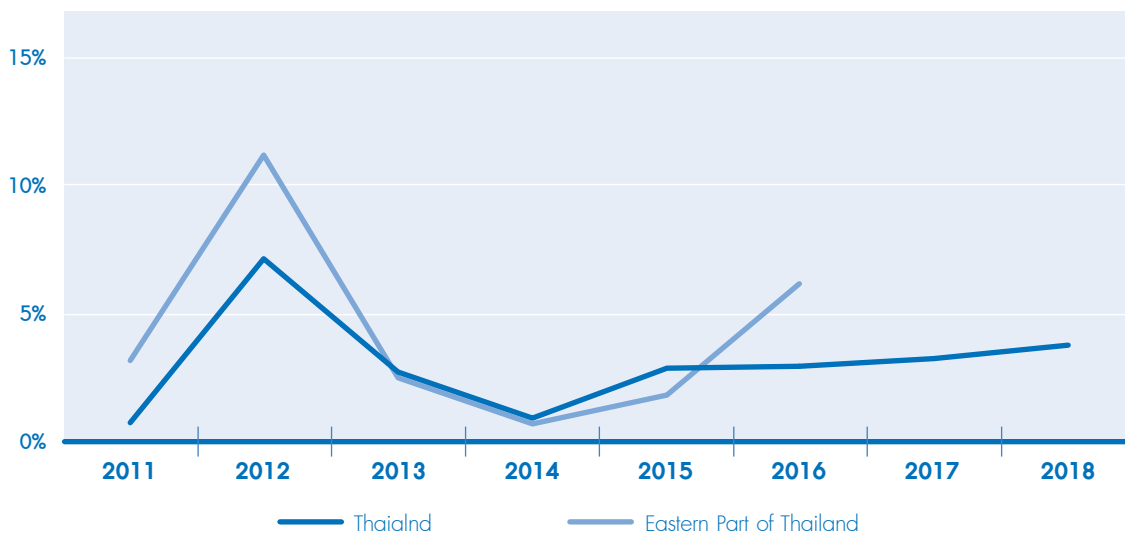
Industry condition for water consumption in the industrial sector

The industrial sector in Thailand has a growth trend as a result of economic recovery both locally and internationally. The sign of Thailand's economic recovery can be seen in the improvement of the gross domestic product (GDP) during the past. This was due to the improvement of political situation in Thailand, the recovered of world's economic, and especially the economy of the United States, a key trading partner of Thailand, resulting in the improvements in Thailand's export sector. In addition, the Government has announced a policy to develop the Eastern Economic Corridor (EEC) to promote investment in the eastern seaboard area, income from which accounted for 20.0 percent. of GDP, and to improve logistics system in the same area, in particular on Laem Chabang Port. The aim is to develop Laem Chabang Port, Mapthaphud port and Utapao international Airport into a hub of transportation to connect with other ASEAN countries such as Dawei deep sea port in Myanmar, Sihanoukville Autonomous Port in Cambodia and Port of Vung Tau in Vietnam.

According to the Bank of Thailand's forecast, Thailand's GDP is expected to grow by approximately 3.8 percent in 2019. (Based on data as of November 2018)

During the past five years, the economic growth in the eastern part of Thailand (in which the Company is conducting the business) has surpassed the country's overall economic growth because it is an industrial region which benefited from the growth in domestic consumption and exports. In the past five years, this region had an average economic growth rate of 4.5 percent per annum, compared to the country's average growth rate of 3.2 percent per annum during the same period. In 2018, The government has expedite to be the investment and operation in the EEC area to be concrete which seen from the project that has been approved and private has participated in the investment in the past. The investors to have confidence in Thailand and especially the EEC area.

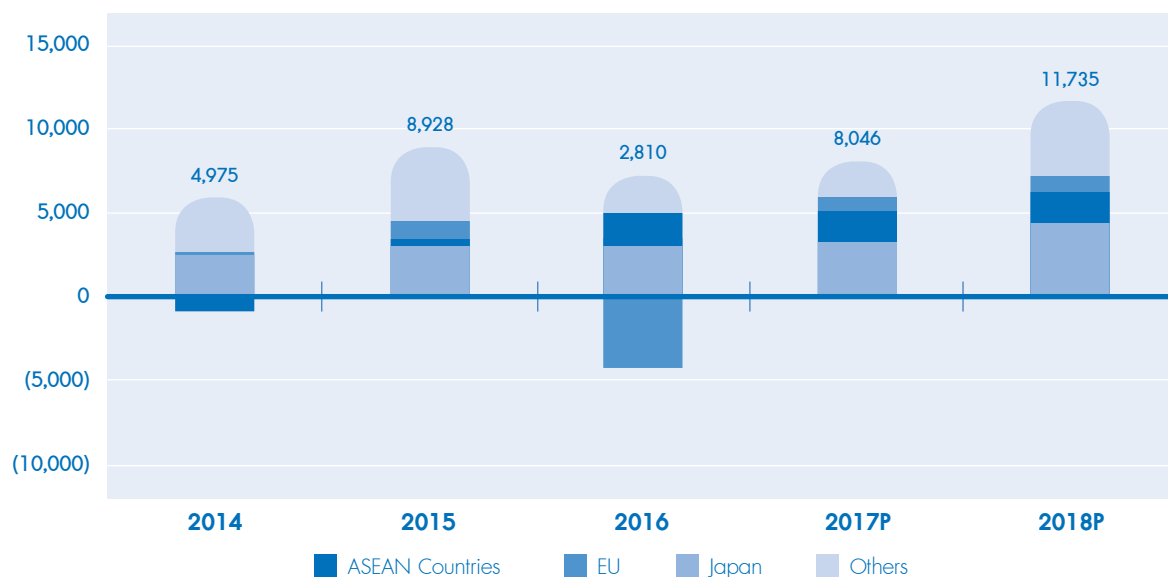
GDP GROWTH OVERALL AND IN THE EASTERN PART OF THAILAND



Furthermore, the country's economy began to recover after the restoration of political stability, resulting in improvements in foreign direct investment. The value of foreign direct investment in 2018 was USD 11,735 million, increasing by 45.9 percent from 2017.

FOREIGN DIRECT INVESTMENT (FDI)

(Unit: USD million)



Source : The Bank of Thailand

In 2018, the aggregate value of investment projects based on the applications submitted to the BOI was THB 901.7 billion, increasing by 43 percent. from 2017.

Applications for BOI investment promotional privileges mainly came from industrial operators in Rayong and Chonburi provinces, which accounted for 22.1 percent. of total submitted applications and 70.5 percent. of the aggregate value of investment projects in 2017. That was due to Rayong and Chonburi are the strongholds of petrochemical and automotive businesses, which are the major in Thailand industries.

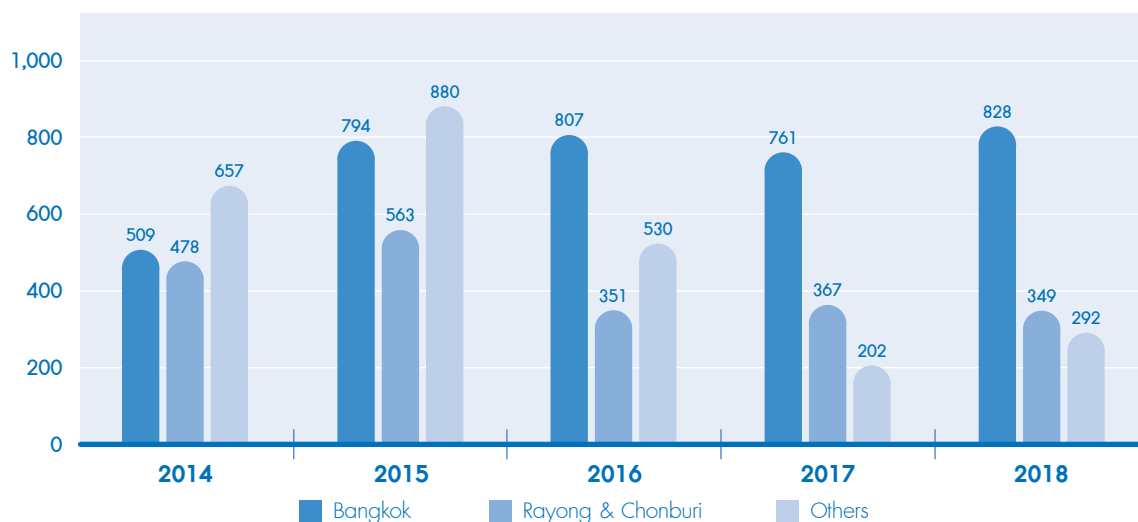
BOI-APPROVED INVESTMENT PROJECTS

BOI-approved applications	2014	2015	2016	2017	2018
Number of projects	1,662	2,237	1,688	1,330	1,469
Project value of submitted applications (THB billion)	729.4	809.3	861.3	631.1	549.5

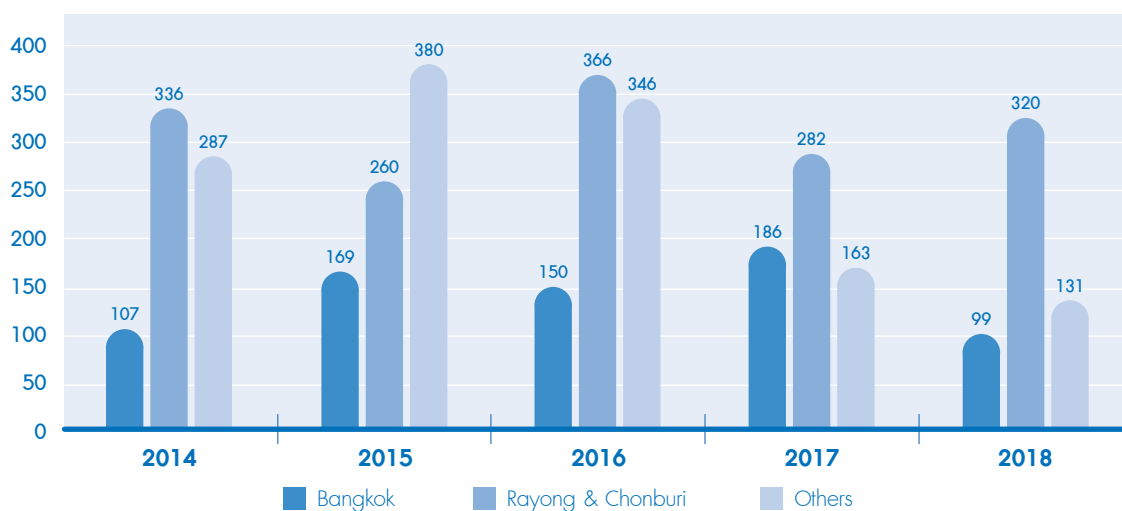
Source : Office of BOI

SITES OF BOI-APPROVED INVESTMENT PROJECTS

NUMBER OF BOI-APPROVED PROJECTS (PROJECTS)



VALUE OF BOI-APPROVED PROJECTS (THB BILLION)



Source : The Office of the Board of Investment

POWER BUSINESS

Nature of products or services

The WHAUP Group conducts power business by holding equity in other power generating and distribution companies, both domestically and abroad. The 20 commercially operating power plants in which the WHAUP Group invested have an aggregate installed power generating capacity of 2,450 MW, or equal to a capacity in proportion to equity of 521 MW. The Natural Gas Distribution Business has distribution capacity of 2,000,000 million BTU per year or equal to a capacity in proportion to equity of 700,000 million BTU per year. In addition, the power plant projects under construction in which the WHAUP Group has investment, these power plants have an aggregate contracted power generating capacity of 144 MW, or equal to a capacity in proportion to equity of 43 MW.

THIS TABLE SUMMARIZES THE POWER PLANT PROJECTS.

Power plant	Location	Type of power	Category of Plant	Equity holding (percent.)	Installed power generating capacity	Capacity in proportion to equity	Commercial Operation Date
1) Information about the commercially operating power plants in which the WHAUP Group has investment							
Joint venture with the Glow Group							
Gheco-I	Map Ta Phut Industrial Estate	Coal	IPP	35.00%	Power 660 MW	231 MW	August 2012
Glow IPP	WHA CIE 1	Gas-fired cogeneration	IPP	5.00%	Power 713 MW	36 MW	January 2003
Houay Ho Power	Lao People's Democratic Republic	Hydro power	IPP	12.75%	Power 152 MW	19 MW	September 1999
Joint venture with the Gulf Group							
Gulf JP NLL	WHA RIL	Gas-fired cogeneration	SPP	25.01%	Power 123 MW Steam 8 TPH Chilled water 4,600 RT	31 MW 2 TPH 1,150 RT	May 2013
Gulf Solar KKS	WHA PL1	Solar power	VSPP	25.01%	Power 0.25 MW	0.06 MW	December 2014
Gulf Solar BV	WHA CIE	Solar power	VSPP	25.01%	Power 0.13 MW	0.03 MW	June 2014
Gulf Solar TS1	WHA ESIE 1	Solar power	VSPP	25.01%	Power 0.13 MW	0.03 MW	August 2014
Gulf Solar TS2	ESIE	Solar power	VSPP	25.01%	Power 0.09 MW	0.02 MW	January 2015
Joint venture with the Gunkul Group							
WHA Gunkul Green Solar Roof 17	WHA Mega Logistics Centre, Wangnoi 61, Ayutthaya	Solar power	VSPP	74.99%	Power 1.00 MW	0.73 MW	July 2014

Power plant	Location	Type of power	Category of Plant	Equity holding (percent.)	Installed power generating capacity		Capacity in proportion to equity	Commercial Operation Date
WHA Gunkul Green Solar Roof 3	WHA Mega Logistics Centre, Bangna-Trad KM.18	Solar power	VSPP	74.99%	Power	0.83 MW	0.62 MW	April 2014
WHA Gunkul Green Solar Roof 6	WHA Mega Logistics Centre, Bangna-Trad KM.18	Solar power	VSPP	74.99%	Power	0.83 MW	0.62 MW	April 2014
WHA Gunkul Green Solar Roof 1	WHA Mega Logistics Centre, Bangna-Trad KM.18	Solar power	VSPP	74.99%	Power	0.64 MW	0.48 MW	April 2014
Joint venture in power plant projects with B.Grimm Power Group								
BPWHA-1	WHA CIE 1	Gas-fired cogeneration	SPP	25.01%	Power	130 MW	33 MW	November 2016
Joint venture with Gulf MP Company Limited								
Gulf VTP	ESIE	Gas-fired cogeneration	SPP	25.01%	Power	137 MW	34 MW	May 2017
Gulf TS1	ESIE	Gas-fired cogeneration	SPP	25.01%	Steam	20 TPH	5 TPH	
Gulf TS1	ESIE	Gas-fired cogeneration	SPP	25.01%	Power	134 MW	34 MW	June 2017
Gulf TS2	ESIE	Gas-fired cogeneration	SPP	25.01%	Steam	30 TPH	8 TPH	
Gulf TS2	ESIE	Gas-fired cogeneration	SPP	25.01%	Power	134 MW	34 MW	September 2017
Gulf TS3	WHA ESIE 1	Gas-fired cogeneration	SPP	25.01%	Steam	30 TPH	8 TPH	
Gulf TS3	WHA ESIE 1	Gas-fired cogeneration	SPP	25.01%	Power	130 MW	32 MW	November 2017
Gulf TS4	WHA ESIE 1	Gas-fired cogeneration	SPP	25.01%	Steam	25 TPH	6 TPH	
Gulf TS4	WHA ESIE 1	Gas-fired cogeneration	SPP	25.01%	Power	130 MW	32 MW	January 2018
Solar power plants	-	Solar Power	Private PPA	100%	Power	2.62 MW	2.62 MW	May - December 2018
Total					Power	2,450 MW	521 MW	
					Steam	138 TPH	35 TPH	
					Chilled water	4,600 RT	1,150 RT	

Power plant	Location	Type of power	Category of Plant	Equity holding (percent.)	Installed power generating capacity		Capacity in proportion to equity	Commercial Operation Date
2) Information about the power plants under construction in which the WHAUP Group has investment								
Solar power plants	-	Solar Power	Private PPA	100%	Power	8.64 MW	8.64 MW	Quarterly 1 - 2 2019
Gulf NLL 2	WHA RIL	Gas-fired cogeneration	SPP	25.01%	Power Steam	127 MW 10 TPH	32 MW 3 TPH	January 2019
CCE	WHA CIE	Waste-to-Energy	VSPP	33.33%	Power	8.63 MW	2.88 MW	Quarterly 4 2019
Total					Power Steam	144 MW 10 TPH	43 MW 3 TPH	

COMMERCIALLY OPERATING POWER PLANTS IN WHICH THE WHAUP GROUP HAS INVESTMENT

1. Gheco-I Company Limited (Gheco-I)

Gheco-I Power Plant is a coal-fired power plant in Map Ta Phut Industrial Estate, Rayong province. This power plant has a installed power generating capacity of 660MW under an IPP power purchase agreement with EGAT. Total electricity generated from this power plant is sold to EGAT for 25 years starting from the COD in August 2012.

The Company holds equity in Gheco-I Power Plant through WHA Energy 2 Company Limited, a subsidiary in which the Company has a stake of 99.99 percent WHA Energy 2 Company Limited holds 35 percent of total issued and paid-up shares in Gheco-I Power Plant. The remaining 65 percent of its total capital is held by the Glow Group.

2. Glow IPP Company Limited (Glow IPP)

Glow IPP Power Plant is a gas-fired power plant in WHA CIE 1, Chonburi province. This power plant has a installed power generating capacity of 713MW under an IPP power purchase agreement with EGAT. Total electricity generated from this power plant is sold to EGAT for 25 years starting from the COD in January 2003.

WHA Energy 2 Company Limited, a subsidiary in which the Company has a stake of 99.99 percent, holds 5 percent of total issued and paid-up shares in Glow IPP. The remaining 95 percent of total capital in Glow IPP is held by the Glow Group.

3. Houay Ho Power Company Limited (HHPC)

HHPC, a company registered in Lao People's Democratic Republic, was established with the objectives to own and operate a hydro power plant, Houay Ho, in Attapeu province in the southern part of Laos. Houay Ho Power Plant has a installed power generating capacity of 152 MW. HHPC has obtained a 30-year concession on a build-operate-transfer basis from the Government of Laos. This power plant became commercially operating in September 1999 with a installed power generating capacity to sell 126MW of electricity to EGAT and 2 MW to Electricite du Laos (EDL) for 30 years from the commercial operation date. However, the amount of electricity to be sold to EGAT in each year will be based on the quantity of water storage of the power plant. A monthly report on the estimated power generating quantity will be provided to EGAT.

The Company directly holds 51 percent of the total issued and paid-up shares in Houay Ho Thai Company Limited (HHTC), with the remaining shares of HHTC being directly held by the Glow Group. HHTC directly holds 25 percent of the total issued and paid-up shares in HHPC. Effectively, the Company owns 12.75 percent shareholding in HHPC, while the Glow Group effectively owns (both directly and indirectly) 67.25 percent shareholding in HHPC, and EDL-Generation Public Company Limited directly owns 20 percent shareholding in HHPC.

4. Gulf JP NLL Company Limited (Gulf JP NLL)

Gulf JP NLL owns and operates SPP power plant in WHA RIL, Rayong province. The SPP power plant is a gas-fired power plant having a installed power generating capacity of 123MW. It sells 90MW of electricity to EGAT under an SPP power purchase agreement on a firm commitment basis, which has a term of 25 years from the COD in May 2013. This power plant also has an agreement to sell steam and chilled water to industrial customers in WHA RIL.

The Company holds equity in Gulf JP NLL power plant project through WHA Energy Company Limited, a subsidiary in which the Company has a stake of 99.99 percent. WHA Energy 2 Company Limited holds 25.01 percent of the total issued and paid-up shares in Gulf JP NLL. The remaining 74.99 percent of its total capital is held by the Gulf Group.

5. Gulf Solar power plants

Gulf Solar Company Limited (Gulf Solar) owns and operates four solar rooftop VSPP power plants having a installed power generating capacity of 0.6MW, which is totally distributed to PEA and the Metropolitan Electricity Authority (MEA). The four power plants consist of the following companies:

1. Gulf Solar KKS Company Limited in WHA LP 1, which has a installed power generating capacity of 0.25MW and became commercially operational in December 2014;
2. Gulf Solar BV Company Limited in WHA CIE 1, which has a installed power generating capacity of 0.13MW and became commercially operational in June 2014;
3. Gulf Solar TS1 Company Limited in WHA ESIE 1, which has a installed power generating capacity of 0.13MW and became commercially operational in August 2014; and
4. Gulf Solar TS2 Company Limited in ESIE, which has a installed power generating capacity of 0.09MW and became commercially operational in January 2015.

WHA Energy 2 Company Limited, a subsidiary in which the Company has a stake of 99.99 percent, holds 25.01 percent of the total issued and paid-up shares in Gulf Solar. The remaining 74.99 percent of its total capital is held by the Gulf Group.

6. WHA Gunkul solar power plants

The WHA Gunkul Group owns and operates four solar rooftop VSPP power plants having a installed power generating capacity of 3.3MW, divided into 2.3MW sold to PEA and 1.0 MW to MEA. The four power plants consist of the following companies:

1. WHA Gunkul Green Solar Roof 17 Company Limited in WHA Mega Logistics Centre, Wangnoi 61, Phra Nakhon Sri Ayutthaya province, which has a installed power generating capacity of 1.0MW and became commercially operational in July 2014;
2. WHA Gunkul Green Solar Roof 6 Company Limited in WHA Mega Logistics Centre, Bangna-Trad Road KM.18, Samutprakan province, which has a installed power generating capacity of 0.83MW and became commercially operational in April 2014;

3. WHA Gunkul Green Solar Roof 3 Company Limited in WHA Mega Logistics Centre, Bangna-Trad Road KM.18, Samutprakan province, which has a installed power generating capacity of 0.83MW and became commercially operational in April 2014;
4. WHA Gunkul Green Solar Roof 1 Company Limited in WHA Mega Logistics Centre, Bangna-Trad Road KM.18, Samutprakan province, which has a installed power generating capacity of 0.64MW and became commercially operational in April 2014.

WHA Energy Company Limited, a subsidiary in which the Company has a stake of 99.99 percent, holds 74.99 percent of total issued and paid-up shares in each of the above companies. The remaining 25.01 percent of total capital in those companies is held by the Gunkul Group.

7. B.Grimm Power (WHA) 1 Company Limited (BPWHA-1)

BPWHA-1 owns and operates BPWHA-1 Power Plant in WHA CIE 1, Chonburi province. BPWHA-1 Power Plant is a gas-fired SPP power plant having a installed power generating capacity of 130MW. This power plant sells 90MW of electricity to EGAT under a power purchase agreement on a firm commitment basis, which has a term of 25 years from the COD in November 2016. It also has an agreement to sell electricity to industrial customers in WHA CIE 1.

WHA Energy Company Limited, a subsidiary in which the Company has a stake of 99.99 per cent., holds 25.01 percent of total issued and paid-up shares in BPWHA-1. The remaining 74.99 percent of its total capital is held by the B.Grimm Power Group.

8. Joint investment businesses with Gulf MP Company Limited

The WHAUP Group and Gulf MP Company Limited jointly own 4 SPP gas-fired power plants with a firm basis power purchase agreement, consisting of the following companies:

1. **Gulf VTP Company Limited (Gulf VTP)**, which operates Gulf VTP Power Plant in ESIE, Pluakdaeng sub-district, Rayong province having an installed power generating capacity of 137 MW and an installed steam generating capacity of 20 Ton/hour. This power plant became commercially operational in May 2017.
2. **Gulf TS1 Company Limited (Gulf TS1)**, which operates Gulf TS1 Power Plant in ESIE, Pluakdaeng sub-district, Rayong province having an installed power generating capacity of 134 MW and an installed steam generating capacity of 30 Ton/hour. This power plant became commercially operational in July 2017.
3. **Gulf TS2 Company Limited (Gulf TS2)**, which operates Gulf TS2 Power Plant in ESIE, Pluakdaeng sub-district, Rayong province having an installed power generating capacity of 134 MW and an installed steam generating capacity of 30 Ton/hour. This power plant became commercially operational in September 2017.
4. **Gulf TS3 Company Limited (Gulf TS3)**, which operates Gulf TS3 Power Plant in WHA ESIE 1, Pluakdaeng sub-district, Rayong province having an installed power generating capacity of 130 MW and an installed steam generating capacity of 25 Ton/hour. This power plant became commercially operational in November 2017.
5. **Gulf TS4 Company Limited (Gulf TS4)**, which operates Gulf TS4 Power Plant in WHA ESIE 1, Pluakdaeng sub-district, Rayong province having an installed power generating capacity of 130 MW and an installed steam generating capacity of 25 Ton/hour. This power plant became commercially operational in January 2018.

WHA Energy Company Limited, a subsidiary in which the Company has a stake of 99.99 percent, holds 25.01 percent of the total issued and paid-up shares in each of the above power plant companies. The remaining 74.99 percent of their total capital is held by Gulf MP Company Limited.

9. Natural Gas Distribution, a joint venture with Gulf Energy Development Plc and MITG (Thailand) Co., Ltd.

WHA Eastern Seaboard NGD 2 (“WHANGD2”) which operates in WHA Eastern Seaboard Industrial Estate 2 having capacity of the natural gas distribution at 2,000,000 million BTU/ year or equal to a capacity in proportion to equity of 700,000 million BTU per year has achieved the commercial operation in December 2018.

10. Solar Rooftop power plants

The Company operates Solar Rooftop power plants in order to sell electricity to factories and logistic warehouses both inside the WHA's industrial and logistic warehouses area and outside which became commercially operational during May - December 2018 with total installed power generating capacity of 2.62 MW.

POWER PLANTS UNDER CONSTRUCTION IN WHICH THE COMPANY HAS INVESTMENT

1. Joint investment businesses with Gulf MP Company Limited

The WHAUP Group and Gulf MP Company Limited jointly own 1 SPP gas-fired power plants with a firm basis power purchase agreement, consisting of the following companies:

Gulf NLL2 Company Limited (Gulf NLL2), which operates Gulf NLL2 Power Plant in WHA RIL, Rayong province having an installed power generating capacity of 127MW and an installed steam generating capacity of 10 Ton/hour. This power plant is expected to start its commercial operations in January 2019.

2. Joint investment businesses with Glow Energy Public Company Limited & Suez (Asia) Limited

Chonburi Clean Energy Plant is a waste to energy power plant in WHA CIE 1, Chonburi province. This power plant has an installed power generating capacity of 8.6 MW under. This power plant is scheduled to start the commercial operations in Quarter 4/2019.

Chonburi Clean Energy Company Limited is a subsidiary of Eastern Seaboard Clean Energy Company Limited, a joint venture between Glow IPP 3 Company Limited (a subsidiary of Glow Energy Plc.) with WHA Energy Company Limited (a subsidiary of WHA Utilities and Power Plc.) and SUEZ Co.,Ltd for development of industrial waste energy projects. Each party owns an equal proportion of shares.

3. Natural Gas Distribution, a joint venture with Gulf Energy Development Plc and MITG (Thailand) Co., Ltd.

WHA Eastern Seaboard NGD 4 (WHANGD4) which operates and distributes natural gas to industrial customers in WHA Eastern Seaboard Industrial Estate 4 is scheduled to achieve the commercial operation in Quarter 2, 2018.

4. Solar Rooftop power plants

The Company develops solar rooftop power plants to sell electricity to industrial customers both inside the WHA's industrial area and outside which are under construction having total installed power generating capacity of 8.6MW.

Business strategies

1. Deliver cheaper energy to industrial customers

With technology knowledge in energy business, understanding customer's needs, and efficient management both operational and financial has led the company to provide an innovative solution that fit customer's needs with lower price than competitors which helps reduce production costs for customers.

2. Become a leading key developer of Microgrid and Captive Energy sources for industrial areas

The Company is studying the feasibility of developing Microgrid and Captive Energy to distribute electricity within industrial areas by starting from industrial areas of WHA Group. This will help the Company to distribute electricity to industrial customers in various industrial areas at a lower price and more stable because it can manage the production of electricity from various types of production units to be effective and in line with character of users in that area. In addition, users get benefits of installing solar rooftop system which has low production costs and reduces energy loss from electricity distribution through the transmission system over long distances.

3. Introduce new solutions and innovation in order to improve products and serve wider customers base

The company has brought innovation to improve products and services for customers such as high efficient solar system equipment but using less space, Floating Solar, or Solar Car Park. Moreover, the Company is studying the feasibility of using industrial waste as a fuel to produce steam and chilled water for industrial users, using energy storage system together with solar power system, and a microgrid to increase energy stability. The Company will use its knowledge and expertise to provide services to industrial customers to satisfy the requirements of each industrial customer.

4. Focus on domestic and Vietnam market as highest potential market in power opportunities

The Company plans to expand its power business as mentioned above to foreign market, particularly in countries with high growth in population, economic and demand for power. The CLMV countries (i.e. Cambodia, Laos, Myanmar and Vietnam), particularly Vietnam, are viewed as potential countries and attractive for investment. The Company entered into the non-competition agreements with WHA Industrial Development Group and WHA Group in respect of the development of power businesses in these countries.

Industry Overview

The power business in Thailand is an infrastructure service under the supervision and regulation of the Ministry of Energy, the ERC and the National Energy Policy Board (NEPB), which are in charge of the stability and sustainability of the national power utility. Originally, EGAT was solely responsible for generating power to support nationwide consumption. After demand for electricity sharply rose as a result of economic expansion and population increase, the governments has therefore the participation of private sector in the power generation business with a view to mitigating EGAT's investment burden in order to respond growing demand for electricity. Starting from 1992, the government launched a policy encouraging the private sector's participation in power generation and invited it to bid for the construction of power plants. Such policy inaugurated a new role of IPPs and SPPs in the country's power generation business since 1994. As there is also great support for alternative energy power generation, VSPPs are now taking an active role in the country's power industry. In the past, the cost of solar energy has been rapidly decreased, causing many entrepreneurs to invest in installing solar power systems for their own use or selling to users in industrial areas or other large enterprises. Due to the face that, it can produce energy at a lower average cost per unit than buying power from Provincial Electricity Authority (PEA) or Metropolitan Electricity Authority (MEA).

Risk Factors

The Company aims to become Thailand's leading provider of public utilities and power services. The Company recognizes that the various risk factors arising from changes of internal and external factors, including the environment, may affect its operations. Therefore, the Company has conducted an assessment on material risks, and also the impacts of risks on its operations. The Company's assessment was divided into four kinds of major risks, namely strategy risk, operational risk, financial risk and compliance risk, which was analyzed in connection with its two core businesses, i.e. water business and power business.

STRATEGY RISK

Water business

(1) Revenue of the water business mainly derives from customers in the WHA Industrial Development Public Company Limited Group's industrial estates and industrial lands

Currently, the Company's core revenue is derived from its water business in industrial estates and industrial lands developed and managed by WHA Industrial Development Public Company Limited ("WHA ID") (Formerly known as Hemaraj Land and Development Public Company Limited) which is the Company's major shareholder and its subsidiaries (collectively called the WHA ID Group). This source of revenue accounts for 43.4 percent and 42.7 percent of the Company's total revenue for 2017 and 2018, respectively.

The Company and the WHA ID Group have entered into the Strategic Partnership Agreement and Right Lease Agreement which entitles the Company to operate its water business in the WHA ID Group's industrial estates and industrial lands for the Current Projects and Future Projects. However, if the WHA ID Group decides in the future to suspend the expansion of its business relating to development of industrial estates and industrial lands for any reason and the Company does not have any other customers outside the WHA ID Group's industrial estates and industrial lands, the Company's income may significantly decrease. On the other hand, if the right lease agreement expires at the end of the 50-year term without renewal and the Company does not have customers apart from those in the WHA ID Group's industrial estates and industrial lands to replace this revenue, the Company's results of operations and financial condition may materially be affected. The Company realizes the risk and consequences from that Factor. In order to pull down the risk, the company select the project with the reasonable of Equity Internal Rate of Return and study on the pros and cons of feasibility of the project and sensitivity analysis. If it is a joint venture, the company has a carefully selected investor by knowledge, ability, experience, expertise, financial, and history of past performance of the investor.

(2) Risk relating to customer concentration

The Company's core customers in the water business mainly consist of operators in petrochemical business, power generation business and automobile business in industrial estates and industrial lands, accounting for 38 percent, 24 percent and 10 percent, respectively, of the Company's total revenue from the water business for 2018. In addition, the 10 largest customers of the Company mainly consist of operators in the petrochemical business and power generation business, accounting for 54.4 percent and 66.4 percent of the Company's total revenue for 2017 and 2018, respectively. A decline or slowdown in the business expansion or investment conditions of these industrial sectors and large customers may reduce their demand for water services and other public utilities which may materially affect the results of operations of the Company.

The Company realizes the risk and consequences from that Factor. In order to pull down the risk 1) the Company monitors customer's water usage closely 2) Queries and revise water usage plan for those customers consistently and 3) to sustainably reduce the possible consequences, the Company set policies and operating plans to offer more variety of products to better serve customer demand such as specific industrial water or reverse osmosis (RO) to focus on more groups of customers as well as plan for customers outside the industrial estates such as sub-district administrative organization, etc. in the important economic area.

(3) Risk relating to reliance on the major suppliers for raw water procurement

The Company operates its utility service business by producing and distributing industrial water to operators in industrial estates and industrial lands in which the raw water is the key raw material for its operation. The cost of raw water represented approximately 65 percent of the total cost of the Company. Currently, the Company mainly procures raw water from three (3) major suppliers, i.e. (1) Eastern Water Resources Development and Management Public Company Limited (East Water) which is a large concessionaire granted by the Royal Irrigation Department (RID) having service area in Chonburi, Rayong and Chachoengsao provinces, (2) RID and (3) the WHA ID Group (from WHA ID Group's internal reservoir of natural water) and their supply volume accounts for 80 percent, 10 percent and 10 percent, respectively. Further, the WHA ID Group acted as an intermediary for East Water and RID in the Company's water procurement process. However, the Company is able to directly procure raw water from East Water and RID.

If East Water, RID or the WHA ID Group is unable to supply raw water to the Company in the quantity required and at the agreed time, due to raw water supply shortage or significantly increases in the selling price of raw water, this may have a material adverse effect on the Company's financial condition, results of operations and prospects.

In the past decade, the Company has planned to reduce risks of having few major suppliers of raw water and/or distributors of raw water by 1) the Company keeps updates on natural raw water resources and plan to build water reservoirs in some industrial estates as appropriate 2) plans to explore natural raw water resources in addition to the resources currently use 3) plans for recycled water system 4) the Company also follows up and coordinates with customers constantly to promptly plan for sufficient water usage and distribution as well as coordinates with raw water distributors and find protection and modification solutions constantly. With those mention preventive measures that have been performed, the Company is confidence that there is sufficient and quality raw water resources for water supply business

Power business

(1) Investment risk relating to the Company's investments in businesses over which the Company has no control

Currently, the Company has made investments in the power business by holding equity in various energy companies. Revenue from the power business of the Company is derived from investments in companies engaging in power business, which are considered associates of the Company, and accordingly the Company does not have power to control those entities, and the management of their businesses depends on the discretion of their respective boards of directors. Moreover, although the major shareholders of these companies have expertise in the power business, the Company is subject to the risk of investment in the power business. The Company received revenue from the investments of such power business in forms of share of profit from investments in associates and joint ventures, and dividends.

OPERATIONAL RISK

WATER BUSINESS

(1) Risk relating to an ability of the Company to increase public utilities price in the industrial estates

Section 14 of the Industrial Estate Authority of Thailand Act, B.E.2522 (as amended) states that “the IEAT has the power to determine the selling price, rental fee and hire purchase fee of real property and movable property, the maintenance fee of public facilities and other fees in relation to public services provided in industrial estates, taking into account reasonableness in terms of business.” Therefore, the power to announce and increase the price of public utilities such as industrial water price and wastewater treatment price in industrial estates lies solely with the IEAT. The Company cannot charge for public utilities at a higher rate than the rates specified by IEAT. Therefore, there is a risk that the IEAT may not grant approval if the Company seeks to increase the price of public utilities to meet the changing costs or to reflect the market condition. It is also notable that no requirements have been imposed on the Company to seek prior approval of the change of public utility prices collected in the industrial lands.

(2) Risk relating to the deterioration and damage of the water production and distribution System

The Company’s industrial water production and distribution system and wastewater treatment system may deteriorate in a usage life or be damaged during the course of operations, and if the repair is not completed in a timely manner, this may directly obstruct the production and distribution process of industrial water or interrupt the wastewater treatment system. In addition to impacting the Company’s profitability and cash flow, this may cause the Company fails to fulfill its obligations under the Right Lease Agreement with the WHA ID Group and agreements with Company’s customers and may therefore also materially affect the Company’s results of operations.

To reduce the mentioned risk, the Company keeps checking on all systems constantly and arranges maintenance plans of water providing and distribution system for industrial purposes appropriately. The purpose of maintenance plan is to focus on maintenance of dilapidated or damaged parts and increase performances for effective usage of water providing and distribution system for industrial purposes. In case when it is needed to temporary halt water providing and distribution system for repair and maintenance, the Company will inform customers in industrial estates beforehand and arrange spare water resources until the main water providing & distribution system will be completely fixed. Apart from this, the Company also prepares property insurance with insurance companies to responsible any damage of any circumstance.

(3) Risk relating to severe accident, drought and natural catastrophe

Natural catastrophes (such as drought, flood, storm, fire and earthquake, epidemic and severe accident) are beyond the Company’s control. An occurrence of a drought, natural catastrophe or severe accident may affect the Company’s results of operations and severely damage the Company’s operating assets. The impact of those circumstances may affect the industrial and commercial operators in industrial estates and industrial lands where the Company is operating, which could also have an effect on the Company’s revenue and results of operations.

