

Thai Corporate Day

3 December 2019



Bank of America Merrill Lynch Client Center, Singapore



Vision & Goal

Vision

To become a leading value-oriented
energy and infrastructure company in Asia Pacific

Goal

To increase generating capacity up to **10,000 MW** or equivalent/to increase enterprise value (EV) up to 200 Billion Baht

To increase generating capacity in Renewable (including Hydro) not less than **20%** of total capacity from both domestic and overseas projects

To maintain the domestic revenue proportion not less than **50%** of the total revenue

To enhance organization on the principle of **HPO (High Performance Organization)**



Valued Portfolio to Enhance Long-term Growth

POWER

- ☐ Electric Power Generation
 - : Gas, Coal, Mining, LNG
- ☐ Renewable Energy
 - : Wind, Solar, Hydro, Biomass, Nuclear, Geothermal, Wood Pallet
- ☐ O&M



WATER SUPPLY

- ☐ Water Supply
- ☐ Waste Water Management

Energy & Infrastructure

POWER

WATER
SUPPLY

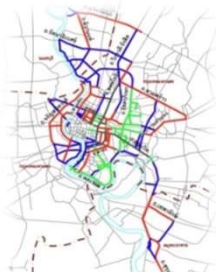
TELECOMMUNICATION

TRANSPORTATION



TRANSPORTATION

- ☐ Roads
- ☐ Rails
- ☐ Mass Transit
- ☐ Ports
- ☐ Airports



TELECOMMUNICATION

- ☐ Underground Fiber Optic Network
- ☐ Smart Grid/Smart City
- ☐ Broadband Connectivity

Excellent Track Record of Successful Diversified Portfolio

Power Generation

Power plant projects in Thailand



**Ratchaburi
(RATCHGEN)**
3,645 MW



**Ratchaburi Power
(RPCL)**
372.50 MW



**Ratchaburi World
(RW Cogen)**
93.60 MW



**Nava Nakhon
(NNEG)**
55.65 MW



**Tri Energy
(TECO)**
720 MW



**Berkprai
Cogeneration**
34.73 MW



RATCH Cogeneration
119.11 MW

Under Construction

- Nava Nakhon (Extension) 23.99 MW
- Hin Kong Unit 1-2 1,400 MW

International Investment

Power plant and renewable projects outside Thailand



Num Ngum 2
153.75 MW



Hongsa
751.20 MW



Townsville
234 MW



Toora
21 MW



Starfish Hill
33 MW



Windy Hill
12 MW



Mount Emerald
180.45 MW



Kemerton
315.20 MW



BP Kwinana
35.40 MW



Asahan-1
47.90 MW



Collinsville
42.50 MW

Capital Investment : EDL-Gen 114.97 MW

Under Construction

- Xe-Pian Xe-Namnoy 102.5 MW
- Riau Combined-Cycle 145.15 MW
- Fangchenggang II Nuclear Power 236 MW
- Collector Wind Farm 226.8 MW
- Yandin Wind Farm 149.94 MW

Renewable Energy

Renewable projects in Thailand



Huay Bong 2
20.70 MW



Huay Bong 3
20.70 MW



**Solar Power
(Korat 3, 4, 7)**
8.64 MW

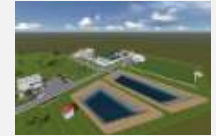


Solarta 20.73 MW



Songkhla Biomass
3.96 MW

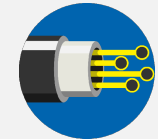
Infrastructure



**Sandin Water Supply
Project**



**MRT Pink Line and
Yellow Line Projects**



**Underground Optic
Fiber Network Project**



**Internet of Things
Project**

Highlights: Yandin Wind Farm

26 July 2019

RAC had invested in 214.20 MW Yandin Wind Farm

10 October 2019

First loan drawdown under credit facility agreements.

~150 km north of Perth
Location

15-Year
PPA with Alinta Sales Pty Ltd

≈ AUD 364 million
Syndicated facility agreement
executed on 15 July 19

214.20 MW
(51 of 4.2 MW turbines)
Capacity

149.94 MW
Attributable Capacity

September 2020
Expected COD

Financiers

OCBC, BNPP, ABN AMRO, ING, SocGen, SCB

Shareholder Structure

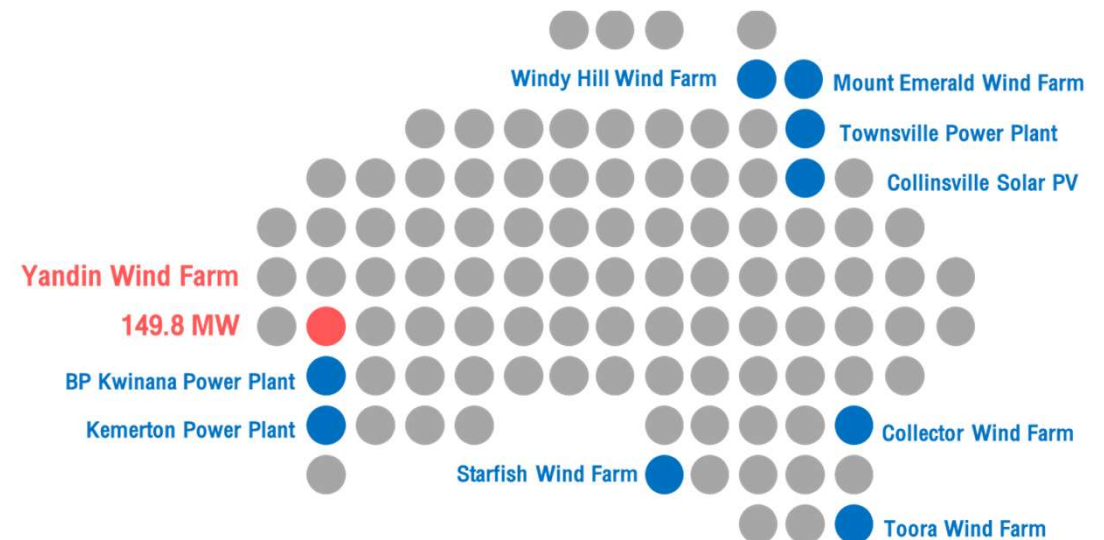


70%

30%

Investor Agreement

Yandin Wind Farm



Highlights: Credit Rating

30 July 2019

Moody's affirmed **RATCH Baa1 rating** and changed the outlook to positive from stable, in line with the rating action on the **Government of Thailand (Baa1 positive)**

TRIS Rating		AAA
International Credit Rating	S&P Global Rating	Moody's Investor Service
RATCH	BBB+ stable outlook	Baa1 positive outlook
Thailand	BBB+	Baa1

Highlights: RATCH Cogeneration Company Limited

20 August 2019

RATCH entered into Share Purchase Agreement to purchase ordinary and preferred share of **Navanakorn Electric Company Limited** at 99.97% from the existing shareholders

20 August 2019

Paid for the shares in the amount of 1,998.40 Million Baht.

4 November 2019

Changed the name to
“RATCH Cogeneration Company Limited”



Location

South of Nava Nakorn Industrial
Promotion Zone,
Pathum Thani Province

Technology

Cogeneration

Fuel

Natural Gas

Installed Capacity

119.15 MW

Steam Generation 10 ton/hour

PPA with EGAT

25-Year

COD

31 October 2013

Enterprise Value

approximately 5,726.68 million baht

Shareholder Structure

RATCH holds 99.97%

Existing shareholders 0.03%

Highlights: Riau Combined-Cycle Power Plant

14 November 2019

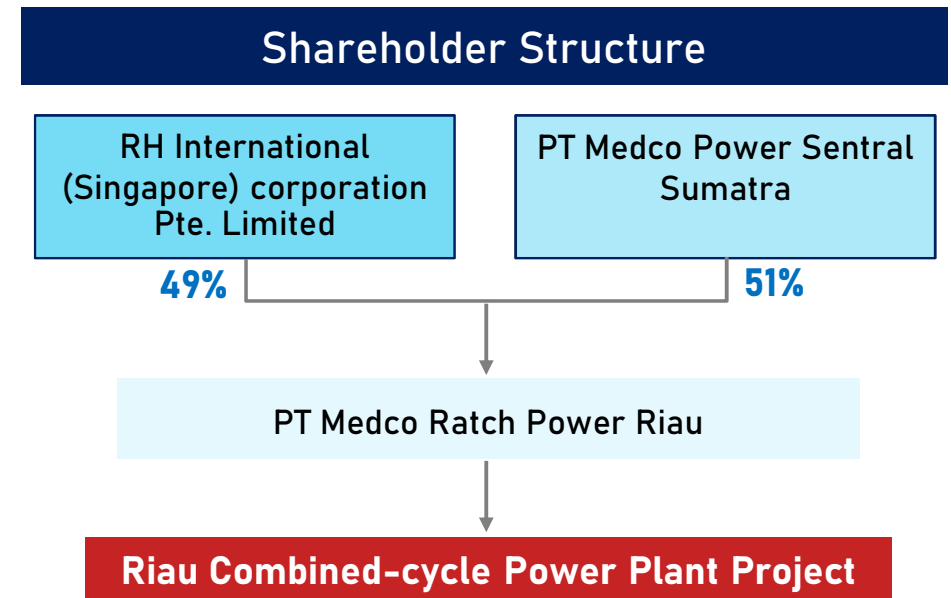
PT Medco Ratch Power Riau was successful in making the first drawdown under its Syndicated Facilities with financial institutions. Construction is underway and the Project is expected to commence COD in 2021 as scheduled.

7 April 2017, PT Medco Ratch Power Riau was established to invest in Riau Combined-Cycle Power Plant Project, located in the Republic of Indonesia.

