



GLOBAL POWER SYNERGY PUBLIC
COMPANY LIMITED

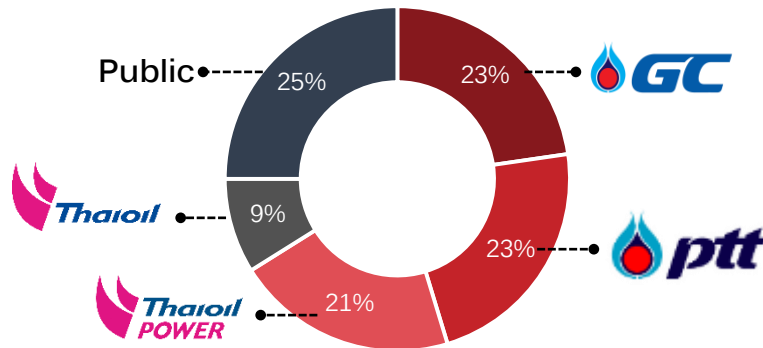
Q2/2019 OPPORTUNITY DAY

August 29th, 2019

**THE INNOVATIVE POWER
FLAGSHIP OF PTT GROUP**

GPSC Innovative Power Company at a Glance

Shareholding Structure



Thai Oil Power is 74% held by Thai Oil and 26% by PTT

Company Information

Head Office	555/2 Energy Complex Building B, 5th Floor, Vibhadi-Rangsit Road, Chatuchak, Bangkok, Thailand
Business Type	Energy & Utilities
Registered Capital (Fully Paid)	THB 14,983 million (USD 485.7 million)
Market Cap (As of 15 Aug 2019)	THB 100,740.5 million (USD 3,265.9 million)

Note: Use FX = 30.846 THB/USD ; the w.a. selling rate announced by the BOT on 15 Aug 2019

In 2019, Total Equity Capacity¹

⚡ Electricity 5,026 MWe

☁ Steam 2,876 T/H

COMBINED CYCLE / COGENERATION / THERMAL²



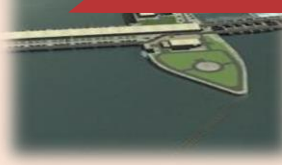
⚡ Electricity 4,463 MW
☁ Steam 2,876 T/H
💧 Chilled Water 15,400 RT
🏭 Industrial Water 7,372 Cu.m./H

RENEWABLE ENERGY



⚡ Electricity 114 MW

HYDROELECTRIC



⚡ Electricity 449 MW

OTHER BUSINESSES



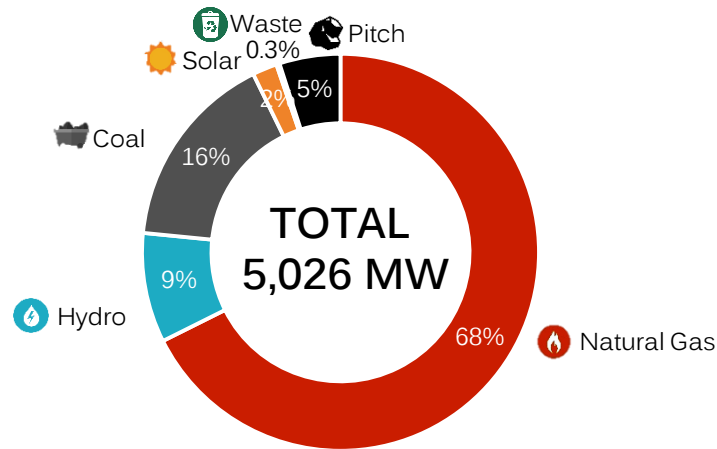
24M Technologies, Inc. (USA)
Business Service Alliance Co., Ltd.

Note: 1) Equity capacity includes 100% stake in GLOW, GRP and ERU

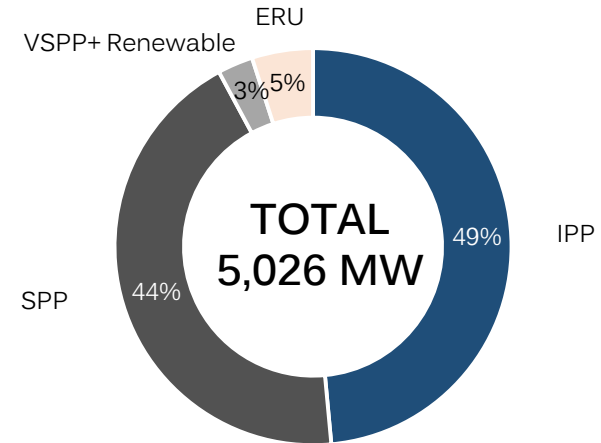
2) Equity capacity includes ERU

GPSC's Business Portfolio by Fuel and Plant Type

Equity Capacity by fuel types



Equity Capacity by Plant Type



Energy Type	Installed MW			Equity MW		
	Total capacity	%	In operation	Total capacity	%	In operation
Natural gas	5,047	63.00%	4,927	3,399	67.63%	3,321
Hydro	1,502	18.75%	152	449	8.93%	102
Coal	1,045	13.04%	1,045	814	16.20%	814
Solar	149	1.86%	109	101	2.01%	61
Waste	18	0.22%	-	13	0.26%	-
Pitch	250	3.12%	-	250	4.97%	-
Total	8,011	100%	6,233	5,026	100%	4,298

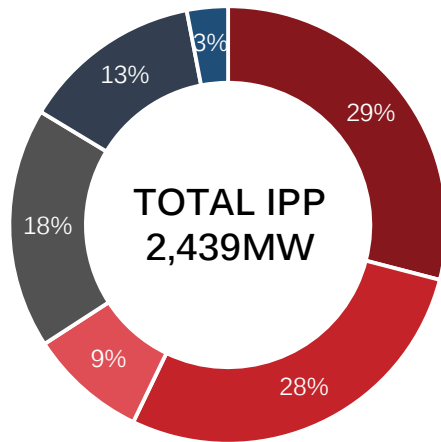
Energy Type	Installed MW			Equity MW		
	Total capacity	%	In operation	Total capacity	%	In operation
IPP	4,910	61.29%	3,625	2,439	48.53%	2,118
SPP	2,614	32.63%	2,494	2,192	43.61%	2,114
VSP+ Renewable	237	2.96%	114	145	2.88%	66
ERU	250	3.12%	0	250	4.97%	0
Total	8,011	100%	6,233	5,026	100%	4,298