The Company is aware of the possibility of such risk, which is why it puts attention on the selection of location and the proper security system. The road in every project is higher than the public road in front of the projects or the highest water level during the floods in the past 30 years in the locality. The Company has applied for all-risk insurance covering all kinds of damage caused by natural disaster and accidents for every project. However, the Company is confident that it has proper plans and preventive measures to deal with floods. Therefore, there is little chance that damage from floods in any projects would exceed the compensation limit.

Power business

The Company invests in power business in the form of holding equity in energy companies. Revenue from the power business in 2018 accounted for 53.1 percent of the Company's total revenue for the year ended December 31, 2018 whereby the highest revenue came from investment in Gheco-I Company Limited (the Company's associates over which the Company has no control). Revenue from power business generated from the other associates for the same financial period was not material. The Company received revenue from power business in form of share of profit from investments in its associates and joint ventures and dividend received.

Risks relating to investment in power business include the following:

(1) Risk relating to a shortage of fuels

In the operation of natural gas and coal-fired power plants, natural gas and coals particularly constitute the key costs of operating activities. If there is a shortage of these natural gas or coals or a supplier is unable to provide a required quantity of natural gas or coals to the power plant of the Company's associates, which in each case is an uncontrollable event of the power plants, then the relevant power plants are likely to breach its obligations under the power purchase agreement it has entered into with EGAT or under electric power transmission or a steam supply agreements with their industrial customers. Therefore, a shortage of fuels may have a material and adverse effect on the profit sharing, financial condition and operating results of the Company.

However, GHECO-ONE Co., Ltd., the largest equity investment has already signed the contract to purchase coal in advance to prevent the risk of partial shortage of fuel.

Water business and power business

(1) Risk relating to uncertainty in economic, political and social condition and laws which may affect the Company's business expansion plan and operating results

As the Company engages in the water and power businesses, its prospects of business expansion and results of operations depend on the economic, political, social conditions and legal framework of the country where the Company's businesses are being conducted. Particularly, if there is a material adverse change in economic conditions resulting in liquidity risk, inflation, foreign exchange rate fluctuations and credit default risk which may affect the interest rate, or if there is a material change in social conditions and laws, then those changes may have adverse effects on the Company's business operations, financial condition, results of operations and business expansion plan.

(2) Slowdown in the global economy, changes in the state policy and other macroeconomic factors

The global economic slowdown, the United Kingdom's resolution to exit the European Union (Brexit), the change in state policy, and political uncertainty may affect investment and expansion of production capacity of industrial operators which are customers of the Company. Political uncertainty in Thailand may undermine the investor sentiment and private sector's confidence in Thailand investment. Some business segments may decide to move, expand or establish their production bases in neighboring countries instead in order to reduce this risk. The depressed political condition and the high level of household debt may also restrict private sector consumption. Declines in domestic consumption, production and export also curb investment activities which could reduce our customers' planned expansion of production or suspend their investment decisions, which may have adverse effects on the Company's business.

Nevertheless, Thailand remains attractive to the foreign investors who want to invest in South East Asia due to the better labor quality and the acceptable wage rate in comparison to those in European countries,

The United States and other Asian countries. Moreover, the infrastructures particularly the public utilities in Thailand are better than competitors as well as. Despite the natural disaster in 2011, the overall investment in Thailand continues to expand. Moreover, in 2014, the government announced a change of regulations regarding rights and benefits of investment promotion to be suitable for current and future situations. This is also in line with the development direction of the country according to the National Economic and Social Development Plan the agricultural, industrial and service development policy effective in 2015.

FINANCIAL RISK

The operating performance, financial status, economic environment in Thailand and other countries, access to financial and capital market in Thailand and other countries, and interest rates are risk factors to the company's financial management. The company has consistently improved its financial position by having an appropriate and sufficient source of funds with a reasonable cost of capital. As at December 31, 2018, the Company's debt to equity ratio was 0.69 times and interest-bearing debt to total equity was 0.58 times. The company has a strong balance sheet and a lower debt level, moderate level of cash on hands, no foreign currency debts and broader lending sources. These will provide the company more flexibility to grow the business expansion, yet to minimize the financial risks.

Core revenue generated from power business derives from share of profit from the investments in associates and joint ventures. The Company's associates which engage in the power business had sources of financing and loans for development of power plants and part of operating costs in a foreign currency. Fluctuations in the foreign exchange rate and interest rate, may adversely affect the Company's share of profit from investments, financial condition and results of operations.

However, Gheco-One had already signed the contract the foreign exchange rate swap and the interest swap to prevent such financial risk.

COMPLIANCE RISK

(1) Risk of use and interpretation of the law and the Notifications related to the business of the Company

Announcement of the Revolutionary Party No. 58 stipulates that the waterworks business is considered to be a public utility business, which must be licensed or concessioned by the Minister prior to the operation. Also, the notification of the Ministry of Natural Resources and Environment Re: Criteria for Conducting Concession of the Waterworks for Safety or Well-being of People B.E. 2554 ("Ministry of Resources' Notification") issued in accordance with Announcement of the Revolutionary Party No. 58 stipulates that "the Waterworks" must be concessioned by the Minister of the Ministry of Natural Resources and Environment. The Ministry brought the matter into a discussion with the Department of Water Resources, a regulatory body according to the notification of Ministry of Resources, whether the water production and distribution business for industries and its subsidiaries is justified to be concessioned according to the Announcement of the Revolutionary Party No. 58 and the Ministry Notification. The conclusion is that the Company's production and distribution of industrial water is for the Company and its subsidiaries for industrial zones only. The water is not produced and sold to the public. Therefore, it is not considered to obtain a concession according to the Announcement of the Revolutionary Party No. 58 and the Ministry Announcement.

However, if the law changes in the future or the interpretation of the Announcement of the Revolutionary Party No. 58 and the Ministry Notification has changed, The Company and its subsidiaries may

have to apply for a license or concession, and if the Company and its subsidiaries do not receive a license or concession for any reason, such event could adversely affect the business operation, revenue and financial position, the Company's performance and business opportunities.

(2) Changes to the IEAT's laws, rules and regulations and other applicable laws which are relevant to the business operation of the Company

The Company's industrial water business and power business are governed by the IEAT's laws, rules and regulations and other applicable laws which may be interpreted differently in the future.

The Company is unable to anticipate any guidelines on the regulator's exercise of power to supervise water business under the relevant laws. This uncertainty subjects the Company to the risk that there is a material change in applicable laws, rules and regulations. In addition, the national policy on public utilities and power is subject to change based on the policy and administrative system announced by each government. A change in the national policy on public utilities and power as well as an issue of new rules and regulations, e.g. a policy on alternative energy, may adversely affect the Company's investment and business expansion, including its business operations, revenue, financial condition, results of operations and business prospects.

OTHER RISK FACTORS

(1) The risk from the Company's ability to pay Dividends that is not in line with the Policy

The Company has a policy to pay dividends to shareholders of not less than 40.0% of the net profit in the consolidated financial statements after deduction of corporate income tax and legal reserve for each year, taking into account the current financial status, cash flow, liquidity, investment plans and other factors as deemed appropriate by the Board of Directors. Such dividend payments must not affect the normal operation of the Company significantly and are subject to the laws, regulations or rulings relating thereto. The resolution of the Board of Directors to approve the dividend payment must be proposed for approval from the shareholders' meeting, except for the interim dividend payment which the Board of Directors is authorized to pay for interim dividends and will report to the shareholders' meeting. The ability of the Company to declare the dividend payment is based on the financial statements at the end of each fiscal year, and the dividend payment can not exceed the retained earnings as shown in the separate financial statements of the Company and in compliance with related laws.

In addition, the Company's ability to pay the dividends depends on the dividends received from the joint venture that the Company has invested in whereas the Company is not a major shareholder of such affiliates. Therefore, the Company does not have a full control in the management and the ability to determine the dividend payment. Therefore, the Company cannot guarantee that the dividends can be paid to shareholders according to the policy.

In addition, the Public Company Act stipulates that the Company dividend cannot be paid if the Company has accumulated losses although the Company has earned a net profit in that year. Even if the Company has earned a net profit for any particular year, the Public Company Act and the Articles of Association of the Company stipulates that in case the Company have net profit in any year, the Company is required to set aside a statutory reserve of not less than 5.0% of its net profit after deducting accumulated deficit brought forward (if any) until the reserve fund reaches the amount not less than 10.0% of the registered capital. If the company is not profitable enough, or if the Company otherwise deems it appropriate, the Company may not pay dividends.

Profile and Contact

GENERAL INFORMATION

The Company

Name of the Issuing Company	: WHA Utilities and Power Public Company Limited
Symbol	: WHAUP
Head office	: 9/241-242 UM Tower, 24/F, Ramkhamhaeng Road, Suanluang sub-district, Suanluang district, Bangkok 10250, Thailand
Telephone	: 02-719-9559
Fax	: 02-717-2128
Website	: www.wha-up.com
Nature of business	: (1) Utility business of distributing raw water, producing and Distributing industrial water and providing wastewater treatment services to operators in industrial estates and industrial land (2) Power business through investment in power generation business, both domestically and abroad.
Corporate registration no.	: 0107559000401
Registered capital	: THB 3,825,000,000
Issued and Fully Paid-up Capital	: THB 3,825,000,000, consisting of 3,825,000,000 common shares at THB 1 per share

Subsidiaries (Information as at 31 December 2018)

Company Name	Abbreviation	Nature of Business	Registered in	Shareholder	Registered Capital (mm)	Paid-up Capital (mm)	Par Value (Per Share)	Percentage of shares by the Company
Subsidiaries								
1. WHA Water Co., Ltd.	WHAWT	Water resources development and management	Thai	WHAUP	THB 100.00	THB 100.00	THB 10.00	99.99
2. WHA Energy Co., Ltd.	WHAEG	Holding Company	Thai	WHAUP	THB 9,178.00	THB 9,178.00	THB 10.00	99.99
3. WHAUP International Co., Ltd.	WUPI	Holding Company	Thai	WHAUP	THB 45.00	THB 45.00	THB 5.00	99.99
Subsidiaries under WHAEG								
4. WHA Energy 2 Co., Ltd.	WHAET	Holding Company	Thai	WHAEG	THB 4,250.00	THB 4,250.00	THB 10.00	99.99
5. WHA Solar Co., Ltd.	WHAEL	Investment and development of renewable energy business	Thai	WHAEG	THB 200.00	THB 50.00	THB 10.00	99.99
Subsidiaries under WUPI								
6. WHAUP (SG) 1 PTE. Limited	WUPS1	Holding Company	Singapore	WUPI	USD 1.00	USD 1.00	USD 1.00	99.99
7. WHAUP (SG) 2 PTE. Limited	WUPS2	Holding Company	Singapore	WUPI	USD 1.00	USD 1.00	USD 1.00	99.99
Subsidiaries under WUPS2								
8. WHAUP Nghe An Joint Stock Company	WHAUP NGHE AN JSC	Providing industrial water and wastewater treatment services	Vietnam	WUPS2	VND 29,950.00	VND 29,950.00	VND 10,000.00	99.99

Joint Venture Companies (Information as at 31 December 2018)

Company Name	Abbreviation	Nature of Business	Registered in	Shareholder	Registered Capital (mm)	Paid-up Capital (mm)	Par Value (Per Share)	Percentage of shares by the Company
Joint Venture Companies under WHAUP								
1. Gulf WHA MT Natural Gas Distribution Co., Ltd.	Gulf WHA MT	Transport, distributing natural gas fuels through pipelines	Thai	WHAUP	THB 436.00	THB 379.50	THB 10.00	35.00
2. WHA Eastern Seaboard NGD 2 Co., Ltd.	WHA NGD2	Transport, distributing natural gas fuels through pipelines	Thai	Gulf WHA MT	THB 198.00	THB 198.00	THB 10.00	99.99
3. WHA Eastern Seaboard NGD 4 Co., Ltd.	WHA NGD4	Transport, distributing natural gas fuels through pipelines	Thai	Gulf WHA MT	THB 234.00	THB 177.50	THB 10.00	99.99
Joint Venture Companies under WHAEG								
4. Eastern Seaboard Clean Energy Co., Ltd.	ESCE	Electricity and Power Generation	Thai	WHAEG	THB 1,039.00	THB 1,017.81	THB 10.00	33.33
5. Chonburi Clean Energy Co., Ltd.	CCE	Electricity and Power Generation	Thai	ESCE	THB 989.00	THB 989.00	THB 10.00	99.99
6. Rayong Clean Energy Co., Ltd.	RCE	Electricity and Power Generation	Thai	ESCE	THB 50.00	THB 12.50	THB 10.00	99.99
7. Glow Hemaraj Wind Co., Ltd.	GHW	Electricity and Power Generation	Thai	ESCE	THB 50.00	THB 12.50	THB 10.00	99.99

Joint Venture Companies (Information as at 31 December 2018)

Company Name	Abbreviation	Nature of Business	Registered in	Shareholder	Registered Capital (mm)	Paid-up Capital (mm)	Par Value (Per Share)	Percentage of shares by the Company
8. WHA Gunkul Green Solar Roof 1 Co., Ltd.	WHA Gunkul 1	Producing and distributing electricity by solar photovoltaic rooftop	Thai	WHAEG	THB 11.50	THB 11.50	THB 10.00	74.99
9. WHA Gunkul Green Solar Roof 3 Co., Ltd.	WHA Gunkul 3	Producing and distributing electricity by solar photovoltaic rooftop	Thai	WHAEG	THB 14.50	THB 14.50	THB 10.00	74.99
10. WHA Gunkul Green Solar Roof 6 Co., Ltd.	WHA Gunkul 6	Producing and distributing electricity by solar photovoltaic rooftop	Thai	WHAEG	THB 14.50	THB 14.50	THB 10.00	74.99
11. WHA Gunkul Green Solar Roof 17 Co., Ltd.	WHA Gunkul 17	Producing and distributing electricity by solar photovoltaic rooftop	Thai	WHAEG	THB 16.00	THB 16.00	THB 10.00	74.99
12. B.Grimm Power (WHA) 1 Limited	BPWHA-1	Electricity and Power Generation	Thai	WHAEG	THB 1,533.56	THB 1,533.56	THB100.00	25.01
13. Gulf JP NLL Co., Ltd.	Gulf JP NLL	Electricity and Power Generation	Thai	WHAEG	THB 1,384.00	THB 1,384.00	THB 10.00	25.01

Joint Venture Companies (Information as at 31 December 2018)

Company Name	Abbreviation	Nature of Business	Registered in	Shareholder	Registered Capital (mm)	Paid-up Capital (mm)	Par Value (Per Share)	Percentage of shares by the Company
14. Gulf VTP Co., Ltd.	Gulf VTP	Electricity and Power Generation	Thai	WHAEG	THB 1,610.00	THB 1,610.00	THB 10.00	25.01
15. Gulf TS1 Co., Ltd.	Gulf TS1	Electricity and Power Generation	Thai	WHAEG	THB 1,685.00	THB 1,685.00	THB 10.00	25.01
15. Gulf TS2 Co., Ltd.	Gulf TS2	Electricity and Power Generation	Thai	WHAEG	THB 1,690.00	THB 1,690.00	THB 10.00	25.01
17. Gulf TS3 Co., Ltd.	Gulf TS3	Electricity and Power Generation	Thai	WHAEG	THB 1,470.00	THB 1,470.00	THB 10.00	25.01
18. Gulf TS4 Co., Ltd.	Gulf TS4	Electricity and Power Generation	Thai	WHAEG	THB 1,293.00	THB 1,293.00	THB 10.00	25.01
19. Gulf NLL2 Co., Ltd.	Gulf NLL 2	Electricity and Power Generation	Thai	WHAEG	THB 1,010.00	THB 260.00	THB 10.00	25.01
20. Gulf Solar Co., Ltd.	Gulf Solar	Producing and distributing electricity by solar photovoltaic rooftop	Thai	WHAEG	THB 14.63	THB 14.63	THB 10.00	25.01
21. Gulf Solar TS1 Co., Ltd.	Gulf Solar TS 1	Producing and distributing electricity by solar photovoltaic rooftop	Thai	Gulf Solar	THB 3.03	THB 3.03	THB 10.00	99.99

Joint Venture Companies (Information as at 31 December 2018)

Company Name	Abbreviation	Nature of Business	Registered in	Shareholder	Registered Capital (mm)	Paid-up Capital (mm)	Par Value (Per Share)	Percentage of shares by the Company
22. Gulf Solar TS2 Co., Ltd.	Gulf Solar TS 2	Producing and distributing electricity by solar photovoltaic rooftop	Thai	Gulf Solar	THB 2.29	THB 2.29	THB 10.00	99.99
23. Gulf Solar BV Co., Ltd.	Gulf Solar BV	Producing and distributing electricity by solar photovoltaic rooftop	Thai	Gulf Solar	THB 3.13	THB 3.13	THB 10.00	99.99
24. Gulf Solar KKS Co., Ltd.	Gulf Solar KKS	Producing and distributing electricity by solar photovoltaic rooftop	Thai	Gulf Solar	THB 6.00	THB 6.00	THB 10.00	99.99
25. Gheco-One Co., Ltd.	Gheco-1	Electricity and Power Generation	Thai	WHAET	THB 11,624.00	THB11,624.00	THB 10.00	35.00
26. Houay Ho Thai Co., Ltd.	HHTC	Electricity and Power Generation	Thai	WHAET	THB 422.15	THB 422.15	THB 10.00	51.00
27. Houay Ho Power Co., Ltd.	HHPC	Electricity and Power Generation	Lao	HHTC	USD 40.00	USD 40.00	USD 80.00	25.00
28. Glow IPP Co., Ltd.	GIPP	Electricity and Power Generation	Thai	WHAET	THB 2,850.00	THB 2,850.00	THB 10.00	5.00

Note:

Houay Ho Thai Company Limited held 25% in Houay Ho Power Company Limited which registered in Lao People's Democratic Republic. US Currency is the main currency used for business operation. Also, the Company did not include the financial information of Houay Ho Thai Company Limited in the consolidated financial statement because the Company is the strategic partner. Moreover, the other investors are proficient in the operation of all power plants.

OTHER REFERENCES

Share Registrar

Thailand Securities Depository Company Limited

Head office	: 93 The Stock Exchange of Thailand Building, Ratchadaphisek Road, Dindaeng Bangkok 10400, Thailand
Telephone	: 02-009-9000
Fax	: 02-009-9991

Debenture Registrar

Bank of Ayudhya Public Company Limited

Head office	: 1222 Rama III Road, Bangpongpan, Yannawa Bangkok 10120, Thailand
Telephone	: 02-296-3582
Fax	: 02-683-1298

Auditor

PricewaterhouseCoopers ABAS Limited

Head office	: 179/74-80, 15 th Floor, Bangkok City Tower, South Sathorn Road, Bangkok 10120, Thailand
Telephone	: 02-344-1000
Fax	: 02-286-5050

Legal Advisor

RL Counsel Company Limited

Head office	: 62/15 Thaniya, Suriyawongse Sub District, Bangrak District, Bangkok 10500, Thailand
Telephone	: 0-2235-3339
Fax	: 0-2235-3076

OTHER MATERIAL INFORMATION

There is no other information which may materially affect investors' decisions.

Information on Securities and Shareholders

REGISTERED CAPITAL AND PAID-UP CAPITAL

As of 31 December 2018, the Company's registered capital was THB 3,825 million, and its paid-up capital was THB 3,825 million, divided into 3,825 million ordinary shares with a par value of THB 1 per share. The Company's Extraordinary General Meeting of Shareholders No. 1/2017 held on 30 June 2017 the meeting approved the amendment to the par value of the shares from Baht 5 per share to be Baht 1 per share.

SHAREHOLDERS

Major shareholders

The shareholding structure of the Company prior to and after the Offering can be summarised as follows:

No.	Shareholders	Number of shares	Per cent.
1	WHA Group		
	WHA Industrial Development Public Company Limited ¹	2,633,999,970	68.86
	WHA Industrial Development International (SG) Co., Ltd. ²	43,500,010	1.14
	Total	2,677,499,980	70.00
2	Miss Jareeporn Jarukornsakul Group		
	Miss Jareeporn Jarukornsakul	34,499,800	0.90
	WHA Holding Co., Ltd. ³	72,581,665	1.90
	Total	107,081,465	2.80
3	Bangkok Life Assurance Public Company Limited	73,200,100	1.91
4	Thai NVDR Company Limited	58,524,192	1.53
5	Mr. Somyos Anantaprayoon	50,240,625	1.31
6	K Valued Stock Fund : K-VALUE	22,628,200	0.59
7	Muang Thai Life Assurance Public Company Limited	16,979,000	0.44
8	SOUTH EAST ASIA UK (TYPE C) NOMINEES LIMITED	16,294,200	0.43
9	K Mid Small Cap Equity RMF : KMSRMF	15,499,200	0.41
10	AIA COMPANY LIMITED - EQ2-P	15,417,292	0.40
	Total top 10 major shareholders	3,053,364,254	79.83
	Other shareholders	771,635,746	19.42
	Total	3,825,000,000	100.00

Notes : ¹ WHA Industrial Development Public Company Limited (Formerly known as Hemaraj Land and Development Public Company Limited) engages in industrial estates development in which its securities were delisted from the Stock Exchange of Thailand (the SET) since 2 March 2016. Currently, WHA Ventures Holding Co., Ltd. and other shareholders hold 98.54 per cent.
WHA Ventures Holding Company Limited is a holding company with 99.99 per cent of its shares currently held by WHA Corporation Public Company Limited.

² WHA Industrial Development International (SG) Co., Ltd. (Formerly known as H-International (SG) Pte. Ltd.) is an investment company incorporated under the law of Singapore. As of 31 December 2018, All of its shares are held by WHA Industrial Development International (SG) Co., Ltd.

³ WHA Holding Co., Ltd. is a holding company. As of 31 December 2018, its registered capital was THB 5 million divided into one million shares, with a par value of THB 5 per share. The shareholders are as follows:

No.	Shareholders	Number of shares	Per cent.
1	Mr. Somyos Anantaprayoon	500,000	50.0
2	Miss Jareeporn Jarukornsakul	499,999	50.0
3	Miss Jaruwan Jarukornsakul	1	0.0
	Total	1,000,000	100.0

Shareholder agreement

As of 31 December 2018, the Company has no the major shareholder agreement. However, the Company or Subsidiary (case by case) has the shareholder agreement between the shareholders in associate and joint ventures.

OTHER SECURITIES

As of 31 December 2018, the Company has the debentures. The details are as follows:

Debenture	Amount (Million Baht)	Coupon (Percent)	Tenor (Years) / Maturity Date)	Rating by FITCH (Thai)
WHAUP208A	3,200	3.33% p.a. Semi-annually payment	3 Years Maturity date : 18 August 2020	A-(tha)
WHAUP208B	800	3.33% p.a. Semi-annually payment	2.9 Years Maturity date : 10 August 2020	A-(tha)
WHAUP216A	2,390	2.65% p.a. Semi-annually payment	3 Years Maturity date : 26 June 2021	A-(tha)
WHAUP236A	1,290	3.17% p.a. Semi-annually payment	5 Years Maturity date : 26 June 2023	A-(tha)
WHAUP256A	1,320	3.66% p.a. Semi-annually payment	7 Years Maturity date : 26 June 2025	A-(tha)

DIVIDEND POLICY

Dividend policy of the Company

The Company will consider paying dividend according to provision of law, including the Public Limited Company Act, B.E. 2535, which requires a public limited company to pay dividend only from the net profit derived from standalone financial statement with no accumulated deficit.

The Company's dividend payment policy is to pay dividends in the amount of not less than 40 per cent of the Company's consolidated net profit after deducting corporate income tax and other reserve funds as required by law in each year. However, the dividend payment of the Company may take into account the Company's financial position, cash flow, liquidity, investment plan and other factors, as the Board of Directors deems appropriate. The dividend payment shall not materially affect the Company's normal business operations and comply with law, regulation or relevant ruling. The Board of Directors shall propose to the shareholders' meeting approval of dividend payments, except the payment of interim dividends. The Board of Directors may declare interim dividends and report to the shareholders at the next shareholders' meeting.

The payment of dividend shall not exceed retained earnings of the Company in the separate financial statements of the Company and shall be in accordance with applicable laws.

Dividend policy of the Subsidiaries

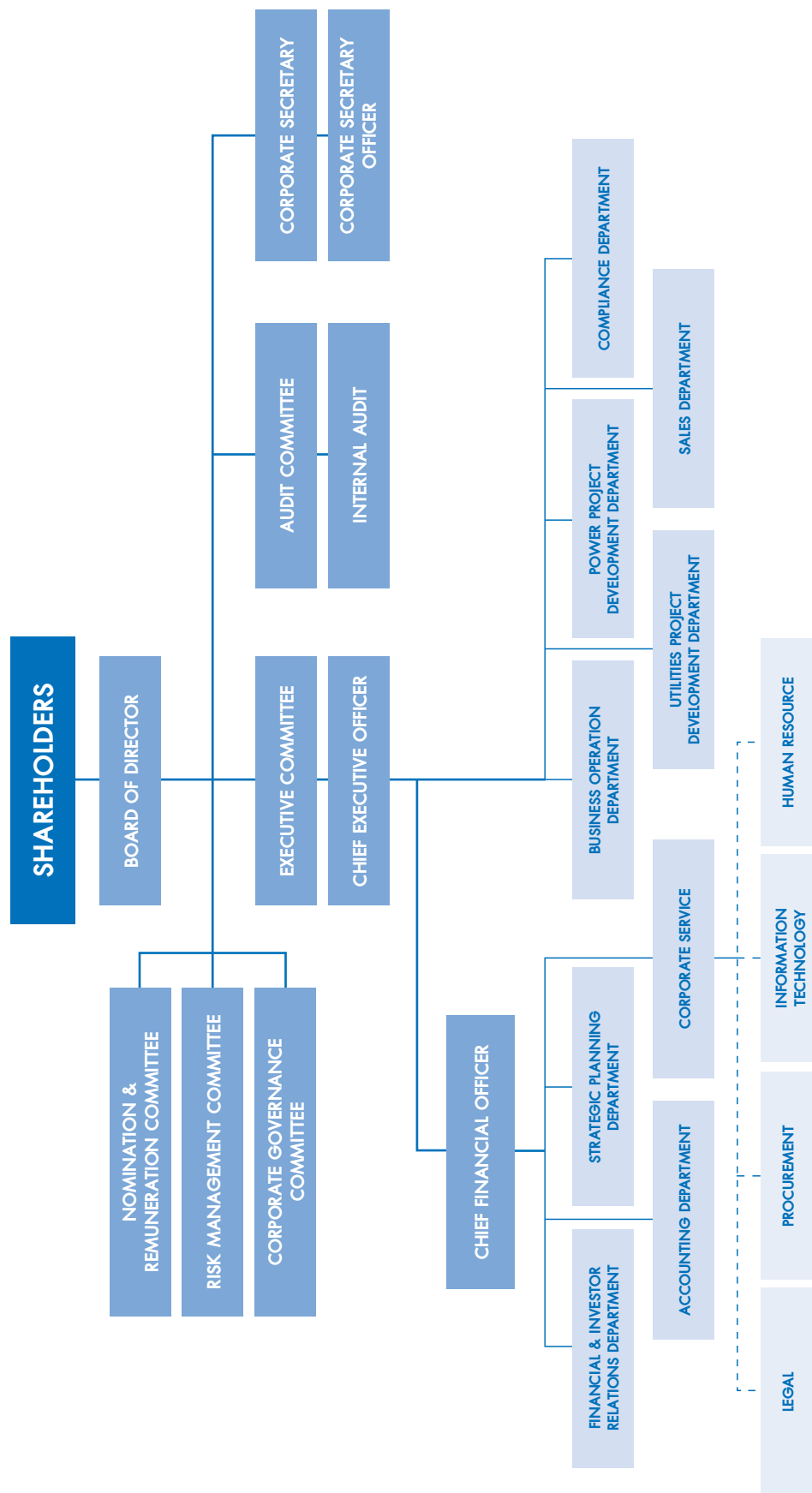
Each Subsidiary's dividend payment policy is to pay dividends in the amount of not less than 50 per cent of the net profit after deducting corporate income tax and other reserve funds as required by law in each year. However, the dividend payment of each Subsidiary may take into account the financial position, cash flows, liquidity, investment plan and other factors, as the board of directors deems appropriate, and for the best interest of shareholders. The dividend payment shall not materially affect each Subsidiary's normal business operations. The board of directors of each Subsidiary shall propose to the shareholders' meeting approval of dividend payments, except the payment of interim dividends. The board of directors of each Subsidiary may declare interim dividends and report to the shareholders at the next shareholders' meeting.

Dividend policy of associates and joint ventures

Each associate and joint venture is to pay dividends in proportion to a shareholding according to conditions set out in related shareholders agreement.

Management Structure

As of 31 December 2018, the management structure of the Company consists of the Board of Directors and five sub-committees, i.e. the Audit Committee, Executive Committee, Risk Management Committee, Corporate Governance Committee, and Nomination and Remuneration Committee. The management structure of the Company is as follows:



Note : For the functions under the Corporate Service e.g., Legal, Procurement, IT and HR, the Company uses outsourcing Services.

BOARD OF DIRECTORS

As of 31 December 2018, the Board of Directors is comprised of 8 Directors as follows:

Name	Position
1. Miss Jareeporn Jarukornsakul	Chairman of the Board of Directors Chairman of the Executive Committee Chairman of the Risk Management Committee Nomination and Remuneration Committee member
2. Mr. David Richard Nardone	Director Executive Committee member Risk Management Committee member
3. Mr. Vivat Jiratikarnsakul	Director Executive Committee member Corporate Governance Committee member
4. Mr. Wisate Chungwatana	Director Executive Committee member Chief Executive Officer
5. Mr. Surathian Chakthranont	Director Risk Management Committee member
6. Mr. Weidt Nuchjalearn	Independent Director Chairman of Audit Committee Chairman of the Nomination and Remuneration Committee
7. Mr. Ekajai Tivutanond	Independent Director Audit Committee member Corporate Governance Committee member Nomination and Remuneration Committee member
8. Mrs. Punnee Worawuthichongsathit	Independent Director Audit Committee member Chairman of the Corporate Governance Committee

Miss Nutcha Rattanjitbanjong acts as the secretary of the Board of Directors.

Authorized Directors

The Company's authorized directors are Ms. Jareeporn Jarukornsakul signs jointly with Mr. David Richard Nardone or Mr. Wisate Chungwatana or Mr. Vivat Jiratikarnsakul, making a total of two (2) persons, together with the Company's seal affixed.

Composition of the Board of Directors

1. The Board of Directors has responsibilities to the shareholders on business undertaking, consisting of at least five directors and at least half of all directors shall reside in Thailand.
2. The Board of Directors comprises of executive director and non-executive director in which the members of audit committee include of non-executive director.
3. The Board of Directors shall appoint one of the directors to be the Chairman of the Board of Directors. If the Board of Directors deem it appropriate, the Board of Directors may appoint one or more directors to be a Vice-Chairman of the Board of Directors.
4. Not less than one-third of board members shall be independent directors, at least three independent directors in any case.

Term of Office

1. In an annual general meeting of the Company, one third of directors must resign from office. If the number of directors is not a multiple of three, then the number nearest to one third must resign from office. Those who have the longest term must resign first. A retiring director is eligible for re-appointment.
2. If there is a vacant seat, except for in cases of retirement by rotation, the Nomination and Remuneration committee shall elect the persons who possess the required qualifications, but do not possess any prohibited characteristics under the law governing public limited companies and the law governing securities and exchange, for nomination at the next board of directors' meeting, unless the remaining term of office of the vacating director is less than two months. If such vacancy occurs, any appointed persons shall retain office during the time only as the vacating director was entitled to retain the same. In this regard, the resolution of the board of directors shall not less than three-fourths of the number of remaining directors.
3. In case of vacancies of all members in the Board of Directors, the said Board of Directors may perform any act in the name of the Board of Directors only in matters necessary until a new Board of Directors takes over.

Duties and Responsibilities of the Board of Directors

1. To perform their duties and responsibilities of managing and operating the business of the Company in compliance with laws, rules, regulations or notification of the Securities and Exchange Commission of Thailand, the Capital Market Supervisory Board, and the Stock Exchange of Thailand that relate to the Company's objectives, the Articles of Association, the resolutions of the Board of Directors and the resolutions of the shareholders' meeting with their accountabilities, carefulness, and integrity;
2. To set up the vision, strategy, direction, policies, goals, plans, budgets, management structure and authorisation of the Company and subsidiaries, which are presented by the administration of the Company, and will supervise the performance of management, committees or any other persons assigned by the Company to ensure compliance with the policies for the best interests of the Company and its shareholders;
3. To monitor the Executive and operation of the Executive Committee, Chief Executive Officer, the Executive, or any persons who take responsibilities and such duties in accordance with the Company's policies determined by the Board of Directors;

4. To constantly follow up the Company's performance to be in compliance with the operating plan and budget of the Company;
5. To ensure that the Company and the subsidiaries implement an appropriate and efficient accounting system, financial reporting and account auditing, and provide a traceable internal control system and internal audit system;
6. To prepare policy in relation to good corporate governance principle in writing and efficiently apply such policy to ensure that the Company be fairly responsible to all relevant group of persons;
7. To approve the appointment of person who has qualification and is not prohibited under the Public Limited Company Act, B.E. 2535 (as amended), the Securities Exchange Act, B.E.2535 (as amended), including other relevant notifications, regulations and/or rules to substitute a vacancy in the Board of Directors for reasons other than the termination of the term of office;
8. To appoint the sub-committee such as the Audit Committee, the Executive Committee, the Corporate Governance Committee, the Remuneration and Nomination Committee, the Risk Management Committee, or other committee, including determining their duties and authorities in order to support the Board of Directors' management;
9. To appoint the Top Executive, including determining their remuneration;
10. To approve the loan to such companies that have a business relationship with the Company as shareholders, or companies relating to commercial business or other companies in the amount that exceeds the Executive Committee's authority;
11. To approve the investment and divestment of common shares and/or other securities in amount that exceeds the Executive Committee's authority;
12. To consider an interim dividend payment for Company shareholders;
13. To establish and monitor efficient Anti-Corruption system, ensure the executive team awareness and attention to the Anti-Corruption scheme, embed organizational Anti-Corruption culture and the board of directors will comply with the Anti-Corruption measures and punish when non-compliance occurs;
14. To appoint the Company Secretary to support the directors to perform their duties in accordance with related laws and regulations.

Duties and Responsibilities of Chairman of Board of Directors

1. The Chairman is responsible as the Board's leader and as the Chairman of Board's meeting as well as in shareholders' meeting;
2. In case of equality of vote, the Chairman shall have a casting vote in the Board meeting.

Attendance at the Board of Directors' meetings.