20 March 2019, PT Medco Ratch Power Riau signed Loan Agreement with 4 Financial Institutes



The total loan amount is USD 222 million for the period of 20 years

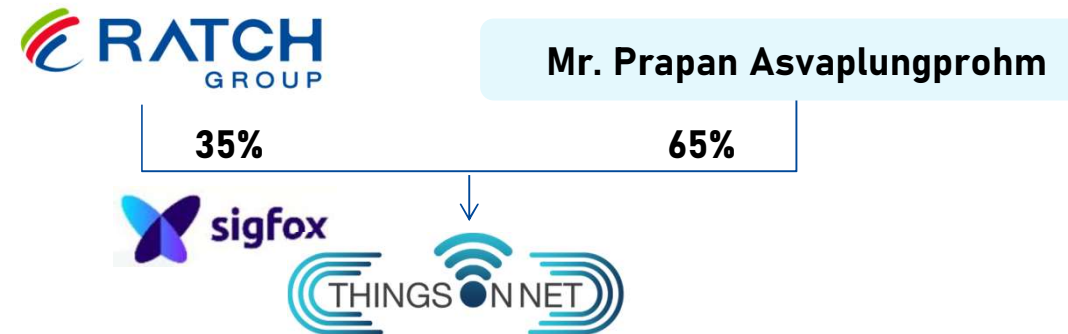


Highlights : Things on Net Company Limited (“ToN”)

19 November 2019

RATCH had invested in Things on Net Company Limited at 35% shareholding (≈180 Million Baht) for the development of nationwide telecommunication networks and Ecosystem for IoT market

Shareholding Structure



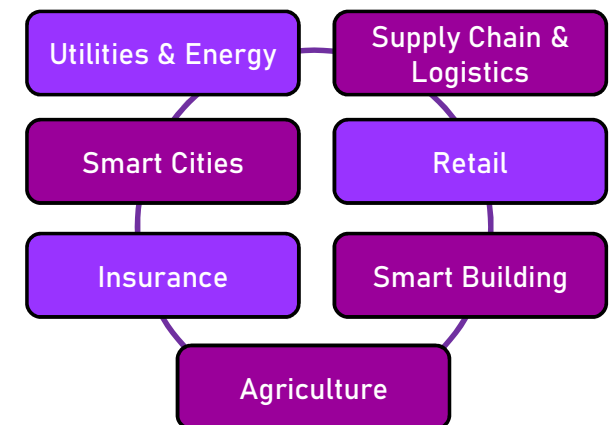
- **TON** has been selected by SIGFOX to be the network operator in Thailand and **to be—a nationwide IoT Network operator.**
- **TON** will use the IoT network to offer comprehensive **end-to-end IoT solutions to enterprises.**
- **TON** create Ecosystem for IoT Market in Thailand Responsible for Sales, Marketing and Operation in Thailand and Connected to SigFox Global Roaming Network



Sigfox was established in 2010 in France and it is the world's leading IoT services provider.

- Sigfox reinvented Low Power Wide Area network (LPWAN) connectivity for the IoT, to drastically bring down cost and energy consumption required for securely connecting IoT sensors/devices.
- Sigfox delivers the network and the protocols required to allow an object to share its data from anywhere in the world.
- Sigfox is already present in over **45 countries.**

With Sigfox simple approach to connectivity, we build highly scaleable infrastructure in a more cost effective and energy efficient way.



Continued Growth Projects Investment

Current Projects in Operation

7,056.69 MW

2019-2025: Committed Projects in pipeline **2,284.38 MW**

Name of Power Plant/Project	Location	RATCH's stake (%)	Installed Capacity (MW)	Attributable Capacity (MW)	Expected COD
2019			410.00	102.50	
Xe -Pian Xe-Namnoy Hydroelectric Power Plant	Attapue and Champasak provinces, Laos	25	410	102.50	Dec 2019
2020			274.17	173.93	
Nava Nakorn SPP Power Plant (Extension)	Nava Nakorn Industrial Promotion Zone, Pathumthani Province, Thailand	40	59.97	23.99	Sep 2020
Yandin Wind-Turbine Power Plant	Western Australia, Australia	70	214.2	149.94	Sep 2020
2021			2,883.03	607.95	
Riau Combined-Cycle Power Plant	Republic of Indonesia	49	296.23	145.15	May 2021
Collector Wind-Turbine Power Plant	New South Wales, Australia	100	226.80	226.80	In 2021
Fangchenggang II Nuclear Power Plant	Fangchenggang , China	10	2,360	236	In 2021
2024			700	700	
Hin Kong Power Project Unit 1	Ratchaburi Province, Thailand	100	700	700	In 2024
2025			700	700	
Hin Kong Power Project Unit 2	Ratchaburi Province, Thailand	100	700	700	In 2025

Continued Growth Projects Investment

Infrastructure Projects



MRT Pink Line Project

Technology: Monorail

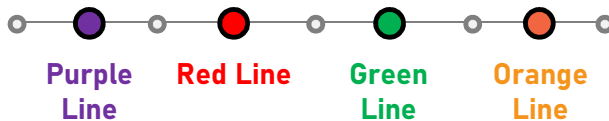
Route: Khae Rai-Min Buri

Contract Type: PPP Net Cost with Subsidy

Contract Term: 30-Year

Expected COD : In 2021

Connecting Networks : 4 Interchanges



MRT Yellow Line Project

Technology: Monorail

Route: Lad Prao-Sam Rong

Contract Type: PPP Net Cost with Subsidy

Contract Term: 30-Year

Expected COD : In 2021

Connecting Networks : 4 Interchanges



Sandin Water Supply Project

Type of Business : Generating water supply

Capacity :

Phase I: 24,000 cubic meters/day (2018)

Phase II: 48,000 cubic meters/day (2031)

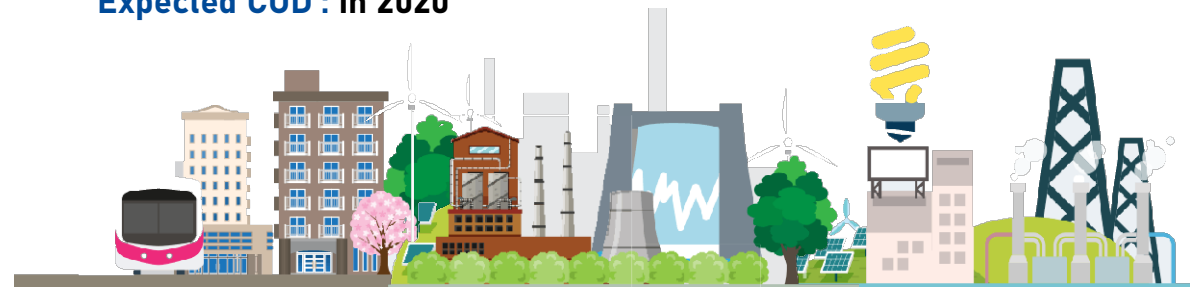
Smart Infranet Company Limited

Type of Business : The investment in an installation of optic fiber network and related equipment subjected to the communication cable relocation projects that are supported by the Government, covering potential areas in Thailand.

Things on Net Company Limited

Type of Business : The development of nationwide telecommunication networks and Ecosystem for IoT market.