Note: Base on 100% in GLOW

GPSC's Business Portfolio by Plant Type

IPP

(49%)



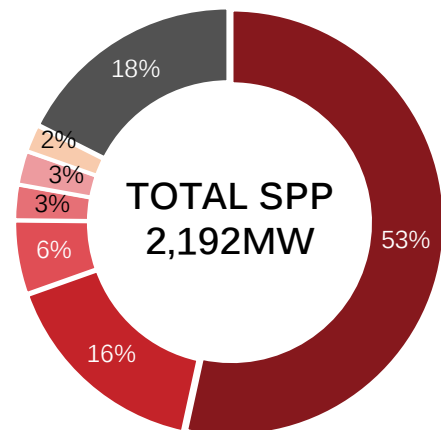
Natural gas		
Sriracha Power Plant	700MW	
GLOW IPP	677MW	
Ratchaburi Power (RPCL)	210MW	

Coal		
GHECO-ONE	429MW	

Hydro		
Xayaburi Power (XPCL)	321MW	
Houay Ho	102MW	

SPP

(43%)

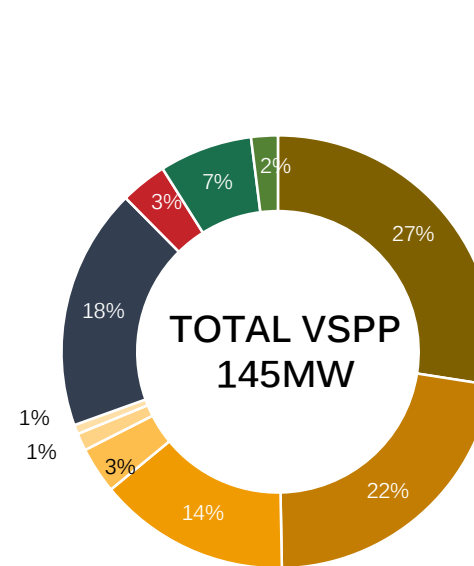


Natural gas		
Glow Co-Generation	1,171MW	
Rayong CUP 1-3	354MW	
IRPC-CP (Phase 1-2)	122MW	
Bangpa-in Cogeneration BIC (Phase 1-2)	59MW	
NNEG	56MW	
Rayong CUP 4	45MW	

Coal		
Glow Co-Generation	385MW	

VSPP and Renewable

(3%)



Solar		
Solar Project	39.5MW	
Thai Solar Renewable TSR (SSE1)	32MW	
Ichinoseki Solar Power (ISP1)	21MW	
Combined Heat and Power Producing (CHPP Solar)	5MW	
Glow Energy Solar PV Rooftop	2MW	
Glow Energy Solar Plant	1MW	

Hydro		
Nam Lik 1 Power (NL1PC)	26MW	

Natural gas		
CHPP	5MW	

Waste		
Rayong WTE	10W	
Chonburi Clean Energy (CCE)	3MW	

ERU

(5%)



Pitch		
Thaioil	250MW	

Power Plant Definition and Revenue Structure

IPP

Independent Power Producer (IPP):

- A large power producer who has entered into the Power Purchase Agreement (PPA) with contracted capacity more than 90 MW
- IPPs are obliged to sell their entire output to EGAT

SPP

Small Power Producer (SPP) / Cogeneration (Cogen):

- A small power producer who sell their electricity to EGAT* and sell their electricity and utilities (e.g. steam, industrial water, chilled water) to Industrial customers (IUs)

Contract Type:

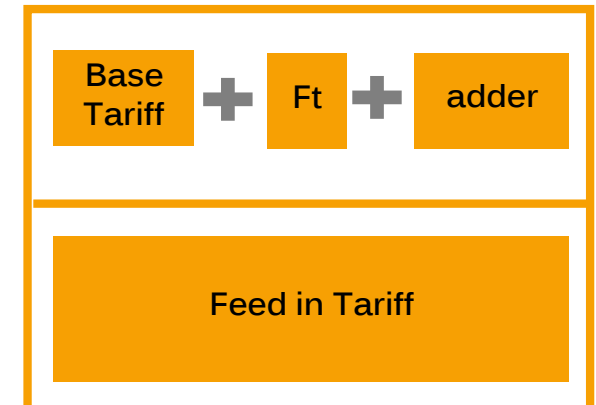
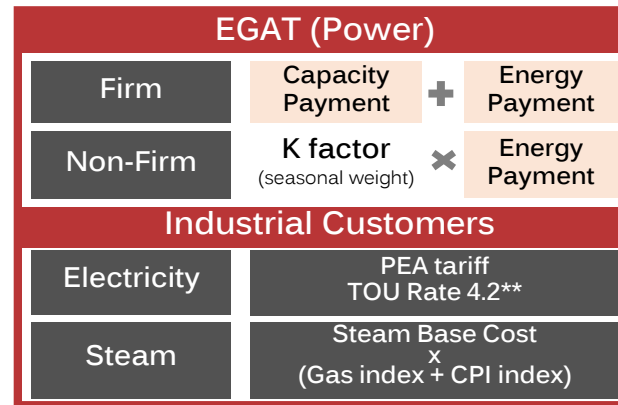
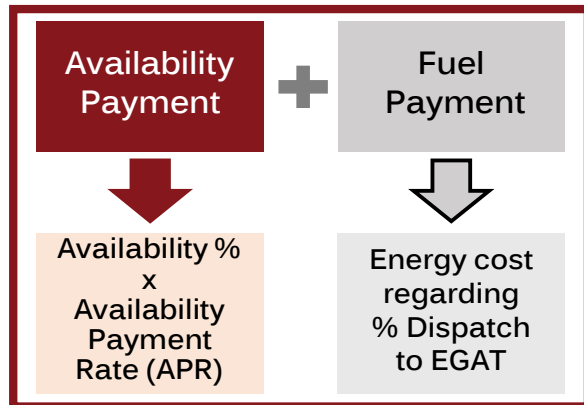
EGAT:

- Firm: Contract term > 5 years ; CP + EP (+ FS)**
 - Non-Firm: Contract term <= 5 Years; Only EP_{NF}
- IUs: Commercial contract as agreed.

VSPP

Very Small Power Producer (VSPP):

- A very small generator whose power generating process is generated from renewable energy, cogeneration, biogas, biomass, waste heat, etc. with contracted capacity no more than 10 MW of electricity capacity
- VSPPs are able to sell power to the Distribution Utility Authority only



* Under various type of contracts.