Details of the attendance at the meetings of the Board of Directors the Audit Committee, Executive Committee, Risk Management Committee, Corporate Governance Committee and Nomination and Remuneration Committee on 1 January 2018 and 31 December 2018 are as follows:

Audit	Executive	Corporate Board of Directors	Management Committee	and Remuneration Committee	Executive Share-Governance Committee	Risk Management Committee	Nomination Committee	holders' meeting
Name	Position	8 members Meeting 8 Time	3 members Meeting 5 Time	5 members Meeting 10 Time	3 members Meeting 2 Time	3 members Meeting 2 Time	3 members Meeting 4 Time	8 members Meeting 1 Time
1. Miss Jareeporn Jarukornsakul	<ul style="list-style-type: none"> Chairman of the Board of Director Chairman of the Executive Committee Chairman of the Risk Management Committee Nomination and Remuneration Committee 	7/8		10/10		2/2	4/4	1/1
2. Mr. David Richard Nardone	<ul style="list-style-type: none"> Director Executive Committee Risk Management Committee 	8/8		10/10		2/2		1/1
3. Mr. Vivat Jiratikarnsakul	<ul style="list-style-type: none"> Director Executive Committee Corporate Governance Committee 	8/8		10/10	1/2			1/1
4. Mr. Wisate Chungwatana	<ul style="list-style-type: none"> Director Executive Committee 	8/8		10/10				1/1
5. Mr. Surathian Chakthranont	<ul style="list-style-type: none"> Director Risk Management Committee 	8/8				2/2		1/1

Name	Position	Board of Directors	Audit Committee	Executive Committee	Executive Corporate Governance Committee	Risk Management Committee	Nomination and Remuneration Committee	Shareholders' meeting
		8 members Meeting 8 Time	3 members Meeting 5 Time	5 members Meeting 10 Time	3 members Meeting 2 Time	3 members Meeting 2 Time	3 members Meeting 4 Time	8 members Meeting 1 Time
6. Mr. Weidt Nuchjalearn	<ul style="list-style-type: none"> • Director • Chairman of the Audit Committee / Independent Director • Chairman of the Nomination and Remuneration Committee 	7/8	5/5				4/4	1/1
7. Mr. Ekajai Tivutanond ⁽¹⁾	<ul style="list-style-type: none"> • Director • Audit Committee / Independent Director • Corporate Governance Committee • Nomination and Remuneration Committee 	8/8	5/5		2/2		3/3	1/1
8. Mrs. Punnee Worawuthi-chongsathit	<ul style="list-style-type: none"> • Director • Audit Committee / Independent Director • Chairman of the Corporate Governance Committee 	7/8	5/5		2/2			1/1
9. Mr. Paopitaya Smutrakalin	<ul style="list-style-type: none"> • Executive Committee 			8/10				

Note : ⁽¹⁾ Appointed as Member of the Nomination and Remuneration Committee in the Board of Directors Meeting no. 2/2018 on 20 February 2018

Shareholding Report of the Board of Directors and the Company's Management in 2018

(Inclusive of Spouse or Cohabiting couple, and Minor)

Information as of 31 December 2018:

Name - Surname	No. of Share (shares)		No. of Shares Addition (Reduction) During the Year
	As of 31 Dec 2017	As of 31 Dec 2018	
Company’s Directors			
1. Miss Jareeporn Jarukornsakul	46,999,800	34,499,800	(12,500,000)
By Spouse or Cohabiting couple, and Minor	-	-	-
By Legal entity hold shares at an amount exceeding 30%	72,581,665	72,581,665	-
2. Mr. David Richard Nardone	-	-	-
By Spouse or Cohabiting couple, and Minor	-	-	-
3. Mr. Vivat Jiratikarnsakul	-	-	- -
By Spouse or Cohabiting couple, and Minor	-	-	-
4. Mr. Wisate Chungwatana	100,000	100,000	-
By Spouse or Cohabiting couple, and Minor	-	-	-
5. Mr. Surathian Chakthranont	-	-	-
By Spouse or Cohabiting couple, and Minor	-	-	-
6. Mr. Weidt Nuchjalearn	-	-	-
By Spouse or Cohabiting couple, and Minor	-	-	-
7. Mr. Ekajai Tivutanond	-	-	-
By Spouse or Cohabiting couple, and Minor	-	-	-
8. Mrs. Punnee Worawuthichongsathit	-	-	-
By Spouse or Cohabiting couple, and Minor	-	-	-
Company’s Executives			
1. Mr. Wisate Chungwatana	100,000	100,000	-
Chief Executive Officer			
By Spouse or Cohabiting couple, and Minor	-	-	-
2. Mr. Paopitaya Smutrakalin	380,500	380,500	-
Chief Financial Officer			
By Spouse or Cohabiting couple, and Minor	-	-	-
3. Mr. Khamhoung Ratsamany	-	-	-
Vice President - Business Operation			
By Spouse or Cohabiting couple, and Minor	-	-	-
4. Mr. Varanon Laosuwan	-	-	-
Director - Utilities Project Development			
By Spouse or Cohabiting couple, and Minor	-	-	-

Name - Surname	No. of Share (shares)		No. of Shares Addition (Reduction) During the Year
	As of 31 Dec 2017	As of 31 Dec 2018	
Company's Executives			
5. Mr. Punrapee Noparumpa Director - Power Project Development By Spouse or Cohabiting couple, and Minor	128,500 -	- -	(128,500) -
6. Mr. Sakvithu Saedan Director of Business Operation By Spouse or Cohabiting couple, and Minor	- -	- -	- -
7. Mrs. Rattana Shinawatra Director - Accounting By Spouse or Cohabiting couple, and Minor	- -	- -	- -
8. Miss Arpasinee Chanwangsa Assistant Director - Finance & Investor Relations By Spouse or Cohabiting couple, and Minor	- -	- -	- -
9. Miss Nutch Rattanajitbanjong Corporate Secretary By Spouse or Cohabiting couple, and Minor	- -	- -	- -

EXECUTIVES

As of 31 December 2018, the Company has 7 the executives:

Name	Position
1. Mr. Wisate Chungwatana	Chief Executive Officer
2. Mr. Paopitaya Smutrakalin	Chief Financial Officer
3. Mr. Khamhoung Ratsamany	Vice President - Business Operation
4. Mr. Sakvithu Saedan	Director of Business Operation
5. Mr. Varanon Laosuwan	Director - Utilities Project Development
6. Mr. Punrapee Noparumpa	Director - Power Project Development
7. Mrs. Rattana Shinawatra	Director - Accounting
8. Miss Arpasinee Chanwangsa	Assistant Director - Finance & Investor Relations

Duties and Responsibilities of the Chief Executive Officer

1. To determine policy, strategy, structure and management authority as well as to take responsibility for setting up the strategy and annual budget plans and proposing these to the board of directors.
2. To follow up, control, supervise and operate and/or manage regular tasks to comply with the policies, plans and budgets approved by the board of directors.
3. To be an authorized person of the Company and to operate the business to comply with the Company's objectives, articles of association, policies, rules, regulations, orders, shareholders' resolutions and/or board of directors' resolutions.
4. To take actions and perform duties as the representative of the Company toward third parties in related business which would be beneficial to the Company.
5. To consider and approve the business operation plans of each department of the Company, to approve any action of each department of the Company which is subject to the assigned table on the authority to operate business and the transactions entered into by the Company.
6. To give orders, issue regulations, make announcements and records in order to perform the work to be in accordance with the policies and benefits of the Company and to maintain internal regulations of the Company.
7. To sub-authorize and/or assign a person to take action on behalf of the Chief Executive Officer. In this regard, the sub-authorizing and/or assignment shall be under the scope of authority prescribed in the power of attorney of the Company and/or regulations, rules or orders which are specified by the board of directors and/or the Company.
8. To approve related party transactions for normal operation such as the sale and purchase of goods at market price, service fees at the normal rate and giving credit terms similar to general customers, etc. pursuant to the policies approved by the board of directors.
9. To have authorities, duties and responsibilities to manage the Company's subsidiaries and other departments of the Company.
10. To establish Anti-Corruption risk assessment in risky working processes.
11. To establish encouragements and support for the Anti-Corruption Policy and communication to employees and related parties.
12. To implement the Anti-Corruption Policy and framework continuously and entirely.
13. To update relevant systems and measures with changes in business practice, regulations, articles and legal requirements.
14. To perform other work as assigned by the board of directors on a case-by-case basis.

COMPANY SECRETARY

The Board of Directors' meeting No. 5/2017, held on 30 May 2017, approved the appointment of Miss Nutcha Rattanjitbanjong to be the Corporate Secretary in order to act on behalf of the Company and/or the Board of Directors. The Corporate Secretary's scope of authority, duty and responsibility are as follows:

1. providing preliminary recommendation to directors according to related laws, rules and regulations;
2. providing advice for convening the shareholders' meetings in order to be in compliance with laws, regulations and guidelines, including preparing the notice of the shareholders' meetings;
3. recording the minutes of the shareholders' and the Board of Directors' meetings, including monitoring the compliance of the resolution of the shareholders' and the Board of Directors' meetings;
4. monitoring the disclosure and information memorandum to the public according to related regulations and notifications;

5. preparing and keeping the following documents:
 - (a) director register book;
 - (b) the notice and minutes of the Board of Directors' meeting and the annual report of the Company; and
 - (c) the notice and minutes of the shareholders' meeting;
6. keeping reports on the interests of directors and executives; and
7. performing any other actions as specified by the Capital Market Supervisory Board.

REMUNERATION OF DIRECTORS AND EXECUTIVES

Remuneration of Directors

(1) Monetary remuneration

The Annual General Meeting of Shareholders 2018, held on 27 April 2018, approved the remuneration of the directors and sub-committee of the Company for year 2018, by dividing the payment into three categories i.e., in forms of meeting allowance, directors' remuneration and bonus. The details are as follows:

	Yearly Remuneration	Meeting Allowance
Board of Directors	Chairman THB 200,000 / year Director THB 150,000 / year	Chairman THB 30,000 / time Director THB 25,000 / time
Executive Committee	-	Chairman THB 25,000 / time Member THB 15,000 / time
Audit Committee	-	Chairman THB 25,000 / time Member THB 15,000 / time
Corporate Governance Committee	-	Chairman THB 25,000 / time Member THB 15,000 / time
Nomination and Remuneration Committee	-	Chairman THB 25,000 / time Member THB 15,000 / time
Risk Management Committee	-	Chairman THB 25,000 / time Member THB 15,000 / time

The rate of bonus will be at the rate of 0.2 per cent. of the total income on the profit in that year.

Details of the remuneration of the Company's directors and committees for year 2018 are as follows:

(Unit : THB Baht)

No.	Name	Yearly Remuneration	Meeting Allowance						Bonus	Total
			Board of Directors	Audit Committee	Executive Committee	Corporate Governance Committee	Risk Management Committee	Nomination & Remuneration Committee		
1.	Mr. Somyos Anantaprayoon	16,674.00							889,023.58	905,697.58
2.	Miss Jareeporn Jarukornsakul	195,826.00	210,000.00		250,000.00		50,000.00	60,000.00	814,938.24	1,580,764.24
3.	Mr. David Richard Nardone	150,000.00	200,000.00		150,000.00		30,000.00		814,938.24	1,344,938.24
4.	Mr. Vivat Jiratikamsakul	150,000.00	200,000.00		150,000.00	15,000.00			814,938.24	1,329,938.24
5.	Mr. Wisate Chungwatana	150,000.00	200,000.00		150,000.00				814,938.24	1,314,938.24
6.	Mr. Surathian Chakthranont	150,000.00	200,000.00				30,000.00		814,938.24	1,194,938.24
7.	Mr. Weidt Nuchjalearn	150,000.00	175,000.00	125,000.00				100,000.00	814,938.24	1,364,938.24
8.	Mr. Ekajai Tivutanond	150,000.00	200,000.00	75,000.00		30,000.00		45,000.00	814,938.24	1,314,938.24
9.	Mrs. Punnee Worawuthichongsathit	150,000.00	175,000.00	75,000.00		50,000.00			814,938.24	1,264,938.24
10.	Mr. Paopitaya Smutrakalin				120,000.00					120,000.00

(2) Other remunerations

- None -

Remuneration of Executives

(1) Monetary Remuneration

Details of remuneration of executives of the Company (excluding remuneration as directors) for the year ended 31 December 2017 and 31 December 2018 are as follows:

	Year 2017	Year 2018
Number of persons	11	8
Total remuneration (THB million)	29.24	34.69

(2) Other Remunerations

For the year 2018, the Company contributed to the provident fund to the management as employees of the Company at THB 1.62 million.

PERSONNEL

Number of personnel

The number of personnel of the Company and its Subsidiaries (excluding nine executives) across the divisions of the Company as of 31 December 2017 and 31 December 2018 was as follows:

Divisions	Number of personnel	
	As of 31 December 2017	As of 31 December 2018
Operation	59	68
Utilities	1	3
Power	4	4
Accounting	3	3
Finance and Investor Relations	3	4
Corporate Secretary office	3	3
Compliance	0	1
Management Support	6	7
Total	79	93

Remuneration of Personnel (excluding executives)

For the year 2017 and 2018, the Company paid remuneration to employees (excluding executives) in the amount of THB 27.70 million and THB 40.30 million, respectively, as follows:

	Fiscal year ended 31 December 2017	Fiscal year ended 31 December 2018
Monthly salary ¹	26.41	38.53
Other remunerations ²	1.29	1.77
Total	27.70	40.30

Note : ¹ Including bonus

² Including provident fund.

Labour disputes for the past 3 years

As of 31 December 2018, the Company and its subsidiaries have no pending material labour disputes for the past 3 years which would have a material impact on the Company's and its subsidiaries' assets, shareholders' equity and/or the operation of Company and its subsidiaries.

Personnel development policy

1. Development of directors and executives

- 1.1 The Company promotes and facilitates the training and development of knowledge of persons relating to corporate governance policy of the Company, such as directors, Audit Committee, Company Secretary, in order to continuously improve their performance. The training may be internal training and/or external training.
- 1.2 The management division will provide documents and information useful for performing the duties of a new director, including the nature of business and business guidelines of the Company.

2. Development of employees

The Company is aware of the importance of human resource development. Therefore, the Company focuses on being a learning organisation by having policies to support and facilitate the training and development of knowledge suitable for personnel in every division. In addition, the Company plans to support educational loans for its personnel to study master degrees in order to develop their knowledge and capability in related fields.

Corporate Governance

CORPORATE GOVERNANCE POLICY

The Company regards good corporate governance principles as an important factor in promoting efficiency and sustainable growth, ultimately translating into greater value for its stakeholders, including its employees, partners, customers, investors and other stakeholders. The board of directors has put in place a corporate governance policy which covers all material principles, including structure, roles, duties and responsibilities of directors, and principles of management in order to gain transparency and verifiability in business operation. This policy acts as a guideline for the management of the Company to gain confidence that that Company operates its business with fairness and takes into account the ultimate benefits of shareholders and stakeholders.

The board of directors gives precedence to this corporate governance policy, which covers the following five categories:

Category 1: Rights of shareholders

The Company (i) emphasizes the importance of shareholders' rights, which are not limited to the rights under the law, (ii) refrains from any act which may infringe on, or deprive, the rights of shareholders, and (iii) encourages the shareholders to exercise their rights. Basic shareholder rights include the right to buy, sell or transfer shares, the right to share the company profit, the right to obtain adequate information from the Company, the right to attend shareholder meetings to exercise their right to vote in the appointment or removal of directors, the appointment of auditors and matters affecting the Company, such as the allocation of dividends, specifications or amendments of the Company's articles of association and memoranda of association, reduction or increase of capital and approval of extraordinary transactions.

In addition, the Company also employs the following practices in order to encourage and facilitate the exercise of shareholders' rights:

- 1) Disclosing the policies to support or encourage all shareholders to attend the Company's shareholder meetings.
- 2) Before the meeting date, the Company will send shareholders the notice of the meeting with supporting documents at least 30 days in advance. The notice shall contain details of the date, time, venue, criteria for meeting attendance in compliance with the law and the company's articles of association and agenda of the meeting with an explanation and reason for each of the agenda items or each resolution sought in order to provide shareholders with the opportunity to study such information, thoroughly which will be posted on the Company's website and SET Portal system of the Stock Exchange of Thailand at least 30 days in advance and such documents are submitted to shareholders at least 21 days prior to the Meeting. In the event of emergency, the Company will notify the shareholders in advance in accordance with the time period specified by law, and will refrain from any act which will limit the opportunity of shareholders to study the Company's information.
- 3) Facilitating shareholders' participation and voting in the meeting. Any actions that could hinder shareholders from conveniently exercising their right to attend the meetings and participate in voting should be prohibited. For example, procedures to attend and vote should not be complicated or costly for shareholders, and the location of the meeting should be relatively accessible.
- 4) The chairman of the meeting will allocate proper time for the meeting and encourage shareholders

to express their opinions and ask questions relating to the Company. The Company will allow shareholders to send their questions to the Company prior to the meeting date. In this regard, the criteria for advance questions will be clearly determined and the shareholders will be notified of the same in the notice of the shareholders meeting. Also, the Company will publish the criteria for submitting the questions on the Company's website.

- 5) Encouraging shareholders who cannot attend the meeting by themselves by allowing the shareholders to appoint any person or permit at least 1 independent director to attend the meeting, using proxy forms which allow shareholders to control the outcome of their votes and notify the name of such independent director in the notice of meeting.
- 6) Encouraging the use of technology in the shareholder meetings to register, count and validate votes, and depict the result of the vote for fast, accurate and prompt meetings.
- 7) Encouraging all directors, top managements and auditors of the Company to attend the shareholder meetings and answer the shareholders' questions.
- 8) In the meetings, the shareholders shall separately vote for each matter in case a particular agenda having several matters to be considered, for example, the agenda of appointment of directors.
- 9) Encouraging the appointment of an independent party to count and validate votes at shareholder meetings. The result will be disclosed at the meeting and recorded in the minutes.
- 10) Encouraging the use of voting cards for important agenda items such as related party transactions, acquisitions or disposal of assets, for the sake of transparency and traceability in the case of subsequent objection.
- 11) Disclosed the voting results and resolutions for each agenda item at the Annual General Meeting of Shareholders to the public via SET Portal and the Company's website after the Meeting ended.
- 12) Preparing minutes of shareholder meetings which include: details regarding voting procedures and the method used to find out the result of such vote; the opportunity to record both questions and answers; voting results of each agenda; and a list of attendance. The minutes will be published on the Company's website within 14 days from the date of the meeting.

Category 2: Equitable treatment of shareholders

The Company has policies in place to treat all shareholders fairly and equally, regardless of their status, whether executive or non-executive shareholders, majority or minority shareholders, Thai or non-Thai shareholders. These policies are as follows:

- 1) The Company shall release its general meeting notice with detailed agenda and explanatory circulars which will be uploaded to the Company's website not less than 30 days in advance, both in Thai and English. In the event of emergency, the Company will notify the shareholders in advance in accordance with the time period specified by law prior to the date of the meeting.
- 2) The Company shall inform shareholders of meeting procedures and voting criteria, including the voting rights attached to each class of shares, if any.
- 3) The voting rights in the shareholder meetings shall be in accordance with a number of shares held by shareholders. One share will have one vote. In addition, the Company allows shareholders who attend the meeting after its commencement to vote for agendas which are under consideration and have not yet been voted upon, and the votes of such shareholders will be included in the quorum.
- 4) The Company will not table any agenda item for consideration other than those specified in the notice of meeting which have not been included in the notice to the general meeting, especially if it is an issue that will require careful consideration before deciding and the meeting shall be in accordance with the Company's Articles of Association.

- 5) The Company will allow a minority shareholder who holds shares representing at least 5% of the paid-up capital for not less than 12 months consecutively to propose in advance agenda items the annual shareholders' meeting and nominate a qualified person to serve as a director through a nomination and remuneration committee prior to the shareholder' meeting date. Supporting information, with respect to candidates' qualifications and consent, should be provided by the minority shareholders nominating the candidates by post to the Company Secretary.
- 6) The process used in the election of directors should allow shareholders to vote on individual nominees. This means that the shareholders will have the opportunity to truly select the directors of their choice and preference. The Company will enclose the details of the nominated directors enough for shareholder' consideration.
- 7) The Company ensures that every director and executive regularly submits to the board a report on their ownership of the Company's shares and this information should be disclosed in the firm's annual report.
- 8) The Company shall provide written procedures to prevent the act of using inside information. The Company shall establish these procedures and communicate them to everyone in the Company. Any person deemed to have inside information is prohibited to buy and sell Company shares within one month prior to the disclosure of the quarterly and annual financial statements, and within 24 hours after publishing or disclosing material information.
- 9) The Company shall require the directors to inform the Company of their conflicts of interest regarding each agenda item before considering such agenda item, and such conflicts should be recorded in the minutes. The Company shall require such board members to abstain from participating in board discussions on agenda items for which such director has expressed a conflict of interest.

Category 3: Role of stakeholders

The Company regards the role of shareholders as highly important and values the rights of all stakeholders by adhering to the following policies:

(1) Policy and treatment of employees

The Company recognises the importance of all employees, whose roles are to support the Company in achieving its goals. Therefore, it is the policy of the Company to treat all employees fairly in respect of opportunity, remuneration, appointment and transfer, while striving to develop their potential. To this end, the Company undertakes the following practices:

- 1) To treat employees with politeness and respect by taking into account each employee's individualism
- 2) To give employees fair remuneration and align with short-term and long-term corporate performance, the Company considers salary adjustment for the management and employees once a year as a factor of the Key Performance Indicator (KPIs). This includes current performance (short-term) and performance based on long-term strategies to lay the foundation for future business growth. Thanks to this evaluation, the remuneration of management and employees is in line with both short-term and long-term corporate performance. Furthermore, the Company defines variable bonus payment linked to yearly performance and employee performance to motivate them to achieve annual corporate goals. Moreover, the Company also set up provident funds for employees and recognise the importance of employee' welfare, such as health and accident insurance, financial contributions towards the funeral costs of employee's parents, and scholarships for the children of employees.
- 3) To protect the work environment by adhering to health and safety regulations

Numbers of accidents at work in 2018

	Unit	Number
Number of accidents resulting in working day lost	Person	0
Number of persons injured of work	Person	0
Number of day lost	Day	0
Number of death toll	Person	0

- 4) To give extensive and constant opportunities to employees to empower them to reach their full potential

In 2018, trained executives and employees are as follows:

	Total Training Hour	Average Training Hour (hrs./person/year)
Executives and Employees	1,107	11

- 5) To appoint, transfer, reward and penalise the employees fairly and in good faith
- 6) To acknowledge employees' professional views and suggestions
- 7) To strictly comply with relevant laws and regulations relating to labour and employment

(2) Policy and treatment of shareholders

- 1) To perform fiduciary duty and make any decision in accordance with professional principles, with due care and fairness to both majority and minority shareholders, for the ultimate benefit of shareholders
- 2) To continually and fully present reports on the Company's status, business performance, financial status and accounting, etc.
- 3) To inform all shareholders of any plans of the Company, whether these will have a positive or negative impact, while also providing supporting information and rationale
- 4) To prohibit the use, by themselves or any third parties, of Company' information which has not yet been disclosed to the public and to avoid doing anything which may cause a conflict of interest within the Company

(3) Policy and treatment of customers

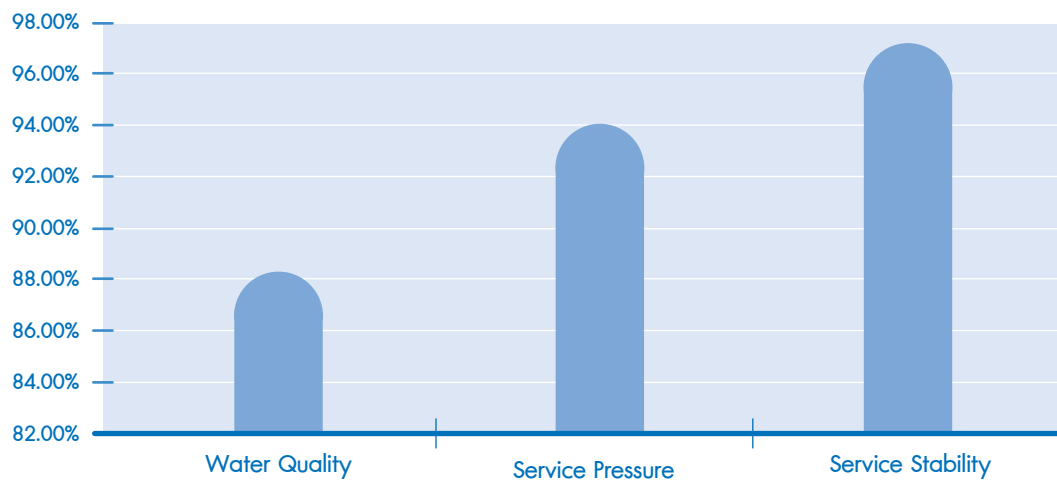
The Company recognises the importance of its customers and sets out the following policies:

- 1) To provide customers with recognised procedures relating to the production process, to focus on the consolidation and development of production technology and to regularly check the quality of products
- 2) To provide customers with recognised procedures in order to strictly and regularly comply with Company-customer regulations with good faith
- 3) To keep customer information confidential and to avoid using it for its own benefit or for the benefit of related persons
- 4) To ensure the safety of customers at all times; to commit to solving any problems which have been raised by the customers; and to take into account any customers' recommendations. The Company will, at least once a year, measure customer satisfaction relating to both products and services in order to make improvements

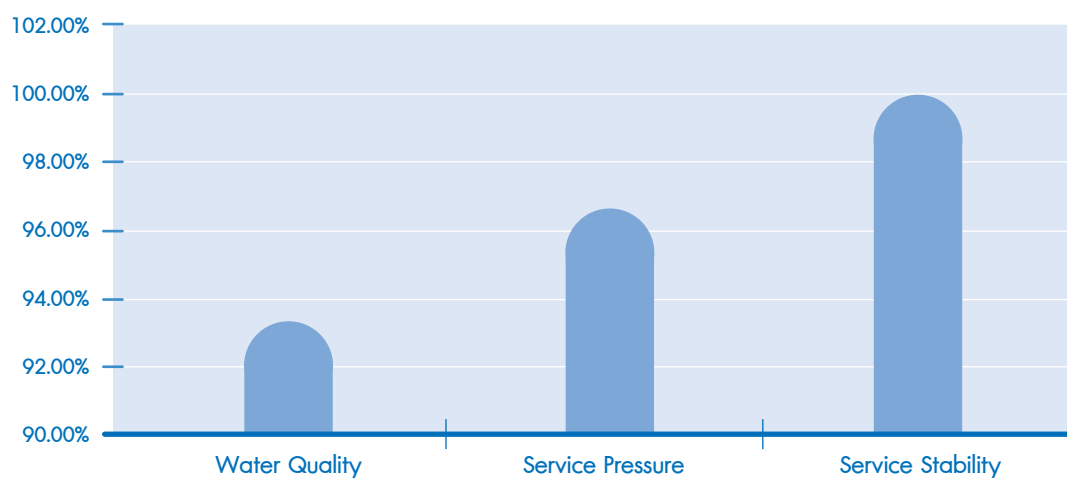
Customer Satisfaction

In 2018, the customer satisfaction relating to the Company's products and services rated "Good - Very Good"

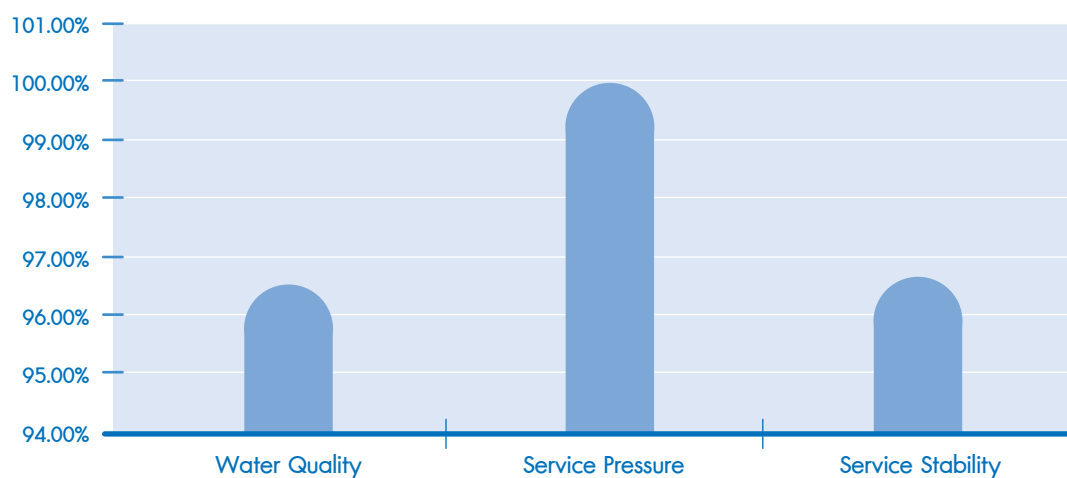
Process Water Satisfaction



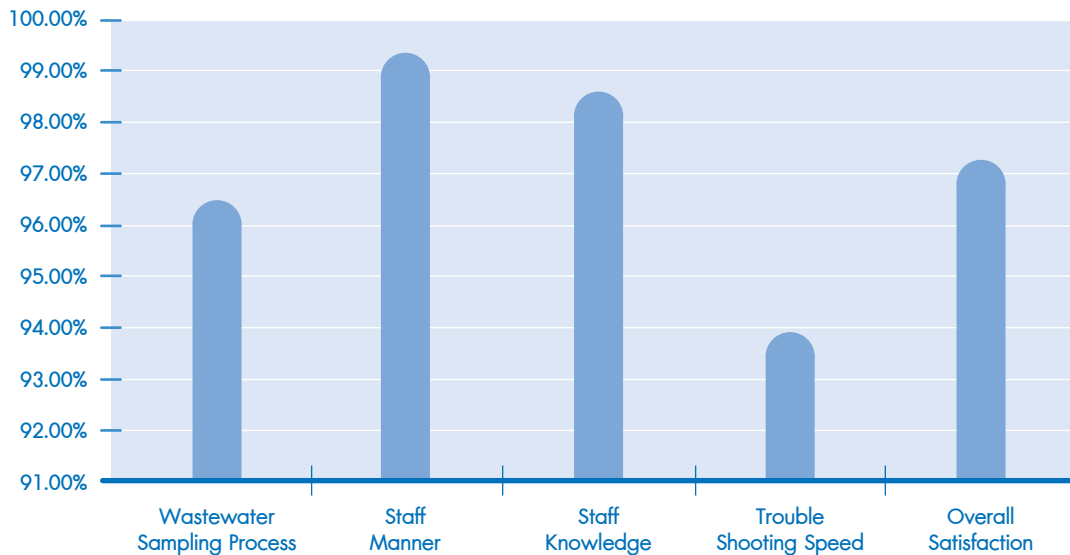
Clarify Water Satisfaction



Raw Water Satisfaction



Wastewater Treatment Satisfaction



(4) Policy and treatment of partners and/or creditors

The Company has a policy for its employees to fairly treat partners and/or creditors to avoid situations which may cause conflicts of interest. Negotiation for treatment will be conducted under the following practices:

- 1) Not to claim or receive or pay any benefits in bad faith to partners and/or creditors
- 2) In the case where there is any information that the claim, receipt or payment of any benefits was made in bad faith, details must be disclosed to partners and/or creditors and the problems should be solved fairly and promptly
- 3) To strictly comply with conditions as agreed upon. In case of non-compliance with any commitments, creditors shall be informed in advance in order to jointly come to a solution.
- 4) The Company shall treat creditors as important partners. The Company, therefore, aims to comply with all commitments under the contracts between the Company and its creditors, including not to disclose any information which may cause damage to the creditors. In case of non-compliance with any commitments under the agreements, the Company will inform the creditors in advance to seek a solution, which might include guarantee conditions, capital management and defaults.
- 5) The Company has a policy relating to the procurement to assort partners or contractors which will be categorised by group of distributor and contractor pursuant to the pre-determined criteria on grouping partners or contractors such as the reliable financial record, the manufacture or distribute products with required and verifiable quality and the support in promotional campaigns and provide after sales services. Such criteria shall be evaluated and considered for improvement at least once a year.
- 6) The Company has a policy to support local business by procuring things from contractors or distributors from qualified local companies.

(5) Policy and Treatment to Competitors

The Company has the policy to treat competitors without breaching the confidentiality or knowing the confidentiality of competitors with fraud and set the following policy:

- 1) To follow the rules on competition
- 2) Not to seek confidentiality of competitors by bad faith or inappropriate means.
- 3) Not to destroy competitors' reputation by malicious accusation.

(6) Policy and treatment of societies/communities

The Company has a policy on conducting business which benefits the economy, society and adheres to the principles of good citizenship. The Company fully complies with related laws and regulations and participates in activities which promote or enhance the quality of life of societies and communities in which the Company operates its business. There are also policies in place which support participation in various organisations in societies, communities and vicinities regarding education, safety and security, etc.

(7) Environment policy

The Company shall operate its water business in a sustainable and environmentally-friendly manner in compliance with environmental management standards such as ISO 14001. In addition, the Company has a policy to support various activities aimed towards quality improvements, health and safety, and the environment.

Environmental Awareness and Training

The Company recognizes the importance of environmental preservation. The majority of the problems that affect the environment are caused by Employees who do not understand how their actions can have negative effects on the environment. For Employees whose work causes environmental concern, either directly or indirectly, environmental awareness training has been provided. A summary of the training syllabus is below:

Training Course	Training Hour	Number of participants
1. Wastewater Treatment Plant Operator	12	2
2. Environmental Aspect Assessment; ISO 14001:2015	12	22
3. ISO 50001: 2018 Requirement and Interpretation	12	14
4. Internal audit of Energy Management System	6	10

(8) Government agencies policy

The Company has defined that transactions with the Government agencies ensures strict compliance with relevant laws and regulations despite varying conditions, procedures, or practices in each locality. In addition to refusing to engage in an act that could provide an incentive for officers in government agencies to commit an inappropriate or unlawful deed.

(9) Policy on Anti-Corruption

The company determines in honest, transparent and just business practice according to good corporate principle. We are intolerant to both direct and indirect corruptions in any forms. The Company determines directors, executives and employees to seriously comply with the Anti-Corruption Policy. Therefore, the Company defines practical guidelines on anti-corruption and the communication channels for complaint which the Policy has been informed to all stakeholders of the company via communication channels including the Company's website, in-house board announcement, employee orientation, etc. The Policy will be annually reviews and can be used as guidance.

Risk assessment and Monitoring

The Risk Management Committee assessed the potential corruption risks by conducting the corruption risks meetings separate from other risks including monitoring, reviewing and improving anti-corruption measures on a continued basis, with the assessment results being reported to the Board of Directors regularly, on a timely basis.

The Company has set whistleblowing and complaint process, protection of whistle-blowers and those being accused and penalty consideration, and clearly published such details in the Anti-Corruption Policy. In 2018, the Company received no significant complaint raised by both insiders and outsiders.

Whistle blowing

Employees or all stakeholders are able to report any suspicious or improper activity to the Company, that not is the anti-corruption matter including the infringements on human right through the company's website (Whistle Blowing).

Category 4: Disclosure and transparency

The board of directors has a policy to disclose accurate, complete and transparent material information regarding the Company, both in terms of financial reports and general information, in accordance with the rules of the SEC and the SET, as well as essential information that impacts the price of the Company's shares, which affects the decision-making process of investors and stakeholders of the Company as follows:

- 1) The Company shall disclose information to stakeholders through a mechanism which ensures that all information disclosed is accurate, will not cause any misunderstanding and is adequate for decision-making by the investors;
- 2) The board of directors shall disclose information regarding corporate governance, code of conduct, risk management policy, environmental policy and policy to societies as exclusively approved by the board, together with steps taken to implement such policies and the reason for each case of non-compliance through various channels, such as the annual report and the Company's website, etc.;
- 3) The board of directors shall present its responsibilities concerning the Company's financial reports alongside the auditor's report;
- 4) The board shall ensure that audit fee and fee for other services are disclosed;
- 5) The board shall ensure that its roles and responsibilities, together with those of its committees, the number of meetings held, the attendance record of each director, and the results of tasks assigned, including ongoing professional education or training of its directors, are disclosed in the annual report.
- 6) The board should disclose remuneration policies for directors and executives that correspond to the contributions and responsibilities of each person. Also, the board should disclose the forms and the amounts of payment to each person. If any director of the Company is also a director any of its subsidiaries, the amount paid by each subsidiary to each director should be disclosed as well.
- 7) Apart from the disclosure of information in accordance with the rules specified and through the channels of the SET, the annual registration statement (Form 56-1) and the annual report, the Company will disclose information, both in Thai and English, through other channels, such as the Company's website regularly, and present up-to-date information.
- 8) All directors and executives of the Company shall inform the Company of their interest, or the interest of a related person, with respect to the management of the business of the Company or its subsidiaries based on the rules, conditions, and procedures specified in the notification of the Capital Market Supervisory Board. Such interest must be resolved and reported to the Company within 30 days from the date on which such interest has been changed. The Company shall provide those issues in the board of director's meeting on a quarterly basis.

Category 5: Responsibilities of the board of directors

(1) Board structure

The board of directors of the Company comprises of at least five persons. One third of the board shall be independent directors and such independent directors consist of no fewer than three members in accordance with the rules of the SEC. The board should comprise of persons from various professions, including business, accounting and finance which relate to and support the Company's business. There are five other committees: the Executive committee, Audit committee, Nomination and Remuneration committee, Risk Management committee and Corporate Governance committee.

All of the Company's independent directors are independent of management and majority shareholders. Independent directors are eligible to serve as the director of a maximum of five listed companies.

The policy relating to the terms of directors shall be in accordance with the Company's articles of association, which state that in the annual ordinary meeting of shareholders of the Company, one third of the directors must annually retire from office. Those who have the longest term shall retire first. The term of a director is three years. A retiring director is eligible for re-appointment through a shareholders' meeting.

In addition, the Company shall ensure appointment of the Executive committee, Audit committee, Nomination and Remuneration committee and Risk Management committee and clearly provide the scope of authorities, duties and responsibilities of such committees in order to achieve a balance of power, as well as appoint the Company Secretary to perform the duties and coordinate compliance with the resolution of the board.

Independence of Directors

The board of directors of the Company comprises of eight directors consisting of three independent directors which is one-third of the total number of directors of the Company in accordance with the Notification of the Capital Market Supervisory Board No. Tor Chor. 39/2559 Re: Application for and Approval of Offer for Sale of Newly Issued Shares. However, the Chairman of the board of directors is not an independent director, according to the recommendation specified in the Principles of Good Corporate Governance of the SET, the number of independent directors should be more than half of the total directors.

The Company viewed that the board structure is transparent, sufficient and able to protect the shareholders' and the Company's benefit; since there are three independent directors, according to the office of SEC's requirement. Each of independent directors and audit committee is external persons having knowledge, capability and experience which benefit to the operation of the Company and no conflict of interest involves with the major shareholders. These independent directors attend and give opinion in the meetings regularly.

In addition, once the Company becomes a listed company on the SET, the Company shall comply with the notifications of the SEC, the Capital Market Supervisory Board, the SET's board, such as the notifications relating to connected transaction and the acquisition or disposition of assets. Under these notifications, any material transaction must be approved by the shareholders' meeting and the Company must inform shareholders the opinion of the audit committee. The audit committee is viewed as a representative of minority shareholders. Therefore, if the shareholders received the opinion of the audit committee, the shareholders will have sufficient information for their decision making.

The directors have duties to comply with the applicable laws, e.g. fiduciary duty according to the Securities and Exchange Act, the Public Company Act and the Company's policies including corporate governance policy, code of conduct which require directors and related persons to comply with applicable laws and policies for the utmost benefit of the shareholders of the Company.

(2) Roles, duties and responsibilities of the board of directors

The Board performs crucial roles in determining and reviewing the Company's vision, missions, business strategies, operations plans, and budget. It must adapt to a quickly evolving business environment. The Board must approve important aspects of the Company and Subsidiaries' operations at least once a year. The Board reviewed and approved the Company's vision, missions, and business strategies annually in order to allow the Board along with top executives jointly reviewed vision, missions, and short-term and long-term business strategies against business directions and future trends.