Expected COD : In 2020



Diversified Portfolio Across Core Locations




 **China**

236 MW

 **Nuclear**
100%





 **LAOS**

1,122.42 MW

 **Coal** 66.9%
 **Hydro** 33.0%
 **Solar** 0.1%


 **Thailand**

6,539.31 MW

 **Gas** 98.9%
 **Wind** 0.6%
 **Solar** 0.4%
 **Biomass** 0.1%




 **Indonesia**

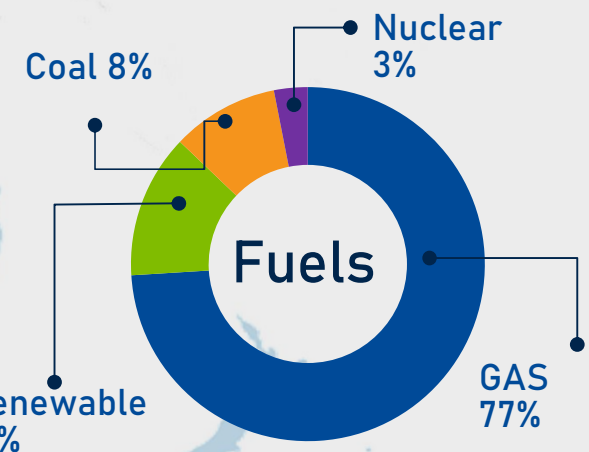
193.05 MW

 **Gas** 75.2%
 **Hydro** 24.8%

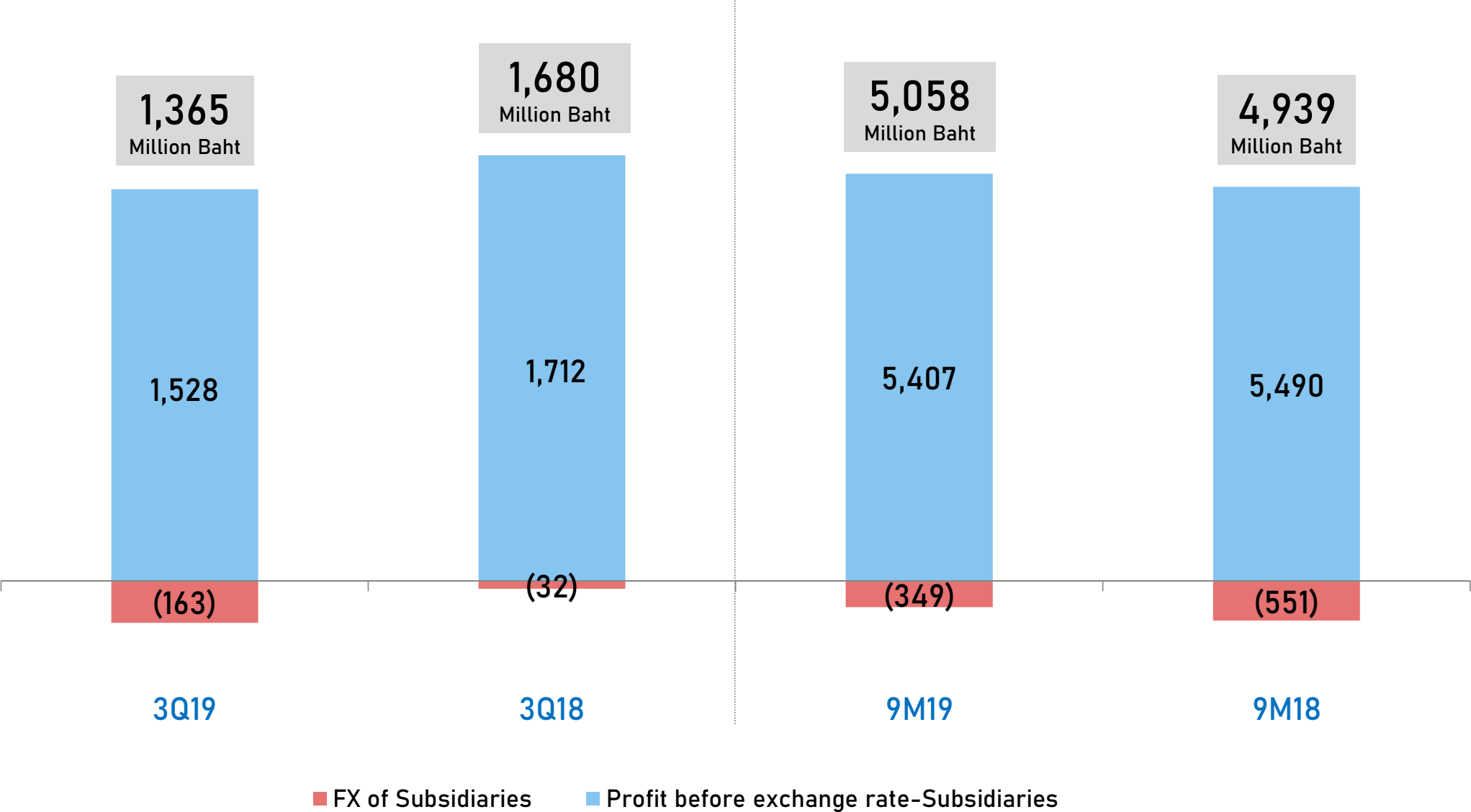
 **Australia**

1,250.29 MW

 **Wind** 49.8%
 **Gas** 46.8%
 **Solar** 3.4%



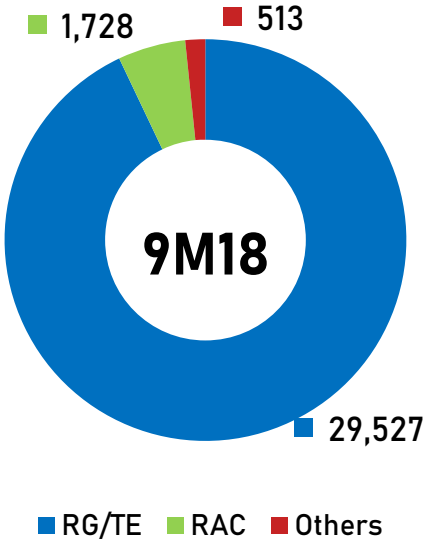
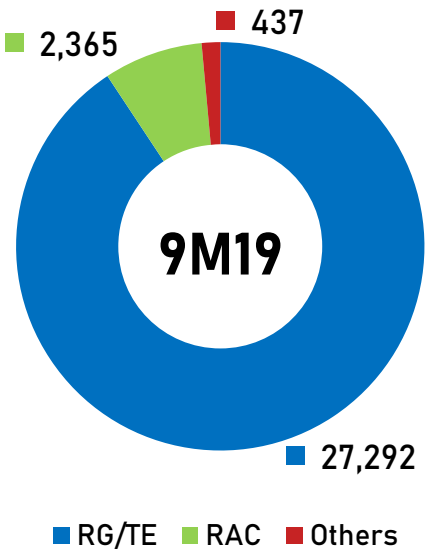
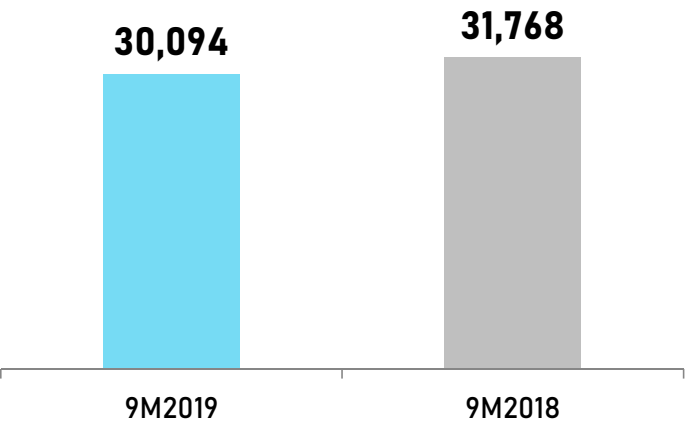
Profit for the period: Equity holders of the Company



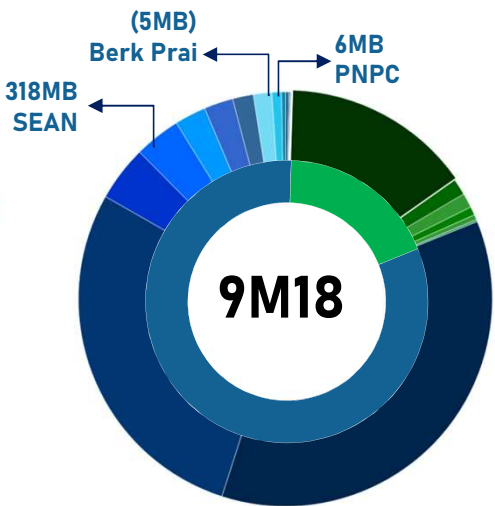
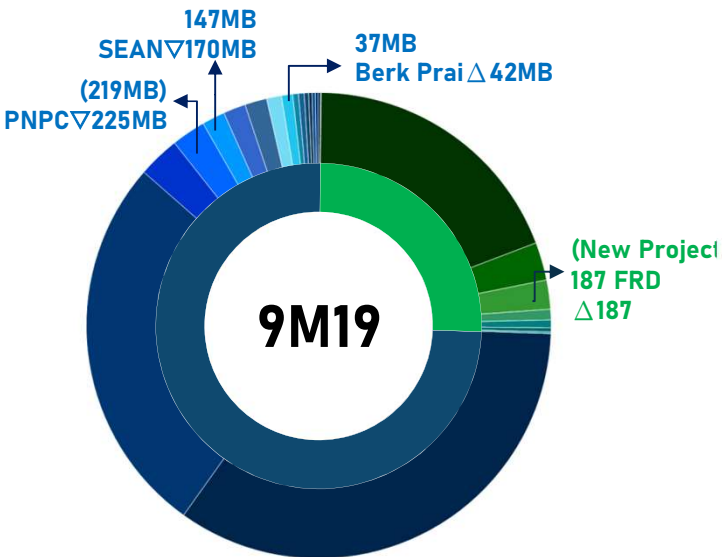
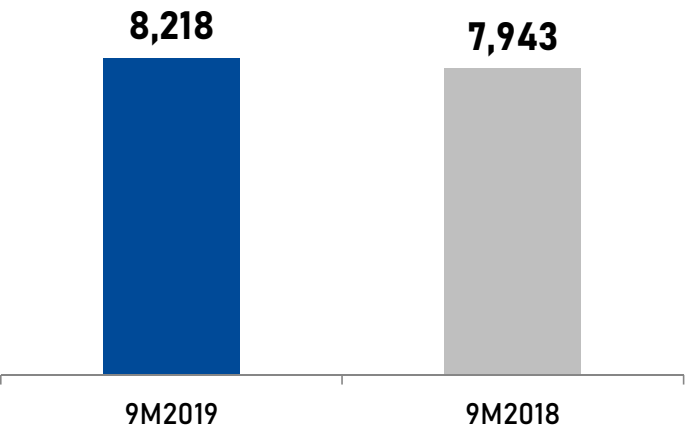
Revenue & EBITDA

Unit: MB

Revenue



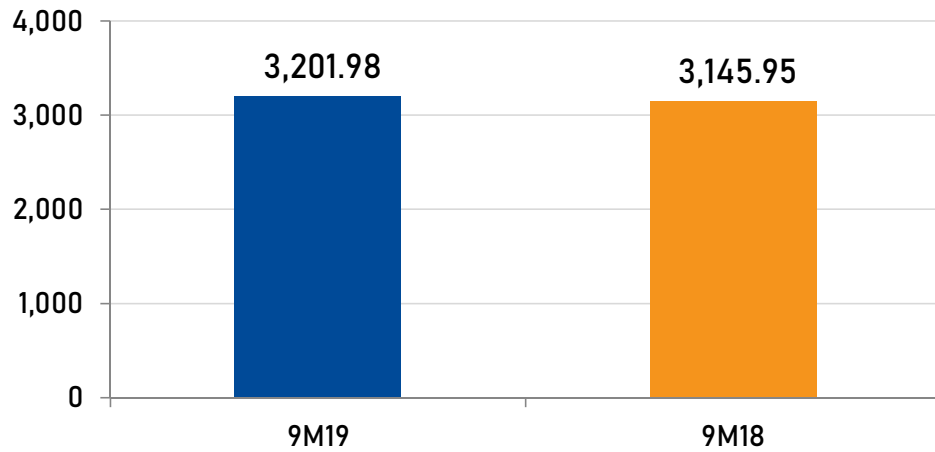
EBITDA



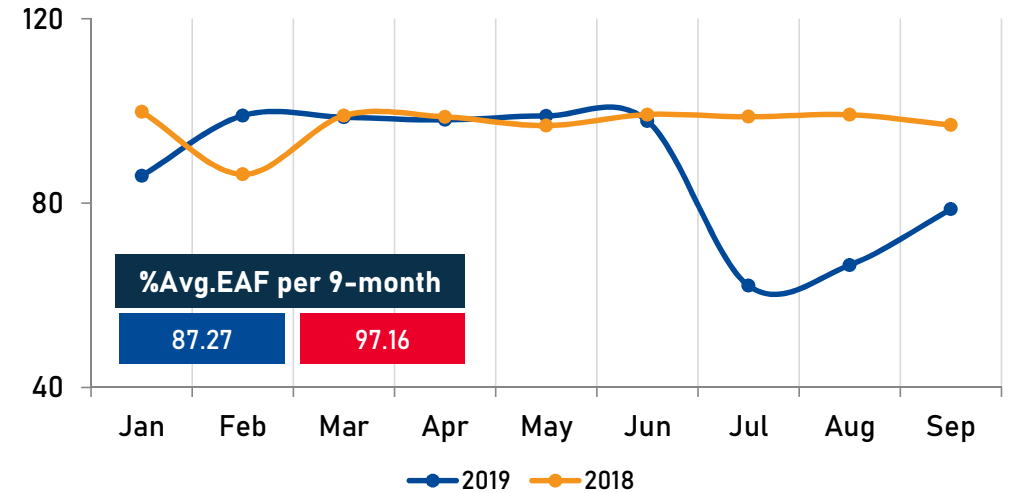
Domestic (THB) : 71% Foreign (Foreign Currency) : 29%

Key Power Plant Performance

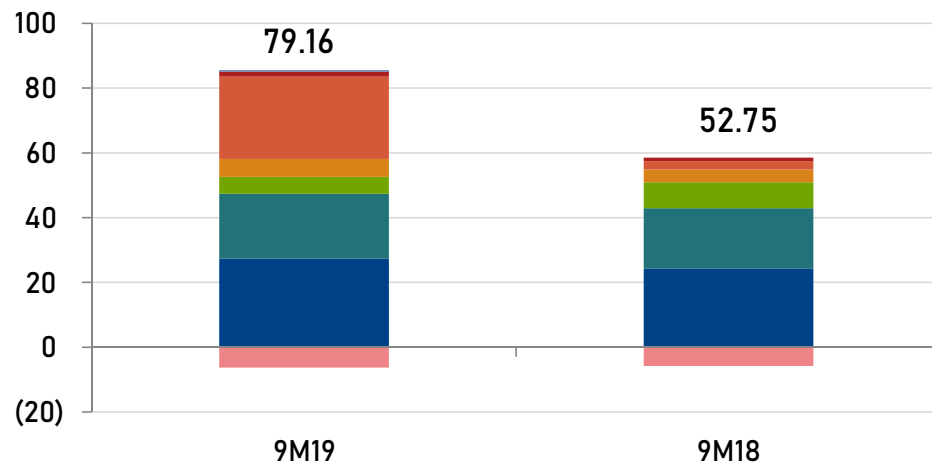
RATCHGEN: EBITDA (MB)