** Fuel Saving (FS)

*** Reference rate with conditions;

<https://www.pea.co.th/Documents/Rate2015.pdf>

GPSC Customers' Profile



LONG TERM OFF TAKE CONTRACTS

- ✓ Guaranteed market and source of revenue
- ✓ Guarantee a minimum level of profit in regards to their investment
- ✓ Price adjustment formula, varying with fuel price



57% Industrial Users



40% EGAT

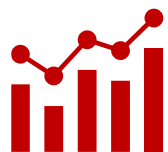


3% Others

Q2/2019 Revenue by Customers

Q2 2019 KEY HIGHLIGHTS

'GROWING PROFIT WITH SUSTAINABILITY AND CONTROL'



SIGNIFICANT GROWTH

- GPSC completed the acquisition of GLOW 69.11% on March 14, 2019, and completed Mandatory Tender Offer from Glow which ended on the 22nd May 2019 of 26.14% adding up to a total of 95.25%
- Integration with GLOW will consist of 3 phases, the current phase focuses on launching all quick wins and preparing to launch all remaining synergy initiatives
- Coordination with PTT Group on Gas to Power product to diversify portfolio



PROFIT



154% increase in EBITDA QoQ due to the first full quarter contribution of GLOW



30% of gross profit margin in Q2/2019 due to the first full quarter recognition of GLOW's power plant with better margins



Value added from synergy

THB 1.6 bn ramp up with full EBITDA contribution by 2024



SUSTAINABILITY

- Interim Dividend THB 0.50 per share** dividends for 1H/2019 that will be paid on September 12, 2019
- Awards** from
 - CFO of the year** from 'The Asset Magazine'
 - Asia Responsible Enterprise Award 2019** from 'Enterprise Asia'
 - Asia Best CFO (IR) and Best Investor Relation Company** from Corporate Governance Asia Magazine
 - GPSC was classified as **Securities in ESG100 for the year 2019** from 'Thaipat Institute'



CONTROL



Nam Lik 1 was COD since July 2019



Xayaburi and **CUP4** which are under construction with over 95% completion is expected to COD within 2019



NNEG expansion phase expected to COD in 2020



WTE is expected to COD in 2021



ERU which jointly operate with Thaioil is expected to COD in 2023



GPSC Growth and Strategic Direction



Update of projects

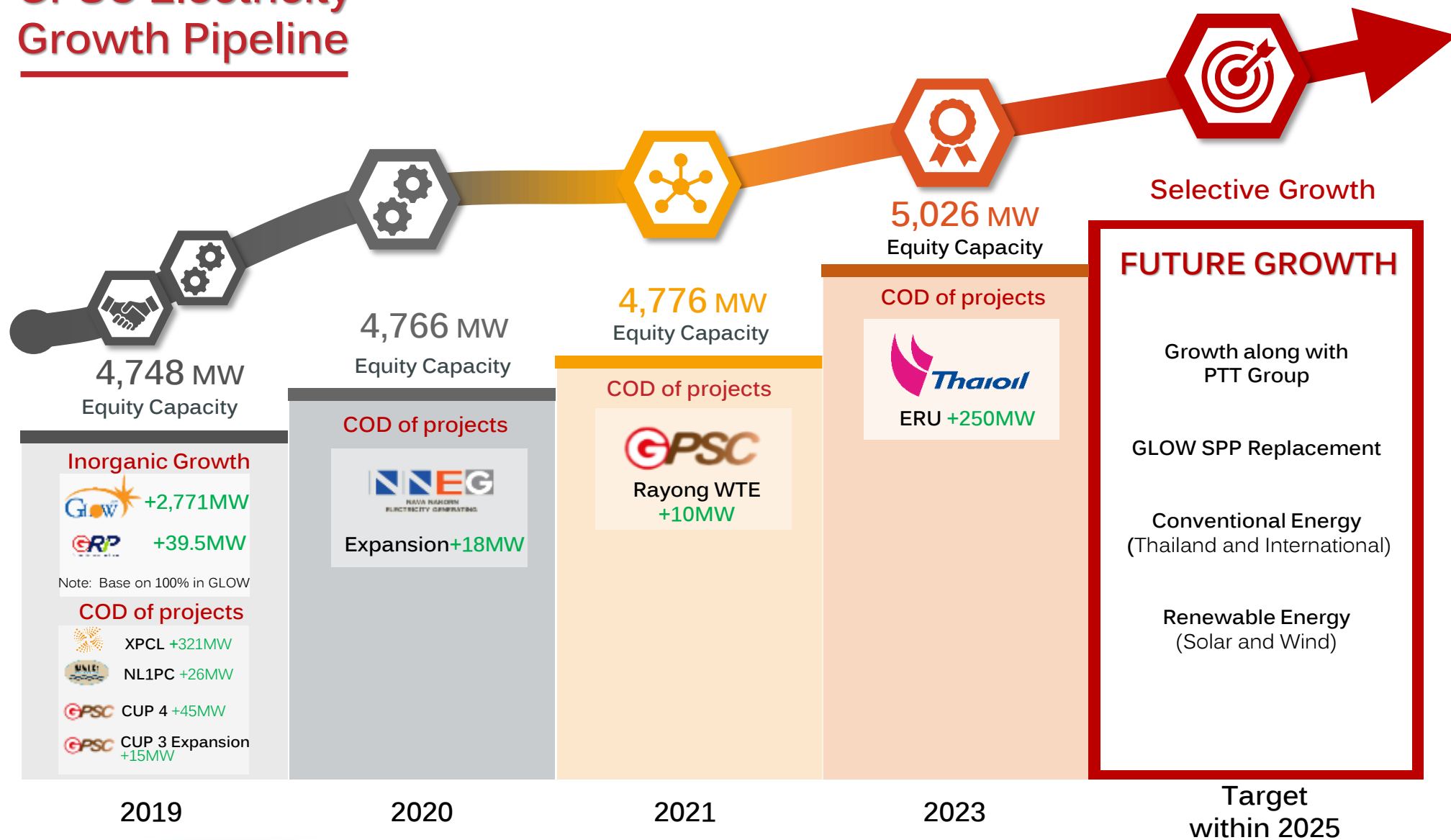


Equity Offering



Financial Performance

GPSC Electricity Growth Pipeline



Strategic Direction and Growth Strategy

3 Pillars

SYNERGY & INTEGRATION

-  Synergy Capture
-  Operation Excellence & Asset Optimization
-  Corporate & Business Infrastructure

SELECTIVE GROWTH

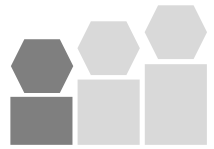
-  Growth along with PTT Group
-  Domestic and International
-  Renewable