1) Corporate Governance policy

The Company intends to maintain high standards of corporate governance by complying with the corporate governance policy, which is subject to the Principles of Good Corporate Governance for listed companies 2012 proposed by the SET, and complying with the code of conduct which is approved by the board and communicated to everyone in the Company. The Company also set up the Standard Operating Procedures in order to control the operations and procedures of the Company. In addition, the board also approves and regularly considers having internal rules and regulations to continuously improve the Company's corporate governance.

2) Code of Conduct

The Company strongly believes that conducting business with ethical standards is essential for sustainable growth for the benefit of all stakeholders. In order to encourage and support good business ethics, the Company has set out relevant guidelines which have been approved by the board, and require the board, executive directors and employees to strictly comply with and communicate them to everyone in the Company through various channels, including via email, the intranet system and information board to encourage everyone to comply with the Company's code of conduct.

The code of conduct has been prepared pursuant to good faith, transparency and the corporate governance policy, as well as good ethical standards.

3) Conflict of interest

Any transaction between the Company and any connected persons which could turn into a conflict of interest shall be thoroughly considered by the Audit committee. If such transaction is considered to be material, it shall be approved by the board of directors and/or shareholders, depending on the type and size of the transaction, pursuant to the rules of the Capital Market Supervisory Board. Directors or executives of the Company who have such interests shall not participate in the decision-making process on such issues.

Such transactions shall be conducted under general conditions with the counterparty at fair price and on an arm's length basis without influence from a party which might have conflicting interests. In circumstances where the price cannot be determined, the Company shall refer to the report by the independent appraiser appointed by the Company in order to consider the appropriate price for both the Company and the connected person.

4) Internal controls and internal audit systems

The Company recognises the importance of an efficient internal control and internal audit system and therefore assigned the Audit committee the task of reviewing the Company's internal control system, and internal audit system which consists of the following five elements: control environment, risk assessment, control activity, information and communication, and monitoring and evaluation. This is in line with the guidelines set forth by the Committee of Sponsoring Organization of the Tread Way Commission. The Audit committee will report to the board of directors.

Internal audit

The Company set up an independent internal audit division, Dharmniti Auditing Co., Ltd. for the year 2018 which the internal audit manager shall control the internal audit system and directly report to the Audit committee. The internal audit manager has the key responsibility of reviewing and evaluating the efficiency of the Company's internal audit system in accordance with the annual evaluation form approved by the Audit committee. It must also regularly report to the Audit committee on a quarterly basis in order to improve the effectiveness of the Company's operations.

The appointment, removal and transfer of the internal audit manager shall be approved by the Audit committee.

5) Procedures on governing subsidiaries or associates

The Company shall authorise its directors or any other person with expertise relating to Company's business, to act as a director in subsidiaries or associates in order to control the management, as well as report to the board of directors on a quarterly basis.

The number of directors in subsidiaries and associates authorised by the Company shall be at least proportionate to the ownership of each company. Any essential policies and voting in essential agendas shall be approved by the chairman of the board.

(3) The board of directors' meeting and committee meeting

Board of directors

The Company shall hold the board of directors' meeting of not less than six times per year and its schedule and agenda shall be clearly set in advance. The Company may hold ad hoc meetings in order to consider any urgent matters.

For the Board of the Directors' Meeting, the document for the said Meeting shall be distributed to the Directors for acknowledgement and consideration in advance 7 working days before the said Meeting occurs. Top executives of the Company may attend board meetings to present material details and directly acknowledge policies. In addition, non-executive directors should be able to meet among themselves, without the management team, in order to discuss their concerns at least once a year.

In 2018, The Company managed a total of 8 Board Meetings, 5 Audit Committee Meetings, 10 Executive Committee Meetings, 2 Corporate Governance Committee Meetings, 2 Risk Management Committee Meetings, 4 Nomination and Remuneration Committee Meetings and one Non-Executive Directors meeting in the absence of the executives.

The Executive committee shall consider and set the board meeting agenda. Each member of the committee should be free to propose an issue for a meeting agenda and to express their opinions. Then, the Company Secretary shall prepare the agenda papers and the notice of the board meeting. Approval in the board of directors' meetings will be made by majority votes, and one director has one vote. Interested directors shall not attend the meeting or shall refrain from voting in such issues. The quorum requires not less than two-third of the total number to pass a resolution.

The Board of Directors set a policy that each director should attend the meeting not less than 75 percent of all board meetings in any whole financial reporting year. The number of meetings and attendance of each director and subcommittee is disclosed in the Annual disclosure (Form 56-1) and the Annual report of the Company as described in the topic "Management Structure".

Executive committee

The Company will have the Executive committee meeting regularly, at least four times per year on a quarterly basis, and the meeting will be scheduled and notified in advance.

The Executive committee's duties should not only include meeting attendance, but should also cover the exchange of opinions, recommendations, experiences and connections to enhance the Company's benefits.

Audit committee

The Company will have the Audit committee meeting regularly, prior to the board of directors' meeting, at least four times per year on a quarterly basis. The meeting will be scheduled and notified in advance.

Nomination and Remuneration committee

The Company will have the Nomination and Remuneration committee meeting regularly, at least two times per year, prior to the board of directors' meeting. The meeting will be scheduled and notified in advance.

Risk Management committee

The Company will have the Risk Management committee meeting regularly, at least two times per year, and prior to the board of directors' meeting. The meeting will be scheduled and notified in advance.

Corporate Governance committee

The Company will have the Corporate Governance committee meeting regularly, at least two times per year, and prior to the board of directors' meeting. The meeting will be scheduled and notified in advance.

(4) Evaluation of performance of board of directors

The Company provides for the annual self-evaluation of directors to jointly consider and summarise their performance in relation to their review of the board of directors' performance, problems and obstacles, and the offering of solutions to improve overall performance and effectiveness of the board of directors. The assessment is divided into three types, namely the performance assessment of the Board of Directors as a whole and the self-assessment and Sub-committee. The Company based its guidelines for evaluation of the board of directors on the guidelines of the SET. The result of the evaluation will play an important role in developing the efficient performance of duties of the board of directors.

For the Board's Performance Assessment Criteria, the Company's appraisal form covers additional significant criteria as follows:

1. Satisfaction regarding:
 - (1) Result of performance of the board of directors as a whole;
 - (2) Result of business operation of the Company; and
 - (3) Proceeding with solving problems by management.
2. Understanding on:
 - (1) Roles and duties;
 - (2) Company's business; and
 - (3) Company's strategy.
3. Good relationships between the board of directors and management
4. Efficiency of subsidiaries and committees
5. Sufficient and appropriate time allocation by the board of directors to consider the following issues:
 - (1) Policy and direction of the Company;
 - (2) Business performance of the Company; and
 - (3) Solution in case of non-achievement.
6. Preparation by the board of directors to attend the meeting
7. Independence of the board of directors in expressing opinions
8. Neutral opinion of the board of directors
9. Opportunity and support given by the chairman to every director to independently express his/her opinion
10. Opinion of the board of directors on investors' confidence in the board of directors
11. Acceptability among employees on corporate governance practice of the Company.

For the Board's Performance Assessment Process, the Company Secretary will provide directors with the evaluation form at the end of each year and will report the summary to the board of directors for further consideration and discussion annually.

The overall evaluation results for 2018 are shown, as follows:

Performance Evaluation of the Board of Directors	Average	Evaluation
Board of Directors	92.47	Excellent
Individual Directors	93.54	Excellent
Sub-committees	96.87	Excellent

CEO's Performance Assessment and Remuneration

The Company executed CEO's Performance Assessment each year. The Nomination and Remuneration Committee, in charge of the annual performance assessment of the CEO, must forward the assessment outcome to the Board for endorsement. The performance assessment for the CEO has several parts, e.g. Leadership, Strategy formulation, Strategy execution, Financial planning/Performance, Relationships with the Board, External Relations, Human Resources Management/Relations, Succession, Product/Service Knowledge, Personal Qualities.

The performance appraisal outcome, influencing the salary raise for the CEO, is presented to the Board for further approval. The Compensation Policy also links the CEO's performance to overall short-term performance, operating performance, and long-term strategic objectives. This practice laid a foundation for future business growth to a motivational-level and comparable to organizations within the same industry, under clear-cut and transparent rules.

(5) Remuneration for the Board of Directors and the Top Executives

The Company provides the policy on the remuneration for the board of directors and the top executives, which will be based on the duties, responsibilities and achievements connected to the Company's performance and related factors. The remuneration of the top executive will be considered and reviewed by the Nomination and Remuneration committee which shall be further reviewed and approved by the board of directors. The remuneration of the board of directors and the board of committees will be considered and reviewed by the Nomination and Remuneration committee which shall be further reviewed and approved by the board of directors before proposing for review and approval at the shareholders meeting.

(6) Development of directors and executives

1. The Company encourages training and knowledge sharing for all parties related to corporate governance, such as directors, members of the Audit committee, executives, the Company Secretary, etc. to promote continuous performance improvement. Training and knowledge sharing may be held internally by the Company or provided by external institutions.
2. New directors should be provided with all documents and information useful to perform their duties, including an introduction to the nature of the business and the operations of the Company.

Development Activities and Training Attended by Directors and Executive in 2018

No.	Name - Surname / Position	Training Course in year 2018
1	Miss Jareeporn Jarukornsakul Chairman of the Board of Directors	<ul style="list-style-type: none"> National Defence Course Class 60, National Defence College
2	Mr. David Richard Nardone Director	<ul style="list-style-type: none"> Singularity Thailand Summit 2018 Thailand - China Business Forum The New Digital Economy: Creating Thailand - US, Commercial Opportunity Thailand Regional Forum: Assessing Political Risk: Key factory for Investment Success
3	Mr. Vivat Jiratikarnsakul Director	<ul style="list-style-type: none"> Thailand-China Business Forum 2018: Strategic Partnership through the Belt and Road Initiative and the EEC Next Step Thailand: EEC Thai strategy connecting the world

No.	Name - Surname / Position	Training Course in year 2018
4	Mr. Wisate Chungwatana Director and Chief Executive Officer	<ul style="list-style-type: none"> • Seminar: Updated COSO Enterprise Risk Management: Integrating with Strategy and Performance • Seminar: WorldBank Group: Maximizing Financing for Development for Vietnam's energy sector • Singularity U Thailand Summit 2018 • Thai-French Smart City forum • SD Symposium 2018 • CEO Forum 2018: Circular Economy Development Value Chain • Forbes Business Forum 2018 • Vietnam Renewable Energy Conference Challenges and Practical Solutions • Thailand-China Business Forum 2018: Business Matching • Seminar: Disruptive Technology • Seminar: Energy Symposium 2018 • Seminar: Rooftop PV and Energy storage and Technology in Thailand • Hitachi Social Innovation Forum 2018 • Seminar: Smart Microgrid • Training: The Business Strategy Game (Day1) • EEC Journey (Siemens)

(7) Succession plan

The Company recognises the importance of a succession plan. The Company, therefore, prepared a succession plan to cover significant positions, and on an ongoing basis selects qualified persons to serve in such positions and arranges training for such candidates to serve such positions in the future, thus ensuring that the Company will have knowledgeable and capable executives to succeed in such positions in the future.

(8) Orientation of new directors

In performing its duties, the director must understand the nature of the business of the Company. Therefore, in case of a change of directorship, the Company will provide an orientation for a new director to understand the nature of, and guidelines on, the business operation as a whole and will share the material information and corporate governance guidelines necessary for the satisfactory performance of the director. The Company Secretary will coordinate for such orientation.

(9) Policy on restriction on number of companies and number of terms of director

The Company has a policy stipulating that its directors may serve as directors at no more than five other listed companies, without exception.

Moreover, the Company has a policy that requires that the Chief Executive Officer shall not be a director in other companies in the same or similar type of business except related companies, and/or subsidiaries, and/or associates, to ensure that the Company will have no conflict of interest.

Independent directors can serve as directors of the Company for a period of no more than 9 consecutive years except pursuant to the approval of shareholders.

(10) Risk management

The Company will assign a Risk Management committee to be in charge of setting up a working group comprising the Company executives to jointly discuss and regularly evaluate the risk in the organization for internal and external risks and set risk management measures. Working group will monitor the risks as identified with support from various divisions and report the result to Risk Management committee for acknowledgement. Risk Management committee will, subsequently, evaluate the efficiency in respect of risk management and report it to the Board of Directors at least once a year to identify the weakness and to adjust the policy with more efficiency.

SUB-COMMITTEE

The board of directors are organised into five committees, namely the Executive committee, Audit committee, Nomination and Remuneration committee, Risk Management committee and Corporate Governance committee to review and monitor the operations at the Company based on the specified scope of duties in order to enhance their efficiency. The composition, qualification, appointment, term of office, meeting and remuneration of each committee shall be in accordance with the qualifications listed in the respective Sub-Committee's Charters.

(1) Audit Committee

As of 31 December 2018, the Company has three members of the Audit Committee:

- | | |
|-------------------------------------|---------------------------------|
| 1. Mr. Weidt Nuchjalearn | Chairman of the Audit Committee |
| 2. Mr. Ekajai Tivutanond | Audit Committee member |
| 3. Mrs. Punnee Worawuthichongsathit | Audit Committee member |

Mr. Weidt Nuchjalearn and Mrs. Punnee Worawuthichongsathit are directors having sufficient knowledge and experience in accounting or finance to review the reliability of the financial statements, and Mrs. Rattana Shinawatra acts as secretary for the Audit Committee.

Duties and Responsibilities of the Audit Committee

- To ensure that the Company's financial statements are accurate and adequately disclosed;
- To ensure that the Company implements internal controls and internal audit systems that are appropriate and effective. In case of necessity, the Audit Committee shall hire specialists for suggestion assembled in consideration, the company is responsible for the costs incurred, including the overall performance evaluation and the independence of the internal audit unit, while giving consent regarding appointment, transfer, and termination of employment of the head of the internal audit or any other unit responsible for internal audit, and participate in the meeting with head of the internal audit or other unit responsible for internal audit without the Management at least 1 time per year;
- To ensure that the Company complies with the law governing securities and exchange, regulations of the SET, and the laws applicable to the Company's business;
- To consider selecting, nominating, and appointing an independent person to act as an auditor of the Company including to propose the remuneration and termination of such auditor, and attend meetings with the auditor without the management's presence at least once a year;
- To consider related party transactions or transactions with likely conflicts of interest and ensure that they are conducted in accordance with the law and regulations of the SET and ensure that such transactions are reasonable and in the best interest of the Company;

6. To prepare a report relating to the performance of the Audit committee disclosed in the Company's annual report. Such report must be signed by the chairman of the Audit committee and shall contain the following information:
 - The opinion on the accuracy, completeness, and reliability of the Company's financial reports
 - The opinion on the sufficiency of the internal control of the Company
 - The opinion on compliance with the SEC's laws and regulations of the SET, or other laws relating to the Company's business
 - The opinion on the appropriateness of the auditor
 - The opinion on the transactions that may give rise to conflicts of interest
 - The amount of Audit committee's meetings and the attendance list of each Audit committee
 - The overall opinion or remark that the Audit committee obtained from performing its duties according to the charter
 - Other transactions about which shareholders and general investors should be informed under the scope of duties and responsibilities assigned by the board of directors
 7. To perform any other acts assigned by the board of directors, with the consent of the Audit committee.
 8. In performing the Audit committee's duties, if a transaction or action which may materially affect the Company's financial status and performance is found or suspected to occur, the Audit committee shall report to the board of directors of the Company in order to remedy such affect within a period that the Audit committee deems appropriate. Such transaction or action is as follows:
 - (a) A transaction having a conflict of interest
 - (b) A fraud or irregularity or major defect on the internal control system
 - (c) Violation of the law governing securities and exchange, regulations of the SET, and the laws applicable to the Company's business
- If the board of directors or the executives do not remedy within the period set out in paragraph one, any of the Audit committee members may report that there are such transactions or actions under the first paragraph to the SEC or SET.
9. To get whistle blowing from employees regarding unappropriated transaction on financial statements including other corruption issues, there are an independent investigation process and an appropriate follow-up action
 10. To consider and propose to amend the scope of duty, authority and responsibility of the Audit committee as it deems appropriate.
 11. To consider the regulations and an annual performance review at least once a year.

The Audit Committee is responsible to the Board of Directors and the Board of Directors is still responsible the Company's operation to other persons.

The Committee's job is one of oversight. Management is responsible for the preparation of the Company's financial statements and the independent auditors are responsible for auditing these financial statements. The Committee and the Board recognize that management including the internal audit staff and the independent directors have more resources and time and more detailed knowledge and information regarding the Company's accounting, auditing, internal control and financial reporting practices than the Committee, the Committee's oversight role does not provide any expert or special assurance as to the financial statements and other financial information provided by the Company to its shareholders and others.

The Board of Directors is empowered to make amendment and change definitions and qualifications of the independent director as well as scope of duties and responsibilities of

the Audit Committee according to the regulations of the Security and Exchange Commission, the Stock Exchange of Thailand, The Capital Market Supervisory Board, and other related laws.

(2) Executive Committee

As of 31 December 2018, the Company has five members of the Executive Committee:

- | | |
|---------------------------------|-------------------------------------|
| 1. Miss Jareeporn Jarukornsakul | Chairman of the Executive Committee |
| 2. Mr. David Richard Nardone | Executive Committee member |
| 3. Mr. Vivat Jiratikarnsakul | Executive Committee member |
| 4. Mr. Wisate Chungwatana | Executive Committee member |
| 5. Mr. Paopitaya Smutrakalin | Executive Committee member |

Miss Nutchra Rattanajitbanjong acts as the secretary of the Executive Committee.

Duties and Responsibilities of the Executive Committee

- To consider and prepare policies, strategies, goals and business plans, financial targets and annual budget of the Company which are appropriately considered and should be proposed to the board of directors. If situations have changed, the Executive committee shall consider the approved budget appropriately.
- To consider, screen and monitor the Company's operation to comply with the policy, business strategy, goals, business plans, financial targets and budgets approved by the board of directors for efficiency and effectiveness, and to provide management with advice and recommendations about top executives.
- To determine the structure of the Company and management policy, and appointment and transfer of the executives of each business, and to consider and monitor the succession plans, manpower plans, remuneration plans and evaluation of performance of the directors.
- To study the possibility of investment in new projects. The Executive committee has the authority to consider and approve the investment or joint investment with natural persons, juristic persons, or any other business organizations to operate the Company's business as the Executive committee deems appropriate, as well as to consider and approve any payment for such investments, and to enter into any agreements and/or any processes relating to such matters pursuant to financial limits in the Company's Internal Power of Authority (IPOA) and/or related laws and regulations and/or the Company's articles of association.
- To monitor the performance and development of invested project in each business and to notify the board of directors of the results, including problems or obstacles and how to solve these issues.
- To consider and give recommendation or opinion to the board of directors relating to the proposed project or the entering into of any transactions in the Company's course of business as well as to consider alternative fundraising methods when it is necessary and in excess of the specified financial limit in the Company's Internal Power of Authority (IPOA). Related laws and regulations and the Company's articles of association require shareholders' meetings or board of directors' meetings to approve such issues.
- To consider and enter into any financial transactions with financial institutions for opening accounts, borrowing money, applying for credit, a pledge, mortgage and a guarantee, among others, including sale and purchase, and register any ownership on the site under the Company's objective for the operation of the Company, as well as to enter into any agreement, apply for, propose, contact with, or conduct any juristic act with the governmental authority in order to obtain any rights of the Company and/or proceed with any operation regarding such issues pursuant to the financial limit in the Company's Internal Power of Authority (IPOA) and/or related laws and regulations or the Company's articles of association.

8. To consider and approve rules, articles of association, management policy and any operation of the Company's business or any act binding the Company.
9. To appoint and/or assign the member of the Executive committee or one or more persons to act on behalf of and within the scope of authority of the Executive committee as the Executive committee deems appropriate. The Executive committee may cancel, revoke, or change such authority.
10. To have the duties and responsibilities which have been assigned, or are pursuant to the policy assigned by the board of directors.
11. To consider and approve the guidelines for appointed and/or authorised persons to acknowledge their scope of responsibility and authority and to use such guidelines as the operation handbook with referable evidence and under orderly procedures.

The Executive Committee is authorized by the Board of Directors to support the Board of Directors with respect to the policies and plans of the Company, including monitoring that management implements the Company's approved policies and strategic plans with responsibility, care and honesty, including in compliance with laws, objectives and articles of association of the Company, and the resolution of the Board of Directors and shareholders' meeting.

(3) Corporate Governance Committee

As of 31 December 2018, the Company has three members of the Corporate Governance Committee:

- | | |
|-------------------------------------|--|
| 1. Mrs. Punnee Worawuthichongsathit | Chairman of the Corporate Governance Committee |
| 2. Mr. Ekajai Tivutanond | Corporate Governance Committee member |
| 3. Mr. Vivat Jiratikarnsakul | Corporate Governance Committee member |

Miss Nutch Rattanajitbanjong acts as the secretary of the Corporate Governance Committee.

Duties and Responsibilities of the Corporate Governance Committee

1. To consider, review and revise the corporate governance policy in order to propose to the board of directors for approval. The policy will be made in writing and used as best practice.
2. To consider, review and revise the code of conduct. The code of conduct will be made in writing and used as best practice.
3. To consider, review and revise the policy on Corporate Social Responsibilities.
4. To consider, review and revise the Anti-Corruption Policy. Provide suggestions on performance review and assessment related to the Anti-Corruption Policy. The Anti-Corruption Policy will be in writing and used as best practice.
5. To monitor, review and improve the performance to be in accordance with the designated plan and to prepare summary reports for the board of directors.

(4) Risk Management Committee

As of 31 December 2018, the Company has three members of the Risk Management Committee:

- | | |
|---------------------------------|---|
| 1. Miss Jareeporn Jarukornsakul | Chairman of the Risk Management Committee |
| 2. Mr. David Richard Nardone | Risk Management Committee member |
| 3. Mr. Surathian Chakthranont | Risk Management Committee member |

Miss Nutch Rattanajitbanjong acts as the secretary of the Risk Management Committee.

Duties and Responsibilities of Risk Management Committee

1. To approve risk management policy, scope of risk management and acceptable risk level of the Company assigned by the board of directors.
2. To monitor and support the compliance of the risk management policy to be in line with strategy, operational targets, anti-corruption policy and altered situations.
3. To monitor the compliance of the risk management policy and the scope of risk management for an efficient risk management system and continuous compliance throughout the Company.

4. To consider the report from the risk management team to monitor the material risks at the organization level as well as to provide opinions on the risks which may have occurred and control measures, practices or risk management plans in order to ensure sufficient and appropriate risk management of the Company.
5. To report to the board of directors potential risks and risk management plans. If there are important factors which may materially affect the Company, they must be reported to the board of the Company, immediately.
6. To coordinate with the Audit committee relating to risk information and material internal controls for the Audit committee to consider and approve the internal audit plans to gain confidence that the Company has an appropriate internal control system to cope with the risks, and appropriately adopt the risk management system throughout the Company.
7. To support the culture of managing risk in the Company.
8. To perform any other duties related to risk management assigned by the board of directors.
9. To review, and provide an opinion and recommendation to, the management team to comply with the risk management of the Company and have an authority to request the documents and related persons to provide the information as well as is responsible to examine and evaluate the risks of corruption, continuously.
10. To effectively implement the anti-corruption policies. To regularly review, monitor, reconsider and improve the anti-corruption policies and provide an evaluation report to the board of directors.

(5) Nomination and Remuneration Committee

As of 31 December 2018, the Company has three members of the Nomination and Remuneration Committee:

- | | |
|---------------------------------|---|
| 1. Mr. Weidt Nuchjalearn | Chairman of the Nomination and Remuneration Committee |
| 2. Miss Jareeporn Jarukornsakul | Nomination and Remuneration Committee member |
| 3. Mr. Ekajai Tivutanond | Nomination and Remuneration Committee member |

Miss Nutchra Rattanajitbanjong acts as the secretary of the Nomination and Remuneration Committee.

Duties and Responsibilities of the Nomination and Remuneration Committee

1. To consider the structure, composition and qualification of the board of directors and other groups of committees of the Company.
2. To consider the rules and procedures for the nomination of directors. To nominate appropriate persons to serve as directors and propose to the board, for consideration by the shareholders meeting, in cases when directors retire by rotation, and propose to the board of directors in other cases. To give opportunity to the minority shareholders, with a sufficient period of time, to compile a list of persons to be nominated as directors prior to the shareholder' meeting.
3. To consider and suggest the list of Company directors to serve in the committees of the Company.
4. To consider screening appropriate persons to be a Chief Executive Officer if there is a vacant seat.
5. To approve the succession plan for the Chief Executive Officer and Top Management by constant review.
6. To assess the rules relating to the evaluation of the performance of the Chief Executive Officer and present the results to the Board of Directors for consideration.
7. To evaluate the performance of the Chief Executive Officer in order to consider the appropriateness or remuneration and present the results to the Board of Directors for consideration.
8. To access the rules on the remuneration for the Board of Directors, the Sub-committees, Chief Executive Officer and Top Management of the Company including attendance fees, annual bonus, welfare and other benefits and to present the results to the Board of Directors for consideration.
9. To consider the rule on the bonus for employees

THE NOMINATION OF THE BOARD OF DIRECTORS

(1) Independent Director

The Company has prescribed qualification of independent director which having higher qualification compare to the qualification according to such prescribed in regulation of SET and SEC which the Company's Independent Director's Definition as follows:

1. Neither being shareholder holding more than one per cent of shares of the Company, parent company, subsidiaries, associates, majority shareholders or controlling persons, including shares held by related persons of such independent director;
2. Neither being nor used to be an executive director, employee, staff, advisor who receives a salary, or controlling person of the Company, its parent company, subsidiaries, associates, same-level subsidiary company, major shareholder or controlling person, unless the foregoing status has ended not less than two years prior to the date of appointment. Such prohibited characteristic shall not include the case where the independent director used to be a government official or advisor of a government unit which is a major shareholder or controlling person of the Company;
3. Not being a person related by blood or legal registration as father, mother, spouse, sibling, and child, including spouse of child of other directors, executive, majority shareholder, controlling person, or person to be nominated as director executive or controlling person of the Company or its subsidiaries;
4. Neither having nor used to have a business relationship with the Company, parent company, subsidiaries, associates, majority shareholder or controlling person, in a manner which may interfere with his independent judgement, and neither being nor used to be a significant shareholder or controlling person of any person having a business relationship with the Company, parent company, subsidiaries, associates, majority shareholder or controlling person, unless the foregoing relationship has ended not less than two years prior to the date of filing an application with the Office;

The term business relationship shall include any normal business transaction, rental or lease of immovable property, transaction relating to assets or services or granting or receipt of financial assistance through receiving or extending loans, guarantee, providing assets as collateral, and 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 method of calculation of value of connected transactions under the Notification of the Capital Market Supervisory Board governing rules on connected transactions mutatis mutandis. The consideration of such indebtedness shall include indebtedness occurred during the period of one year prior to the date on which the business relationship with the person commences;

5. Neither being nor used to be an auditor of the Company, parent company, subsidiaries, associates, majority shareholder or controlling person, and not being a significant shareholder, controlling person, or partner of an audit firm which employs auditors of the applicant, its parent company, subsidiary company, associates, majority shareholder or controlling person, unless the foregoing relationship has ended not less than two years prior to the date of filing an application with the Office;
6. Neither being nor used to be a provider of any professional services including those as legal advisor or financial advisor who receives service fees exceeding two million baht per year from the Company, parent company, subsidiaries, associates, majority shareholder or controlling person, and not being a significant shareholder, controlling person or partner of the provider of professional services, unless the foregoing relationship has ended not less than two years prior to the date of filing an application with the Office;

7. Not being a director appointed as representative of directors of the Company, majority shareholders or shareholder who is related to majority shareholders;
8. Not undertaking any business in the same nature and in competition to the business of the Company or subsidiaries or not being a significant partner in a partnership or being an executive director, employee, staff, advisor who receives a salary or holding shares exceeding one per cent of the total
9. Not having any other characteristics which cause the inability to express independent opinions with regard to the Company's business operations;
10. Not being a director assigned by the board of directors to make a decision on the business operation of the Company, subsidiaries, associates, same-level subsidiary company, majority shareholders or controlling person; and
11. Not being a director of a subsidiary company or same-level subsidiary company of the listed company.

(2) Nomination of the Board of Directors

Nomination and Remuneration Committee is responsible for director nomination by considering of diversity on qualification, experiences, appropriateness, and skill as director. The appointment of new director shall be complied with Public Company Limited Act. The criteria of director nomination are follows:

1. The nominated director shall have knowledge, competency and experience of company business including professional and specific skill, education, age and gender
2. The nominated director shall have leadership, vision, ethic, good attitude to company as well as time to devote themselves to company
3. The nominated director shall not be in Blacklist from any organization including the securities and exchange commission or have been sentenced to any crime.
4. In case of independent director, the nominated director shall be qualified with independent director qualification as determined by the Securities Exchange Commission. All of the Company's independent directors are independent of management and majority shareholders. Independent directors are eligible to serve as the director of a maximum of five listed companies.
5. The Company's directors must have any other qualifications based on Board's structure and component and company's direction through transparent nomination process to build trust with shareholders.

After nomination process, the Nomination and Remuneration Committee shall propose the nominated director to Board Meeting for appointment as required by law. In case of the appointment shall be approved by shareholder meeting. The Board shall be proposed to shareholder meeting for approval pursuant to the following rules:

- (1) One share will have one vote.
- (2) Each shareholder may vote all of his rights under clause (1) to appoint one director or more to serve as the Company's director. If the shareholders vote to appoint more than one director, such shareholders' voting rights shall be equal for all candidates.
- (3) The candidate with the most electoral votes shall be appointed as a director to fill the vacant seat. If the voting results for the following vacant seat are equal, the chairman of the meeting shall have a casting vote.

GOVERNANCE OF OPERATION OF SUBSIDIARIES AND ASSOCIATES

Policy relating to an investment in subsidiaries and associates

The Company has a policy to invest in the public utility business, power services business, alternative energy business and related businesses

Policy relating to the governance of operation and management of subsidiaries and associates

1. The Company will nominate a specified number of Company representatives to serve as directors of the subsidiaries and associates reflecting the shareholding proportion of the Company in the respective subsidiaries and associates. Such nomination of directors shall be considered and approved by the board of directors' meeting.
2. The scope of duties and responsibilities of the directors of subsidiaries and associates are as follows:
 - (1) To perform their duties in compliance with laws, objectives and the Company's articles of association, as well as the resolution of the board of directors and the resolution of shareholders' meeting with duty of loyalty, duty of care, accountability and ethics.
 - (2) To follow up and provide necessary opinion for the operation of subsidiaries and associates to be in accordance with the agreements and related rules and regulations.
 - (3) To continuously monitor the operations of subsidiaries and associates, as well as providing necessary recommendations to ensure that the operations of subsidiaries and associates are in accordance with the specified target. Such directors are able to promptly and appropriately deal with any obstacles which may occur.
 - (4) To consider, monitor and provide any necessary recommendations for subsidiaries and associates to have internal control systems and/or working systems for efficiency and effectiveness of business operation.
 - (5) Where necessary to review and improve the policies and business plans relating to the business operation of subsidiaries and associates in order to remain up-to-date and appropriate.
 - (6) The boards of directors of the subsidiaries and associates may assign one or more director or any other persons to act on behalf of such boards of directors. Such authorisation shall not constitute authorisation or sub-authorisation in a manner which causes the directors, or the person with the authority to approve a transaction in which they have a conflict, interest, or a conflict of interest in any other manner, to be made with the Company and/or subsidiaries and/or associates.
3. The Company shall set up necessary plans to ensure that the subsidiaries and associates shall disclose information relating to the operation and financial status, including information which is required to be disclosed to related authorities and governmental authorities, external investors and the public, and which is accurate, full and reliable.
4. When it becomes necessary for subsidiaries or associates to enter into any related party transactions or transactions which may have a conflict of interest, the Company shall monitor and ensure that subsidiaries and associates fairly and transparently enter into such transactions. The Company shall strictly comply with the rules regarding related transactions and acquisitions or disposal of assets which are regulated by related regulators.
5. The Company shall monitor and proceed with necessary actions, to ensure that subsidiaries and associates have the sufficient and appropriate system relating to the disclosure of information and the sufficient and appropriate internal control system to operate the business. ☐ 6. The Company has prescribed the guidelines requiring that nomination of persons to be directors of the subsidiaries and associates, and the exercise of voting rights at shareholders' meetings, require the approval of the board of directors, except in the following cases:
 - (1) Agenda items to be adopted by the shareholders' meeting in accordance with the joint venture agreement to which the Company is a party.
 - (2) Following regular agendas in the annual general meetings where the executive committee may consider casting the vote:
 - To certify the minutes of the previous shareholders' meeting
 - To consider and approve the report of the board of directors and performance of the past year

- To consider and approve the annual financial statement
- To consider and approve the allocation of net profits for the legal reserve fund and dividend payment
- To appoint new directors to replace the directors who are due to retire by rotation and to consider director's' remuneration
- To appoint the auditor for the year

CONTROL OF INTERNAL INFORMATION

The Company has implemented policy and procedures to ensure the directors and executives do not use any non-public information for personal gain, including without limitation, insider trading. The policies are:

1. The Company shall advise its directors, executives and persons holding accounting manager or financing manager positions, or similar positions on the duty to prepare and submit the report on the holding of securities of such directors, executives, their spouses or cohabiting couple and minor children to the Office of the SEC under Section 59 and penalty under Section 275 of the Securities and Exchange Act B.E. 2535, as amended.
2. The Company shall require its directors, executives, or persons holding accounting manager or financing manager positions or similar positions to prepare and submit such report on the holding of securities of such directors, executives, their spouses or cohabiting couple and minor children through the Company Secretary prior to filing with the Office of the SEC. The report shall be prepared and filed within 30 days from the appointment date of directors and executives or within three business days from the date on which securities are purchased, sold, transferred or received.

Moreover, the Board is also responsible for monitoring the use of inside information. To this end, Directors must inform Board meetings their shareholding information, including that for the high-level executives, at the Board meeting on a quarterly basis. The shareholding information of the Directors and high-level executives at the end of previous and present year can be found in the Shareholding Report as described in the topic "Management Structure".

3. The Company shall require its directors, executives, including persons holding accounting manager or financing manager positions, or similar positions, and any related employees who have knowledge of material inside information which can potentially affect securities price to refrain from sale and purchase of securities of the Company during the period prior to the disclosure of financial statements or financial status of the Company until such information has been disclosed to the public, during the Blackout Period. Blackout Period means the period of one month prior to, and on the date which, the financial report of the Company has been disclosed annually and on a quarterly basis. The Company will advise in writing its directors and executives, including persons holding accounting manager or financing manager positions, or similar positions, to refrain from sale and purchase of securities of the Company. Such advice shall be sent at least 30 days in advance prior to the disclosure of information to the public and shall wait for at least 24 hours after the disclosure of information to the public. The disclosure of material information to other persons is also prohibited.
4. Disciplinary action will apply in case of breach of duty on the use of internal information for personal benefits. This may be done by issuance of warning letter, deduction of wage, temporary suspension of work without payment, or termination of employment, taking into account the intention and seriousness of such violation.

REMUNERATION OF THE AUDITOR

For the fiscal year ended 31 December 2018, the Company and its subsidiaries paid Pricewaterhouse Coopers ABAS Ltd. (PwC) for the audit of the consolidated financial statements in the amount of THB 2,660,000. The Company also paid the other out-of-pocket expense as relevant to the audit in the amount of THB 130,870 and there were no the Non-Audit fee in 2018. The person or business related to the auditor and the audit office is not a person or business related to the Company.

IMPLEMENTATION OF CORPORATE GOVERNANCE CODE FOR LISTED COMPANIES 2017 AND GOOD CORPORATE GOVERNANCE GUIDELINES IN OTHER ASPECTS

The Board of Directors formulated the CG Policy in written form in 2016, and the most updated version was issued in 2018. All Directors, executives and employees are responsible for acknowledging and abiding by this policy. The Company disseminated this policy, principles and guidelines via the Company's website at www.wha-up.com, which allows the interested public to study and download the information. In 2017, The Company regularly studied and reviewed rules, notices and guidelines on good corporate governance.

Moreover, the Board of Directors considered applying the practice guidelines outlined in Corporate Governance Code for Listed Companies 2017 (the CG Code) developed by the Securities and Exchange Commission (SEC) into the Company business operations. As the governing board of the Company, all the directors considered the Code thoroughly and understood the benefits and importance of adopting the CG Code with the details are as follows:

- The Board must perform their duties independently with full commitment, responsibility, and independence. There is a clear division of responsibilities between the Chairman and the CEO.
- The Board put in place its Charter of the Board of Directors and Charter of the Sub-committees specifying rights and duties.
- The Board must establish a code of conduct for itself, the management, employees, and all contract employees to observe in addition to the Company's regulations.
- For fair treatment, the Board must arrange for the Company's shareholders to access information through proper communication channels with the Company.
- The Board must establish an efficient anti-corruption system to ensure that the management is aware of actions on anti-corruption, as well as complying with anti-corruption measures.
- The Board offers opportunities for the public to file complaints about improper behavior of directors, the management, and staff or their violation of the Company's code of conduct. The Company treats all complaints on the basis of equality, transparency, attention, and fairness to all concerned. An appropriate timeframe to consider the complaints is set, and secrecy and protection of whistleblowers will be observed. No significant complaint on ethics was filed this year.