RATCHGEN: %Avg.EAF

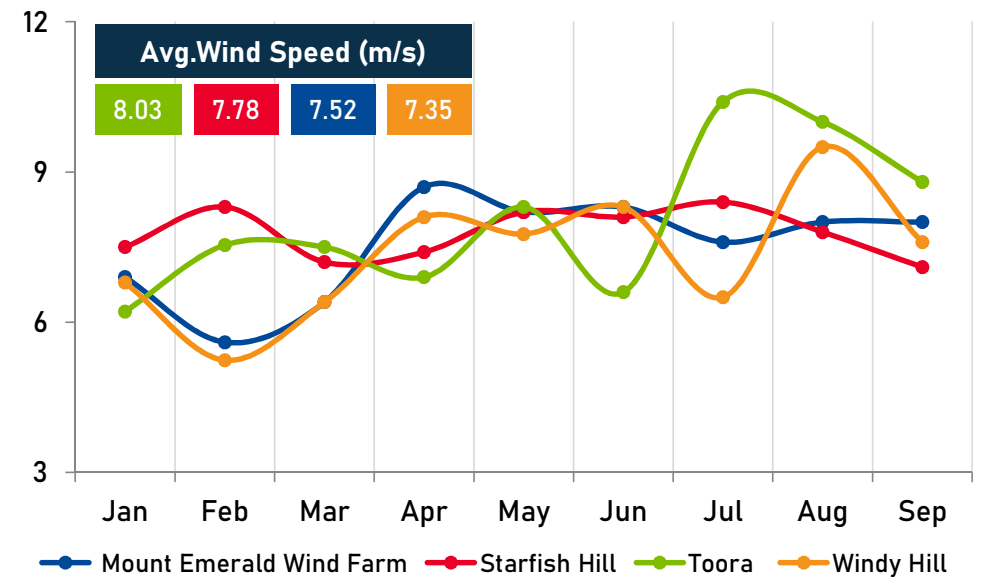


RAC: EBITDA (mAUD)



■ Kermerton
 ■ Toora
 ■ Collinsville Solar PV
 ■ Townsville
 ■ Mount Emerald
 ■ Others
 ■ Starfish Hill
 ■ Windy Hill

RAC: Avg.Wind Speed (m/s)



● Mount Emerald Wind Farm
 ● Starfish Hill
 ● Toora
 ● Windy Hill

Income Statement : 3Q19 & 3Q18

Unit : in Million Baht	3Q19	3Q18
Revenues	8,938.17	11,695.24
Cost & Expenses	(7,752.20)	(10,168.69)
EBITDA before Share of Profit and FX	1,185.97	1,526.55
Share of profit of jointly-controlled entities and associates including gain (loss) on FX	1,154.33	1,084.03
EBITDA	2,340.30	2,610.58
Depreciation & Amortization - Cost	(350.22)	(284.59)
Depreciation & Amortization - Admin	(17.74)	(19.10)
EBIT	1,972.34	2,306.89
Finance costs*	(221.37)	(337.54)
Income tax expense	(222.65)	(257.16)
Profit for the period: Equity holders of the Company - before FX of subsidiaries	1,528.32	1,712.19
Gain (Loss) on FX of subsidiaries	(163.48)	(31.66)
Profit for the Company	1,364.84	1,680.53
The effect of FX:		
Gain (Loss) on FX of subsidiaries	(163.48)	(31.66)
Gain (Loss) on FX of associates and JVs	(10.58)	(223.89)
Profit of the Company before FX	1,538.90	1,936.08

*Included change in fair value of derivatives

Income Statement : 9M19 & 9M18

Unit : in Million Baht	9M19	9M18
Revenues	30,093.71	31,768.36
Cost & Expenses	(25,393.35)	(27,525.05)
EBITDA before Share of Profit and FX	4,700.36	4,243.31
Share of profit of jointly-controlled entities and associates including gain (loss) on FX	3,517.29	3,700.02
EBITDA	8,217.65	7,943.33
Depreciation & Amortization - Cost	(1,064.70)	(861.47)
Depreciation & Amortization - Admin	(53.79)	(58.29)
EBIT	7,099.16	7,023.57
Finance costs*	(953.31)	(902.39)
Income tax expense	(738.31)	(650.28)
Profit for the period	5,407.54	5,470.90
Non-controlling interests	-	(18.63)
Profit for the period:	5,407.54	5,489.53
Equity holders of the Company - before FX of subsidiaries		
Gain (Loss) on FX of subsidiaries	(349.13)	(550.55)
Profit for the Company	5,058.41	4,938.98
The effect of FX:		
Gain (Loss) on FX of subsidiaries	(349.13)	(550.55)
Gain (Loss) on FX of associates and JVs	(132.68)	(32.17)
Profit of the Company before FX	5,540.22	5,521.70

*Included change in fair value of derivatives

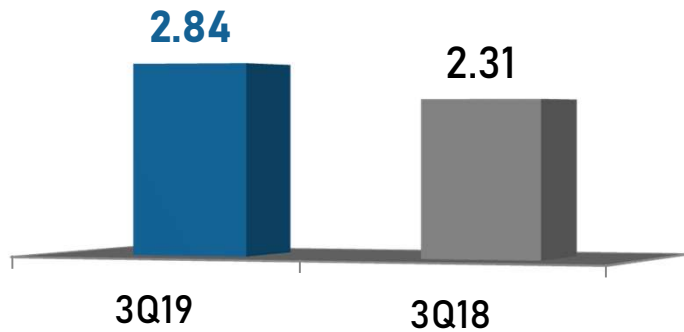
Statements of Financial Position

As of 30 September 2019

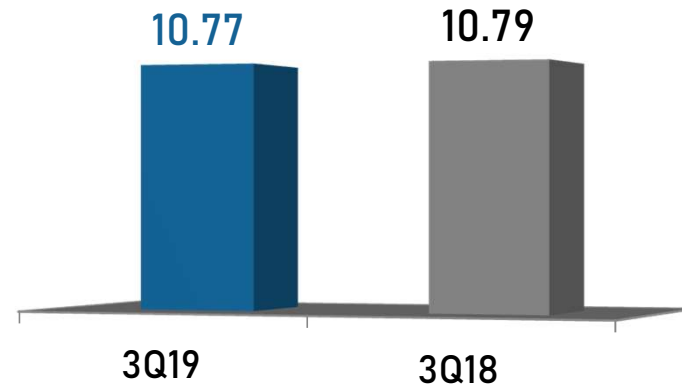
Total Assets	Million Baht	Total Liabilities & Equity	Million Baht
Assets		Liabilities	
Cash and cash equivalents	11,361.08	Loans from Financial Institutions & Debentures	29,413.62
Current investments	1,137.27	Derivative liabilities	909.72
Other Current Assets	8,535.30	Other liabilities	7,656.71
Investment in Jointly-controlled entities/Associates/Others	33,782.17	Total Liabilities	37,980.05
Derivative assets	303.47	Equity	
Financial lease receivables	16,649.09	Issued and paid-up share capital	16,031.78
Property, plant & equipments	18,966.56	Retained earnings	51,346.85
Other assets	5,821.68	Other components of equity	(8,802.06)
		Total equity	58,576.57
Total Assets	96,556.62	Total Liabilities & Equity	96,556.62

Financial Ratios*

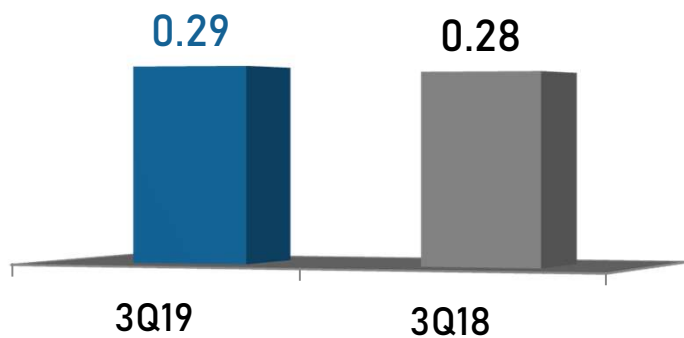
Current Ratio (times)



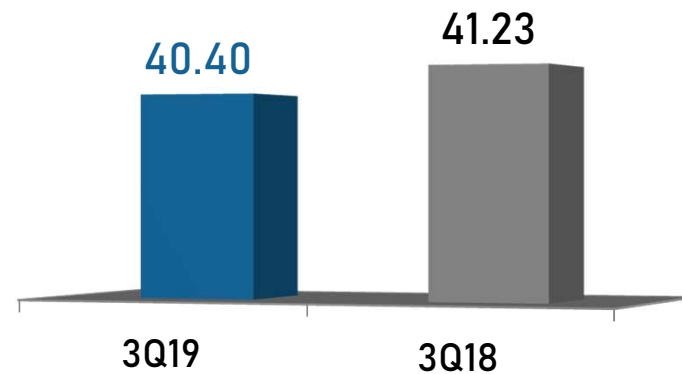
ROE (%)



Net Debt to Equity (times)



Book Value per share (Baht)