S-CURVE

-  Battery Business
-  Energy Storage System Integrator
-  Energy Management Solution Provider


Strategic Direction and Growth Strategy


Synergy & Integration



SYNERGY & INTEGRATION

Synergy Capture

 Operation Excellence
& Asset Optimization

 Corporate & Business
Infrastructure



Synergy Identification (Phase 1)

May – July 2019

- ✓ Baselining performance
- ✓ Enhancing and prioritizing synergy initiatives
- ✓ Developing business cases and action plans
- ✓ Launching selected Quick-win initiatives



Initiatives Launch

Aug – Oct 2019

- ✓ Launching all **Quick-wins**
- ✓ Preparing to launch all remaining synergy initiatives



Full Implementation

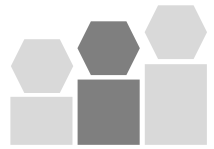
Nov 2019 Onwards

- ✓ Launching **all initiatives**
- ✓ Driving **full integration plan implementation**
- ✓ Monitoring, controlling and reporting progress on financial and other metrics

- ✓ Ongoing synergy identification for additional uplift in Phase 2

Strategic Direction and Growth Strategy

Selective Growth



Growth along
with PTT Group



Domestic and
International



Renewable

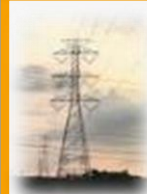
SHORT-TERM GROWTH

2019-2020



GROWTH ALONG WITH PTT GROUP

Domestic and international
such as Gas to power
investment also the investment
in Maptaphut and EEC area



PDP 2018

Opportunity capture such as
SPP replacement as ERC
announced the electricity
purchase from SPP with
contract ending during 2019-
2025, Solar floating (EPC)
and Solar PPPA



SELECT & DEVELOP STRATEGIC PARTNER

for focus countries

LONG-TERM GROWTH

2021-2025



RENEWABLE IN GREENFIELD AND DEVELOPER SCHEME INVESTMENT



USE CO-GENERATION EXPERTISE TO EXPAND IN FOCUS COUNTRIES

Strategic Direction and Growth Strategy S-curve



GPSC has strengthen its knowledge and capabilities in providing ESS services



GPSC AS A SYSTEM INTEGRATOR



SEEKING NEW MARKET AND CUSTOMERS THROUGH PILOT PROJECTS

2019



EXPLORE NEW S-CURVE BUSINESS FROM ESS

2019 Onwards





System Integrator/
Developer in
Micro-grid/ESS

Manufacturer in
Battery

Market and
Technology
Intelligence in
Digital Energy

 **Battery Business**

 **Energy Storage System Integrator**

 **Energy Management Solution Provider**

GC



Peak Shift & Gas Turbine Efficiency Improvement (Dec 2019)



- ✓ Increase efficiency of Gas Turbine
- ✓ Improve power stability of GC operation in Rayong province
- ✓ Provide future power optimization for major industries supporting GC Group



GCL











Renewable Integration for Peak Shift & Back-up (Mar 2019)



- ✓ Increasing effectiveness of power consumption that benefit environment

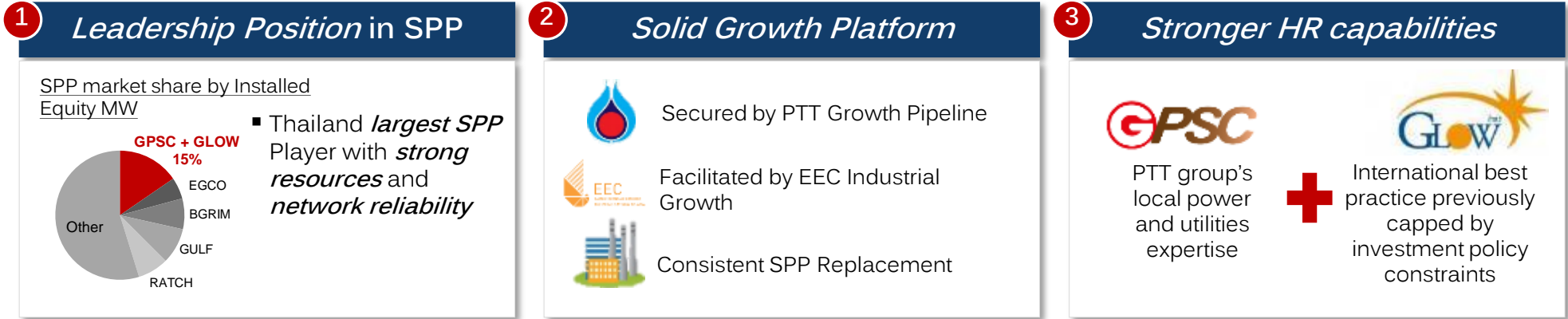
GPSC Energy Storage System Projects Information and Status:

Type	Customer	Capacity	Status
 Residential	Chiang Mai U	10kW/17kWh	
 Industrial	GCL	625kW/625kWh with 2MWp solar	
 Industrial	GC	250kW/1.5MWh	
 Smart City	VISTEC	1MW/1MWh	

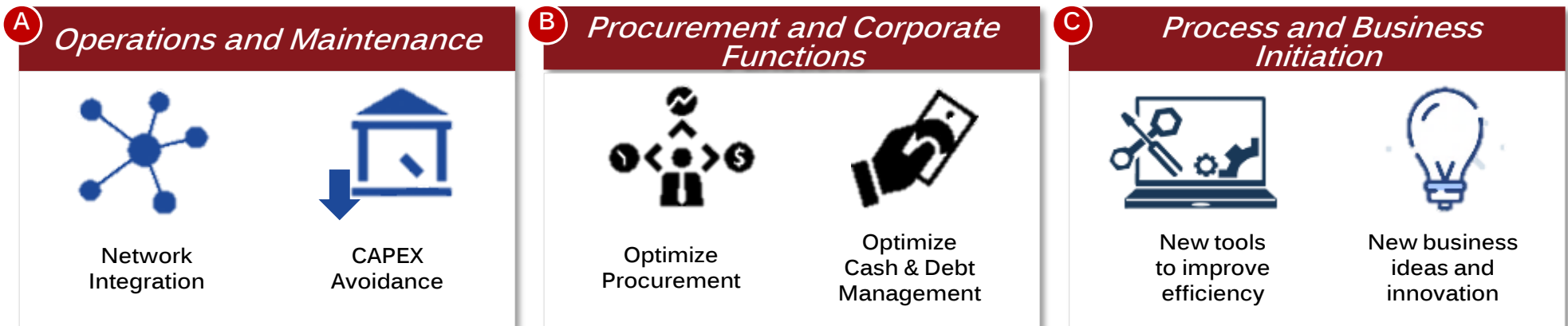
 Complete  Constructing

Growth Platform Strengthened by Synergies

'Larger and Stronger Power House'