In 2018, the Company was rated on corporate governance practice as follows:

- Rated "Very Good" according to Corporate Governance Report of Thai Listed Companies 2018 carried out by the Thai Institute of Directors (IOD).
- Rated 100 points according to the evaluation of the quality of annual general meeting of shareholders (AGM checklist) of listed companies carried out by the Thai Investors Association.

For issues that have yet been covered or implemented, the Management is to report to the Governance and Nomination Committee for review on an annual basis.

Corporate Social Responsibility (CSR)

The Company conducts its business in accordance with the principles of corporate governance: with transparency and accountability. It aims to concurrently improve its business and maintain a balance of economic, social and environmental awareness. One of the Company's pledges is to be a good corporate citizen, which operates sustainably, grows steadily and gains public recognition based on its code of ethics and corporate governance. The Company also strives for healthy returns to shareholders; however, any effects of its operations may have on all stakeholders are always taken into account.

Taking the view that social responsibility is important, the Company has established a CSR policy consisting of the following components:

1. FAIR CONDUCT

Guidelines to treat all stakeholders with responsibility are provided in the Company's code of conduct. Stakeholders include shareholders, employees, customers, trading partners, creditors, competitors, as well as local communities, wider society, the environment and government agencies. The Company's code of conduct also embraces the principles of free competition, the prevention of conflicts of interest and infringements of intellectual property rights, and anti-corruption. Key policies can be summarized as follows:

(1) Corporate governance

The Company aims to operate fairly, honestly and transparently, and with public accountability, as well as disclose material information. It always considers both the benefits and effects that may be experienced by shareholders, customers, trading partners, employees and all stakeholders. The Company considers the right and fair sharing of profit to be crucial.

(2) Corporate social responsibility (CSR)

The Company pursues the CSR policy under the code of ethics to ensure fairness toward all stakeholders. The principles of corporate governance also serve as guidelines for the Company to maintain a balance between its performance and its economic, community, social and environmental awareness, which will lead to the success and sustainability of its business.

(3) Compliance policy

The Company recognizes the significance of compliance with applicable laws, rules and regulations, including the code of conduct in accordance with international standards. All of its directors, executives and employees must comply with applicable laws, rules and regulations and avoid being involved in, supporting or otherwise dealing with a breach of law and related regulations.

(4) Responsible use of resources

All of the Company's directors, executives and employees are encouraged to appropriately, efficiently and sustainably use resources for the utmost benefit. The Company always communicates with all employees and stakeholders to promote and educate about the responsible use of resources for the benefit of the organization, to ensure awareness of resource management is inherent in the Company.

The Company has intention to participate in the Collective Action Coalition of private sector in Thailand against corruption of the Thai Institute of Directors. Now the Company is studying purposes and goals of attending such program.

2. RESPECT FOR HUMAN RIGHTS

The Company recognizes the importance of respect for human rights, and emphasizes the equitable treatment of those within and outside of the Company. Direct or indirect infringements of an individual's rights or freedoms are prohibited. Respect for and protection of human rights are promoted in combination with measures that have been established in order to prevent the Company's business from involving the infringement of human rights, e.g. forced labour and child labour. It also stresses the fair and respectful treatment of all stakeholders on the basis of human dignity. Discrimination by origin of birth, race, gender, age, complexion, religion, physical appearance, social status or class, and genealogical history is strongly opposed. Internally, the Company promotes a mechanism for the monitoring of all employees' compliance with its rules on human rights. Externally, it encourages all joint venture parties, trading partners and stakeholders to follow the principles of preserving human rights in accordance with international standards. For any stakeholders who suffer an infringement of human rights resulting from the Company's operations, the Company offers compensation worth not lower than the rate imposed by law.

3. FAIR LABOUR PRACTICES

The employees' right to enjoy a working life in a good and respectful environment is highlighted on the Company's agenda. Employees at all levels are encouraged to treat their colleagues with respect. Taking advantage of other colleagues is ardently discouraged. In relation to labour practices, the Company has a comprehensive policy of human resources management involving recruitment, HR development and training, fair remuneration and welfare benefits. All employees are offered opportunities for career prospects, with training courses provided to employees at all levels with a view to improving their professional skills. Key policies of the Company can be summarized as follows:

(1) Remuneration and welfare benefits

The Company has a policy to provide fair remuneration, enhance job security and promote career paths for all employees. It provides all necessary employee welfare benefits as required by law, such as social security benefits. Also offered are extra welfare benefits other than those required by law, such as health and accident insurance, financial contributions towards the funeral costs of employee's parents, and scholarships for the children of employees.

(2) Know-how improvement and training

The Company promotes HR development by encouraging all employees to improve upon their knowledge, and enhance their ability, potential, attitude, morals and ethics, and embrace the spirit of teamwork. Training workshops and seminars are organized from time to time to effect those improvements. Further, the Company supports corporate and human resources development, focusing on efficiently implementing operating procedures, clearly defining the scope of employees' roles and duties, determining appropriate rates of remuneration, improving the performance evaluation system and expanding employee's capacity.

(3) Occupational health and safety

Company policy stresses the importance of employee occupational health and safety in a good workplace. Great efforts have been made to implement precautionary measures to avoid work-related accidents with great efforts. Safety awareness is established among employees. Training sessions are held from time to time to promote and educate all employees about occupational health (e.g. any acts or things that are detrimental to the health or condition of customers or service users and should be avoided). All employees are encouraged to keep the workspace in a hygienic and safe condition at all times.

4. CONSUMER LIABILITY

The Company commits itself to dealing honestly with customers (in other words, they are consumers) by complying with any agreements made in accordance with applicable standards required by law. Quality control is emphasized in all steps of the production process. The Company recognizes that water quality and safety are a foundation of its operations. In addition, it stresses the importance of ensuring that skilled personnel are available, and the stringent measures of quality control in the production process, from the procurement of the raw materials until the manufactured end products.

5. ECO-FRIENDLY PRACTICE

Environmental protection is one of the Company's concerns. In managing its business in the past, the Company has always taken into account environmental effects which may result from any stage of its operating procedures. For instance, an initial environmental examination is always carried out before construction work is commenced. All necessary operating systems and regulations have been carefully designed and established to prevent potential harmful effects on the environment and local communities. ISO14001 international environmental management standards were adopted as a guideline for the Company's business. With the view that sustainable use of natural resources is crucial, the Company will reuse by-products or residue of the production process, adopt a treatment system to manage wastewater from its manufacturing activities and regularly evaluate the environmental management system.

6. PARTICIPATION IN SOCIAL DEVELOPMENTS

The Company strongly aims to contribute benefits to the country's economy and society and to be a good citizen that complies with all applicable laws and regulations. It also commits itself to improving and elevating the quality of life of locals in proximity to its premises as well as expanding its business at the same time, which constitutes a component of its code of conduct. The Company always operates according to environmental standards; for instance, in the production process, power and resources are efficiently used and preventive measures are taken to control and avoid pollutant products. Environmental management is performed according to well-established standards and is regularly monitored and evaluated for further development.

To foster a good relationship with local communities, the Company always supports local activities and campaigns, taking into account the suitability and benefits to the communities for of enhancing sustainable development.

7. GREEN INNOVATION

The Company recognizes the value and importance of non-renewable water resources, as well as the importance of environmental conservation and social responsibility. Therefore, water preservation is a policy imposed to underline the Company's strong commitment to efficiently using resources in its operations and manufacturing activities. The Company also emphasizes power saving practices by adopting innovation and efficient management systems, such as using solar and other alternative energy in its power generation business. It also employs a policy to share know-how and educate customers and other related government bodies about power saving practices.



8. INTELLECTUAL PROPERTY-RELATED PRACTICE

The Company has a policy of avoiding taking any action that infringes intellectual property rights, i.e. copyrights, patents, trademarks, trade secrets and other intellectual property, as defined by law. For instance, all software used by the Company is copyrighted and must be screened and installed by the IT team in order to prevent the use of pirated software.

CSR AND ENVIRONMENTAL ACTIVITIES

In 2018, the Company has continued its engagement in CSR activities in three major development areas: education, the environment, and youth capacity.



Kicks Off the New School Year In the 21st Year of Annual School Contribution Program

The Company marks the 21st year of its Annual School Contribution Program, by distributing general school materials such as backpacks, notebooks and stationery as well as sports and art supplies. This year, a total of 18,700 students in 69 schools around WHA Group's Industrial Estates in Rayong and Chonburi e.g. the Eastern Seaboard Industrial Estate (Rayong), WHA Eastern Seaboard Industrial Estate 1, 2 & 4, WHA Eastern Industrial Estate (Map Ta Phut), WHA Chonburi Industrial Estate 1 & 2 and WHA Rayong Industrial Land benefitted from this uplifting program to help schoolchildren in their overall development and to reach out to the neighboring communities. The team was led by Mr. David Richard Nardone, Director and Mr. Khamhoung Ratsamany, Vice President - Business Operation of WHA Utilities and Power PLC.



WHAUP and Chulalongkorn University Hold Wastewater Management Training for Laem Chabang

Asst. Prof. Chaiyaporn Puprasert and Asst. Prof. Sarun Tejasen from the Department of Environmental Engineering, Faculty of Engineering Chulalongkorn University, in collaboration with Mr. Varanon Laosuwan, Director - Utilities Project Development, WHA Utilities and Power PLC, a subsidiary of WHA Corporation PCL, explained the principles of wastewater management and treatment to laboratory and engineering staff from the Laem Chabang Municipal Office. This training session was part of WHA Group's Clean Water for Planet CSR project.



Holds Investors Club Seminar for “Solar Rooftop for Thai industry - Saving with Clean Energy”

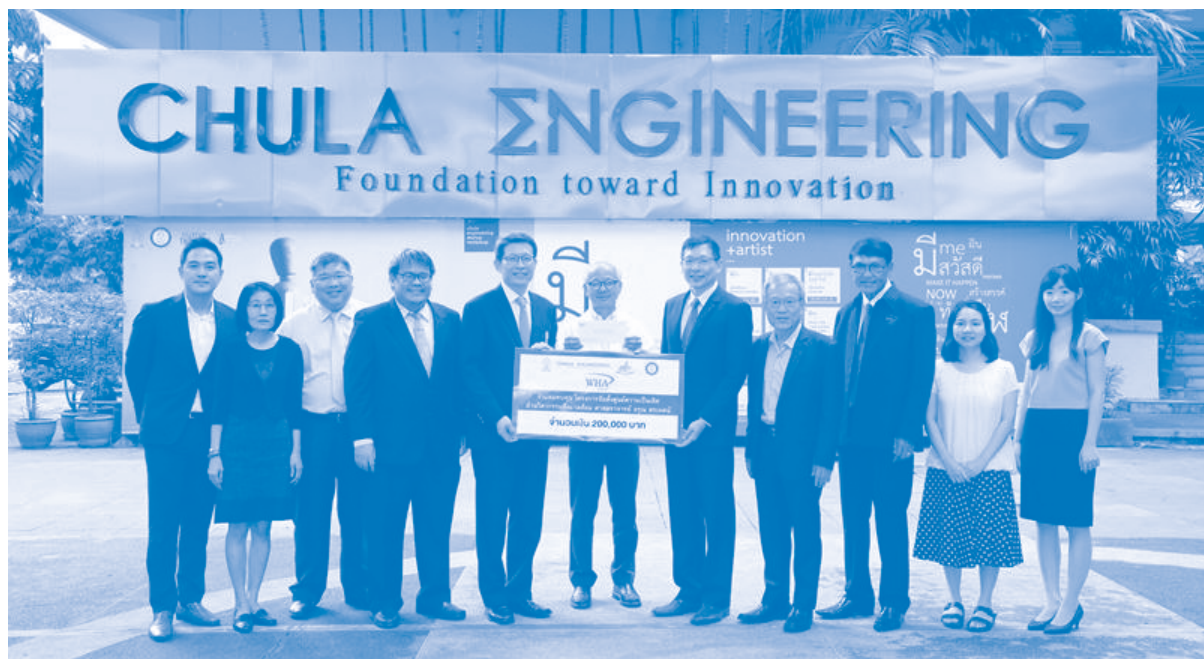
The Company recently held its Investors Club Seminar on the theme “Solar Rooftop for Thai Industry - Saving with Clean Energy” at the WHA Training Center, ESIE Plaza 1, Eastern Seaboard Industrial Estate (Rayong). Mr. Wisate Chungwatana, CEO, WHA Utilities and Power PLC, welcomed customers from WHA Group's industrial estates and explained the various benefits of solar energy for the industrial sector. Sharing his insights on fundamental designs for solar rooftop power generation systems was Mr. Nitad Jaisue, Deputy Managing Director, KPN Green Energy Solution.



Supports Chulalongkorn's Faculty of Engineering

The Company recently gave a donation of 200,000 Baht to Chulalongkorn University's Faculty of Engineering, for the establishment of the Professor Aroon Sorathesn Center of Excellence in Environmental Engineering. Designed to become a world-class facility equipped with advanced tools and innovative technology, the center will focus on environmental research and development to boost environmental sustainability in the country. The contribution is in line with WHA Group's CSR goals to ensure better lives for future generations.

Mr. Wisate Chungwatana, Chief Executive Officer, WHA Utilities and Power PLC., hands over the cheque to Assoc. Prof. Dr. Supot Teachavorasinskun, Dean of Chulalongkorn University's Faculty of Engineering, in the presence of Assoc. Prof. Dr. Khemarath Osathaphan, Head of Environment Engineering Department, Chulalongkorn University's Faculty of Engineering; and the Company's Executive.



Internal Control and Risk Management

Board's opinion on internal control

The Company sees the significance of good internal controls and corporate governance in the conduct of its business, i.e. implementing the operating system which is transparent, fair and reliable with checks and balances, which will lead ultimately to the benefit of shareholders, employees, trading partners, communities and other stakeholders. At the Board of Directors' meeting no.6/2558 of 19 November 2015, the Company's board appointed Audit Committee consisting of three members to review the adequacy of the Company's internal control system and to check and ensure compliance with applicable laws and regulations issued by the Office of the Securities and Exchange Commission (SEC) and the Stock Exchange of Thailand (SET), including all other applicable laws relating to the Company's business.

At the Board of Directors' meeting no.2/2019 of 22 February 2019 at which all members of the Audit Committee attended, the Board of Directors considered and prepared a questionnaire on the adequacy of the Company's internal control. The questionnaire was completed by management, in conjunction with reference information from an analysis report on the adequacy of the Company's internal controls prepared by Dharmniti Internal Audit Company Limited. The board took the view that the Company's internal control system is adequate and appropriate and reflects the questions set out in the SEC questionnaire on the adequacy of internal controls. The Board of Director's analysis of the Company's internal control included the following aspects:

1. Control environment
2. Risk assessment
3. Control activities
4. Information and communication
5. Monitoring activities

Head of internal control and head of compliance

The Company appointed Dharmniti Internal Audit Company Limited (Dharmniti) as the Company's internal auditor, and Dharmniti designated Mr. Saksri Ampawan to take charge of the Company's annual internal audit.

After reviewing the background of Dharmniti and Ms. Somcharee Kawkomdee, the Audit Committee found that Ms. Somcharee Kawkomdee is suitable for the designated function, considering his independence to make a judgment with more than 14 years' experience in internal audit and her understanding of the Company's activities and operations. Therefore, the Audit Committee viewed that he is qualified for this mission. An appointment, removal or transfer of the head of internal control requires an approval from the Audit Committee. Qualifications of the heads of internal control are set out as follows:

Head of internal audit - Dharmniti Internal Audit Company Limited

Subject	Internal auditor (external)
Internal auditor	Ms. Somcharee Kawkomdee (in charge of internal audit) Dharmniti Internal Audit Company Limited
Educational qualifications	Bachelor of Humanities and Social sciences, Major of Accounting, Burapha University
Work experience	More than 14 years' experience and works with Dharmniti Internal Audit Company Limited from 2006 until present.
Audit Committee's opinion on the internal auditor's experience	Ms. Somcharee Kawkomdee's knowledge and experience made her suitable to oversee the internal control for the Company.
Duties and responsibilities	<ul style="list-style-type: none"> - To examine various operating systems of the Company as the audit committee determines or thinks fit. - To advise the Audit Committee on an annual internal audit plan.

The Audit Committee Meeting No.7/2017 on 9 November, 2017 approved the internal control system audit plan for the year 2018, to consist of the expenses control, the procurement process, the good corporate governance assessment by the Standard of Corporate Governance report of Thai Listed Companies (CGR) and internal control as required by the Securities and Exchange Commission (SEC).

Details Relating to Directors of the Company and Subsidiaries

Company														
Miss Jareeporn Jarukornsakul	Mr. David RichardNardone	Mr. Vivat Jiratikarnsakul	Mr. Wisate Chungwatana	Mr. Surathian Chakthranont	Mr. Weidt Nuchjalearn	Mr. Ekajai Tivutanonda	Mrs. Punnee Worawuthichongsathit	Mr. Paopitaya Smutrakalin	Mr. KhamhoungRatsamany	Mr. Sakvithu Saedan	Mr. Varanon Laosuan	Mr. Punraphee Noparumpa	Mrs. Rattana Shinawatra	Mrs. Arpasinee Chanwangsa
	X	I	I, III	I	II, IV	II, IV	II, IV	III	III	III	III	III	III	III

[illegible]

[illegible]

Company	Miss Jareeporn Jarukornsakul	Mr. David Richard Nardone	Mr. Vivat Jiratikarnsakul	Mr. Wisate Chungwatana	Mr. Surathian Chakthranont	Mr. Weidt Nuchjalearn	Mr. Ekajai Tivutanonda	Mrs. Punnee Worawuthichongsahtit	Mr. Paopitaya Smutrakalin	Mr. Khamhoung Ratsamany	Mr. Sakvithu Saedan	Mr. Varanon Laosuan	Mr. Punrapee Noparumpa	Mrs. Rattana Shinawatra	Mrs. Arpasinee Chanwangsa
Gulf TS3 Co., Ltd.	Joint Venture Companies	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Gulf TS4 Co., Ltd.	Joint Venture Companies	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Gulf VTP Co., Ltd.	Joint Venture Companies	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Gulf NLL2 Co., Ltd.	Joint Venture Companies	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Note : X = Chairman of the Board of Directors / I = Director / II = Independent Director / III = Executive / IV = Audit Committee

Related Party Transactions

Persons with a possible conflict of interest; nature of relationship

The Company and its Subsidiaries have entered into transactions with persons who may have conflicts of interest, which can be summarized as follows:

Persons who may have conflicts	Nature of Business	Nature of Relationship
WHA Industrial Development Public Company Limited (formerly named Hemaraj Land and Development Public Company Limited)(“WHAID”)	<ul style="list-style-type: none"> Real estate business development and industrial estate management 	<ul style="list-style-type: none"> It is a major shareholder of the Company holding 70% of paid-up capital. (Both direct and indirect) There are 3 common directors: <ol style="list-style-type: none"> Ms.Jareeporn Jarukornsakul Mr. David Richard Nardone Mr.Vivat Jiratikarnsakul
Eastern Seaboard Industrial Estate (Rayong) Company Limited (“ESIE”)	<ul style="list-style-type: none"> Real estate business development and industrial estate management 	<ul style="list-style-type: none"> A subsidiary of WHAID, which is the Company's major shareholder holding 60% of the paid-up capital. (Both direct and indirect) There are 3 common directors: <ol style="list-style-type: none"> Ms.Jareeporn Jarukornsakul Mr.David Richard Nardone Mr.Vivat Jiratikarnsakul
WHA Eastern Industrial Estate Co., Ltd. (formerly named Eastern Industrial Estate Co., Ltd.) (“WHA EIE”)	<ul style="list-style-type: none"> Real estate business development and industrial estate management 	<ul style="list-style-type: none"> A subsidiary of WHAID, which is the Company's major shareholder holding 99.99 % of of paid-up capital. (Both direct and indirect)-
WHA Eastern Seaboard Industrial Estate Co., Ltd. (formerly named Hemaraj Eastern Seaboard Industrial Estate Co., Ltd.)(“WHA ESIE”)	<ul style="list-style-type: none"> Real estate business development and industrial estate management 	<ul style="list-style-type: none"> There are 3 common directors: <ol style="list-style-type: none"> Ms.Jareeporn Jarukornsakul Mr.David Richard Nardone Mr.Vivat Jiratikarnsakul
WHA Rayong Industrial Land Co., Ltd. (formerly named Hemaraj Rayong Industrial Land Co., Ltd.) (“WHA RIL”)	<ul style="list-style-type: none"> Real estate development and management of industrial zone projects 	

Persons who may have conflicts	Nature of Business	Nature of Relationship
WHA Saraburi Industrial Land Co., Ltd. (formerly named Hemaraj Saraburi Industrial Land Co., Ltd.) ("WHA SIL")	<ul style="list-style-type: none"> Real estate development and management of industrial zone projects 	
WHA Eastern Seaboard Industrial Estate 4 Co., Ltd. (formerly named Hemaraj Eastern Seaboard Industrial Estate 4 Co., Ltd.) ("WHA ESIE4")	<ul style="list-style-type: none"> Real estate business development and industrial estate management 	
WHA Industrial Development Engineering Co., Ltd. (formerly named H-Construction Management and Engineering Co., Ltd.) ("WHA IDE")	<ul style="list-style-type: none"> Design and construction services 	<ul style="list-style-type: none"> A subsidiary of WHAID, which is the Company's major shareholder, holding 99.99% of paid-up capital. (Both direct and indirect) - There are 2 common directors: 1) Ms. Jareeporn Jarukornsakul 2) Mr. David Richard Nardone
WHA Industrial Building Co., Ltd. (formerly named SME Factory Co., Ltd.) ("WHA IB")	<ul style="list-style-type: none"> Logistics business, selling and renting factory buildings, and finished warehouses 	<ul style="list-style-type: none"> A subsidiary of WHAID, which is the Company's major shareholder, holding 99.99% of paid-up capital. (Both direct and indirect)
WHA Corporation Public Company Limited ("WHA")	<ul style="list-style-type: none"> Logistics business, selling and renting factory buildings, warehouses and other properties 	<ul style="list-style-type: none"> A parent company of WHAID, which is the WHAID's major shareholder, holding 98.54% of paid-up capital. (Both direct and indirect)- There is a common directors: 1) Ms. Jareeporn Jarukornsakul
WHA Infonite Co., Ltd. ("WHA Infonite")	<ul style="list-style-type: none"> Digital services, data center, Internet connection and other IT services 	<ul style="list-style-type: none"> A subsidiary of WHA, which is the Company's major shareholder, holding 97.67% of paid-up capital. (Both direct and indirect)- There is a common directors: 1) Ms. Jareeporn Jarukornsakul

Transactions between the Company and its Subsidiaries with persons who may have conflict of interest

Transactions between 2017 and 2018 can be summarized as follows:

1) Water management services

Items	Size of Transaction (Million Baht)		Description	Opinion of the Audit Committee
	Financial year 31 December 2017	Financial year 31 December 2018		
Revenue from management fee			The Company has entered into an agreement to manage the water business by providing wastewater treatment services to ESIE and providing industrial water and wastewater treatment services to WHA IB (For water services in WHALP1). The agreement is valid for 3 years and effective from 30 March 2016 because the two companies do not have professional staff in water business as a result of business restructuring. The Company charged the average of direct expenses plus a margin of 8% which is comparable to the margins of the same service provider in the market.	The Audit Committee considered and opined that such transactions are necessary and reasonable, which is a normal business transactions on with general trading conditions and the management rate can be compared with other companies providing the same services.
• ESIE	3.30	3.46		
• WHA IB	0.50	0.52		
Accrued income				
• ESIE	0.28	0.29		
• WHA IB	0.04	0.04		

2) Rental services

Items	Size of Transaction (Million Baht)		Description	Opinion of the Audit Committee
	Financial year 31 December 2017	Financial year 31 December 2018		
Revenue from Rental fee			The Company has entered into an Solar Rooftop Equipment and maintenance services to WHA. The agreement is valid for 15 years.	The Audit Committee considered and opined that such transactions are necessary and reasonable, which is a normal business transactions on with general trading conditions and the management rate can be compared with other companies providing the same services.
• WHA	-	2.84		
Accrued income				
• WHA	-	0.70		

3) Raw water procurement

3.1 Raw water procurement in ESIE

Items	Size of Transaction (Million Baht)		Description	Opinion of the Audit Committee
	Financial year 31 December 2017	Financial year 31 December 2018		
Raw water cost			<ul style="list-style-type: none"> In 2008, the Company entered into a contract to purchase raw water from ESIE under a lease agreement for the production and distribution of industrial water. The contract period is 25 years. The Company agreed to purchase raw water at the rate of raw water cost defined by the lessor plus The cost of repairs and maintenance is the responsibility of the lessor. However, the Company is in the process of entering into a contract to purchase raw water directly from the East Water Development and Management Co., Ltd. ("EASTW") 	The Audit Committee considered and opined that such transaction is necessary and reasonable and beneficial to the Company's business. It is normal business transaction with general trading conditions Raw water is the main raw material to produce industrial water and both the Company and WHA ID Group will benefit from the supply of such raw water.
• ESIE	107.39	102.93		
Accounts payable and accrued expenses				
• ESIE	12.21	11.94		

3.2 Purchase of raw water in industrial estates and other industrial zones

Items	Size of Transaction (Million Baht)		Description	Opinion of the Audit Committee
	Financial year 31 December 2017	Financial year 31 December 2018		
Raw water cost			<ul style="list-style-type: none"> The Company entered into the raw water purchasing contract with WHA ID, WHA EIE WHA ESIE, WHA RIL, WHA SIL, WHA ESIE4 with the term for 50 years, in accordance with the terms of the Lease Agreement for the production and distribution of industrial water and the management of wastewater to supply raw water to customers in the industrial estates since the Company is in the process of entering into a direct contract with EASTW. The raw water price under this contract is equal to the raw water cost of the lessor plus the average of the difference between the cost of the lessor and the price the company has to pay if it buys raw water directly. The Company is responsible for the cost of repairs and maintenance of equipment and assets of the raw water system. 	<p>The Audit Committee considered and opined that such transaction is necessary and reasonable and beneficial to the Company's business. It is normal business transaction with general trading conditions. Raw water is the main raw material to produce industrial water and both the Company and WHA ID Group will benefit from the supply of such raw water.</p>
• WHA ID	32.76	43.30		
• WHA EIE	469.50	431.90		
• WHA ESIE	62.66	82.45		
• WHA RIL	32.72	34.12		
• WHA SIL	3.49	2.07		
• WHA ESIE4	0.19	1.42		
Accounts payable and accrued expenses				
• WHA ID	3.09	3.32		
• WHA EIE	40.85	39.18		
• WHA ESIE	7.69	7.02		
• WHA RIL	3.22	3.03		
• WHA SIL	0.29	-		
• WHA ESIE 4	-	0.23		

4) Lease of land for business purposes

Items	Size of Transaction (Million Baht)		Description	Opinion of the Audit Committee
	Financial year 31 December 2017	Financial year 31 December 2018		
Land rent			The Company and WHA Water Co., Ltd., a Company's subsidiary, have entered into a land rental agreement with WHA ID, WHA ESIE, WHA EIE and WHA ESIE 4 to use in the industrial water production business. The rental rate per rai per year is comparable with the market price to be increased by 10% every 5 years, rental to be paid monthly which is the rate that other industrial estates charge from general customers. Each rental agreement is 30 years old, with WHA ID WHA ESIE and WHA EIE commencing from March 30, 2016 to March 29, 2589. WHA ESIE 4 commenced from May 1, 2017 to April 30, 2047, and is renewable for another 20 years	The Audit Committee considered and opined that such transactions were necessary and reasonable for the operation of the business of the Company. The rental rate is the rate that other industrial estates charge to the general customers.
• WHA ID	2.40	3.13		
• WHA EIE	1.46	1.90		
• WHA ESIE	2.27	2.96		
• WHA ESIE4	1.10	2.08		
Accounts payable and accrued expenses				
• WHA ID	-	0.01		
• WHA EIE	-	0.01		
• WHA ESIE	-	0.01		
• WHA ESIE4	1.10	-		

5) Management expenses

Items	Size of Transaction (Million Baht)		Description	Opinion of the Audit Committee
	Financial year 31 December 2017	Financial year 31 December 2018		
Management expenses <ul style="list-style-type: none"> • WHA ID • WHA 	9.15	14.21	<ul style="list-style-type: none"> • The Company entered into the Management Contract with WHA ID to provide financial, information and other administrative services. The agreement is valid for 1 year from January 1, 2018 to December 31, 2018. The management fee is calculated based on the costs related with the business plus an 8% margin which can be compared to other companies' profit margins in the same business. • The Company entered into the Management Contract with WHA regarding the HR Business Partner and Internal Auditor to provide human resource advisory services and monitoring internal control systems. The agreement is valid for 1 year from January 1, 2018 to December 31, 2018. The management fee is calculated based on the costs related with the business plus an 8% margin which can be compared to other companies' profit margins in the same business. 	<p>The Audit Committee considered and opined that the transaction is necessary and reasonable. • The scope of services under the management agreement is consistent with the organizational structure and the new management policy of the Company. In addition, the management fee in such contract is a reasonable rate.</p>
Accounts payable and accrued expenses <ul style="list-style-type: none"> • WHA ID 	-	1.58		
	4.19	2.17		

Items	Size of Transaction (Million Baht)		Description	Opinion of the Audit Committee
	Financial year 31 December 2017	Financial year 31 December 2018		
Trade accounts payable <ul style="list-style-type: none"> WHA IDE 	7.36	0.71	<p>The Company contracted WHA IDE to manage and supervise the construction for each water system in each project because HCME has experience in engineering in industrial estates. The Company entered into such contract on January 1, 2017 and would expire on December 31, 2018. Currently, WHA IDE is in the process of supervising the construction of the water production and wastewater treatment systems in WHA ESIE4 industrial estate. The service tariff is calculated from the related costs plus the margin that can be comparable to those of the same business.</p>	<p>Such transactions are considered as necessary and beneficial to the Company since the Company has expanded its business and the industrial water system has to be installed for production and services. Therefore, it is necessary to hire experienced engineers to design and supervise the construction work. The Audit Committee considered and opined that such transaction is necessary and reasonable and is beneficial to the business operation.</p>

6) Renting the right to produce and distribute industrial water with ESIE

Items	Size of Transaction (Million Baht)		Description	Opinion of the Audit Committee
	Financial year 31 December 2017	Financial year 31 December 2018		
Royalties for production and distribution - Eliminations • ESIE	8.69	8.69	In 2008, the Company entered into agreements to lease the rights to produce and distribute industrial water with ESIE for a period of 25 years to provide industrial water services to the operators in the industrial estate and will gradually amortize until the end of the contract.	The Committee considered that this transaction occurred before the appointment of the Audit Committee. In addition, ESIE is a joint venture between WHA ID and other entities. The Audit Committee considered and opined that such transaction is necessary and reasonable and is beneficial to the business operation.

7) Renting the right to produce and distribute industrial water

Items	Size of Transaction (Million Baht)		Description	Opinion of the Audit Committee
	Financial year 31 December 2017	Financial year 31 December 2018		
Annual royalties <ul style="list-style-type: none"> • WHA ID • WHA EIE • WHA ESIE • WHA RIL • WHA SIL • WHA ESIE4 	0.81 3.91 1.21 0.73 1.39 -	1.00 3.48 1.61 0.98 1.46 0.33	<ul style="list-style-type: none"> • In 2008, the Company entered into a lease agreement with WHA ID, WHA EIE and WHA ESIE for a period of 25 years to provide industrial water services to industrial operators. Subsequently, on March 30, 2016, the three contracts were canceled and new contracts were entered into. • The annual royalties fee is an agreement under the lease agreement for the right to operate and distribute industrial water and waste water management. The Company entered into a contract with WHA ID Group with the annual royalties fee from the water business as follows: <ul style="list-style-type: none"> • Year 1-3: 1% per annum of revenue from water business in the project • Year 4 onwards: 3% per annum of revenue from water business in the project. The rate of the royalties' fee is comparable to other businesses in the market. 	<p>The Audit Committee considered and opined that such transaction is necessary and reasonable. The rate of the royalties' fee of the new contract is comparable to other businesses in the market. Such remuneration represents a percentage of revenue from the operation of the water business in the project is reasonable since the variation is in line with actual revenue and arising from business restructuring.</p>
Accounts payable and accrued expenses <ul style="list-style-type: none"> • WHA ID • WHA EIE • WHA ESIE • WHA RIL • WHA SIL • WHA ESIE4 	0.16 0.29 0.12 0.06 0.11 -	0.01 0.28 0.13 0.07 0.12 0.01		

Management Discussion and Analysis

WHAUP finished our 2018 with the record high Net Profit of Baht 2,251.9 million, a 13.7% increase from 2017 with Normalized Net Profit of Baht 2,267.8 million, a 61.2% increase from 2017.

1. RESULTS OF OPERATION

(Unit : Million Baht)

Consolidated Financial Statements	2018	2017	% Change
Revenue from Sales and Services	1,708.3	1,633.8	4.6%
- Operating Revenue ¹	1,679.7	1,570.2	7.0%
- Other Revenue ²	28.6	63.5	-55.0%
Costs of Sales and Services	(1,120.0)	(1,092.4)	2.5%
Gross Profit	588.3	541.4	8.7%
Gross Profit from Operation ³	559.7	477.9	17.1%
Other Income ⁴	162.7	134.4	21.1%
Administrative Expenses	(130.8)	(152.9)	-14.5%
Finance Costs	(366.6)	(459.9)	-20.3%
Share of Profit from Investments in Associates and Joint Ventures	2,047.4	1,936.1	5.7%
Income Tax (Expense) Income	(49.1)	(18.2)	170.4%
Profit attributable to Owners of the Parent	2,251.9	1,980.9	13.7%
Normalized Profit attributable to Owners of the Parent ⁵	2,267.8	1,406.6	61.2%

¹ Operating Revenue consists of Raw Water Sales, Industrial Water Sales, and Wastewater Treatment Services.

² Other Revenue consists of Excessive Charge, Service Fees for Wastewater Management, and Revenue from Solar Rooftop

³ Gross Profit from Operation excludes Other Revenue.

⁴ Other Incomes mainly consists of Interest Income from Loans to GHECO-One and Dividends Received from Investments in Glow IPP.

⁵ Normalized Profit attributable to Owners of the Parent excluded 1) Foreign Exchange Gain (Loss), and 2) One-Time (Gain) Loss items.

Revenue from Sales and Services

In 2018, Revenue from Sales and Services was Baht 1,708.3 million, a 4.6% increase from Baht 1,633.8 million in 2017 mainly due to increase of Operating Revenue 7.0% YoY. The increase of Operating Revenue was attributable to growth of industrial water's sales volume mainly from 5 SPPs operating their first full year after COD in 2017, existing and new IEs customers.

Gross Profit and Gross Profit from Operation

In 2018, Gross Profit was Baht 588.3 million, an 8.7% increase from Baht 541.4 million in 2017, while Gross Profit from Operation was Baht 559.7 million, a 17.1% increase from Baht 477.9 million in 2017. The increase of both items was from increase Operating Revenue and lower Cost of Sales and Services despite lowered Other Revenue.

Share of Profit from Investments in Associates and Joint Ventures

In 2018, Share of Profit from Investments in Associates and Joint Ventures was Baht 2,047.4 million, a 5.7% increase from Baht 1,936.1 million in 2017 with Foreign Exchange Gain of Baht 55.6 million in 2018 and Baht 574.3 million in 2017, respectively. However, these Foreign Exchange Gain mainly were Unrealized Foreign Exchange Gain which was an accounting item that has no effect on cash flow.

Profit attributable to Owners of the Parent

In 2018, Profit attributable to Owners of the Parent was Baht 2,251.9 million, a 13.7% increase from Baht 1,980.9 million in 2017. The increase was mainly from i) a 17.1% increase of Gross Profit from Operation, ii) a 21.1% increase of Other Income from higher dividend received from Glow IPP, iii) a 14.5% lower of Administrative Expenses from accounting adjusted of doubtful debt amounted of Baht 22.5 million in 1Q2018, iv) a 20.3% lower of Financial Costs due to refinance the existing bank loan of Baht 4,000 million in August 2017 and another Baht 4,000 million in June 2018 with issuance of Baht Bonds.

Normalized Profit attributable to Owners of the Parent

The Normalized Profit attributable to Owners of the Parent is Net Profit attributable to Owners of the Parent adjusted by Foreign Exchange Gain or Loss and One-time Gain or Loss, as the case maybe. In 2018, there were Foreign Exchange Gain and One-time Loss items of Baht 15.9 million. Whereby, in 2017 there were Foreign Exchange Gain of Baht 574.3 million. Therefore, the 2018 Normalized Profit attributable to Owners of the Parent was Baht 2,267.8 million, a 61.2% increase from 2017.

Significant Events in 2018:

- Gulf TS4, a installed capacities of 129.9 MW SPP, representing 32.5 Equity MW, is scheduled to achieve Commercial Operation Date in January 2018.
- WHA ESIE 4 water treatment plant achieved COD in January 2018 with capacity of 3,600 cubic meter per day and wastewater treatment plant 1,500 cubic meter per day.
- Reclaimed Water Project (RO) at WHA EIE achieved Commercial Operation Date in 3Q2018 with capacity of 7,500 cubic meter per day.
- Natural gas retail business, WHA Eastern Seaboard NGD 2 project, achieved Commercial Operation Date in December 2018 in WHA Eastern Seaboard Industrial Estate 2.

PERFORMANCE BY BUSINESS

Revenue from Sales and Services from Utilities Business was amounted of Baht 1,708.3 million in 2018, a 4.6% increase from 2017. The details have shown in the table below.