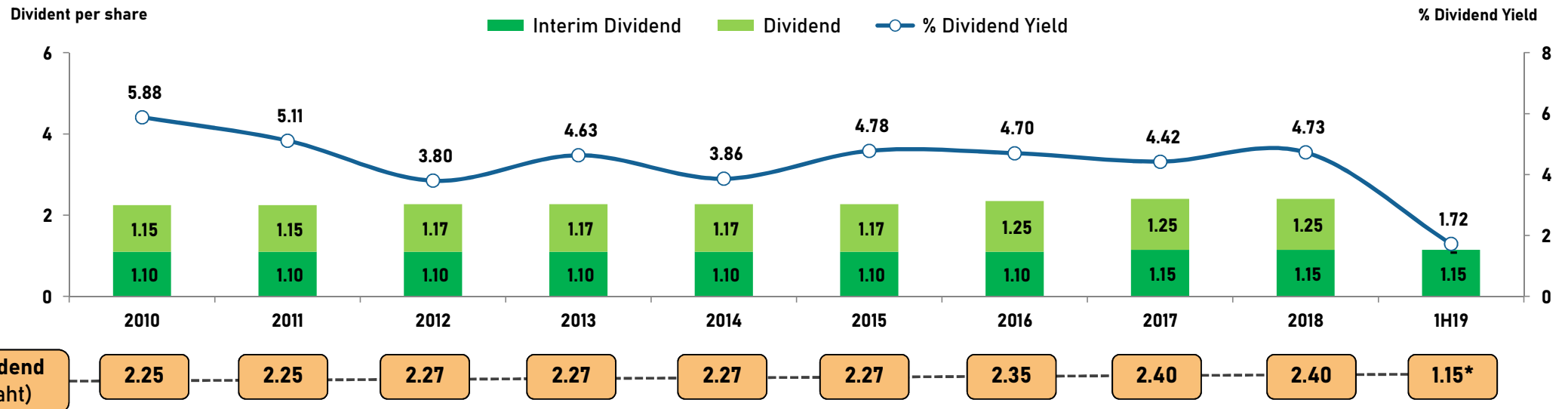
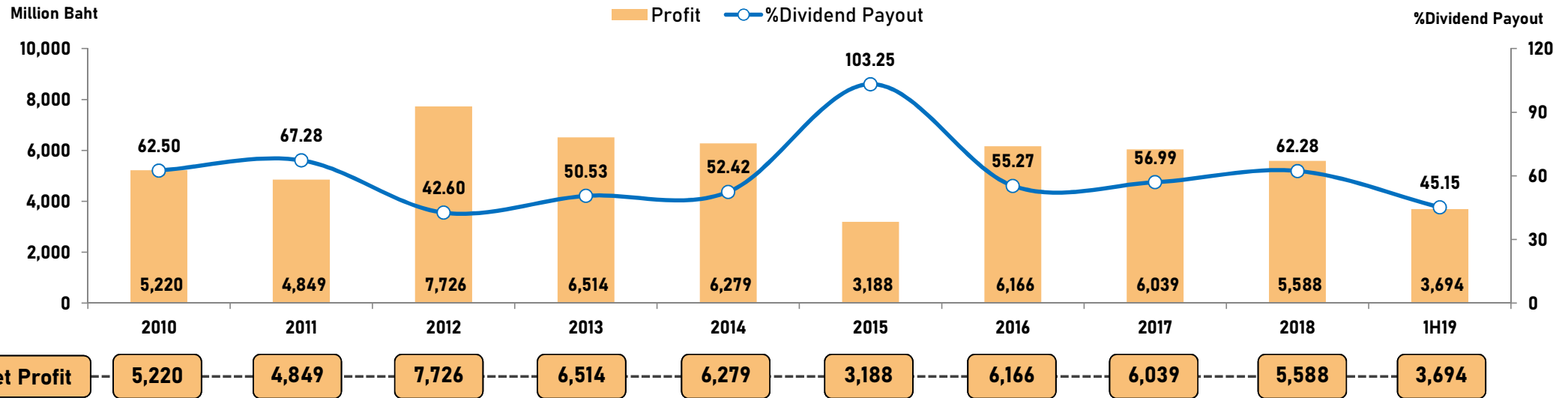
*Not included the effect of FX of subsidiaries

Dividend Policy

RATCH has a dividend payout policy of no less than **40%** of the net profit

2010-2018
Avg. %Dividend Payout
61%

2010-2018
Avg. %Dividend Yield
4.66%



IR Contact

Ms. Ananda Muthitacharoen

Tel : +66 (0) 2794 9841

Fax : +66 (0) 2794 9888 Ext. 9841

Email : ir@ratch.co.th



Disclaimer

The information contained in our presentation is intended solely for your personal reference only. In addition, such information contains projections and forward-looking statements that reflect the Company's current views with respect to future events and financial performance. These views are based on assumptions subject to various risks. No assurance is given that future events will occur, that projections will be achieved, or that the Company's assumptions are correct. Actual results may differ materially from those projected. Investors are, however, required to use their own discretion regarding the use of information contained in this presentation for any purpose.



Appendix

OVERVIEW

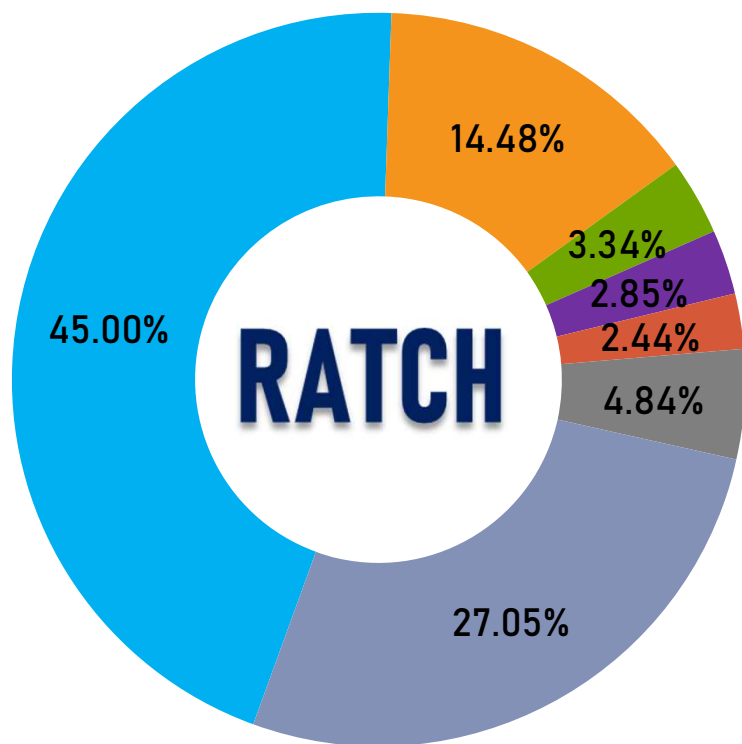
- Listed on the Stock Exchange of Thailand since 2 November 2000
- Investment company in the electricity generation business based in Thailand
- Largest independent power producer (“IPP”) based in Thailand by total capacity
- Primarily involved in the construction, development and operation of power plants in Thailand, Laos, Australia and China
- Market Cap of USD 3,465 million* (THB 104,763 million) as at 27 November 2019

Note: *Foreign Exchange Rate as at 27 November 2019= 30.231 Baht/USD

Shareholder Information

Major Shareholders

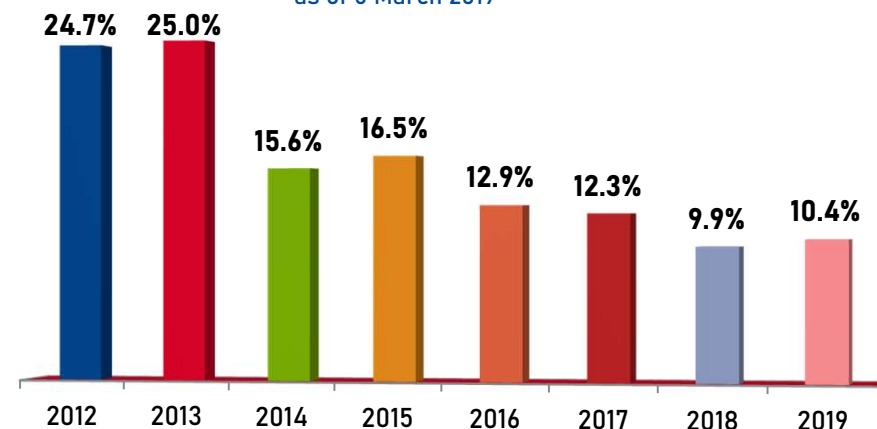
as of 9 September 2019



- Electricity Generating Authority of Thailand
- Thai NVDR Company Limited
- Social Security Office
- SOUTH EAST ASIA UK (TYPE C) NOMINEES LIMITED
- STATE STREET EUROPE LIMITED
- Other Major Shareholders
- Other Shareholders

% Foreign Shareholders

Data are as of AGM closing date in each respective year as of 5 March 2019



Remark:
On 17 July 2014, the SILCHESTER INTERNATIONAL INVESTORS LLP transferred its common shares of RATCH by the amount of 157,297,300 shares (equivalent to 10.85% of the Company's common shares) to Thai NVDR Company Limited.

Other Major Shareholders

Other Major Shareholders consisted of

- EGAT Saving and Credit Cooperative Limited 1.49%
- Mr. Min Tieworn 1.41%
- AIA COMPANY LIMITED-EQDP-D FUND 1 1.15%
- Allianz Ayudhya Assurance Public Company Limited 0.43%
- Thanachart Dividend Stock Fund 0.36%

Industry Overview

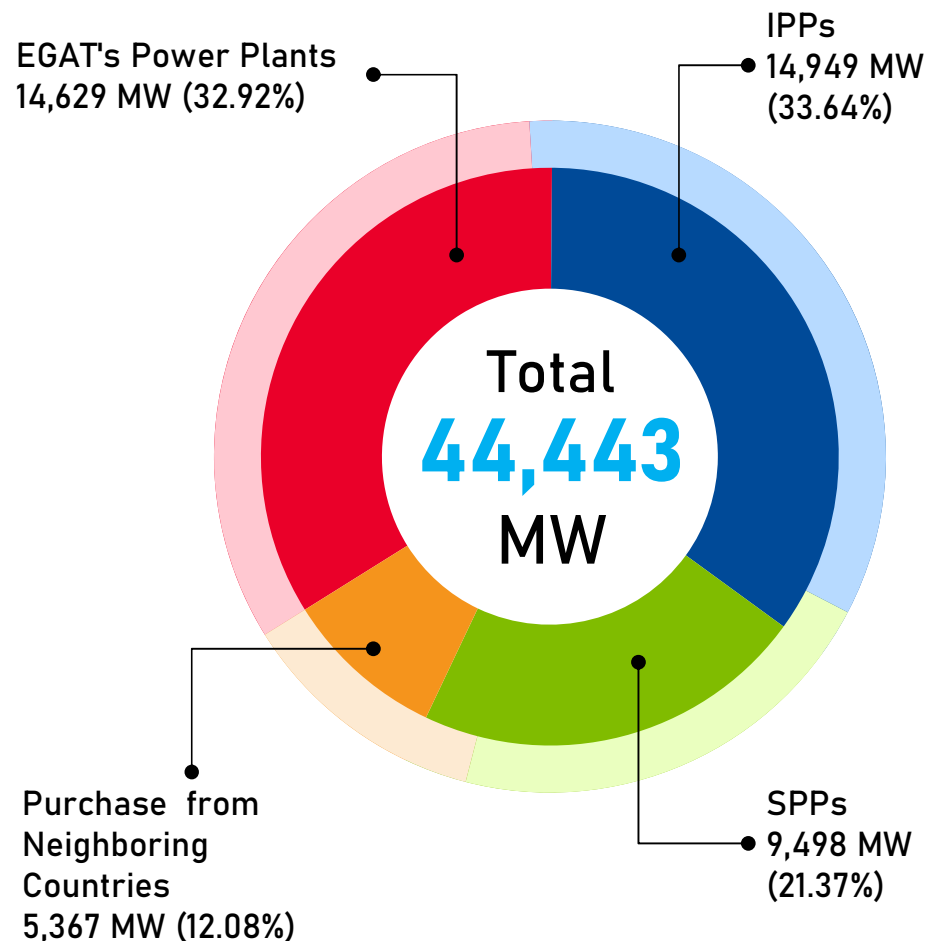
Thailand : Power Generation

Source: EGAT

Total Contracted Capacity

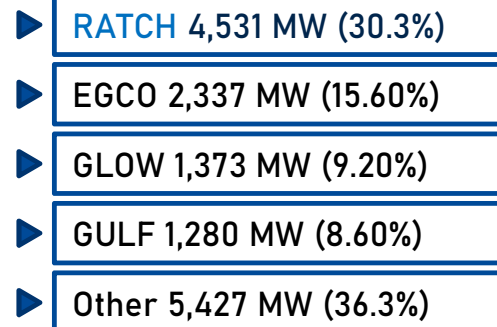
“44,443 MW”