'Continuous Synergy Realization'

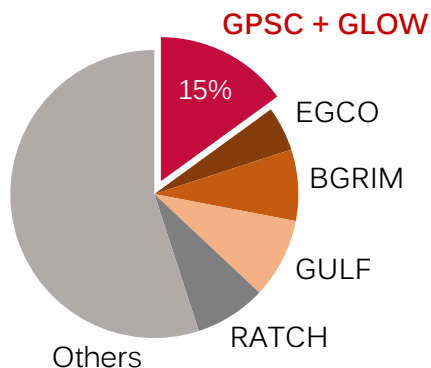


1. Leadership Position in SPP

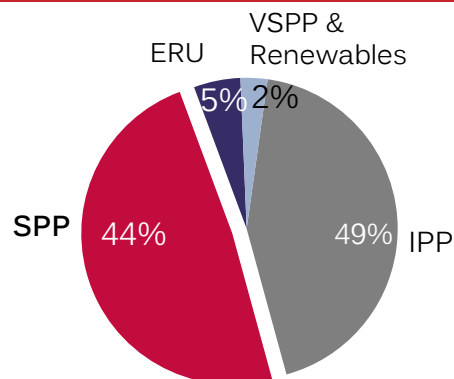
SPP Market Share by Installed Equity MW/¹

Thailand's largest SPP player

with strong resources and network reliability



GPSC's Committed Portfolio/²



**Committed Equity
5,026 MW**

**with SPP
2,192 MW**

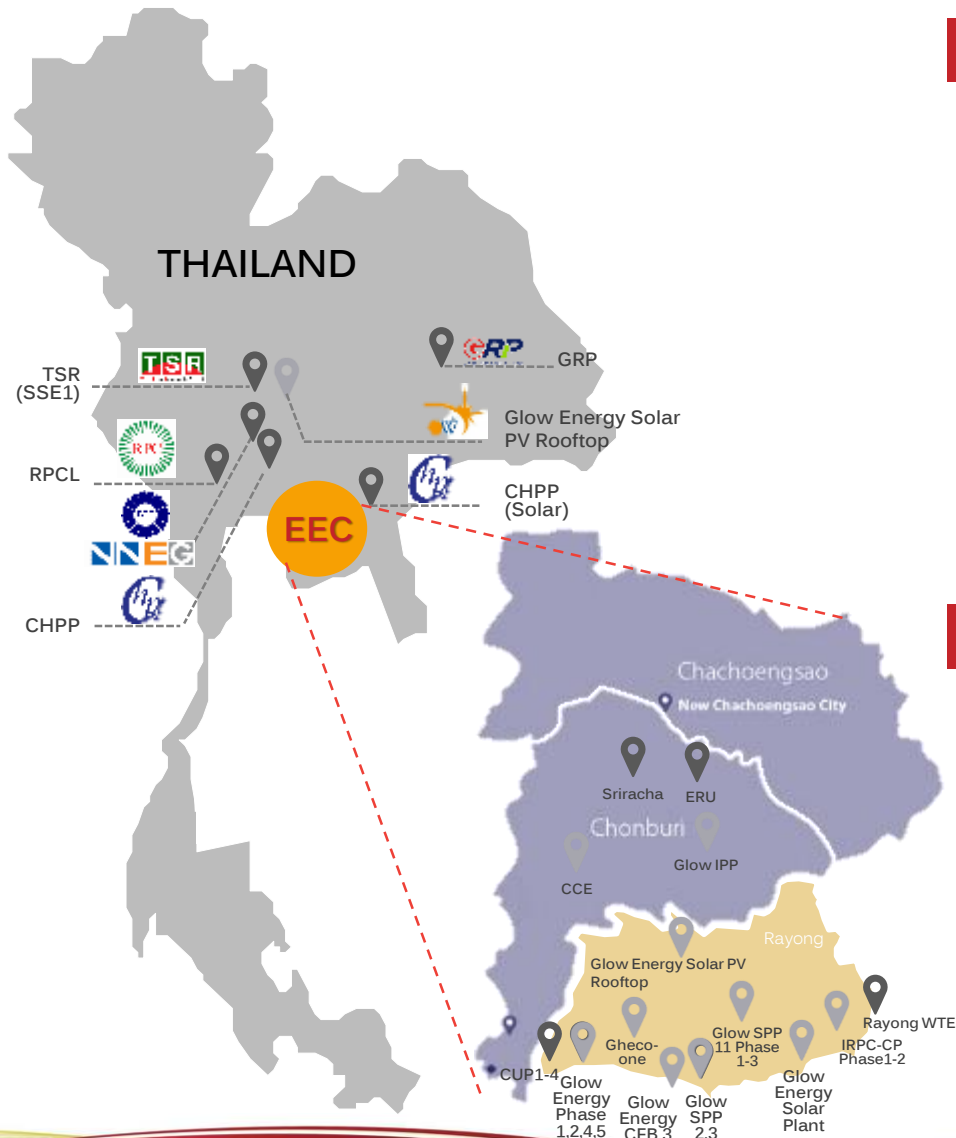
SPP Replacement Project: Stage 1 and 2 Projects (Tentative only)

Plant	Power (MW)	Steam (TPH)	Max. EGAT PPA	Notice to proceed	SCOD
Stage 1					
GEN Phase 2	192	300	30 x 2	2020	2022
Stage 2					
GSPP2	192	300	30 x 2	2022	2024
GSPP3 (Coal)	120	168	30 x 2	2022	2024, 25
GSPP11#1	80	-	30 x 1	2023	2025
Total	584	768			

Note: 1. Data source from companies' website and ERC as of July 2019
2. Based on 100% in GLOW