(Unit : Million Baht)

Revenue	2018	2017	% Change
Industrial Water Sales	1,252.6	1,155.2	8.4%
Raw Water Sales	268.9	262.9	2.3%
Wastewater Treatment Services	158.3	152.1	4.0%
Other Revenue ¹	28.6	63.5	-55.0%
Total Revenue from Sales and Services	1,708.3	1,633.8	4.6%

¹ Other Revenue consists of Excessive Charge, Service Fees for Wastewater Management, and Revenue from Solar Rooftop

The growth mainly came from:

Utilities Business

- i) The Utilities sales volume;
 - Industrial Water sales volume increase from 49.1 million cubic meters in 2017 to 52.6 million cubic meters in 2018, or increased by 7% mainly from 5 SPPs (Gulf VTP, Gulf TS1, Gulf TS2, Gulf TS3 and Gulf TS4) operating their first full year after COD in 2017 and increase in demand of existing and new IEs customers.
 - Raw Water sales volume slightly increase from at 16.5 million cubic meters in 2017 to 16.9 million cubic meters in 2018, or increased by 2%.
 - Wastewater sales volume and management increase from 34.1 million cubic meters in 2017 to 35.0 million cubic meters in 2018, or increased by 2% mainly from increase demand of industrial water and raw water.
- ii) Other Revenue, which mainly represented one-time Excessive Charge was Baht 28.6 million in 2018.

Our Gross Profit Margins excluding Other Income from Utilities Business was 33.8% improved from 30.6% in 2017, from increase sales volume and improved production cost which was partly from an innovative cost saving methodology of the recycled treated wastewater. Our first Reclaimed Water Project with capacity of 7,500 cubic meter per day in WHA Eastern Industrial Estate achieved Commercial Operation Date in 3Q'18.

Power Business

In 2018, our Share of Profit from Investment in Associates and Joint Ventures (“Share of Profit from Investments”) and Dividend Income totalled at Baht 2,122.4 million, a 6.4% increase from Baht 1,995.4 million in 2017 with Foreign Exchange Gain of Baht 55.3 million and Baht 574.3 million in 2018 and 2017, respectively. However, Normalized Share of Profit from Investments in Associates and Joint Ventures and Dividend, was Baht 2,138.3 million, a 50.5% increase from 2017.

The breakdown of the Company’s Share of Profit and Dividend Income by category of power plant are as follows:

(Unit: Million Baht)

By Category of Power Plant	2018	2017	% Change
Share of Profit from Investments in Associates and Joint Ventures and Dividend	2,122.4	1,995.4	6.4%
Normalized Share of Profit from Investments in Associates and Joint Ventures and Dividend ¹	2,138.3	1,421.0	50.5%
- IPP	1,503.3	1,165.8	29.0%
- SPP	647.3	227.3	184.8%
- Alternative Energy	4.6	6.0	-24.0%
- Power Plants under Constuction and Development	(16.9)	21.9	-177.1%

¹ Normalized Share of Profit from Investments in Associates and Joint Ventures and Dividend excluded 1) Foreign Exchange Gain (Loss) and 2) One-Time Gain (Loss) items

IPP

- For 2018, 3 IPPs generated Baht 1,503.3 million of Normalized Share of Profit and Dividend, a 29.0% increase from 2017 mainly from GHECO-One had higher Energy Payment Rate from higher power dispatch compared with the same period of last year which was the planned maintenance year.
- Dividend received from Glow IPP of Baht 75.0 million in 2018 versus Baht 59.3 million in 2017.

SPP

- For 2018, 7 SPPs generated Baht 647.3 million of Normalized Share of Profit, a 184.8% increase from 2017 mainly from 5SPPs (Gulf VTP, Gulf TS1, Gulf TS2, Gulf TS3 and Gulf TS4) operating their first full year after COD in 2017

Alternative Energy

- For 2018, Solar Rooftop Projects (3.9 Equity MW) generated Baht 4.6 million of Share of Profit to WHAUP.

WHAUP is a strategic co-developer of power business. We currently have total installed capacities of 521 equity MW under operation, and another 43 equity MW under construction. We partner with a number of key Thai and international power developers, namely the Glow Group, the Gulf Group, the B. Grimm Power Group, SUEZ and the Gunkul Group. WHAUP recognized Power Business performance in a form of (i) Share of Profit and (ii) Dividend Income. Share of Profit is a net profit in proportion of our equity stake (%). Such Share of Profit is net of all relevant costs in the Associates or Joint Ventures.

Projects under Construction

Utilities

- WHAUP Nghe An Vietnam Project is scheduled to achieve Commercial Operation Date in 3Q2019 with capacity of water treatment plant 12,000 cubic meter per day and wastewater treatment plant 9,600 cubic meter per day.

Power

- In 2018, Solar Rooftop had 11.2 MW signed which are under construction and scheduled to achieve Commercial Operation Date during 4Q2018 and 3Q2019.
- Gulf NLL2, a installed capacities of 126.9 MW SPP, representing 31.7 Equity MW, is scheduled to achieve Commercial Operation Date in January 2019.
- Chonburi Clean Energy, a installed capacities of 8.6 MW Waste to Energy Power Plant, representing 2.9 Equity MW, is scheduled to achieve Commercial Operation Date in 4Q2019.

Power plant	Type of power	Category of producer	Equity holding (%)	Installed Capacity (MW)	Equity Capacity (MW)	Commercial Operation Date
Solar Roofop	Solar	VSPP	100	11.2	11.2	4Q2018 - 3Q2019
Gulf NLL2	Gas-fired Cogeneration	SPP	25.01	126.9	31.7	Jan 2019
CCE	Waste to Energy	VSPP	33.33	8.6	2.9	4Q2019
Total				146.7	45.8	

OVERALL PERFORMANCE

Operating Expense

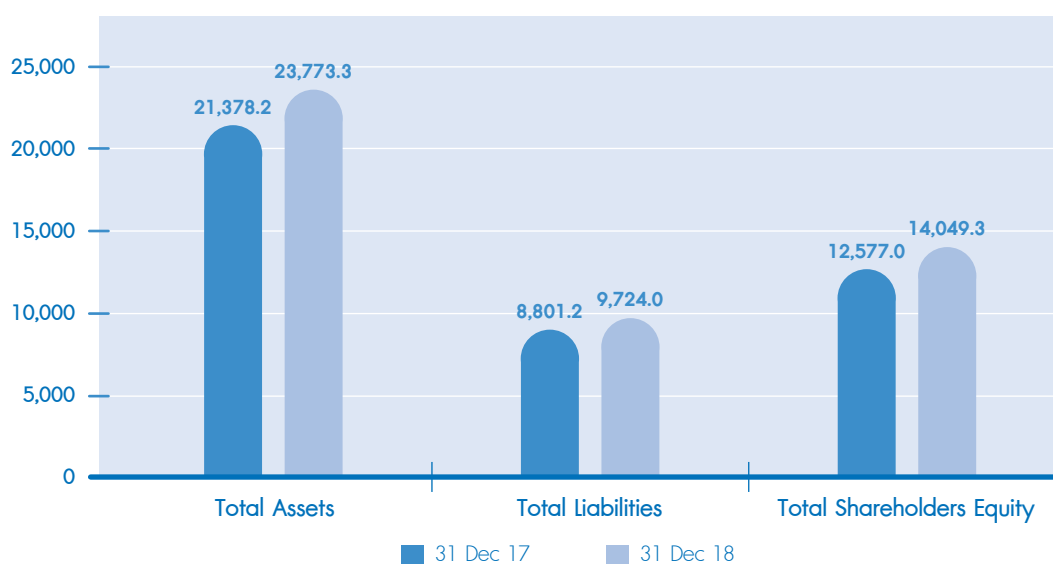
- Administrative Expenses** decreased from Baht 152.9 million in 2017 to Baht 130.8 million in 2018 mainly from accounting adjusted of doubtful debt amounted of Baht 22.5 million in 1Q2018.

- **Finance Cost** decreased from Baht 459.9 million in 2017 to Baht 366.6 million in 2018 due to loan repayment of Baht 2,500.0 million from the IPO proceed in April 2017 and bond issuance to refinance the existing bank loan totaling of Baht 8,000 million in August 2017 and June 2018.

As a result, our 2018 EBITDA was Baht 2,854.8 million, compared to Baht 2,639.2 million in 2017, or increased by 8.2%. Normalized EBITDA increased by Baht 805.8 million from Baht 2,064.9 million to Baht 2,870.7 million, or increased by 39.0%.

2. FINANCIAL POSITION

Million Baht



The Consolidated Balance Sheet as of 31 December 2018 is summarized as follows.

Assets

As at 31 December 2018, the Company's total Assets was Baht 23,773.3 million, increased by Baht 2,395.1 million from Baht 21,378.2 million at year-end 2017. The increase was due to increase of an investment amounted of Baht 2,336.2 million, which was mainly from increase of Share of Profit from power projects and additional investment in power and utilities projects under construction.

The key elements of Assets in the Company's Consolidated Financial Statements consisted of: (i) Investments in associates of Baht 12,630.9 million, (ii) Building and Equipment (net) of Baht 3,214.3 million (iii) Goodwill of Baht 2,772.9 million, (iv) Intangible assets of Baht 1,955.7 million and (v) Short-term loans to related parties of Baht 754.6 million.

Liabilities

As of 31 December 2018, Total Liabilities was Baht 9,724.0 million, increased by Baht 922.8 million from Baht 8,801.2 million at year-end 2017 mainly due to increase of Long-term borrowings of debentures amounted Baht 1,000.0 million in 2Q2018. Net Interest-bearing Debt as of 2018 was Baht 8,134.5 million, increase from Baht 7,338.8 million at the end of 2017.

Total Liabilities mainly consisted of Long-term borrowings of debentures amounted Baht 8,988.0 million and provision for Liabilities from the water business amounted Baht 331.6 million.

Shareholders' Equity

As of 31 December 2018, Total Shareholders' Equity was Baht 14,049.3 million, an increase of Baht 1,472.3 million from Baht 12,577.0 million at the end of 2017, mainly driven by an increase in Retained Earnings.

As at 31 December 2018, the Company's Debt-to-Equity ratio was 0.69x, slightly decreased from 0.70x at the end of 2017. Net Interest-bearing Debt-to-Equity ratio was 0.58x, remained at the end of 2017.

3. KEY FINANCIAL RATIOS

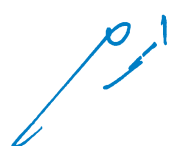
	31 December 2018	31 December 2017
Gross Profit Margin	34.4%	33.1%
Net Profit Margin ¹	57.5%	53.5%
Return on Equity	16.9%	19.8%
Debt/Equity Ratio	0.69x	0.70x
Net Interest-bearing Debt/Equity Ratio	0.58x	0.58x

¹ Net profit margin is calculated by dividing the Net Profit attributable to Owners of the Parent by Revenue from Sales and Services and Share of Profit from Investments in Associates and Joint Ventures and other income

Report on Responsibilities of the Board of Directors Towards the Financial Report of the year 2018

The Board of Directors of WHA Utilities and Power Public Company Limited realizes its role and responsibility as the Directors in supervising the Company to have the Financial Reports of year 2018 to present sufficient in materiality, relevant and transparent financial and accounting information. Appropriate accounting policies have been put in place and adhered to on a consistent basis according to the generally accepted accounting principle while due consideration has been placed on the process of preparing the Company's and the Consolidated fiscal year 2018 financial statements including other information that have been included in the annual report of this year. The Audit Committee, who is appointed by the Company's Board of Directors, comprising of independent directors fully qualified in accordance with the requirement of the Stock Exchange of Thailand have reviewed and ensure accuracy and sufficiency of the financial report including accurate and complete disclosure of connected transactions or transactions with possible conflict of interests, sufficient and effective internal control and internal audit system, risk management and appropriate corporate governance and to be compliance with the requirement of the Stock Exchange of Thailand and relevant rules and regulations.

The Company's Board of Directors has the opinion that the financial statements and financial reports for the year 2018 of the Company and the Subsidiaries, which have been reviewed by the Audit Committee in conjunction with the management, and audited by the Company's auditors, reflect accurate financial position, operational results and cash flow status in accordance with consistent appropriate accounting policies generally accepted accounting standards and according to relevant rules and regulations.



(Ms. Jareeporn Jarukornsakul)

Chairman of the Board of Directors

22 February 2019



(Mr. Wisate Chungwatana)

Director & CEO

22 February 2019

Audit Committee Report

Dear Shareholders

The Audit Committee of WHA Utilities and Power Public Company Limited consists of three knowledgeable independent non-executive directors as its members :

- | | |
|-------------------------------------|---------------------------------|
| 1. Mr. Weidt Nuchjalearn | Chairman of the Audit Committee |
| 2. Mr. Ekajai Tivutanond | Audit Committee member |
| 3. Mrs. Punnee Worawuthichongsathit | Audit Committee member |

The Audit Committee members are qualified in accordance with the rules and regulations for Audit Committees, as issued by the Securities and Exchange Commission and the Stock Exchange of Thailand. The Audit Committee has fulfilled its responsibilities according to the scope and duties assigned by the Board of Directors in compliance with its Charter and official regulations.

Five formal Audit Committee meeting were held in respect of its 2018 financial year duties. By invitation, such meeting were also attended by the internal and external auditors, as well as by members of the company management, inclusive of the Chief Financial Officer, with occasional participations by the Chief Executive Officer upon requests. Moreover, the Audit Committee also arranged time to meet the internal and external auditors without executives of the Company being present. Such meeting were officially arranged quarterly, with informal consultations added as deemed necessary.

The activities of the Audit Committee covered the following areas:

1. Review of the interim and annual financial statements of 2018 to verify that the statements were accurate and complete, and that relevant supporting financial information was disclosed. The review was conducted with inputs from the management and the external auditors. The Audit Committee and external auditors agreed that the financial statements were correct with financial reporting standards. The Company had diligently applied itself to the Federation of Accounting Professionals of Thailand's revised sets of accounting standards, which had been introduced in conjunction with international practice.

2. Review of the internal and risk management control system in order to verify that the system was appropriate and effective in meeting its objectives. The review which was conducted with inputs from the internal auditors, coupled with discussions with the external auditors, did not reveal any significant weaknesses or deficiencies, either at company or subsidiary level. The Audit Committee and both the internal and external auditors are of the view that the prevailing internal control and risk management system meet the requirements of the SET and SEC, and is adequate to safeguard assets and provide sufficient disclosure of information.

3. Review of the internal audit function to ensure its effectiveness and independence. The internal audit function is conducted by a reputable and independent internal audit firm. Work is performed in accordance with a program jointly studied and approved on a continuing basis by the Audit Committee, together with the Management. The internal auditors report their findings to both the Audit Committee and the Management on a quarterly basis, with open access to the Audit Committee at all times. The Audit Committee believes that the internal audit functions of the Company and subsidiaries are appropriate, effective and independent.

4. Review of compliance with the Securities and Exchange Acts, other relevant laws and SEC-SET regulations, as well as the Company's own rules and obligations to external parties. This review, which was performed by the Audit Committee members, with contracted assistance from the internal auditors, did not find any significant instances of non-compliance.

5. Review of, and giving opinion on, connected transactions and transactions potentially giving rise to conflicts of interest, together with the aspect of information disclosure on such transactions in compliance with the regulations of the SET and SEC. The Audit Committee and both the internal and external auditors were of the opinion that such transactions had fully and appropriately been disclosed in the financial statements and notes thereto, and were reasonable, of a normal business nature, as well as being beneficial to the Company.

6. Considering the appointment of external auditors and their remunerations for the year 2018. The Audit Committee recommending such to the Board of Directors for submission to the Shareholders' Annual General Meeting for the next year. Having considered for performance, independence and remuneration issues, the Audit Committee was satisfied with audit personnel of the present external audit firm, PricewaterhouseCoopers ABAS Ltd., on all count. The committee thus recommended Mr.Chanchai Chaiprasit (Certified Public Accountant registration number 3760), Mr.Paiboon Tunkoon (Certified Public Accountant registration number 4298), and Mr. Boonrueng Lerdwisewit (Certified Public Accountant registration number 6552) to appointed the Company's external auditor for the year 2019 at a remuneration of Baht 2,810,000 and other out-of-pocket expenses as relevant to the audit according to the appropriation.

The external auditors had no family, financial interest, employment, investment or business relationship with the Company or any of its subsidiaries, other than in the normal course of audit business.

In summary, the Audit Committee, in the course of discharging its Chartered responsibilities as assigned by the Board of Directors, found that the Company had presented its financial and operational information in a true and fair manner, had appropriate and effective internal control and audit and risk management, had complied with laws, regulations and obligations, and had disclosed connected transactions correctly



Mr. Weidt Nuchjalearn
Chairman of the Audit Committee
20 February 2018

Independent Auditor's Report

To the Shareholders and the Board of Directors of WHA Utilities and Power Public Company Limited

My opinion

In my opinion, the consolidated financial statements of WHA Utilities and Power 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.

My audit approach - overview

Materiality

Overall group materiality: Baht 103 million which represents 5% of Group's profit before tax.

Audit scope

I conduct with audit work of the consolidated financial statements by focusing on the significant components which account for 92% of the Group's profit before tax and 77% of the Group's total assets.

Key audit matters

I identified Goodwill impairment assessment as key audit matter.



Materiality

The scope of my audit was influenced by my application of materiality. An audit is designed to obtain reasonable assurance whether the financial statements are free from material misstatement. Misstatements may arise due to fraud or error. They are considered material if individually or in aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the consolidated financial statements.

Based on my professional judgement, I determined certain quantitative thresholds for overall materiality for the consolidated financial statements as set out in the table below. These, together with qualitative considerations, helped me to determine the scope of my audit and the nature, timing and extent of my audit procedures and to evaluate the effect of misstatements, both individually and in aggregate on the financial statements as a whole.

Overall materiality for consolidated financial statements	Baht 103 million
How I determined it	5% of Group's profit before tax
Rationale for the materiality benchmark applied	I chose profit before tax as the critical measure because, in my view, it is the measure against which the performance of the Company is most commonly assessed. The 5% benchmark is a generally accepted auditing practice and there were no significant unusual elements that merited adjustments to this benchmark.

I agreed with the audit committee that I would report to them misstatements identified during my audit.

My audit scope

I tailored the scope of my audit in order to perform sufficient work to enable me to provide an opinion on the Group's consolidated financial statements as a whole, taking into account the structure of the Group, the accounting processes and controls, and the industry in which the Group operates.

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 which was Goodwill impairment assessment. 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>Goodwill impairment assessment</p> <p>Refer to Note 2.12 Accounting policy and Note 13 Goodwill, as at 31 December 2018, the Group has goodwill of Baht 2,773 million arose from the acquisition of power and water businesses.</p> <p>The Group tests goodwill acquired in a business combination for impairment annually irrespective of whether there is any indication of impairment as required by TAS 36 Impairment of assets.</p> <p>I focused on this matter because management uses judgement and estimates about the future to determine the recoverable amount of cash-generating units that include goodwill.</p> <p>The recoverable amount is based on fair value less costs of disposal determined using a present value technique. The key assumptions in relation to forecast of net future cash flow discounted to net present value are the gross margin, growth rate and discount rate.</p> <p>The management concluded that there is no impairment of goodwill because the recoverable amount is higher than the carrying amount.</p>	<p>I obtained information about the forecasted future cash flow provided by the Group's management and gained an understanding of the procedure for preparing the forecast.</p> <p>Then I challenged the reasonableness of the procedures and assumptions that underpin management's forecast of the gross margin and growth rate based on historical trend analysis and future business plan.</p> <p>The discount rate is determined using the weighted average cost of capital method. I specifically challenged the reasonableness of the assumptions by comparing them to recent performance and industry data.</p> <p>I also tested the mathematical accuracy of key figures estimated based on the above assumptions and used them to calculate the recoverable amount and compare to the carrying amount.</p> <p>Based on these procedures, I found the key assumptions were consistent with market and industry data.</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.

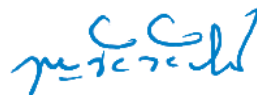
I am responsible for the direction, supervision and performance of the group audit. I remain solely responsible for my audit opinion.

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.



Chanchai Chaiprasit

Certified Public Accountant (Thailand) No. 3760

Bangkok

22 February 2019

Statement of Financial Position

WHA Utilities and Power Public Company Limited

As at 31 December 2018

	Notes	Consolidated		Separate	
		financial statements		financial statements	
		2018	2017	2018	2017
		Baht	Baht	Baht	Baht
Assets					
Current assets					
Cash and cash equivalents	7	853,462,295	591,566,584	193,512,708	398,698,337
Trade and other receivables, net	8	269,072,721	259,676,932	203,677,504	221,846,445
Short-term loans to related parties	27.3	754,550,500	1,013,765,000	2,653,440,000	1,556,015,000
Other current assets		196,512,518	216,733,643	183,772,866	206,869,330
Total current assets		2,073,598,034	2,081,742,159	3,234,403,078	2,383,429,112
Non-current assets					
Investments in associates	9.1	12,630,879,987	10,626,537,022	-	-
Investments in subsidiaries	9.2	-	-	9,324,499,944	9,290,749,955
Interests in joint ventures	9.3	724,116,727	392,305,890	132,825,000	6,247,500
Other long-term investment, net		267,430,208	281,302,895	-	-
Building and equipments, net	10	3,214,316,337	3,089,109,352	2,837,113,740	2,829,820,636
Right to operate and distribute industrial water, net	11	125,998,279	134,690,279	125,998,279	134,690,279
Intangible assets, net	12	1,955,670,616	1,991,767,810	1,955,670,616	1,991,767,810
Goodwill	13	2,772,877,526	2,772,877,526	610,669,873	610,669,873
Deferred tax asset	14	-	1,669,200	-	-
Other non-current assets		8,378,134	6,184,183	8,378,134	6,184,183
Total non-current assets		21,699,667,814	19,296,444,157	14,995,155,586	14,870,130,236
Total assets		23,773,265,848	21,378,186,316	18,229,558,664	17,253,559,348

The accompanying notes are an integral part of these financial statements.

Statement of Financial Position (Cont'd)

WHA Utilities and Power Public Company Limited

As at 31 December 2018

	Notes	Consolidated		Separate	
		financial statements		financial statements	
		2018	2017	2018	2017
		Baht	Baht	Baht	Baht
Liabilities and equity					
Current liabilities					
Trade and other payables	15	189,718,918	336,191,240	171,542,031	289,242,524
Accrued income tax		26,289,179	26,789,545	-	-
Other current liabilities		18,145,275	23,050,924	12,711,105	15,192,156
Total current liabilities		234,153,372	386,031,709	184,253,136	304,434,680
Non-current liabilities					
Long-term borrowings					
from financial institution	16	-	3,936,901,708	-	3,936,901,708
Debentures	16	8,987,977,050	3,993,421,481	8,987,977,050	3,993,421,481
Deferred tax liabilities	14	139,996,107	149,217,718	115,010,067	121,457,141
Provision for liabilities from					
water business	17	331,571,745	304,598,534	331,571,745	304,598,534
Employee benefit obligations	18	17,039,449	10,986,346	17,039,449	10,986,346
Other non-current liabilities		13,258,261	20,050,856	12,481,132	15,853,470
Total non-current liabilities		9,489,842,612	8,415,176,643	9,464,079,443	8,383,218,680
Total liabilities		9,723,995,984	8,801,208,352	9,648,332,579	8,687,653,360

The accompanying notes are an integral part of these financial statements.

Statement of Financial Position (Cont'd)

WHA Utilities and Power Public Company Limited

As at 31 December 2018

Note	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	Baht	Baht	Baht	Baht
Liabilities and equity (Cont'd)				
Equity				
Share capital				
Authorised share capital				
Ordinary shares 3,825,000,000 shares at par value of Baht 1 each	3,825,000,000	3,825,000,000	3,825,000,000	3,825,000,000
Issued and paid-up share capital				
Ordinary shares 3,825,000,000 shares, paid up at Baht 1 each	3,825,000,000	3,825,000,000	3,825,000,000	3,825,000,000
Share premium on ordinary shares	2,557,841,248	2,557,841,248	2,557,841,248	2,557,841,248
Retained earnings				
Appropriated - legal reserve 20	112,766,796	73,100,541	112,766,796	73,100,541
Unappropriated	4,000,462,005	2,566,235,433	809,118,127	833,464,285
Other components of equity	3,553,199,697	3,554,800,669	1,276,499,914	1,276,499,914
Equity attributable to				
owners of the parent	14,049,269,746	12,576,977,891	8,581,226,085	8,565,905,988
Non-controlling interests	118	73	-	-
Total equity	14,049,269,864	12,576,977,964	8,581,226,085	8,565,905,988
Total liabilities and equity	23,773,265,848	21,378,186,316	18,229,558,664	17,253,559,348

The accompanying notes are an integral part of these financial statements.

Statement of Comprehensive Income

WHA Utilities and Power Public Company Limited

For the year ended 31 December 2018

	Notes	Consolidated financial statements		Separate financial statements	
		2018 Baht	2017 Baht	2018 Baht	2017 Baht
Revenue from sales		1,523,103,410	1,440,176,035	1,242,502,192	1,149,924,278
Revenue from services		185,181,597	193,580,591	201,213,130	210,980,591
Total revenues		1,708,285,007	1,633,756,626	1,443,715,322	1,360,904,869
Cost of sales		(978,706,595)	(956,590,900)	(928,368,649)	(921,642,628)
Cost of services		(141,299,697)	(135,789,788)	(140,010,058)	(135,789,788)
Total costs		(1,120,006,292)	(1,092,380,688)	(1,068,378,707)	(1,057,432,416)
Gross profit		588,278,715	541,375,938	375,336,615	303,472,453
Other income		162,696,044	134,402,138	889,726,255	973,200,247
Administrative expenses		(130,842,791)	(152,945,854)	(120,019,989)	(123,211,945)
Finance costs	21	(366,555,240)	(459,867,463)	(358,164,858)	(446,138,783)
Share of profit from investments in associates and interests in joint ventures	9.1, 9.3	2,047,414,903	1,936,106,033	-	-
Profit before income tax expenses		2,300,991,631	1,999,070,792	786,878,023	707,321,972
Income tax (expense) benefit	23	(49,093,768)	(18,155,187)	6,447,074	29,660,218
Profit for the year		2,251,897,863	1,980,915,605	793,325,097	736,982,190
Other comprehensive income:					
Items that will not be reclassified to profit or loss					
Remeasurements of retirement benefit obligations	18	-	5,247,028	-	(350,870)
Income tax on items that will not be reclassified	14	-	(1,049,406)	-	70,174
Total items that will not be reclassified to profit or loss		-	4,197,622	-	(280,696)
Items that will be reclassified subsequently to profit or loss					
Exchange rate difference on translation of the financial statements of subsidiaries		(423,012)	-	-	-
Share of other comprehensive income of joint ventures accounted for under the equity method	9.3	(1,177,960)	(10,459,539)	-	-
Total items that will be reclassified subsequently to profit or loss		(1,600,972)	(10,459,539)	-	-
Other comprehensive income for the year, net of tax		(1,600,972)	(6,261,917)	-	(280,696)
Total comprehensive income for the year		2,250,296,891	1,974,653,688	793,325,097	736,701,494
Profit attributable to					
Owners of the parent		2,251,897,827	1,980,915,562	793,325,097	736,982,190
Non-controlling interests		36	43	-	-
Profit for the year		2,251,897,863	1,980,915,605	793,325,097	736,982,190
Total comprehensive income attributable to					
Owners of the parent		2,250,296,855	1,974,653,645	793,325,097	736,701,494
Non-controlling interests		36	43	-	-
Total comprehensive income for the year		2,250,296,891	1,974,653,688	793,325,097	736,701,494
Earnings per share					
Basic earnings per share	24	0.59	0.54	0.21	0.20

The accompanying notes are an integral part of these financial statements.

Statement of Changes in Equity

WHA Utilities and Power Public Company Limited

For the year ended 31 December 2018

Consolidated financial statements														
Attributable to owners of the parent														
Other components of equity														
Retained earnings														
Surplus arising from business combination under common control														
Exchange rate														
Gain (loss) on remeasurement of defined employee benefit plans														
Share of other comprehensive expense of joint ventures														
Total owner of the parent														
Non-controlling interests														
Total equity														
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The accompanying notes are an integral part of these financial statements.

Statement of Changes in Equity (Cont'd)

WHA Utilities and Power Public Company Limited

For the year ended 31 December 2018

	Notes	Separate financial statements									
		Retained earnings				Other components of equity			Other comprehensive income		
		Issued and paid-up share capital	Share premium on ordinary shares	Appropriated - legal reserve	Unappropriated	Surplus arising from business combination under common control	Loss on remeasurement of defined employee benefit plans	Total equity			
		Baht	Baht	Baht	Baht	Baht	Baht	Baht	Baht	Baht	Baht
Beginning balance as at 1 January 2017		3,200,000,000	-	36,251,431	133,331,205	1,278,364,530	(1,583,920)	4,646,363,246			
Paid-up ordinary shares		625,000,000	2,557,841,248	-	-	-	-	3,182,841,248			
Legal reserve	20	-	-	36,849,110	(36,849,110)	-	-	-			
Total comprehensive income for the year		-	-	-	736,982,190	-	(280,696)	736,701,494			
Ending balance as at 31 December 2017		3,825,000,000	2,557,841,248	73,100,541	833,464,285	1,278,364,530	(1,864,616)	8,565,905,988			
Beginning balance as at 1 January 2018		3,825,000,000	2,557,841,248	73,100,541	833,464,285	1,278,364,530	(1,864,616)	8,565,905,988			
Dividend paid	19	-	-	-	(778,005,000)	-	-	(778,005,000)			
Legal reserve	20	-	-	39,666,255	(39,666,255)	-	-	-			
Total comprehensive income for the year		-	-	-	793,325,097	-	-	793,325,097			
Ending balance as at 31 December 2018		3,825,000,000	2,557,841,248	112,766,796	809,118,127	1,278,364,530	(1,864,616)	8,581,226,085			

The accompanying notes are an integral part of these financial statements.

Statement of Cash Flows

WHA Utilities and Power Public Company Limited

For the year ended 31 December 2018

	Notes	Consolidated financial statements		Separate financial statements	
		2018 Baht	2017 Baht	2018 Baht	2017 Baht
Cash flows from operating activities					
Profit before income tax		2,300,991,631	1,999,070,792	786,878,023	707,321,972
Adjustments of					
(Reversal of) doubtful accounts		(16,837,544)	26,056,813	(8,491,544)	17,710,814
Share of profit from investments in associates and interests joint ventures	9.1, 9.3	(2,047,414,903)	(1,936,106,033)	-	-
Gain on sales of interests in joint ventures		(567,306)	-	(288,666)	-
Loss on liquidation of interests in joint ventures		-	144,020	-	-
Depreciation	10	143,464,032	136,960,168	133,447,432	129,872,032
Loss from write-off of assets	10	-	33,334	-	33,334
Amortisation of right to operate and distribute industrial water	11	8,692,000	8,692,000	8,692,000	8,692,000
Amortisation of intangible assets	12	37,736,194	35,702,563	37,736,194	35,702,563
Amortisation of other long-term investments		13,872,687	13,872,687	-	-
Employee benefit obligations		6,053,103	7,908,789	6,053,103	2,310,891
Dividend income		(74,983,505)	(59,251,404)	(372,915,965)	(928,747,934)
Interest income		(57,565,057)	(74,446,662)	(81,050,534)	(44,147,952)
Finance costs	21	366,555,240	459,867,463	358,164,858	446,138,783
		679,996,572	618,504,530	868,224,901	374,886,503
Changes in operating assets and liabilities					
Trade and other receivables, net		13,217,913	33,509,161	32,375,994	(32,043,067)
Other current assets		28,084,068	(2,195,991)	30,863,911	4,246,546
Other non-current assets		(2,193,951)	(17,500)	(2,193,951)	(17,500)
Trade and other payables		3,385,682	5,397,571	4,183,851	4,255,386
Other current liabilities		(4,905,649)	1,538,677	(2,481,052)	2,153,520
Provision for liabilities from water business	17	(8,558,736)	(8,052,901)	(8,558,736)	(8,052,901)
Other non-current liabilities		(6,792,595)	11,859,687	(3,372,338)	7,956,302
Cash generated from operating activities		702,233,304	660,543,234	919,042,580	353,384,789
Interest paid		(363,292,838)	(408,212,855)	(354,902,456)	(394,484,173)
Dividends received from operating activities		456,946,840	687,364,938	-	-
Cash paid for corporate income tax		(65,009,442)	(69,377,536)	(7,767,447)	(7,280,237)
Net cash generated from (used in) operating activities		730,877,864	870,317,781	556,372,677	(48,379,621)
Cash flows from investing activities					
Cash paid from acquisition of available-for-sale investments		(530,000,000)	-	(300,000,000)	-
Cash received from disposal of available-for-sale investments		530,567,306	-	300,288,666	-
Repayments of short-term loans to related parties	27.3	(53,000,000)	(39,015,000)	(1,217,000,000)	(1,125,015,000)
Cash received from short-term loans to related parties	27.3	312,214,500	458,150,000	119,575,000	161,985,623
Cash paid for acquisition of investments in associates	9.1	(432,422,900)	(1,219,487,600)	-	-
Cash paid for acquisition of investments in subsidiaries	9.2	-	-	(33,749,989)	(11,249,996)
Cash paid for acquisition of interests in joint ventures	9.3	(320,577,500)	(138,747,500)	(126,577,500)	(6,247,500)
Cash received from liquidation of interests in joint ventures		-	2,151,955	-	-
Interest received		57,925,599	128,406,847	75,335,025	54,149,632
Dividends from investing activities		74,983,505	59,251,404	372,915,965	928,747,934
Purchases of building and equipments		(320,643,545)	(350,281,656)	(164,739,403)	(284,971,892)
Purchases of Intangible assets	12	(1,639,000)	(2,033,800)	(1,639,000)	(2,033,800)
Net cash used in investing activities		(682,592,035)	(1,101,605,350)	(975,591,236)	(284,634,999)

The accompanying notes are an integral part of these financial statements.

Statement of Cash Flows (Cont'd)

WHA Utilities and Power Public Company Limited

For the year ended 31 December 2018

	Consolidated		Separate	
	financial statements		financial statements	
	2018	2017	2018	2017
Notes	Baht	Baht	Baht	Baht
Cash flows from financing activities				
Proceeds from short-term borrowings from financial institutions	1,000,000,000	-	1,000,000,000	-
Repayment of short-term borrowings financial institutions	(1,000,000,000)	-	(1,000,000,000)	-
Repayment of long-term borrowings from financial institution	16 (3,999,000,000)	(6,500,000,000)	(3,999,000,000)	(6,500,000,000)
Proceeds from capital increase	-	3,281,250,000	-	3,281,250,000
Cash paid for shares issuance	-	(98,408,752)	-	(98,408,752)
Proceeds from debentures issuance	16 5,000,000,000	4,000,000,000	5,000,000,000	4,000,000,000
Cash paid for issuing debentures	16 (8,969,489)	(7,463,400)	(8,969,489)	(7,463,400)
Dividend paid to shareholders	(777,997,581)	-	(777,997,581)	-
Dividend paid from a subsidiaries to non-controlling interests	(36)	(68)	-	-
Net cash generated from financing activities	214,032,894	675,377,780	214,032,930	675,377,848
Net increase in cash and cash equivalents				
Cash and cash equivalents - beginning balance	591,566,584	147,476,373	398,698,337	56,335,109
Exchange rate differences on translation of the financial statements of subsidiaries	(423,012)	-	-	-
Cash and cash equivalents - ending balance	853,462,295	591,566,584	193,512,708	398,698,337
Non-cash transactions				
Significant non-cash transactions for the year ended 31 December are as follows:				
1) Payables for purchases of buildings and equipment	16,247,423	68,219,951	3,310,078	27,308,945

The accompanying notes are an integral part of these financial statements.

Notes to the Consolidated and Separate Financial Statements

WHA Utilities and Power Public Company Limited

For the year ended 31 December 2018

1 General information

WHA Utilities and Power Public Company Limited (the Company) is a public limited company which is listed on the Stock Exchange of Thailand and is incorporated and domiciled in Thailand. The address of the Company's registered office is as follows:

The Company's head office is located at 24th floor, UM Tower, 9/241-242 Ramkhamhaeng Road, Suanluang subdistrict, Suanluang district, Bangkok, 10250.

For reporting purposes, the Company and its subsidiaries are referred to as "the Group".

The Group's major business are to produce and distribute the industrial water, provide waste water treatment service in industrial estate and invest in power business.

The consolidated and separate financial statements have been authorised for issue by the Board of Director on 22 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 for 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 as disclosed in the accounting policies below.

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 Group discloses areas involving a higher degree of judgement or complexity, or areas where assumptions and estimates are significant to the consolidated financial statements and separate financial statements 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.

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

The Group has applied the revised financial reporting standards, which are effective on 1 January 2018 and relevant to the Group. The application of those financial reporting standards does not have significant impact to the Group.

The Group has not yet early adopted the new and revised financial reporting standards, which are effective on 1 January 2019 and 1 January 2020. The Group's management is currently assessing the impact of adoption of these standards.

2 Accounting policies (Cont'd)

2.3 Group accounting - Investments in subsidiaries, associates and 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 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.

Any contingent consideration to be transferred by the Group is recognised at fair value at the acquisition date. Subsequent changes to the fair value of the contingent consideration that is deemed to be an asset or liability is recognised in profit or loss. Contingent consideration that is classified as equity is not re-measured, and its subsequent settlement is accounted for within equity.

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.