As of October 2019

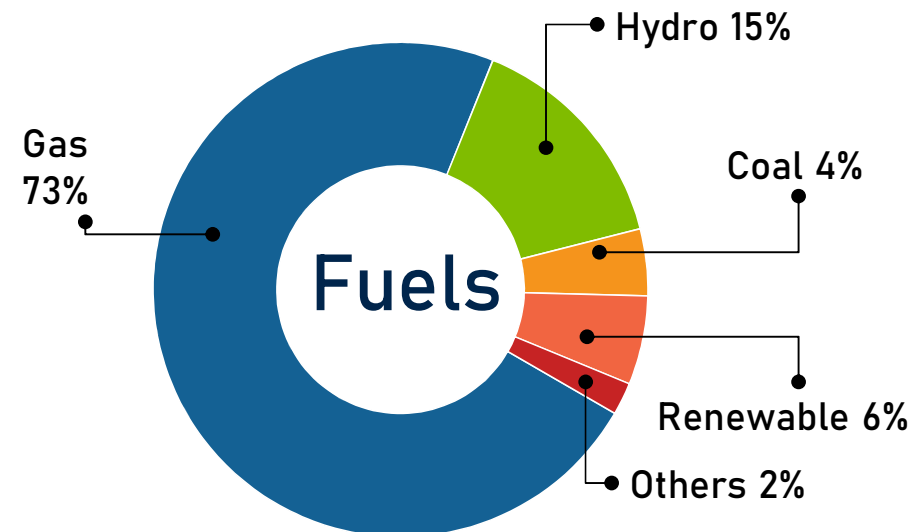


RATCH

is the largest IPP in the Thailand

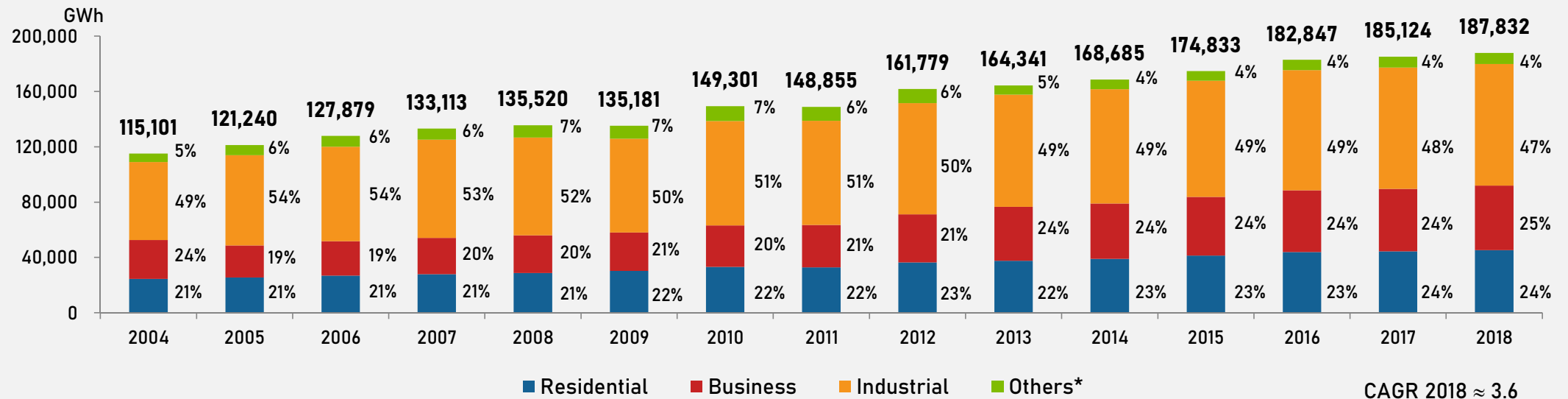


Breakdown by Type of Fuels

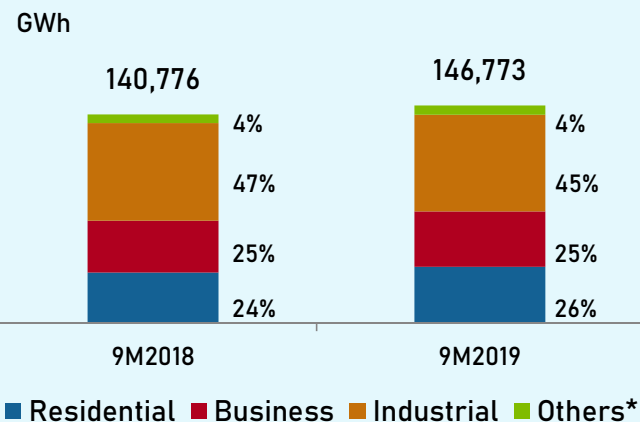


Electricity Consumption

2004-2018

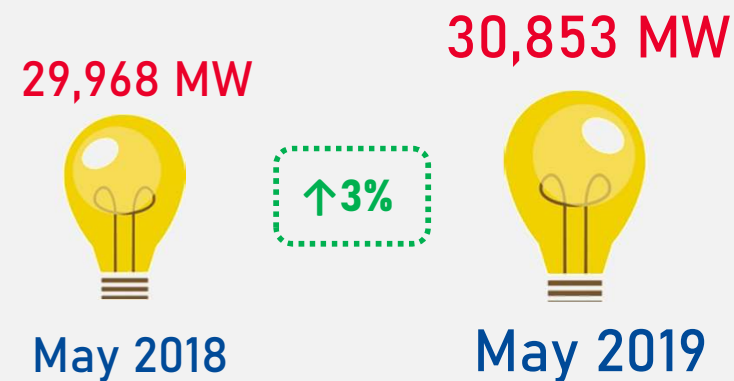


9M2018 & 9M2019



* Others consisted of Agriculture Pumping / Government and Non-Profit / Free of Charge-Public Infrastructure

Peak Demand



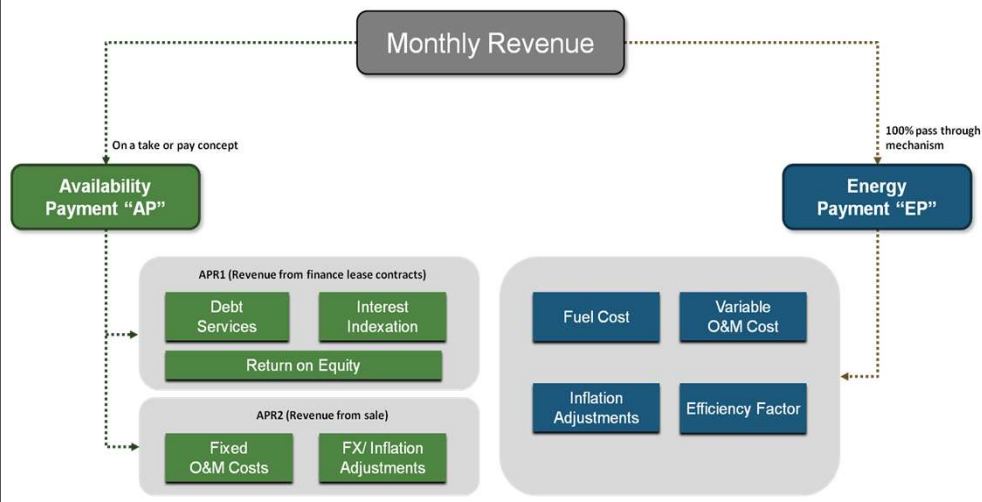
Source: EGAT

Thailand's Electricity Structure

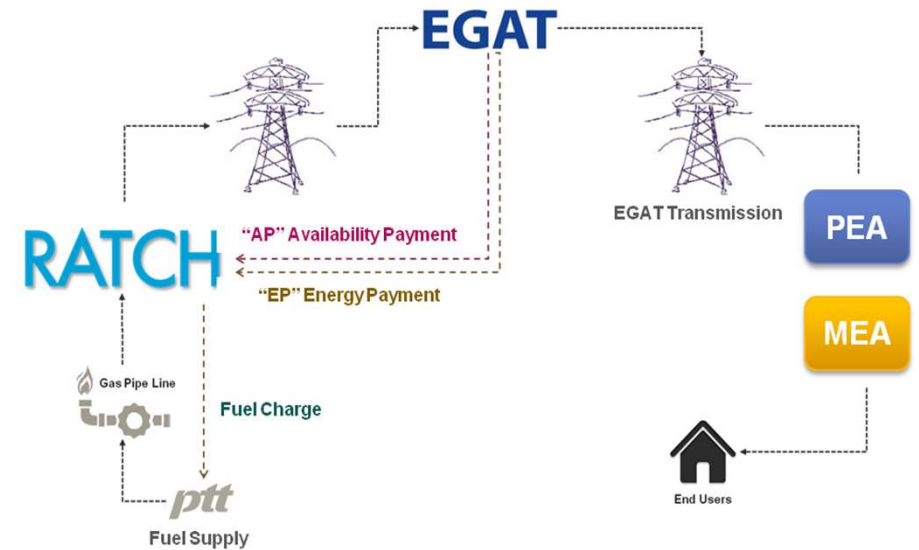
EGAT Overview

- Thailand's state-owned power utility under the Ministry of Energy
- Responsible for electric power generation and transmission for the whole country as well as bulk electric energy sales
- EGAT is the single buyer that purchases bulk electricity from private power producers and neighboring countries
- Sells electricity to Provincial Electricity Authority ("PEA"), Metropolitan Electricity Authority ("MEA"), neighboring countries and others
- Owns and operates a high voltage transmission network which covers all parts of Thailand

PPA Tariff Structure



Thailand's Electricity Structure



Provincial Electricity Authority "PEA"

- ✓ Thai state enterprise under the Ministry of Interior
- ✓ Generation, procurement, distribution and sale of electricity
- ✓ Covers approximately 99.4% of Thailand, with the exception of Bangkok, Nonthaburi and Samut Prakarn provinces