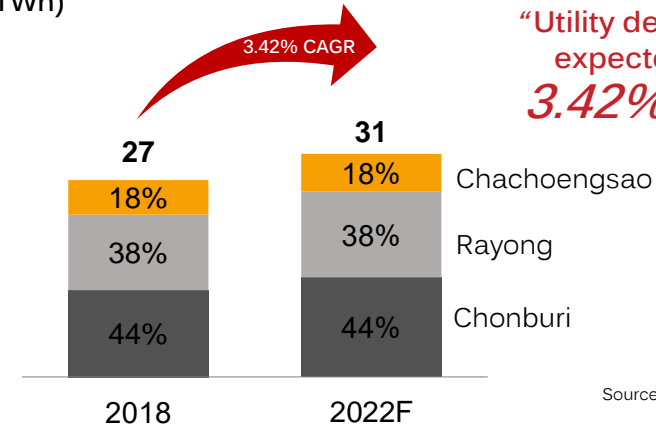
Source: Glow Analyst Meeting Q1/2019

2. Solid growth platform and Expansion in EEC



Capture solid growth in EEC

(TWh)



“Utility demand in EEC expected to grow **3.42% CAGR**”

Source: PEA, MEA, Ministry of energy

Supportive Industrial Customers Landscape

Customer needs



>5 Industrial estates



>5 Industries

- Petrochemical
- Chemical
- Refinery
- Steel
- Industrial gas

~75 companies

~120 plants & facilities

Reliability

Cost competitiveness

Backup support

Flexibility

3. Stronger HR capabilities

Human Resource Key Enablers



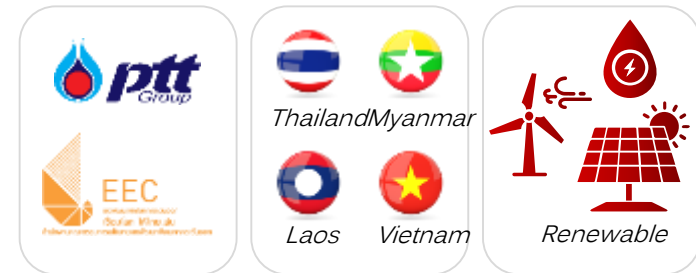
- Culture Alignment
- Growth Mindset
- Leadership Development
- Strengthening Core Competencies
- Employee Engagement
- People System Alignment



Group's Objectives

Selected Growth

- Core and project management Expertise
- Technical Expertise
- International BD talents
- M&A, Legal & Financial

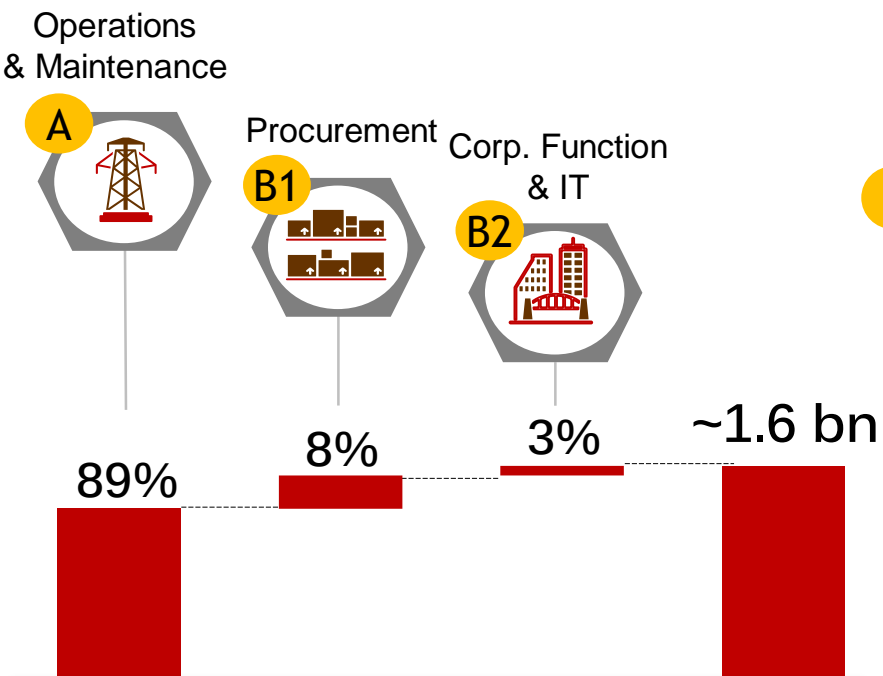


S Curves and Digitization

- Dedicated digital energy team
- Technical Expertise
- System integrator / micro-grid
- New Initiatives

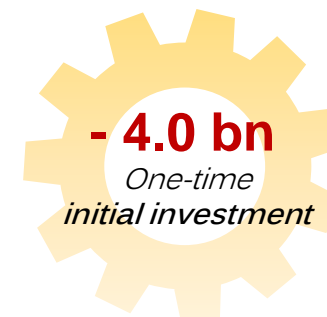
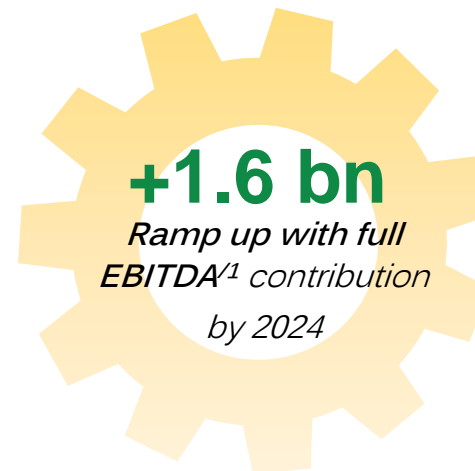
Expected Synergy Benefit