(2) Transactions with 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) Disposal of subsidiaries

When the Group ceases to have control, any retained interest in the entity is re-measured to its fair value, with the change in carrying amount recognised in profit or loss. The fair value is the initial carrying amount for the purposes of subsequently accounting for the retained interest as an associate, joint venture or financial asset. In addition, any amounts previously recognised in other comprehensive income in respect of that entity are accounted for as if the Group had directly disposed of the related assets or liabilities.

2 Accounting policies (Cont'd)

2.3 Group accounting - Investments in subsidiaries, associates and joint arrangements (Cont'd)

(4) Business combination under common control

The Group accounts for business combination under common control by measuring acquired assets and liabilities of the acquiree in the proportion of interests under common control at the carrying values of the acquiree presented in the highest level of the consolidation prior to the business combination under common control at the acquisition date. The Group retrospectively adjusted the business combination under common control transactions as if the combination occurred from the beginning of period of which the financial statements in the previous period are comparatively presented in accordance with the guidance of business combination under common control as issued by the Federation of Accounting Professions.

Costs of business combination under common control are the aggregated amount of fair value of assets transferred, liabilities incurred and equity instruments issued by the acquirer at the date of which the exchange in control occurs. Other costs directly attribute to business combination under common control, such as professional fees of legal advisors and other advisors, registration fees, and costs relating to preparation of information for shareholders, are capitalised as an investment in the separate financial statements while immediately recognised as expenses in the consolidated financial statements in the period of which the business combination occurs.

The difference between costs of business combination under common control and the acquirer's interests in the carrying value of the acquiree is presented as "Surplus arising from business combination under common control" under "Other component of equity" and is derecognised when the investment is disposed (transfer to retained earnings).

(5) Associates

Associates are all entities over which the Group has significant influence but not control, generally accompanying a shareholding of between 20% and 50% of the voting rights. Investments in associates are accounted for using the equity method of accounting.

(6) 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, rather than the legal structure of the joint arrangements.

A joint venture is a joint arrangement whereby the Group has rights to the net assets of the arrangement. Interests in joint ventures are accounted for using the equity method.

(7) Accounting under equity method

Under the equity method, the investment is initially recognised at cost, and the carrying amount is increased or decreased to recognise the investor's share of the profit or loss of the investee after the date of acquisition. The Group's investment in associates includes goodwill identified on acquisition.

If the ownership interest in associates and joint ventures is reduced but significant influence is retained, only a proportionate share of the amounts previously recognised in other comprehensive income is reclassified to profit or loss where appropriate. Profit or loss from reduce of the ownership interest in an associates and joint ventures is recognise in profit or loss.

The Group's share of its associates and joint ventures' post-acquisition profits or losses is recognised in the profit or loss, and its share of post-acquisition movements in other comprehensive income is recognised in other comprehensive income. The cumulative post-acquisition movements are adjusted against the carrying amount of the investment. When the Group's share of losses in associates and joint ventures equals or exceeds its interest in the associates and joint ventures, together with any long-term interests that, in substance, form part of the entity's net investment in the associates or joint ventures, the Group does not recognise further losses, unless it has incurred obligations or made payments on behalf of the associates and joint ventures.

2 Accounting policies (Cont'd)

2.3 Group accounting - Investments in subsidiaries, associates and joint arrangements (Cont'd)

(7) Accounting under equity method (Cont'd)

The Group determines at each reporting date whether there is any objective evidence that the investments in the associates and joint ventures are impaired. If impairment exists, the Group calculates the amount of impairment as the difference between the recoverable amount of the investments and its carrying value and recognises the amount adjacent to share of profit (loss) of associates and joint ventures in profit or loss.

Unrealised gains on transactions between the Group and its associates and joint ventures are eliminated to the extent of the Group's interest in the associates and joint ventures. Unrealised losses are also eliminated unless the transaction provides evidence of an impairment of the asset transferred. Accounting policies of associates and joint ventures have been changed where necessary to ensure consistency with the policies adopted by the Group.

(8) 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.

2.4 Foreign currency translation

(1) 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 Baht, which is the company's functional and the Group's presentation currency.

(2) 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.

(3) 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 exchange rate 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 Accounting policies (Cont'd)

2.5 Cash and cash equivalents

In the statements 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 statements of financial position, bank overdrafts are shown within borrowings in current liabilities.

2.6 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 administrative expenses.

2.7 Other long-term investments

Investments in non-marketable equity securities are classified as general investment.

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

Other long-term investments are carried at cost less impairment loss.

The Company will test impairment 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 statement of income.

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.

2.8 Buildings and equipment

Building and equipment are stated at cost less any accumulated depreciation. 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.

Depreciation on assets is calculated using the straight-line method to allocate their cost to their residual values over their estimated useful lives, as follows:

	Years
Building improvements	5 and 10 years
Buildings and structure	30 years
Tools	5 and 15 years
Equipment, furniture and fixtures	5 years
Vehicles	5 years
Raw water pipes	25 years
Industrial water production systems	30 years
Waste water treatment systems	30 years
Solar systems	5 - 25 years

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

The assets' carrying amount is written-down immediately to its recoverable amount if the asset's carrying amount is greater than its estimated recoverable amount (Note 2.12).

Gains or losses on disposals are determined by comparing the proceeds with the carrying amount and are recognised in profit or loss.

2 Accounting policies (Cont'd)

2.9 Goodwill

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.

2.10 Intangible assets

(1) Exclusive right

Exclusive right in sale of water to customers in the industrial estate, acquired on business combination, is recognised at fair value at the date of acquisition. Amortisation is reassessment on an annual basis for 50 years in each project. There will be no reassessment on the asset value, adjusted for impairment, if any.

(2) Computer software and water plant maintenance program

Computer software and water plant maintenance program's costs recognised as assets are amortised over their estimated useful lives, which does not exceed 3 years.

2.11 Right to operate and distribute the industrial water

Right to operate and distribute the industrial water is carried at cost less accumulate amortisation and accumulated impairment losses (if any). This cost are amortised using the straight-line method over 25 years which is the period of the contractual rights.

2.12 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 have been recognised an impairment losses are reviewed for possible reversal of the impairment at each reporting date.

2.13 Leases

Leases - where the Group 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.

When an operating lease is terminated before the lease period has expired, any payment required to be made to the lessor by way of penalty is recognised as an expense in the period in which termination takes place.

Leases of property, plant or equipment where the lessee 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.

2 Accounting policies (Cont'd)

2.13 Leases (Cont'd)

Each lease payment is allocated between the liability and finance charges so as to achieve a constant rate on the liabilities 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.

2.14 Borrowings

Borrowings are recognised initially at the fair value, net of transaction costs incurred. Borrowings are subsequently stated at amortised effective interest rate; any difference between proceeds (net of transaction costs) and the redemption value is recognised in statement of comprehensive income 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. If 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 Company has an unconditional right to defer settlement of the liability for at least 12 months after the end of reporting date.

2.15 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 associates, subsidiaries and interest in joint ventures, 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 balances on a net basis.

2 Accounting policies (Cont'd)

2.16 Employee Benefit

The Group provides various retirement benefits schemes. The Group has both defined benefit and defined contribution plans.

(1) Defined contribution plan

The Group operates a provident fund which is considered as a defined contribution plan. The asset under the plan is held in a separate trustee-administered fund. The provident fund is funded by payments from employees and by the Group.

The Group's contributions to the provident fund are charged to the statement of comprehensive income in the year to which they relate.

(2) Retirement benefits

A defined benefit plan is a 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. 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. They are presented as a separate item in statements of changes in equity.

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

2.17 Provisions

Provisions 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 can be reliably estimated.

Where there are a number of similar obligations, the likelihood that an outflow will be required in settlement is determined by considering the class of obligations as a whole. A provision is recognised even if the likelihood of an outflow with respect to any one item included in the same class of obligations may be small.

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.

2.18 Share capital

Ordinary shares with discretionary dividends 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 Accounting policies (Cont'd)

2.19 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 Group's activities. Revenue is shown net of value-added tax, returns, rebates and discounts, and after eliminating sales within the Group for the consolidated financial statements. Revenue from sales of goods is recognised when significant risks and rewards of ownership of the goods are transferred to the buyer. Revenue from rendering services is based on the stage of completion determined by reference to services performed to date as a percentage of total services to be performed.

Interest income is recognised using the effective interest method.

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

2.20 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 interim dividend are approved by the Board of Directors.

2.21 Segment reporting

The Group's principle business operations are providing of potable water, raw water, clarified water, waste water treatment, power business and holding company.

3 Financial risk management

3.1 Financial risk factors

The Group's activities expose it to a variety of financial risks including the effects of changes in interest rate and credit 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. The Group uses derivative financial instruments to hedge certain exposures.

Risk management is carried out by a central treasury department (Group Treasury) 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.

(1) Foreign exchange risk

The Group operates internationally and is exposed to foreign exchange risk arising from various currency exposures, primarily with respect to Baht. Foreign exchange risk arises from future commercial transactions, recognised assets and liabilities and net investments in foreign operations.

(2) Liquidity risk

Prudent liquidity risk management implies maintaining sufficient cash, the availability of funding through an adequate amount of committed credit facilities. Due to the dynamic nature of the underlying business, the Group treasury aims at maintaining flexibility in funding by keeping committed credit lines available.

3 Financial risk management (Cont'd)

3.1 Financial risk factors (Cont'd)

(3) Credit risk

The Group has no significant concentrations of credit risk. The Group has policies in place to ensure that services are provided to customers with an appropriate credit history. Deposits are limited to high credit quality financial institutions.

(4) Interest rate risk

Interest rate risk is the risk that the value of a financial instrument will fluctuate due to changes in market interest rates.

The Group's income and operating cash flows are substantially independent of changes in market interest rates. All interest rate derivative transactions are subject to approval by the Finance Director before execution. The Group has no significant interest-bearing assets.

3.2 Accounting for derivative financial instruments and hedging activities

The Group is a party to derivative financial instrument, which is foreign currency forward contracts. Such instrument is not recognised in the financial statements on inception.

Foreign currency forward contracts protect the Group from movements in exchange rates. The Group enters into contract establishing the rate at which a foreign currency asset will be realised or a foreign currency liability will be settled in the future. The Group does not recognise foreign currency forward contracts transaction in the financial statements until the contracts are settled. The realised gain (loss) from the settlement of foreign currency forward contracts will be included in gain (loss) on exchange rate in profit or loss. The fee incurred in establishing each agreement is amortised over the contract period, if any.

3.3 Fair value estimation

The Group's financial assets and liabilities that are measured at fair value. The different levels have been defined as follows:

- Quoted prices (unadjusted) in active markets for identical assets or liabilities (Level 1).
- Inputs other than quoted prices included within level 1 that are observable for the asset or liability, either directly (that is, as prices) or indirectly (that is, derived from prices) (Level 2).
- Inputs for the asset or liability that are not based on observable market data (that is, unobservable inputs) (Level 3).

4 Critical accounting estimates, assumptions and judgements

Estimates, assumption 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

(1) Estimated impairment of goodwill

The Group tests annually whether goodwill has suffered any impairment, in accordance with the accounting policy stated in note 2.12. The recoverable amounts of cash-generating units have been determined based on value-in-use calculations. These calculations require the use of estimates (Note 13).

(2) Provision for liabilities from water business

The Group estimates the liabilities from water business according to the Strategic Partnership Agreement and Right Lease Agreement to operate the industrial water business and the waste water management business by determining the demand of sales and services, price and other relevant factors. The Group uses future cash flow that expect to pay under the agreement and discounted with the rate which is reflected with related risk.

(3) Plant and equipment, and depreciation

In determining depreciation of plant and equipment the management is required to make estimates of the useful life and residual values of plant and equipment and to review estimated useful life and residual values when there are any changes.

(4) Retirement benefits

The present value of the retirement benefits obligations depends on a number of factors that are determined on an actuarial basis using a number of assumptions. Including the discount rate. Any changes in these assumptions will have an impact on the carrying amount of retirement benefits obligation.

The Group determines the appropriate discount rate 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 is disclosed in Note 18.

4.2 Critical judgements in applying the entity's accounting policies

Joint arrangement

The Group holds share over 50% of the voting rights of its joint arrangements, The Group has joint control over these arrangements as under the contractual agreements, unanimous consent is required from all parties to the agreements for all major decisions.

The Group's joint arrangements are structured as a limited company and provides the Group and the parties to the agreements with rights to the net assets of the limited company under the arrangements. Therefore, this arrangements are classified as a joint ventures.

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.

6 Segment information

The Group reported operating segments 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 Board of Directors that makes strategic decisions.

The factors used to identify the Group's reportable segments include types of products and services. There are three reportable segments, (1) water business (2) power business and (3) holding company.

The Group's revenues between segments are carried out at arm's length. The revenue from external parties reported to the Board of Director is measured in a manner consistent with that in the statement of comprehensive income.

6 Segment information (Cont'd)

6.1 The information of revenue and profit in business segments for the year ended 31 December is as follows:

	2018				2017			
	Domestic		Overseas		Domestic		Overseas	
	Water Business Baht	Power Business Baht	Holding Company Baht	Total Baht	Water Business Baht	Power Business Baht	Holding Company Baht	Total Baht
Sales income	1,523,103,410	-	-	1,523,103,410	1,440,176,035	-	-	1,440,176,035
Services income	182,013,130	3,168,467	-	185,181,597	193,580,591	-	-	193,580,591
Total income	1,705,116,540	3,168,467	-	1,708,285,007	1,633,756,626	-	-	1,633,756,626
Gain (loss) from operations	472,344,190	(14,116,004)	(792,262)	457,435,924	403,631,311	(14,675,354)	(525,873)	388,430,084
Other income	7,544,114	155,123,599	28,331	162,696,044	3,274,468	131,116,594	11,076	134,402,138
Finance costs	(79,430,104)	(287,125,136)	-	(366,555,240)	(94,014,208)	(365,853,255)	-	(459,867,463)
Share of profit from investments in associates and interests in joint ventures	-	2,047,414,903	-	2,047,414,903	-	1,936,106,033	-	1,936,106,033
Income tax (expense) benefit	(28,821,467)	(20,272,301)	-	(49,093,768)	701,266	(18,856,453)	-	(18,155,187)
Profit (loss) for the year	371,636,733	1,881,025,061	(763,931)	2,251,897,863	313,592,837	1,667,837,565	(514,797)	1,980,915,605
Net profit attributable to non-controlling interests				(36)				(43)
Net profit attributable to equity-holders of the parent				2,251,897,827				1,980,915,562

6 Segment information (Cont'd)

6.2 Assets and liabilities information by business segment are as following:

	31 December 2018			
	Domestic		Oversea	
	Water business Baht	Power business Baht	Holding company Baht	Total Baht
Non-current assets				
Segment non-current assets	5,815,977,169	15,883,690,645	-	21,699,667,814
Other assets	743,801,096	1,328,167,501	1,629,437	2,073,598,034
Segment other assets	6,559,778,265	17,211,858,146	1,629,437	23,773,265,848
Total assets	1,867,153,894	7,856,621,321	220,769	9,723,995,984
Segment liabilities				

Non-current assets presented above are non-current assets other than financial instruments and deferred tax assets.

Depreciation and amortisation by business segment for the year ended 31 December are as follows:

	2018				2017			
	Domestic		Oversea		Domestic		Oversea	
	Water business Baht	Power business Baht	Holding company Baht	Total Baht	Water business Baht	Power business Baht	Holding company Baht	Total Baht
Segment depreciation and amortisation	188,652,437	15,112,476	-	203,764,913	181,354,730	13,872,687	-	195,227,417

6 Segment information (Cont'd)

Business segment information in the consolidated financial statement as at 31 December is as follows:

	2018				2017			
	Domestic		Overseas		Domestic		Overseas	
	Water Business Baht	Power Business Baht	Holding Company Baht	Total Baht	Water Business Baht	Power Business Baht	Holding Company Baht	Total Baht
Cash and cash equivalents	334,898,688	516,934,170	1,629,437	853,462,295	478,420,476	101,886,013	11,260,095	591,566,584
Investments in associates	-	12,630,879,987	-	12,630,879,987	-	10,626,537,022	-	10,626,537,022
Interests in joint ventures	-	724,116,727	-	724,116,727	3,537,880	388,768,010	-	392,305,890
Other long-term investments, net	-	267,430,208	-	267,430,208	-	281,302,895	-	281,302,895
Building and equipment, net	3,115,260,267	99,056,070	-	3,214,316,337	3,055,388,735	33,720,617	-	3,089,109,352
Right for production and distribution of industrial water, net	125,998,279	-	-	125,998,279	134,690,279	-	-	134,690,279
Intangible assets, net	1,955,670,616	-	-	1,955,670,616	1,991,767,810	-	-	1,991,767,810
Goodwill	610,669,873	2,162,207,653	-	2,772,877,526	610,669,873	2,162,207,653	-	2,772,877,526
Other	417,280,542	811,233,331	-	1,228,513,873	492,277,990	1,005,750,968	-	1,498,028,958
Total assets	6,559,778,265	17,211,858,146	1,629,437	23,773,265,848	6,766,753,043	14,600,173,178	11,206,095	21,378,186,316

7 Cash and cash equivalents

As at 31 December, cash and cash equivalents comprise the following:

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Cash	366,977	1,098,580	336,977	646,957
Deposits held at call	853,095,318	590,468,004	193,175,731	398,051,380
	<u>853,462,295</u>	<u>591,566,584</u>	<u>193,512,708</u>	<u>398,698,337</u>

The interest rates on deposits are as follows:

	Consolidated financial statements		Separate financial statements	
	2018 % (per annum)	2017 % (per annum)	2018 % (per annum)	2017 % (per annum)
Deposits held at call	0.10 - 0.625	0.10 - 0.625	0.10 - 0.625	0.10 - 0.625

8 Trade and other receivables, net

As at 31 December, trade and other receivables comprise the following:

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Trade receivables from third parties	150,386,633	186,394,597	105,249,888	119,795,142
<u>Less</u> Allowance for doubtful accounts	<u>(9,226,299)</u>	<u>(26,063,843)</u>	<u>(9,226,299)</u>	<u>(17,717,843)</u>
Trade accounts receivable, net	141,160,334	160,330,754	96,023,589	102,077,299
Prepaid expenses	2,100,030	2,034,889	949,115	1,719,872
Accrued income	60,691,824	52,348,895	52,195,528	44,714,090
Other receivables	33,893,912	27,688,313	9,819,623	3,922,174
Receivables from related parties (Note 27.2)	31,226,621	17,274,081	44,689,649	69,413,010
	<u>269,072,721</u>	<u>259,676,932</u>	<u>203,677,504</u>	<u>221,846,445</u>

As at 31 December, trade accounts receivable were classified by aging as follows:

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Within due	115,888,685	118,757,243	70,751,940	71,631,787
Overdue				
Up to 3 months	25,271,649	41,573,511	25,271,649	30,445,512
3 - 6 months	992,247	24,543,597	992,247	16,197,597
6 - 12 months	2,878,948	1,519,995	2,878,948	1,519,995
Over 12 months	5,355,104	251	5,355,104	251
	<u>150,386,633</u>	<u>186,394,597</u>	<u>105,249,888</u>	<u>119,795,142</u>
<u>Less</u> Allowance for doubtful accounts	<u>(9,226,299)</u>	<u>(26,063,843)</u>	<u>(9,226,299)</u>	<u>(17,717,843)</u>
	<u>141,160,334</u>	<u>160,330,754</u>	<u>96,023,589</u>	<u>102,077,299</u>

8 Trade and other receivables, net (Cont'd)

As at 31 December, receivable from related parties were classified by aging as follows:

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Within due	27,114,848	14,791,515	40,957,426	39,448,303
Overdue up to 3 months	4,111,773	2,482,566	3,732,223	29,964,707
	<u>31,226,621</u>	<u>17,274,081</u>	<u>44,689,649</u>	<u>69,413,010</u>

9 Investments in associates, subsidiaries and interests in joint ventures

9.1 Investments in associates

Set out below are the associates of the Group as at 31 December. The associates as listed below have share capital consisting solely of ordinary shares, which are held directly and indirectly by the Group; the country of incorporation or registration is also their principal place of business.

Nature of investment in associates

Associates	Country of Incorporation	Type of business	Proportion of ordinary shares held by the Company (%)		Proportion of ordinary shares held by the Group (%)	
			2018	2017	2018	2017
Gulf JP NLL Company Limited	Thailand	Power plant operation and sale of electricity	-	-	25	25
Gulf NLL 2 Company Limited	Thailand	Power plant operation and sale of electricity	-	-	25	25
Gulf Solar Company Limited and its subsidiaries:	Thailand	Holding company	-	-	25	25
Gulf Solar KKS Limited	Thailand	Power plant operation and sale of electricity	-	-	25	25
Gulf Solar BV Limited	Thailand	Power plant operation and sale of electricity	-	-	25	25
Gulf Solar TS1 Limited	Thailand	Power plant operation and sale of electricity	-	-	25	25
Gulf Solar TS2 Limited	Thailand	Power plant operation and sale of electricity	-	-	25	25
B.Grimm Power (WHA) 1 Limited	Thailand	Power plant operation and sale of electricity	-	-	25	25
Gulf VTP Company Limited	Thailand	Power plant operation and sale of electricity	-	-	25	25
Gulf TS1 Company Limited	Thailand	Power plant operation and sale of electricity	-	-	25	25
Gulf TS2 Company Limited	Thailand	Power plant operation and sale of electricity	-	-	25	25
Gulf TS3 Company Limited	Thailand	Power plant operation and sale of electricity	-	-	25	25
Gulf TS4 Company Limited	Thailand	Power plant operation and sale of electricity	-	-	25	25
GHECO-One Company Limited	Thailand	Power plant operation and sale of electricity	-	-	35	35

The Group has contingent liabilities relating to guarantee of associates' loan by ordinary shares of such associates (Note 26).

9 Investments in associates, subsidiaries and interests in joint ventures (Cont'd)

9.1 Investments in associates (Cont'd)

The movements of investments in associates for the year ended 31 December are as follows:

	Consolidated financial statements	
	2018 Baht	2017 Baht
As a 1 January	10,626,537,022	8,202,340,466
Additions	432,422,900	1,219,487,600
Share of profits in associates	2,010,951,777	1,902,074,749
Dividends received	(439,031,712)	(697,365,793)
As a 31 December	<u>12,630,879,987</u>	<u>10,626,537,022</u>

During the year, the four associates increased their ordinary shares. The Group purchased all of the increased ordinary shares to maintain their ownership interests.

Summary of the financial information of associates

Set out below are the summarised financial information of the associates that are material to the Group. The information disclosed reflects the amounting presented in the financial statements of the relevant associates (not the Group's shares of those amounts). They have been amended to reflect adjustments made using the equity method, including fair value adjustments and modifications for differences in accounting policy of the Group and associates.

Summary of the statement of financial position

	Gheco-One Company Limited	
	31 December 2018 Baht	31 December 2017 Baht
Current assets	7,408,308,582	6,425,088,493
Non-current assets	32,712,798,672	33,302,621,184
Current liabilities	(4,317,401,153)	(5,977,216,366)
Non-current liabilities	<u>(10,336,051,766)</u>	<u>(11,905,618,362)</u>
Net assets	<u>25,467,654,335</u>	<u>21,844,874,949</u>

9 Investments in associates, subsidiaries and interests in joint ventures (Cont'd)

9.1 Investments in associates (Cont'd)

Summary of the statement of comprehensive income

	Gheco-One Company Limited	
	For the year ended 31 December	
	2018 Baht	2017 Baht
Revenue	12,293,643,285	11,108,954,715
Profit before income tax	3,847,182,577	4,046,281,193
Income tax	39,461,606	(58,939,378)
Profit for the year	3,886,644,183	3,987,341,815
Total comprehensive income	3,886,644,183	3,987,341,815
Dividends received from associate	92,352,679	570,796,516

Reconciliation of the summary of the financial information

Reconciliation of the summarised financial information presented to the carrying amount of its interest in the material associate is as follows:

Summary of the financial information

	Gheco-One Company Limited	
	For the year ended 31 December	
	2018 Baht	2017 Baht
Closing net assets	25,467,654,335	21,844,874,949
Interests in associates	35%	35%
Carrying value	8,913,374,035	7,645,401,252

Individually immaterial associates

In addition to the interests in associates disclosed above, the Group also has interests in a number of individually immaterial associates that are accounted for using the equity method.

	2018 Baht	2017 Baht
Aggregate carrying amount of individually immaterial associates	3,717,505,952	2,981,135,770
Aggregate amounts of interests in associates		
Total comprehensive income	650,647,923	506,526,726

9 Investments in associates, subsidiaries and interests in joint ventures (Cont'd)

9.2 Investments in subsidiaries

The Group comprises of the subsidiaries listed below as at 31 December. All subsidiaries are included in the consolidation and have share capital consisting solely of ordinary shares, that are held directly by the Group. The proportion of ownership interests held equals the voting rights held by the Group.

Nature of investment in subsidiaries

Subsidiaries	Country of incorporation	Nature of business	Proportion of ordinary shares held by the Company (%)		Proportion of ordinary shares held by the Group (%)	
			2018	2017	2018	2017
WHA Water Company Limited	Thailand	Water resources, development and management	100	100	-	-
WHA Energy Company Limited and its subsidiaries:	Thailand	Holding company	100	100	-	-
WHA Energy 2 Company Limited	Thailand	Holding company	-	-	100	100
WHA Solar Company Limited	Thailand	Power plant operation and sale of electricity	-	-	100	-
WHAUP International Company Limited and its subsidiaries:	Thailand	Holding company	100	100	-	-
WHAUP (SG) 1 PTE. Limited and its subsidiaries	Singapore	Holding company	-	-	100	100
WHAUP (SG) 2 PTE. Limited and its subsidiary	Singapore	Holding company	-	-	100	100
WHAUP Nghe An Joint Stock Company	Vietnam	Water Industrial and waste water treatment	-	-	100	-

The movements of investments in subsidiaries for the year ended 31 December are as follows:

	Separate financial statements	
	2018 Baht	2017 Baht
As at 1 January	9,290,749,955	9,279,499,959
Additions	33,749,989	11,249,996
As at 31 December	9,324,499,944	9,290,749,955

On 2 May 2018, WHAUP Nghe An Joint Stock Company was incorporated for the purpose of the production and distribution of industrial water and provide waste water treatment services in Vietnam, with registered ordinary shares 2,995,080 shares at Vietnamese Dong 10,000 each, amounting to Vietnamese Dong 29,950,800,000. The Group holds 2,995,078 ordinary shares, equivalent to 99.99% of ownership interests.

On 25 May 2018, WHAUP International Co., Ltd. has called for the payment of 9,000,000 additional registered ordinary shares at Baht 3.75 each. The Company paid-up 8,999,997 shares at Baht 3.75 each, amounting to Baht 33.75 million. The Company has already fully paid-up ordinary shares.

On 13 June 2018, WHAUP (SG) 1 PTE. LTD. increased its authorised share capital from USD 1 to USD 1,340,000 at the par value of USD 1 each. The Group has purchased all of the increased ordinary shares and partially paid up in the amount of USD 1,339,999.

On 13 June 2018, WHAUP (SG) 2 PTE. LTD. increased its authorised share capital from USD 1 to USD 1,330,000 at the par value of USD 1 each. The Group has purchased all of the increased ordinary shares and partially paid up in the amount of USD 1,329,999.

On 29 August 2018, WHA Solar Company Limited was incorporated for the purpose of operating the solar energy business, with registered ordinary shares 20,000,000 shares at the par value of Baht 10 each, amounting to Baht 200 million. The Group holds 19,999,998 shares, equivalent to 99.99% ownership interests and partially paid-up at a price of Baht 2.50 per share, in the amount of Baht 50 million.

9 Investments in subsidiaries, associates and interests in joint ventures (Cont'd)

9.3 Interests in joint ventures

The joint ventures listed as at 31 December below has share capital consisting solely of ordinary shares, which are held directly by the Group. The country of incorporation or registration is also their principal place of business.

Nature of interests in joint ventures

Joint ventures	Country of incorporation	Type of business	Proportion of ordinary shares held by the Company (%)		Proportion of ordinary shares held by the Group (%)	
			2018	2017	2018	2017
WHA Gunkul Green Solar Roof 1 Co., Ltd.	Thailand	Power plant operation and sale of electricity	-	-	75	75
WHA Gunkul Green Solar Roof 3 Co., Ltd.	Thailand	Power plant operation and sale of electricity	-	-	75	75
WHA Gunkul Green Solar Roof 6 Co., Ltd.	Thailand	Power plant operation and sale of electricity	-	-	75	75
WHA Gunkul Green Solar Roof 17 Co., Ltd.	Thailand	Power plant operation and sale of electricity	-	-	75	75
Eastern Seaboard Clean Energy Co., Ltd. and its subsidiaries:	Thailand	Holding company	-	-	33	33
Chonburi Clean Energy Co., Ltd.	Thailand	Power generation from renewable energy	-	-	33	33
Rayong Clean Energy Co., Ltd.	Thailand	Power generation from renewable energy	-	-	33	33
Glow Hemaraj Wind Company Limited	Thailand	Power plant operation and sale of electricity	-	-	33	33
Houay Ho Thai Company Limited and its associate:	Thailand	Holding Company	-	-	51	51
Houay Ho Power Company Limited	Laos People's Democratic Republic	Power plant operation and sale of electricity	-	-	13	13
Gulf WHA MT Gas distribution Company Limited and its subsidiaries:	Thailand	Invest in gas distribution	35	51	-	-
WHA Eastern Seaboard NGD2 Company Limited	Thailand	Gas distribution	-	-	35	51
WHA Eastern Seaboard NGD4 Company Limited	Thailand	Gas distribution	-	-	35	51

The Group has joint control over this arrangement as under the contractual agreements, unanimous consent is Group required from all parties to the agreements for all relevant activities.

The Group's joint arrangement is structured as a limited company and provides the Group and the parties to the agreements with rights to the net assets of the limited company under the arrangements. Therefore, this arrangement is classified as a joint venture.

All joint ventures are private companies and there are no quoted market price available for its shares.

9 Investments in associates, subsidiaries and interests in joint ventures (Cont'd)

9.3 Interests in joint ventures (Cont'd)

The movements of interests in joint ventures for the year ended 31 December are as follows:

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
As at 1 January	392,305,890	247,595,655	6,247,500	-
Additions	320,577,500	138,747,500	126,577,500	6,247,500
Liquidation of interests in joint ventures	-	(2,295,975)	-	-
Translation adjustments	(1,177,960)	(10,459,539)	-	-
Share of profit in joint ventures	36,463,126	34,031,284	-	-
Dividend received	(24,051,829)	(15,313,035)	-	-
As at 31 December	724,116,727	392,305,890	132,825,000	6,247,500

During the period ended 31 December 2018, Eastern Seaboard Clean Energy Company Limited issued additional ordinary shares. The Group purchased all increased ordinary shares to maintain its ownership interests.

During the period ended 31 December 2018, Gulf WHA MT Natural Gas Distribution Company Limited increased its share capital by issuing new ordinary shares. The Group did not purchase new ordinary shares at a proportion of its previous ownership interests, which resulted in a reduction of its ownership interests from 51% to 35%. However, the Group still maintain its investment status of this company as joint venture.

Individually immaterial joint ventures

The Group has interests in a number of individually immaterial joint ventures that are accounted for using the equity method.

	2018 Baht	2017 Baht
Aggregate carrying amount of individually immaterial joint ventures	724,116,727	392,305,890
Aggregate amounts of interests in joint ventures		
Profit for the year	36,463,126	34,031,284
Other comprehensive income	(1,177,960)	(10,459,539)
Total comprehensive income	35,285,166	23,571,745

10 Buildings and equipment, net

	Consolidated financial statements								
	Building improvements Baht	Buildings and structure Baht	Tools Baht	Equipment, furniture and fixtures Baht	Raw water pipes Baht	Industrial water production systems Baht	Waste water treatment systems Baht	Construction in progress Baht	Total Baht
As at 1 January 2017									
Cost	5,150,785	269,999,019	110,144,931	4,433,275	1,752,627,084	804,401,217	207,306,222	25,372,725	3,179,435,258
Less Accumulated depreciation	(1,979,309)	(19,497,909)	(41,916,701)	(420,373)	(175,430,486)	(111,159,932)	(5,432,717)	-	(355,837,427)
Net book amount	3,171,476	250,501,110	68,228,230	4,012,902	1,577,196,598	693,241,285	201,873,505	25,372,725	2,823,597,831
For the year ended 31 December 2017									
Opening net book amount	3,171,476	250,501,110	68,228,230	4,012,902	1,577,196,598	693,241,285	201,873,505	25,372,725	2,823,597,831
Additions	2,087,484	1,274,900	5,816,622	1,882,535	24,541,993	137,681	-	366,763,808	402,505,023
Transfers in (out)	-	-	7,242,545	1,168,500	93,587,675	19,245,255	-	(121,243,975)	-
Write-off	-	-	(33,333)	(1)	-	-	-	-	(33,334)
Depreciation (Note 22)	(567,856)	(9,116,890)	(17,758,908)	(1,136,725)	(72,841,361)	(28,379,793)	(7,158,635)	-	(136,960,168)
Closing net book amount	4,691,104	242,659,120	63,495,156	5,927,211	1,622,484,905	684,244,428	194,714,870	270,892,558	3,089,109,352
As at 31 December 2017									
Cost	7,238,269	271,273,919	122,473,298	7,481,085	1,870,756,752	823,784,153	207,306,222	270,892,558	3,581,206,256
Less Accumulated depreciation	(2,547,165)	(28,614,799)	(58,978,142)	(1,553,874)	(248,271,847)	(139,539,725)	(12,591,352)	-	(492,096,904)
Net book amount	4,691,104	242,659,120	63,495,156	5,927,211	1,622,484,905	684,244,428	194,714,870	270,892,558	3,089,109,352

10 Buildings and equipment, net (Cont'd)

Consolidated financial statements																							
		Building improvements		Buildings and structure		Tools and fixtures		Equipment, furniture and fixtures		Vehicles		Raw water pipes		Industrial production systems		Water treatment systems		Solar systems		Construction in progress		Total	
		Baht		Baht		Baht		Baht		Baht		Baht		Baht		Baht		Baht		Baht		Baht	
As at 1 January 2018																							
Cost		7,238,269	271,273,919	122,473,298	7,481,085	-	1,870,756,752	823,784,153	207,306,222	-	270,892,558	-	270,892,558	-	270,892,558	-	270,892,558	-	270,892,558	-	270,892,558	3,581,206,256	(492,096,904)
Less Accumulated depreciation		(2,547,165)	(28,614,799)	(58,978,142)	(1,553,874)	-	(248,271,847)	(139,539,725)	(12,591,352)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net book amount		4,691,104	242,659,120	63,495,156	5,927,211	-	1,622,484,905	684,244,428	194,714,870	-	270,892,558	-	270,892,558	-	270,892,558	-	270,892,558	-	270,892,558	-	270,892,558	3,089,109,352	-
For the year ended 31 December 2018																							
Opening net book amount		4,691,104	242,659,120	63,495,156	5,927,211	-	1,622,484,905	684,244,428	194,714,870	-	270,892,558	-	270,892,558	-	270,892,558	-	270,892,558	-	270,892,558	-	270,892,558	3,089,109,352	-
Additions		1,986,849	-	4,861,410	2,983,972	672,897	10,194,696	-	73,598	-	247,897,595	-	247,897,595	-	247,897,595	-	247,897,595	-	247,897,595	-	247,897,595	288,671,017	-
Transfers in (out)		567,546	-	5,573,635	1,986,053	-	161,021,700	131,390,417	85,631,720	-	(421,647,510)	-	(421,647,510)	-	(421,647,510)	-	(421,647,510)	-	(421,647,510)	-	(421,647,510)	-	-
Depreciation (Note 22)		(1,071,535)	(9,148,972)	(10,058,117)	(2,120,615)	(89,228)	(80,166,782)	(30,028,363)	(9,540,631)	-	-	-	-	-	-	-	-	-	-	-	-	(143,464,032)	-
Closing net book amount		6,173,964	233,510,148	63,872,084	8,776,621	583,669	1,713,534,519	785,606,482	270,879,557	-	97,142,643	-	97,142,643	-	97,142,643	-	97,142,643	-	97,142,643	-	97,142,643	3,214,316,337	-
As at 31 December 2018																							
Cost		9,792,664	271,273,919	132,908,343	12,451,110	672,897	2,041,973,148	955,174,570	293,011,540	-	384,877,273	-	384,877,273	-	384,877,273	-	384,877,273	-	384,877,273	-	384,877,273	3,849,877,273	(635,560,936)
Less Accumulated depreciation		(3,618,700)	(37,763,771)	(69,036,259)	(3,674,489)	(89,228)	(328,438,629)	(169,568,088)	(22,131,983)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net book amount		6,173,964	233,510,148	63,872,084	8,776,621	583,669	1,713,534,519	785,606,482	270,879,557	-	97,142,643	-	97,142,643	-	97,142,643	-	97,142,643	-	97,142,643	-	97,142,643	3,214,316,337	-

10 Buildings and equipment, net (Cont'd)

	Separate financial statements																	
	Building improvements		Buildings and structure		Tools		Equipment, furniture and fixtures		Raw water pipes		Industrial water production systems		Waste water treatment systems		Construction in progress		Total	
	Baht		Baht		Baht		Baht		Baht		Baht		Baht		Baht		Baht	
As at 1 January 2017																		
Cost	5,150,785		269,999,019		105,401,367		4,433,275		1,727,683,626		594,215,736		207,306,222		25,372,725		2,939,562,755	
Less Accumulated depreciation	(1,979,309)		(19,497,909)		(38,924,520)		(420,373)		(169,781,545)		(40,084,632)		(5,432,717)		-		(276,121,005)	
Net book amount	3,171,476		250,501,110		66,476,847		4,012,902		1,557,902,081		554,131,104		201,873,505		25,372,725		2,663,441,750	
For the year ended 31 December 2017																		
Opening net book amount	3,171,476		250,501,110		66,476,847		4,012,902		1,557,902,081		554,131,104		201,873,505		25,372,725		2,663,441,750	
Additions	2,087,484		1,274,900		5,816,622		1,882,535		24,541,993		137,681		-		260,543,037		296,284,252	
Transfers in (out)	-		-		7,242,545		1,168,500		93,587,675		19,245,255		-		(121,243,975)		-	
Write-off	-		-		(33,333)		(1)		-		-		-		-		(33,334)	
Depreciation (Note 22)	(567,856)		(9,116,890)		(17,624,039)		(1,136,725)		(71,911,908)		(22,355,979)		(7,158,635)		-		(129,872,032)	
Closing net book amount	4,691,104		242,659,120		61,878,642		5,927,211		1,604,119,841		551,158,061		194,714,870		164,671,787		2,829,820,636	
As at 31 December 2017																		
Cost	7,238,269		271,273,919		117,729,735		7,481,085		1,845,813,294		613,598,672		207,306,222		164,671,787		3,235,112,983	
Less Accumulated depreciation	(2,547,165)		(28,614,799)		(55,851,093)		(1,553,874)		(241,693,453)		(62,440,611)		(12,591,352)		-		(405,292,347)	
Net book amount	4,691,104		242,659,120		61,878,642		5,927,211		1,604,119,841		551,158,061		194,714,870		164,671,787		2,829,820,636	

10 Buildings and equipment, net (Cont'd)

	Separate financial statements									
	Building improvements	Buildings and structure	Tools	Equipment, furniture and fixtures	Vehicles	Raw water pipes	Industrial water production systems	Waste water treatment systems	Construction in progress	Total
	Baht	Baht	Baht	Baht	Baht	Baht	Baht	Baht	Baht	Baht
As at 1 January 2018										
Cost	7,238,269	271,273,919	117,729,735	7,481,085	-	1,845,813,294	613,598,672	207,306,222	164,671,787	3,235,112,983
Less Accumulated depreciation	(2,547,165)	(28,614,799)	(55,851,093)	(1,553,874)	-	(241,693,453)	(62,440,611)	(12,591,352)	-	(405,292,347)
Net book amount	4,691,104	242,659,120	61,878,642	5,927,211	-	1,604,119,841	551,158,061	194,714,870	164,671,787	2,829,820,636
For the year ended 31 December 2018										
Opening net book amount	4,691,104	242,659,120	61,878,642	5,927,211	-	1,604,119,841	551,158,061	194,714,870	164,671,787	2,829,820,636
Additions	1,943,629	-	4,081,136	2,983,972	672,897	10,194,696	-	73,598	120,790,608	140,740,536
Transfers in (out)	532,710	-	5,573,636	1,986,053	-	161,021,700	13,348,730	85,631,721	(268,094,550)	-
Depreciation (Note 22)	(1,071,193)	(9,148,972)	(9,884,264)	(2,120,615)	(89,228)	(79,237,328)	(22,355,201)	(9,540,631)	-	(133,447,432)
Closing net book amount	6,096,250	233,510,148	61,849,150	8,776,621	583,669	1,696,098,909	542,151,590	270,879,558	17,367,845	2,837,113,740
As at 31 December 2018										
Cost	9,714,608	271,273,919	127,384,507	12,451,110	672,897	2,017,029,690	626,947,402	293,011,541	17,367,845	3,375,853,519
Less Accumulated depreciation	(3,618,358)	(37,763,771)	(65,735,357)	(3,674,489)	(89,228)	(320,930,781)	(84,795,812)	(22,131,983)	-	(538,739,779)
Net book amount	6,096,250	233,510,148	61,849,150	8,776,621	583,669	1,696,098,909	542,151,590	270,879,558	17,367,845	2,837,113,740

10 Buildings and equipment, net (Cont'd)

Depreciation was charged to the statements of comprehensive income as follows:

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Cost of sales	95,104,610	79,644,411	85,088,010	79,644,411
Cost of services	46,581,103	56,305,284	46,581,103	49,217,148
Administrative expense	1,778,319	1,010,473	1,778,319	1,010,473
	<u>143,464,032</u>	<u>136,960,168</u>	<u>133,447,432</u>	<u>129,872,032</u>

11 Right to operate and distribute industrial water, net

The company had entered into a contract to obtain the right to produce and distribute industrial water. The contractual period is 25 years from 1 July 2008 to 30 June 2033.