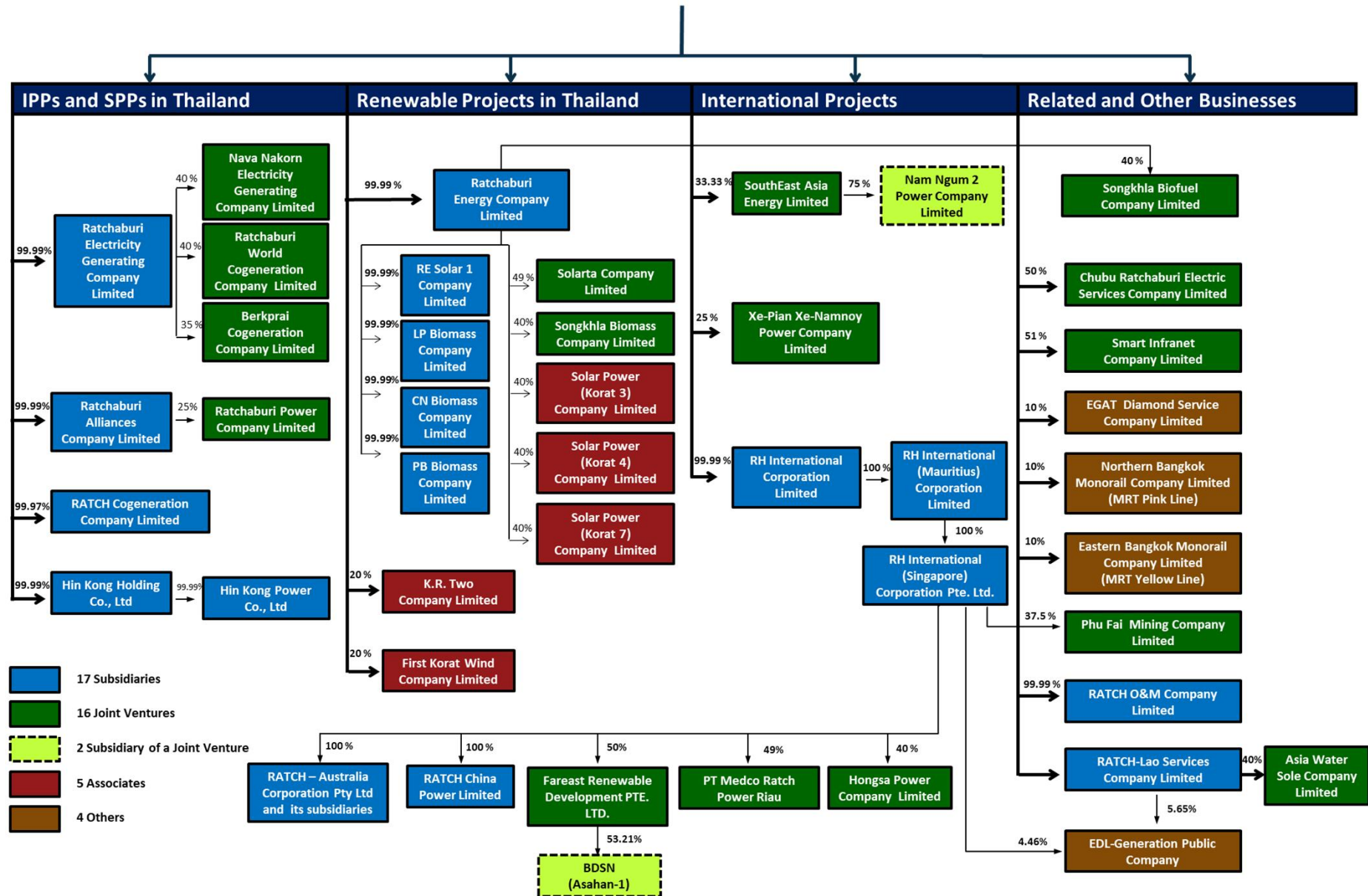
Metropolitan Electricity Authority "MEA"

- ✓ Thai state enterprise under the Ministry of Interior
- ✓ Distribution/Sales of electricity in Bangkok, Nonthaburi, and Samut-Prakarn Provinces

Company Structure



As of November 2019



IPPs and SPPs in Thailand

Name of Power Plant/Project	Location	Technology	RATCH's stake (%)	Installed Capacity (MW)	Attributable Capacity (MW)	COD	Terms of the PPA		
							PPA Party	Tenure/ Expiry Year	Renewal/ Option to Extend
In Operation									
Ratchaburi Power Plant	Ratchaburi Province	Thermal	100	1,470	1,470	2000	EGAT	25 years/ 2025	N.A.
		Combined Cycle	100	2,175	2,175	2002	EGAT	25 years/ 2027	N.A.
Tri Energy Power Plant	Ratchaburi Province	Combined Cycle	100	720	720	2000	EGAT	20 years/ 2020	Possibility to extend on mutually agreed terms
Ratchaburi Power Power Plant	Ratchaburi Province	Combined Cycle	25	1,490	372.50	2008	EGAT	25 years/ 2033	N.A.
Ratchaburi World SPP Power Plant	Ratchaburi Industrial Estate, Ratchaburi Province	Cogeneration	40	234	93.60	1#2014 2#2015	EGAT	Block 1: 25 years/ 2039 Block 2: 25 years/ 2040	N.A.

IPPs and SPPs in Thailand

Name of Power Plant/Project	Location	Technology	RATCH's stake (%)	Installed Capacity (MW)	Attributable Capacity (MW)	COD	Terms of the PPA		
In Operation (Cont.)									
Nava Nakorn SPP Power Plant	Nava Nakorn Industrial Promotion Zone, Pathumthani Province	Cogeneration	40	139.13	55.65	2016	EGAT	25 years/2041	N.A.
Berkprai Cogeneration SPP Power Plant	Ratchaburi Province	Cogeneration	35	99.23	34.73	Jun 2019	EGAT	25 years/2044	N.A.
RATCH Cogeneration SPP Power Plant	South Nava Nakorn Industrial Promotion Zone, Pathumthani Province	Cogeneration	99.97	119.15	119.11	Oct 2013	EGAT	25 years/2038	N.A.
Total				6,446.51	5,040.59				
Under Construction									
Nava Nakorn SPP Power Plant (Extension) Progress : 64.4% (August 2019)	Nava Nakorn Industrial Promotion Zone, Pathumthani Province	Cogeneration	40	59.97	23.99	Expected COD : Sep 2020	EGAT	25 years/2045	N.A.
Total				59.97	23.99				

IPPs and SPPs in Thailand

Name of Power Plant/Project	Location	Technology	RATCH's stake (%)	Installed Capacity (MW)	Attributable Capacity (MW)	COD	Terms of the PPA		
							PPA Party	Tenure/ Expiry Year	Renewal/ Option to Extend
Under Development									
Hin Kong Power Plant Unit #1	Ratchaburi Province	Combined Cycle	100	700	700	Expected COD : In 2024	EGAT	25 years /2049	N.A.
Hin Kong Power Plant Unit #2	Ratchaburi Province	Combined Cycle	100	700	700	Expected COD : In 2025	EGAT	25 years /2050	N.A.
Total				1,400	1,400				
Grand Total				7,906.48	6,464.58				

Renewable Projects in Thailand

Name of Power Plant/Project	Location	Technology	RATCH's stake (%)	Installed Capacity (MW)	Attributable Capacity (MW)	COD	Terms of the PPA		
							PPA Party	Tenure/ Expiry Year	Renewal/ Option to Extend
In Operation									
Huay Bong 2 Wind-Turbine Power Plant	Nakorn Ratchasima Province	Wind-Turbine	20	103.50	20.70	2013	EGAT	5 years/ 2023 Adder 3.5 Baht (10-Year)	Automatic renewal for a further 5 years every 5 years
Huay Bong 3 Wind-Turbine Power Plant	Nakorn Ratchasima Province	Wind-Turbine	20	103.50	20.70	2012	EGAT	5 years/ 2022 Adder 3.5 Baht (10-Year)	Automatic renewal for a further 5 years every 5 years
Solar Power Power Plant (Korat 3, Korat 4, Korat 7)	Nakorn Ratchasima Province	Solar Power	40	21.60	8.64	2012	PEA	5 years/ 2022 Adder 8 Baht (10-Year)	Automatic renewal for a further 5 years every 5 years
Solarta Solar Power Plant	Ayutthaya, Nakhon Pathom, and Suphanburi Provinces	Solar Power	49	42.30	20.73	2011-2012	PEA	Ayutthaya : 5 years / 2021 Suphanburi and Nakhon Pathom: 5 years / 2022 Adder 8 Baht (10-Year)	Automatic renewal for a further 5 years every 5 years
Songkhla Biomass Power Plant	Songkhla Province	Thermal	40	9.90	3.96	2015	PEA	20 years/2035	N.A.
Total				280.80	74.73				
Grand Total				280.80	74.73				

International Projects in Australia

Name of Power Plant/Project	Location	Technology	RATCH's stake (%)	Installed Capacity (MW)	Attributable Capacity (MW)	COD	Terms of the PPA		
							PPA Party	Tenure/ Expiry Year	Renewal/ Option to Extend
In Operation									
Townsville Power Plant	North Queensland, Australia	Combined Cycle Gas Turbine	100	234	234	1999	AGL Energy /Arrow	February 2025	N.A.
Kemerton Power Plant (Included Black Start)	Western Australia, Australia	Open Cycle Gas/Diesel Turbine	100	315.20	315.20	2005	Synergy	October 2030	N.A.
BP Kwinana Power Plant (30 % owned by RAC)	Western Australia, Australia	Cogeneration	30	118	35.40	1996	Verve Energy/BP	December 2021	N.A.
Starfish Hill Wind-Turbine Power Plant	South Australia, Australia	Wind-Turbine	100	33	33	2003	Alinta Energy	In 2020	N.A.
Toora Wind-Turbine Power Plant	Victoria, Australia	Wind-Turbine	100	21	21	2002	Merchant Market	N.A.	N.A.
Windy Hill Wind-Turbine Power Plant	Queensland, Australia	Wind-Turbine	100	12	12	2000	Merchant Market	N.A.	N.A.

International Projects in Australia

Name of Power Plant/Project	Location	Technology	RATCH's stake (%)	Installed Capacity (MW)	Attributable Capacity (MW)	COD	Terms of the PPA		
							PPA Party	Tenure/ Expiry Year	Renewal/ Option to Extend
In Operation									
Mount Emerald Wind-Turbine Power Plant	Queensland, Australia	Wind-Turbine	100	180.45	180.45	Dec 2018	Ergon Energy Queensland	December 2030	N.A.
Collinsville Solar PV Power Plant	Queensland, Australia	Solar Power	100	42.50	42.50	March 2019	Alinta Energy	12.5-year	N.A.
Total				956.15	873.55				
Under Construction									
Collector Wind-Turbine Power Plant	New South Wales, Australia	Wind-Turbine	100	226.80	226.80	Expected COD: 2021	Merchant Market	N.A.	N.A.
Yandin Wind-Turbine Power Plant	Western Australia, Australia	Wind-Turbine	70	214.20	149.94	Expected COD : Sep 2020	Alinta Sales	15-year	N.A.
Total				441.00	376.74				
Grand Total				1,397.15	1,250.29				