EBITDA Contribution Per Annum^{/1} Identified in Phase 1



Note: 1. Recurring EBITDA synergy value based on current portfolio

1. Recurring Benefit in Phase 1



2. Additional One-time Benefit



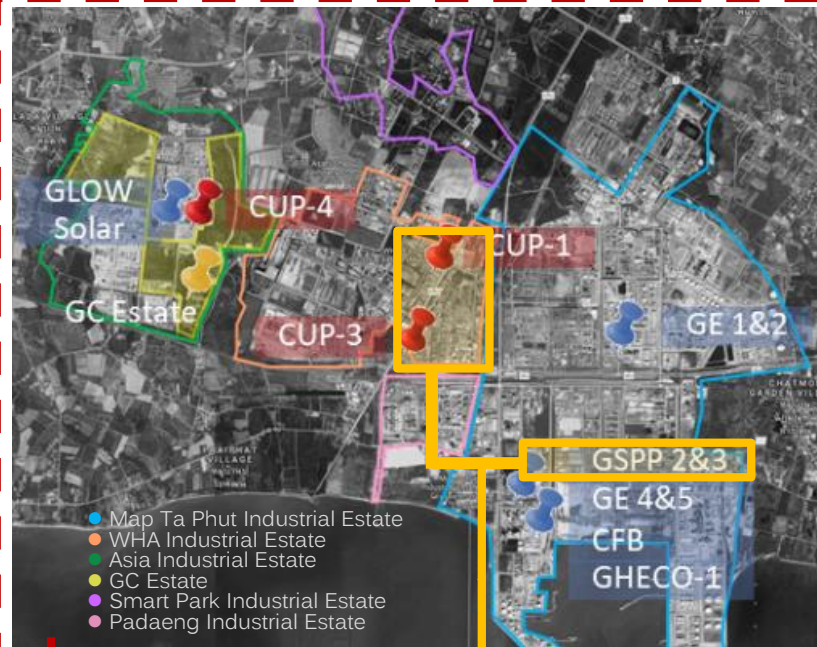
3. Further Identification in Phase 2



For 200 MW growth in MTP

Quick wins & Big wins

Power and Steam Integration leads to cost savings and more capacities to serve new demand



Big-win

Full Integration from Power and Steam Integration

- Rebalance production to optimize cost

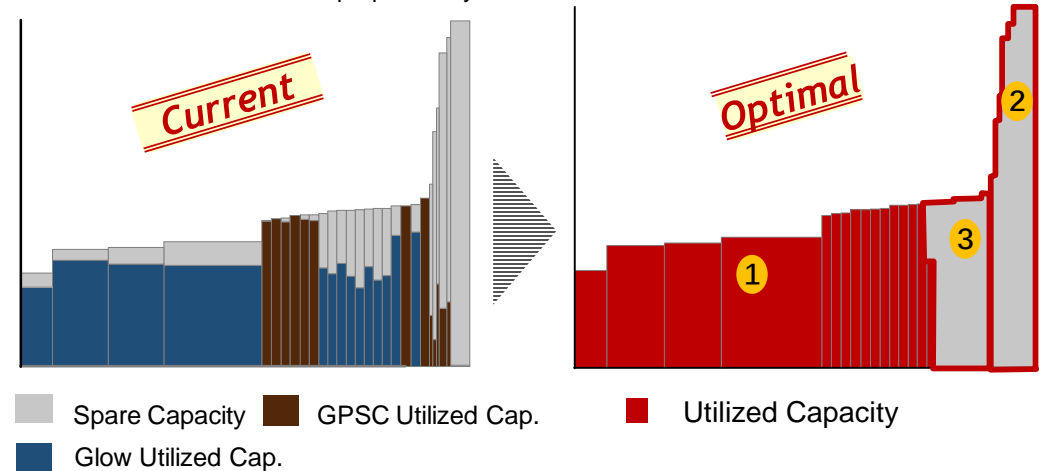
Quick-win

Immediate benefits from Power and Steam Integration

- Reduce standby time

Marginal cost per unit (THB / MWh)

For Illustrative purpose only



1

Substitute GPSC supply by GLOW's lower cost of production



2

Optimize Back-Up Capacity and Cost



3

Avoid or Delay Power Plant and Distribution Network CAPEX



4

Increase Supply Opportunities



GPSC Growth and Strategic Direction



Update of projects



Equity Offering



Financial Performance

Nam Lik 1 Power Company Limited (NL1PC)



COD: July 2019

% Progress

2Q19

100%

PROJECT SUMMARY

TYPE



Run-of-River
Hydropower
Plant

ELECTRICITY (MW)

64.7

LOCATION

Northern of
Vientiane, Lao PDR



• Electricite Du Laos (EDL)
(63.8 MW for 30 years from
signing date)

CUSTOMER

GPSC HOLDING

40%

Of total share

PROJECT UPDATE

- Overall construction and commissioning test was completed.

Xayaburi Power Company Limited (XPCL)



SCOD: Q4/2019

% Progress

2Q19

99.4%

PROJECT SUMMARY

TYPE



Run-of-River
Hydropower
Plant

ELECTRICITY (MW)

1,285

LOCATION

Lao PDR

CUSTOMER



• EGAT
(1,220 MW)



• Electricite
Du Laos
(EDL)
(60 MW)

GPSC HOLDING

25%

Of total share

PROJECT UPDATE

- The main construction tasks, such as power house, intermediate block, fish ladder and 500 kV transmission line were mostly completed.
- The commissioning test of each unit has been in progress in order to sell electricity to EGAT during the Unit Operation Period (UOP).

CENTRAL UTILITY PLANT 4 : CUP4 (THAILAND)



% Progress

2Q19

96.8%

PROJECT SUMMARY

TYPE



Gas-fired
Cogeneration



ELECTRICITY (MW)

45

STEAM (T/h)

70

LOCATION

Asia Industrial
Estate, Rayong

CUSTOMER



Industrial users in
Asia Industrial Estate
and neighboring
industrial estate



GPSC HOLDING

100%

Of total share

PROJECT UPDATE

- Main installations and erections have been completed, to prepare for the following unit test and commissioning.
- The progress of the inter-connection of power and steam pipeline has been achieved over 90%.
- Next activity will be integration test and commissioning.

Nava Nakorn Electricity Generation (NNEG) Expansion Project







SCOD: Q3/2020

% Progress

2Q19

51.7%

PROJECT SUMMARY

TYPE	ELECTRICITY (MW)	STEAM (T/h)
 Gas-fired Cogeneration	Expansion 60	10
	Total 185	40
LOCATION	CUSTOMER	
Nava Nakorn Industrial Promotion Zone, Pathumthani	 • Industrial User	 • EGAT (SPP Firm 90 MW for 25 years)
GPSC HOLDING	PROJECT UPDATE	

30%

Of total share

- Piling work was completed
- Main tasks such as engineering, foundation and procurement work for machines and equipment were executed as planned.