For the year ended 31 December, the movements of right for production and distribution of industrial water are as follows:

	Consolidated and Separate financial statements	
	2018 Baht	2017 Baht
As at 1 January		
Cost	217,300,000	217,300,000
<u>Less</u> Accumulated amortisation	<u>(82,609,721)</u>	<u>(73,917,721)</u>
Net book amount	<u>134,690,279</u>	<u>143,382,279</u>
For the year ended 31 December		
Opening net book amount	134,690,279	143,382,279
Amortisation (Note 22)	<u>(8,692,000)</u>	<u>(8,692,000)</u>
Closing net book amount	<u>125,998,279</u>	<u>134,690,279</u>
As at 31 December		
Cost	217,300,000	217,300,000
<u>Less</u> Accumulated amortisation	<u>(91,301,721)</u>	<u>(82,609,721)</u>
Net book amount	<u>125,998,279</u>	<u>134,690,279</u>

12 Intangible assets, net

	Consolidated and Separate financial statements		
	Right to operate and distribute industrial water and waste management Baht	Computer program and water plant maintenance program Baht	Total Baht
For the year ended 31 December 2017			
Open net book amount	2,025,436,573	-	2,025,436,573
Additions	-	2,033,800	2,033,800
Amortisation (Note 22)	(35,620,954)	(81,609)	(35,702,563)
Closing net book amount	<u>1,989,815,619</u>	<u>1,952,191</u>	<u>1,991,767,810</u>
As at 31 December 2017			
Cost	2,052,469,461	2,033,800	2,054,503,261
<u>Less</u> Accumulated amortisation	<u>(62,653,842)</u>	<u>(81,609)</u>	<u>(62,735,451)</u>
Net book amount	<u>1,989,815,619</u>	<u>1,952,191</u>	<u>1,991,767,810</u>
For the year ended 31 December 2018			
Open net book amount	1,989,815,619	1,952,191	1,991,767,810
Additions	-	1,639,000	1,639,000
Amortisation (Note 22)	(36,902,219)	(833,975)	(37,736,194)
Closing net book amount	<u>1,952,913,400</u>	<u>2,757,216</u>	<u>1,955,670,616</u>
As at 31 December 2018			
Cost	2,052,469,461	3,672,800	2,056,142,261
<u>Less</u> Accumulated amortisation	<u>(99,556,061)</u>	<u>(915,584)</u>	<u>(100,471,645)</u>
Net book amount	<u>1,952,913,400</u>	<u>2,757,216</u>	<u>1,955,670,616</u>

The Company entered into the agreements with the parent company and certain of its subsidiaries for the right to operate and distribute industrial water and waste water management which included WHA Industrial Development Public Company Limited (Formerly "Hemaraj Land and Development Public Company Limited"), WHA Eastern Industrial Estate Company Limited (Formerly "Eastern Industrial Estate Co., Ltd."), WHA Eastern Seaboard Industrial Estate Company Limited (Formerly "Hemaraj Eastern Seaboard Industrial Estate Co., Ltd."), WHA Rayong Industrial Land Company Limited (Formerly "Hemaraj Rayong Industrial Land Co., Ltd."), WHA Saraburi Industrial Land Company Limited (Formerly "Hemaraj Saraburi Industrial Land Co., Ltd."), and WHA Eastern Seaboard Industrial Estate 4 Company Limited (Formerly "Hemaraj Eastern Seaboard Industrial Estate 4 Co., Ltd."). The contracts period are 50 years commencing from the start of the agreement of each project.

13 Goodwill

Goodwill is allocated to the Group's Cash-Generating Units (CGUs) identified according to business segment as follows:

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Power business	2,162,207,653	2,162,207,653	-	-
Water business	610,669,873	610,669,873	610,669,873	610,669,873
	<u>2,772,877,526</u>	<u>2,772,877,526</u>	<u>610,669,873</u>	<u>610,669,873</u>

The recoverable amount of a CGU is determined based on fair value less costs of disposal and calculate by using a present value techniques that are within level 3 of the fair value hierarchy. These calculations use cash flow projections based on financial budgets approved by management covering a five-year period. Cash flows beyond the five-year period are extrapolated using the estimated growth rates that does not exceed the long-term average growth rate for the business in which the CGU operates.

The key assumptions used for fair value less costs of disposal calculations are as follows:

	Power business (%)	Water business (%)
Gross margin	-	25.5
Growth rate	(3.5)	6.3
Discount rate	7.0	4.5

Management determined budgeted gross margin based on past performance and its expectations of market development. The weighted average growth rates used are consistent with the forecasts included in industry reports. The discount rates used reflect specific risks relating to the relevant segments.

The recoverable amount will be equal to the carrying amount if the key assumptions used for fair value less costs of disposal changes to be as follows:

	Power business (%)	Water business (%)
Gross margin	-	6.4
Growth rate	(8.0)	(12.3)
Discount rate	11.6	21.6

14 Deferred income taxes

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

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Deferred tax assets:				
to be recovered within 12 months	-	1,669,200	-	-
Deferred tax liabilities:				
to be settled within 12 months	(17,026,339)	(4,700,791)	(14,251,801)	(1,926,253)
to be settled after more than 12 months	(122,969,768)	(144,516,927)	(100,758,266)	(119,530,888)
	(139,996,107)	(149,217,718)	(115,010,067)	(121,457,141)
Deferred tax asset, net	(139,996,107)	(147,548,518)	(115,010,067)	(121,457,141)

The movements of deferred tax are as follows:

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
As at 1 January	(147,548,518)	(181,722,647)	(121,457,141)	(151,187,533)
Recognised to profit or loss (Note 23)	7,552,411	35,223,535	6,447,074	29,660,218
Recognised to other comprehensive income	-	(1,049,406)	-	70,174
As at 31 December	(139,996,107)	(147,548,518)	(115,010,067)	(121,457,141)

14 Deferred income taxes (Cont'd)

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

	Consolidated financial statements			
	As at 1 January 2017 Baht	Recognised to profit or loss Baht	Recognised to comprehensive income Baht	As at 31 December 2017 Baht
Deferred tax assets				
Allowance for doubtful account	1,405	5,211,363	-	5,212,768
Employee benefit obligations	1,664,918	1,581,758	(1,049,406)	2,197,270
Cash paid for transfer of water business	540,507,858	(10,976,000)	-	529,531,858
Provision liabilities from water business	55,973,246	4,946,461	-	60,919,707
Interest expenses paid on borrowings	-	7,575,700	-	7,575,700
	598,147,427	8,339,282	(1,049,406)	605,437,303
Deferred tax liabilities				
Right to operate and distribute industrial water and waste management	(405,087,311)	7,124,187	-	(397,963,124)
Depreciation	(344,247,649)	16,985,529	-	(327,262,120)
Fair value adjustment from long-term investment	(30,535,114)	2,774,537	-	(27,760,577)
	(779,870,074)	26,884,253	-	(752,985,821)
Deferred income tax, net	(181,722,647)	35,223,535	(1,049,406)	(147,548,518)

14 Deferred income taxes (Cont'd)

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

	Consolidated financial statements			
	As at 1 January 2018 Baht	Recognised to profit or loss Baht	Recognised to comprehensive income Baht	As at 31 December 2018 Baht
Deferred tax assets				
Allowance for doubtful account	5,212,768	(3,367,369)	-	1,845,399
Employee benefit obligations	2,197,270	1,210,620	-	3,407,890
Cash paid for transfer of water business	529,531,858	(10,976,000)	-	518,555,858
Provision liabilities from water business	60,919,707	5,394,642	-	66,314,349
Interest expenses paid on borrowings	7,575,700	(7,575,700)	-	-
	605,437,303	(15,313,807)	-	590,123,496
Deferred tax liabilities				
Right to operate and distribute industrial water and waste management	(397,963,124)	7,380,444	-	(390,582,680)
Depreciation	(327,262,120)	15,140,060	-	(312,122,060)
Fair value adjustment from long-term investment	(27,760,577)	2,774,537	-	(24,986,040)
Bond underwriting	-	(2,428,823)	-	(2,428,823)
	(752,985,821)	22,866,218	-	(730,119,603)
Deferred income tax, net	(147,548,518)	7,552,411	-	(139,996,107)

14 Deferred income taxes (Cont'd)

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

	Separate financial statements			
	As at 1 January 2017 Baht	Recognised to profit or loss Baht	Recognised to comprehensive income Baht	As at 31 December 2017 Baht
Deferred tax assets				
Allowance for doubtful account	1,405	3,542,163	-	3,543,568
Employee benefit obligations	1,664,918	462,178	70,174	2,197,270
Cash paid for transfer of water business	540,507,858	(10,976,000)	-	529,531,858
Provision liabilities from water business	55,973,246	4,946,461	-	60,919,707
Interest expenses paid on borrowings	-	7,575,700	-	7,575,700
	598,147,427	5,550,502	70,174	603,768,103
Deferred tax liabilities				
Right to operate and distribute industrial water and waste management	(405,087,311)	7,124,187	-	(397,963,124)
Depreciation	(344,247,649)	16,985,529	-	(327,262,120)
	(749,334,960)	24,109,716	-	(725,225,244)
Deferred income tax, net	(151,187,533)	29,660,218	70,174	(121,457,141)

14 Deferred income taxes (Cont'd)

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

	Separate financial statements			
	As at 1 January 2018 Baht	Recognised to profit or loss Baht	Recognised to comprehensive income Baht	As at 31 December 2018 Baht
Deferred tax assets				
Allowance for doubtful account	3,543,568	(1,698,169)	-	1,845,399
Employee benefit obligations	2,197,270	1,210,620	-	3,407,890
Cash paid for transfer of water business	529,531,858	(10,976,000)	-	518,555,858
Provision liabilities from water business	60,919,707	5,394,642	-	66,314,349
Interest expenses paid on borrowings	7,575,700	(7,575,700)	-	-
	603,768,103	(13,644,607)	-	590,123,496
Deferred tax liabilities				
Right to operate and distribute industrial water and waste management	(397,963,124)	7,380,444	-	(390,582,680)
Depreciation	(327,262,120)	15,140,059	-	(312,122,061)
Bond underwriting	-	(2,428,822)	-	(2,428,822)
	(725,225,244)	20,091,681	-	(705,133,563)
Deferred income tax, net	(121,457,141)	6,447,074	-	(115,010,067)

15 Trade and other payable

As at 31 December, trade and other payable consisted of:

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Trade payable from other parties	31,693,672	80,879,613	27,933,593	36,577,370
Trade payable from related parties (Note 27.2)	63,731,063	73,602,614	63,624,063	73,602,614
Accrued interest expense	52,017,027	149,909,923	52,017,027	149,909,923
Accrued expenses	42,074,237	31,349,168	27,923,086	28,702,695
Others	202,919	449,922	44,262	449,922
	<u>189,718,918</u>	<u>336,191,240</u>	<u>171,542,031</u>	<u>289,242,524</u>

16 Borrowings

	Consolidated and Separate financial statements	
	2018 Baht	2017 Baht
Non-current		
Long-term borrowings from financial institution	-	3,936,901,708
Debentures	<u>8,987,977,050</u>	<u>3,993,421,481</u>
	<u>8,987,977,050</u>	<u>7,930,323,189</u>

During the period, the Company has repaid all of the outstanding long-term borrowing from financial institution.

The movements of borrowings from financial institutions for the year ended 31 December are as follows:

	Consolidated and separate financial statements	
	2018 Baht	2017 Baht
As at 1 January	3,936,901,708	10,421,438,406
Repayment	(3,999,000,000)	(6,500,000,000)
Amortisation of deferred direct finance cost	<u>62,098,292</u>	<u>15,463,302</u>
As at 31 December	<u>-</u>	<u>3,936,901,708</u>

On 26 June 2018, the Company issued 3 series of unsecured debentures denominated in Thai Baht of which detail are as follows:

- Series 1** Debenture amount of Baht 2,390 million. The principal will be redeemed on the maturity date on 26 August 2021. The debenture bears interest at a fixed rate of 2.65% per annum and the interest is paid every six-month.
- Series 2** Debenture amount of Baht 1,290 million. The principal will be redeemed on the maturity date on 26 August 2023. The debenture bears interest at a fixed rate of 3.17% per annum and the interest is paid every six-month.
- Series 3** Debenture amount of Baht 1,320 million. The principal will be redeemed on the maturity date on 26 August 2025. The debenture bears interest at a fixed rate of 3.66% per annum and the interest is paid every six-month.

16 Borrowings (Cont'd)

The movements of debenture for the year ended 31 December are as follows:

	Consolidated and Separate financial statements	
	2018 Baht	2017 Baht
As at 1 January	3,993,421,481	-
Additions	5,000,000,000	4,000,000,000
Deferred direct finance cost	(8,969,489)	(7,463,400)
Amortisation of deferred direct finance cost	3,525,058	884,881
As at 31 December	8,987,977,050	3,993,421,481

Maturity of long-term loans from financial institution and debentures are as follows:

	Consolidated and Separate financial statements	
	2018 Baht	2017 Baht
Within 1 year	-	-
Between 2 years and 5 years	7,670,220,972	7,930,323,189
Over 5 years	1,317,756,078	-
	8,987,977,050	7,930,323,189

The effective interest rates at the statement of financial position date were as follows:

	Consolidated and Separate financial statements	
	2018 %	2017 %
Long-term borrowing from financial institution	-	4.92
Debentures	2.70 - 3.63	3.37

The carrying amounts and fair values of certain long-term loans are as follows:

	Consolidated and separate financial statements			
	Carrying amount		Fair values	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Long-term borrowing from financial institution	-	3,936,901,708	-	4,037,286,929
Debentures	8,987,977,050	3,993,421,481	9,045,434,346	3,989,300,472
	8,987,977,050	7,930,323,189	9,045,434,346	8,026,587,401

The fair values of long-term borrowing from financial institution are based on discounted cash flows using a discount rate based upon the loan rate of 4.92% and are within level 2 of the fair value hierarchy.

The fair values of debentures are based on clean price announced by Thai Bond Market Association that are within level 2 of the fair value hierarchy.

16 Borrowings (Cont'd)

The movements in loans from investing activities during the year are as follows:

	Consolidated and Separate financial statements	
	Long-term borrowing from financial institution Baht	Debentures Baht
As at 1 January 2017	10,421,438,406	-
Cash flows in (out), net	(6,500,000,000)	3,992,536,600
Amortisation of deferred direct finance cost	15,463,302	884,881
As at 31 December 2017	3,936,901,708	3,993,421,481
Cash flows in (out), net	(3,999,000,000)	4,991,030,511
Amortisation of deferred direct finance cost	62,098,292	3,525,058
As at 31 December 2018	-	8,987,977,050

17 Provision for liabilities from water business

Provision for liabilities from water business represents the annual right lease fees to be paid according to the Strategic Partnership Agreement and Right Lease Agreement to operate the industrial water business and the waste water management business. The annual right lease fees are calculated at 1% for the first-three years and 3% for the fourth-fiftieth year of revenue from water business before deduction of expenses over the contract period.

Movements of provision for liabilities from water business for the year ended 31 December are as follows:

	Consolidated and Separate financial statements	
	2018 Baht	2017 Baht
As at 1 January	304,598,534	279,866,229
Provision paid during the year	(8,558,736)	(8,052,901)
Interest expense (Note 21)	35,531,947	32,785,206
As at 31 December	331,571,745	304,598,534

18 Employee Benefit Obligations

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Retirement benefits	17,039,449	10,986,346	17,039,449	10,986,346

18 Employee Benefit Obligations (Cont'd)

The movement of employee benefit obligation for the year is as follows:

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
As at 1 January	10,986,346	8,324,585	10,986,346	8,324,585
Current service cost	3,134,346	3,022,641	3,134,346	2,107,779
Past service cost	2,591,537	-	2,591,537	-
Interest expense	327,220	203,112	327,220	203,112
Transferred employees between the Group	-	4,683,036	-	-
(Gain) loss on remeasurements of retirement benefit obligations	-	(5,247,028)	-	350,870
As at 31 December	17,039,449	10,986,346	17,039,449	10,986,346

Retirement benefit expenses which are recognised as income or expense in operating profit in the statement of comprehensive income are as follows:

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Current service costs	3,134,346	3,022,641	3,134,346	2,107,779
Past service cost	2,591,537	-	2,591,537	-
Interest expense	327,220	203,112	327,220	203,112
Transferring employees between the Group	-	4,683,036	-	-
(Gain) loss on remeasurements of retirement benefit obligations	-	(5,247,028)	-	350,870
	6,053,103	2,661,761	6,053,103	2,661,761

Actuarial gain or loss were included in other comprehensive income in statement of comprehensive income.

The principal actuarial assumptions used were as follows:

	Consolidated and separate financial statements	
	2018	2017
Discount rate	2.41%	2.41%
Salary increase rate	6.35%	6.35%
Retirement age	55 years old	55 years old
Turnover rate	0.00% - 13.00%	0.00% - 13.00%

The effects to the retirement benefit obligation as at 31 December 2018 is as follows:

	consolidated and separate financial statements		
	Change in assumption	Increase in assumption	Decrease in assumption
Discount rate	1.00 %	Decrease by 8.29 %	Increase by 9.42 %
Salary growth rate	1.00 %	Increase by 9.99 %	Decrease by 8.94 %
Staff turnover rate	1.00 %	Decrease by 8.79 %	Increase by 5.51 %

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 assumption the same method (present value of the defined benefit obligation calculated with the projected unit credit method) has been applied as when calculating the retirement benefits recognised within the statement of financial position.

The weighted average durations of the retirement benefit obligation as at 31 December 2018 and 2017 are 8.68 and 7.68 years, respectively.

19 Dividends

On 27 April 2018, the shareholders at the Annual General Meeting for the year ended 2018 has approved a dividend payment for the operating results for the year ended 2017 at Baht 0.2034 per share, amounting to Baht 778.01 million. The dividend was paid on 21 May 2018.

20 Legal reserve

	Consolidated and Separate financial statements	
	2018 Baht	2017 Baht
As at 1 January	73,100,541	36,251,431
Appropriation during the year	39,666,255	36,849,110
As at 31 December	112,766,796	73,100,541

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% of the registered capital. The legal reserve is non-distributable.

21 Finance cost

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Long-term borrowing from financial institution	106,935,339	362,943,882	106,935,339	362,943,882
Debentures	212,171,285	49,524,701	212,171,285	49,524,701
Issuing debentures fee (Note 16)	3,525,058	884,881	3,525,058	884,881
Interest expense from provision for liabilities from water business (Note 17)	35,531,947	32,785,206	35,531,947	32,785,206
Others	8,391,611	13,728,793	1,229	113
Total finance costs	366,555,240	459,867,463	358,164,858	446,138,783

22 Expense by nature

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Cost of raw water	699,639,656	708,695,114	699,639,656	708,695,114
Employee benefit expense	91,628,848	72,107,293	91,628,848	72,107,293
Depreciation (Note 10)	143,464,032	136,960,168	133,447,432	129,872,032
Amortisation (Note 11, 12)	46,428,194	44,394,563	46,428,194	44,394,563
Operating lease	20,270,346	14,900,822	18,367,864	13,368,860
Professional fee	14,211,458	9,684,346	14,211,458	9,684,346
Management and director remuneration	11,984,646	12,688,263	11,984,646	12,688,263

23 Income tax expense (benefit)

Income tax expenses (benefit) for the year ended 31 December can be summarised below:

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Current tax	56,646,179	52,385,606	-	-
Adjustments in respect of prior year	-	993,116	-	-
Deferred tax (Note 14)	(7,552,411)	(35,223,535)	(6,447,074)	(29,660,218)
	<u>49,093,768</u>	<u>18,155,187</u>	<u>(6,447,074)</u>	<u>(29,660,218)</u>

The tax on the Group's profit before tax differs from the theoretical amount that would arise using the basic tax rate of the year presents as follows:

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Profit before tax	2,300,991,631	1,999,070,792	786,878,023	707,321,972
Profit exempt from BOI	(35,827,306)	(69,908,531)	-	-
Share of profit from investments in associates and interest in joint ventures	(2,047,414,903)	(1,936,106,033)	-	-
	<u>217,749,422</u>	<u>(6,943,772)</u>	<u>786,878,023</u>	<u>707,321,972</u>
Tax calculated at a tax rate of 20%	43,549,884	(1,388,754)	157,375,605	141,464,394
Tax effect:				
Expense double deductible	(725,813)	(1,560,930)	(725,813)	-
Income not subject to tax	(7,803,795)	(5,925,140)	(161,161,836)	(185,749,586)
Expenses not deductible for tax purpose	64,032	19,429	63,810	1,619
Utilisation of previously unrecognized tax losses	-	-	(1,998,840)	-
Tax losses for which no deferred income tax asset was recognised	14,009,460	26,017,466	-	14,623,355
Adjustments in respect of prior year	-	993,116	-	-
Income tax expense (benefit)	<u>49,093,768</u>	<u>18,155,187</u>	<u>(6,447,074)</u>	<u>(29,660,218)</u>

23 Income tax expense (benefit) (Cont'd)

The tax relating to component of other comprehensive income is as follows:

	Consolidated financial statements					
	2018			2017		
	Before tax Baht	Tax Baht	After tax Baht	Before tax Baht	Tax Baht	After tax Baht
Currency translation differences	(423,012)	-	(423,012)	-	-	-
Remeasurements on employee benefit obligations	-	-	-	5,247,028	(1,049,406)	4,197,622
Share of other comprehensive income of joint ventures	(1,177,960)	-	(1,177,960)	(10,459,539)	-	(10,459,539)
	(1,600,972)	-	(1,600,972)	(5,212,511)	(1,049,406)	(6,261,917)
	Separate financial statement					
	2018			2017		
	Before tax Baht	Tax Baht	Before tax Baht	Before tax Baht	Tax Baht	Tax Baht
Remeasurements on employee benefit obligations	-	-	-	(350,870)	70,174	(280,696)

24 Earnings per share

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
Profit attributable to ordinary shareholders of the Company (Baht)	2,251,897,827	1,980,915,562	793,325,097	736,982,190
Weighted average number of ordinary shares outstanding (shares)	3,825,000,000	3,664,041,096	3,825,000,000	3,664,041,096
Basic earnings per share (Baht per share)	0.59	0.54	0.21	0.20

Basic earnings per share is calculated by dividing the profit attributable to shareholders of the Company by the weighted average number of ordinary shares.

25 Commitments and contingent liabilities

25.1 Capital commitments

Capital commitment at the statement of financial position date but not recognised in the financial statements is as follows:

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Construction in progress	112,393,045	80,402,770	11,978,287	31,024,672

25.2 Operating lease commitments

The Company has the obligations under long-term lease agreements for office building, vehicles and land with the term of contracts for 3 years, 5 years and 30 years, respectively. The obligations for rental payments are as follows:

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
Not later than 1 year	14,484,838	11,707,062	13,025,485	10,247,709
Later than 1 year but not later than 5 years	41,117,005	39,588,744	34,886,118	33,503,792
Over 5 years	238,144,444	246,691,053	193,556,766	200,498,087
	<u>293,746,287</u>	<u>297,986,859</u>	<u>241,468,369</u>	<u>244,249,588</u>

25.3 Contingent liabilities

The Group has contingent liabilities relating to a guarantee under conditions of the standby letters of credit issued by the financial institutions according to the performance bond with power business in the total amount of Baht 265.58 million (2017: Baht 1,006.98 million) and USD 7.72 million (2017: USD 9.04 million).

The Group has contingent liabilities relating to a guarantee of Glow IPP Co., Ltd.'s loans by its ordinary shares which are classified as other long-term investment.

26 Assets pledged as collaterals

Company	Assets pledged as collaterals	Collaterals
WHA Energy Company Limited	Investment in ordinary shares of associates - Gulf JP NLL Company Limited amounted to 34.61 million shares - Gulf Solar Company Limited amounted to 0.37 million shares - B.Grim Power (WHA) 1 Limited amounted to 3.84 million shares - Gulf VTP Company Limited amounted 40.27 million shares - Gulf TS1 Company Limited amounted to 42.14 million shares - Gulf TS2 Company Limited amounted to 42.27 million shares - Gulf TS3 Company Limited amounted to 38.02 million shares - Gulf TS4 Company Limited amounted to 36.76 million shares - Gulf NLL2 Company Limited amounted to 32.34 million shares	Borrowings by Gulf JP NLL Co., Ltd. Borrowings by Gulf Solar Co., Ltd. Borrowings by B.Grim Power (WHA) 1 Ltd. Borrowings by Gulf VTP Co., Ltd. Borrowings by Gulf TS1 Co., Ltd. Borrowings by Gulf TS2 Co., Ltd. Borrowings by Gulf TS3 Co., Ltd. Borrowings by Gulf TS4 Co., Ltd. Borrowings by Gulf NLL2 Co., Ltd.
WHA Energy 2 Company Limited	Investment in ordinary shares of associates - Gheco-One Company Limited amounted to 406.84 million Investment in other long-term investment - Glow IPP Company Limited amounted to 14.25 million shares	Borrowings by Gheco-One Co., Ltd. Borrowings by Glow IPP Co., Ltd.

27 Related-party transactions

Individuals and entity that directly, or indirectly through one or more intermediaries, control, or are controlled by, or are under common control with, the company, including holding companies, subsidiaries and fellow subsidiaries are related parties of the company. Associates and individuals owning, directly or indirectly, an interest in the voting power of the company that gives them significant influence over the Company, key management personnel, including directors and officers of the Company and close members of the family of these individuals and entities associated with these individuals also constitute related parties.

In considering each possible individuals and related-party relationship, attention is directed to the substance of the relationship, and not merely the legal form.

27 Related-party transactions (Cont'd)

27.1 Revenue and expenses

During the year ended 31 December, the Group has significant related-party transactions that can be summarised as follows:

	Consolidated financial statements		Separate financial statements	
	2018	2017	2018	2017
	Baht	Baht	Baht	Baht
<u>Ultimate parent company</u>				
Revenue from sales and services	2,919,273	56,800	74,806	56,800
Electricity fee	-	99	-	-
Service fee	-	48,406	-	-
Management fee	1,579,200	-	1,579,200	-
Rental fee	-	72,610	-	-
<u>Parent company</u>				
Raw water cost	43,295,384	32,755,930	43,295,384	32,755,930
Electricity fee	-	2,406,631	-	2,406,631
Service fee	180,000	191,885	180,000	191,885
Management fee	12,632,258	9,150,000	12,632,258	9,150,000
Rental fee	3,125,405	2,397,430	3,125,405	2,397,430
Advertising expense	164,839	-	-	-
<u>Associates</u>				
Revenue from sales and services	212,151,056	105,689,477	212,151,056	105,689,477
Interest income	54,087,897	71,336,339	-	-
Other income	27,298,110	-	2,537,475	-
<u>Subsidiaries</u>				
Revenue from sales and services	-	-	309,982,177	305,389,147
Interest income	-	-	78,913,353	42,028,211
Dividend income	-	-	804,281,964	928,747,934
<u>Join Ventures</u>				
Revenue from sales and services	996,440	287,500	672,440	287,500
Interest income	849,463	507,792	384,805	507,792
<u>Other related parties</u>				
Revenue from sales and services	4,289,177	6,705,411	4,289,177	6,705,411
Raw water cost	654,886,253	675,939,183	654,886,253	675,939,183
Electricity fee	774,322	9,888,737	774,322	9,888,737
Service fee	1,131,058	1,007,393	1,131,058	1,007,393
Amortisation of right for production and distribution of water	8,692,000	8,692,000	8,692,000	8,692,000
Rental fee	6,955,241	4,824,502	5,052,759	3,365,149
Consulting fee	235,484	-	-	-
Training	-	42,675	-	42,675

27 Related-party transactions (Cont'd)

27.2 Outstanding balance arose from purchase and sale from goods and service

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
<u>Trade receivables</u>				
Ultimate parent company	716,951	11,556	18,336	11,556
Associates	29,740,567	16,602,386	25,841,895	16,602,386
Subsidiaries	-	-	18,406,995	52,138,929
Joint Ventures	360,675	307,625	13,995	307,625
Other related parties	408,428	352,514	408,428	352,514
	<u>31,226,621</u>	<u>17,274,081</u>	<u>44,689,649</u>	<u>69,413,010</u>
<u>Accrued income</u>				
Associates	31,450,592	25,313,891	-	-
Subsidiaries	-	-	12,067,420	11,002,263
Other related parties	336,263	320,250	336,263	320,250
	<u>31,786,855</u>	<u>25,634,141</u>	<u>12,403,683</u>	<u>11,322,513</u>
<u>Accrued interest income</u>				
Associates	1,549,177	1,821,314	-	-
Subsidiaries	-	-	9,257,017	2,988,445
Joint ventures	464,658	553,064	-	553,064
	<u>2,013,835</u>	<u>2,374,378</u>	<u>9,257,017</u>	<u>3,541,509</u>
<u>Advance to related parties</u>				
Subsidiaries	-	-	133,120	380,620
	<u>-</u>	<u>-</u>	<u>133,120</u>	<u>380,620</u>
<u>Others receivables</u>				
Parent company	10,161	-	-	-
Other related parties	14,516	-	-	-
	<u>24,677</u>	<u>-</u>	<u>-</u>	<u>-</u>
<u>Trade and other payables</u>				
Parent company	4,499,492	3,810,498	4,499,492	3,810,498
Other related parties	59,231,571	69,792,116	59,124,571	69,792,116
	<u>63,731,063</u>	<u>73,602,614</u>	<u>63,624,063</u>	<u>73,602,614</u>
<u>Accrued expense</u>				
Ultimate parent company	-	1,411,717	-	1,411,717
Parent company	1,062,889	3,816,933	1,062,889	3,816,933
Other related parties	4,023,627	3,774,310	3,823,181	3,766,464
	<u>5,086,516</u>	<u>9,002,960</u>	<u>4,886,070</u>	<u>8,995,114</u>

27 Related-party transactions (Cont'd)

27.3 Short-term loans to related parties

Short-term loans to associate and joint venture are due at call and bear interest rate at MLR and MLR - 1.25% per annum respectively. The movement of short-term loans to related parties for the year ended 31 December are as follows:

	Consolidated financial statements		Separate financial statements	
	2018 Baht	2017 Baht	2018 Baht	2017 Baht
As at 1 January	1,013,765,000	1,432,900,000	1,556,015,000	592,985,623
Additional	53,000,000	39,015,000	1,217,000,000	1,125,015,000
Received	(312,214,500)	(458,150,000)	(119,575,000)	(161,985,623)
As at 31 December	754,550,500	1,013,765,000	2,653,440,000	1,556,015,000

27.4 Key management compensation

Key management includes directors (executive and non-executive), members of the Executive Committee, the Company Secretary and the Head of Internal Audit. The compensation paid or payable to key management for employee services is shown below:

	Consolidated and Separate financial statements	
	2018 Baht	2017 Baht
Short-term benefits	48,776,634	43,068,862
Post-employment benefits	2,877,080	1,758,627
	51,653,714	44,827,489

28 Benefits from the Board of Investment of Thailand (BOI)

For the year ended 31 December 2018 and 2017, the Group has received the benefits from the BOI for public utilities and basis services production of water supply for industry, 4 certificates.

Significant privileges consist of:

- 1) Tax exemption on the profit that the Company obtains (no more than 100% of the investment cost that is not include in land cost and working capital for a period of 8 years). If the Company has loss from the operation, BOI allows the Company to deduct the loss from the profit that might occur after BOI expiry date within 5 years. In addition, the Company can also choose to deduct the loss within one year or within multiple years.
- 2) The Group does not need to include dividend received from a BOI-promoted entity to calculate the income tax expenses during the exemption period.
- 3) Tax deduction (50% of normal rate) on net profit within 5 years after the end of the privilege period as mentioned in 1 above.
- 4) Double deduction on distribution, electricity, and water supply cost within 10 years starting from the date that the Group receives its first profit from the operation.
- 5) Deduction on investment cost for installation or construction (25% of investment cost) that is not included in the normal depreciation deduction.

28 Benefits from the Board of Investment of Thailand (BOI) (Cont'd)

As a promoted company, the Company must comply with certain conditions and restrictions provided for in the promotional certificates.

Services income for promoted and non-promoted activities for the years ended 31 December can be classified as follows:

	Consolidated financial statements					
	2018 (Baht '000)			2017 (Baht '000)		
	Promoted activity	Non-promoted activity	Total	Promoted activity	Non-promoted activity	Total
Sales income	245,129	1,277,974	1,523,103	378,536	1,061,640	1,440,176
Services income	-	185,182	185,182	-	193,581	193,581
	<u>245,129</u>	<u>1,463,156</u>	<u>1,708,285</u>	<u>378,536</u>	<u>1,255,221</u>	<u>1,633,757</u>

Investor may additionally obtain the information of the issuing company from its annual filing (orm 56-1) showing in www.set.or.th, www.sec.or.th or in the website of WHA Utilities and Power Public Company Limited www.wha-up.com



WHA Utilities and Power Public Company Limited

Head Office :

24th Floor, UM Tower 9/241-242 Ramkhamhaeng Road,
Suanluang Bangkok 10250, Thailand
Tel : (66) 2-719-9559 Fax : (66) 2-717-2128



www.wha-up.com