International Projects in Laos

Name of Power Plant/Project	Location	Technology	RATCH's stake (%)	Installed Capacity (MW)	Attributable Capacity (MW)	COD	Terms of the PPA		
							PPA Party	Tenure/ Expiry Year	Renewal/ Option to Extend
In Operation									
Nam Ngum 2 Hydroelectric Power Plant	Laos	Hydro Power Plant	25	615	153.75	2011	EGAT	27 years/ 2038	N.A.
Hongsa Thermal Power Plant	Sainyaburi Province, Laos	Lignite-Fired Power Plant	40	1,878	751.20	1# 2015 2# 2016	EGAT & EDL	25 years/ 2040	N.A.
EDL-Generation	Laos	Hydro Power Plant	10.11	1,131.15	114.36	N.A.	N.A.	N.A.	N.A.
EDL-Generation	Laos	Solar Power	10.11	6.00	0.61	2017	N.A.	N.A.	N.A.
Total				3,630.15	1,019.92				
Under Construction									
Xe-Pian Xe-Namnoy Hydroelectric Power Plant Progress : 97.36% (August 2019)	Attapue and Champasak provinces, Laos	Hydro Power Plant	25	410	102.50	Expected COD : Dec 2019	EGAT & EDL	27 years/ 2046	N.A.
Total				410	102.50				
Grand Total				4,040.15	1,122.42				

International Projects in China & Republic of Indonesia

Name of Power Plant/Project	Location	Technology	RATCH's stake (%)	Installed Capacity (MW)	Attributable Capacity (MW)	COD	Terms of the PPA		
							PPA Party	Tenure/ Expiry Year	Renewal/ Option to Extend
In Operation									
Asahan-1 Hydroelectric Power Plant	Republic of Indonesia	Hydro Power Plant	26.61	180	47.90	2011	PT PLN (PERSERO)	30 year / 2040	N.A.
Total				180	47.90				
Under Construction									
Riau Combined-Cycle Power Plant Progress : 39.04% (August 2019)	Republic of Indonesia	Combined Cycle	49	296.23	145.15	Expected COD: May 2021	PT PLN (PERSERO)	20 year	N.A.
Fangchenggang II Nuclear Power Plant Progress : 37.62% (June 2019)	Fangchenggang , China	Nuclear Power	10	2,360	236	Expected COD: 2021	N.A.	30 year	N.A.
Total				2,656.23	381.15				
Grand Total				2,836.23	429.05				

Infrastructure Projects

Name of Power Plant/Project	Location	Technology	RATCH's stake (%)	Installed Capacity (MW)	Attributable Capacity (MW)	COD	Terms of the PPA		
							PPA Party	Tenure/ Expiry Year	Renewal/ Option to Extend
Under Construction									
MRT Pink Line Project and MRT Yellow Line Project	Nonthaburi and Bangkok Province	Elevated Straddle Monorail	10	N.A.	N.A.	Expected COD: In 2021	Concession Contracts with MRTA	30 years/2051	N.A.

Name of Power Plant/Project	Location	Technology	RATCH's stake (%)	Installed Capacity (MW)	Attributable Capacity (MW)	COD	Terms of the PPA		
							PPA Party	Tenure/ Expiry Year	Renewal/ Option to Extend
Under Construction									
Internet of Things Project: Set up base station for Sigfox network	Cover 70% of the area and 85% of the population of Thailand	Sigfox (LPWAN connection technology)	35	N.A.	N.A.	Expected COD: In 2020	N.A	N.A	N.A

Infrastructure Projects

Name of Power Plant/Project	Location	Type of Business	RATCH's stake (%)	Generating Capacity (cubic meters/day)	Attributable Generating Capacity (cubic meters/day)	COD	Terms of the PPA		
							PPA Party	Tenure/ Expiry Year	Renewal/ Option to Extend
In Operation									
Sandin Water Supply Project (Phase 1)	Laos	Generating water supply	40	24,000	9,600	2018	Concession Contracts with Nampapa Nakhone Luang	50 years	N.A.
Total				24,000	9,600				
Under Development									
Sandin Water Supply Project (Phase 2)	Laos	Generating water supply	40	24,000	9,600	Expected COD: In 2031	Concession Contracts with Nampapa Nakhone Luang	50 years	N.A.
Total				24,000	9,600				
Grand Total				48,000	19,200				

Actual Outage
Planned Outage

Planned Outage at Ratchaburi Power Plant in 2019

Plant		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
RG	CCST-10											24	MI (26D) 19
	CCGT-11												CI (15D) 19
	CCGT-12												CI (15D) 19
RG	CCST-20							1	MI (26D) 26				
	CCGT-21						6	MO (54D) 28					
	CCGT-22						6	MO (52D) 26					
RG	CCST-30	2	MI (26D) 27										
	CCGT-31	13	CI (15D) 27										
	CCGT-32	13	CI (15D) 27										
RG	Thermal-1								1	MO (57D) 27			
RG	Thermal-2						30	MO (57D) 25					
RG	CCST-10 - CCTE												
	CCGT-11 - CCTE									21	CI (10D) 30		
	CCGT-12 - CCTE									5	CI (10D) 14		
RPCL	CCST-10												
	CCGT-11										20	MO (32D) 21	
	CCGT-12										20	MO (32D) 21	
RPCL	CCST-20												
	CCGT-21	3	CI (13D) 15										
	CCGT-22	3	CI (13D) 15										

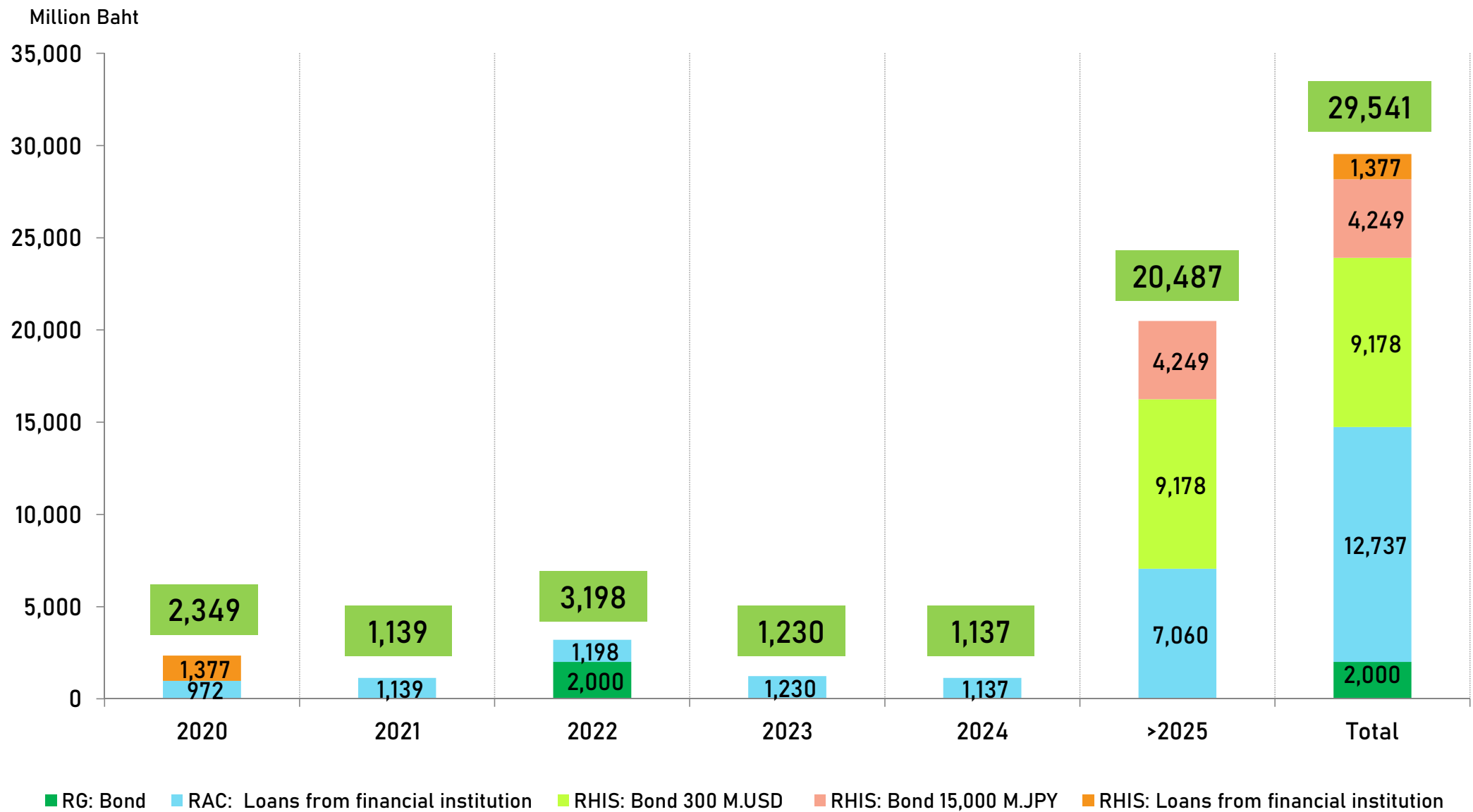
Thermal Plant	Minor Inspection (MI)		40 Days	Major Overhaul (MO)		57 Days		
Gas Turbine	Warranty Inspection (WI)			Combustion Inspection		Minor Inspection		Major Overhaul
	Normal (WI)	Gen.Rotor Removed (WI*)		(CI)		(MI)		(MO)
	26 Days	32 Days		15 Days		30 Days		52 Days
Steam Turbine	Warranty Inspection (WI)			Minor Inspection		Major Overhaul		
	Normal (WI**)	Gen.Rotor Removed (WI*)		(MI)		(MO)		
	26 Days	30 Days		26 Days		49 Days		

Planned Outage at Ratchaburi Power Plant in 2018

Plant		Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec
RG	CCST-10												
	CCGT-11											MO (52D)	25
	CCGT-12											MO (52D)	25
RG	CCST-20												
	CCGT-21									30	CI (9D)	8	
	CCGT-22									30	CI (9D)	8	
RG	CCST-30												
	CCGT-31		11	CI (15D)	25								
	CCGT-32		11	CI (19D)	1								
RG	Thermal-1												
RG	Thermal-2												
RG	CCST-10 - CCTE												
	CCGT-11 - CCTE												CI (20 D)
	CCGT-12 - CCTE									22	CI (12 D)	3	5
RPCL	CCST-10												
	CCGT-11											CI (14D)	3
	CCGT-12											CI (14D)	3
RPCL	CCST-20	14	MI (35 D)	17									
	CCGT-21	14	MI (35 D)	17									
	CCGT-22	14	MI (35 D)	17									
Thermal Plant		Minor Inspection (MI)			40 Days		Major Overhaul (MO)			57 Days			
Gas Turbine		Warranty Inspection (WI)					Combustion Inspection			Minor Inspection		Major Overhaul	
		Normal (WI)		Gen.Rotor Removed (WI*)			(CI)			(MI)		(MO)	
		26 Days		32 Days			15 Days			30 Days		52 Days	
Steam Turbine		Warranty Inspection (WI)					Minor Inspection			Major Overhaul		Page 40	
		Normal (WI**)		Gen.Rotor Removed (WI*)			(MI)			(MO)			
		26 Days		30 Days			26 Days			49 Days			

Debt Profile

As of September 2019



IR Contact

Ms. Ananda Muthitacharoen

Tel : +66 (0) 2794 9841

Fax : +66 (0) 2794 9888 Ext. 9841

Email : ir@ratch.co.th



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