Rayong Waste to Energy (WTE)



% Progress

2Q19

3.16%

PROJECT SUMMARY

TYPE



Waste

ELECTRICITY (MW)

8

RDF (T/day)

300

LOCATION

Rayong

CUSTOMER



• Provincial Electricity Authority (PEA)



GPSC HOLDING

100%





Of total share

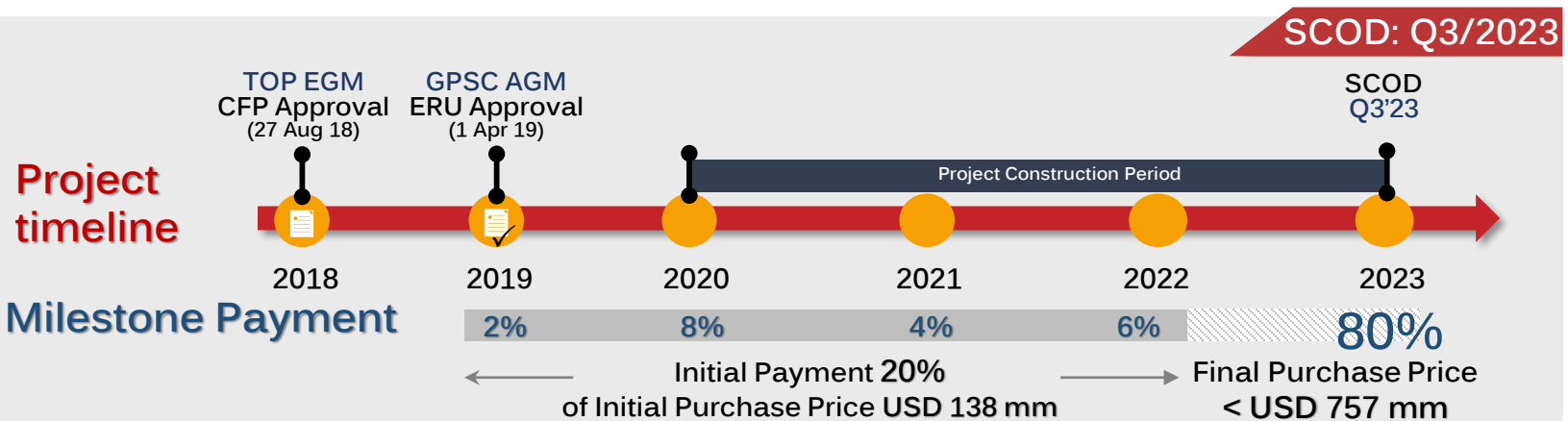
PROJECT UPDATE

- The RDF Project construction has been completed since 2018 while the RDF Power Plant Project construction began on April 2019.
- The project is expected to COD in Q2/2021.

ERU as a power and steam supporting unit of CFP Project

PROJECT SUMMARY

TYPE	ELECTRICITY (MW)	STEAM (T/h)	GPSC HOLDING	PROJECT DESCRIPTION
 Pitch	250	175	100% Of total share	<ul style="list-style-type: none"> The Energy Recovery Unit (ERU) : the plant which uses pitch as the main fuel feed to generate power, steam and other Products to the CFP Plant
LOCATION	CUSTOMER			
Laem Chabang Port	 • Industrial User around Laem Chabang Port  			





GPSC Growth and Strategic Direction



Update of projects

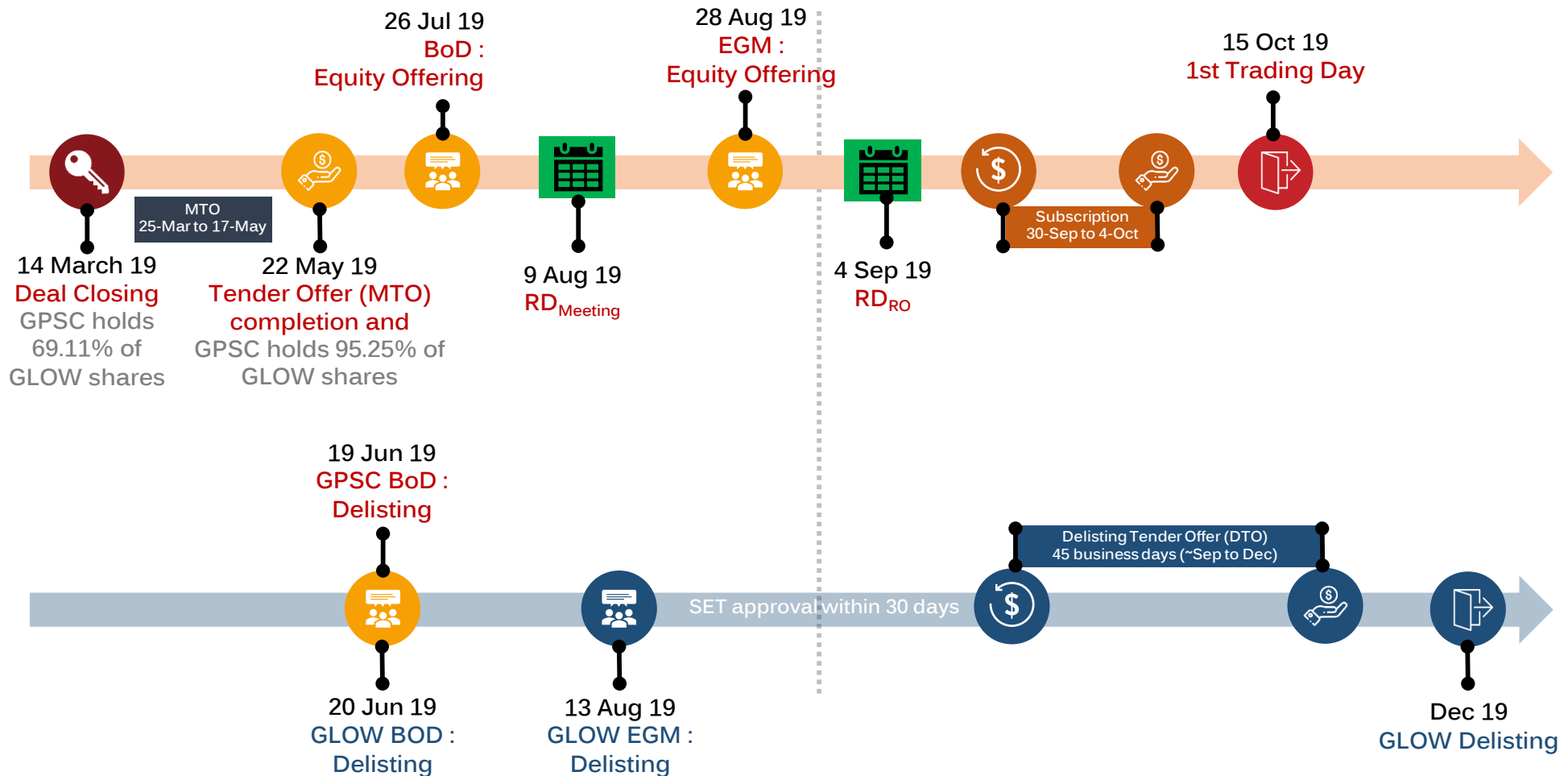


Equity Offering

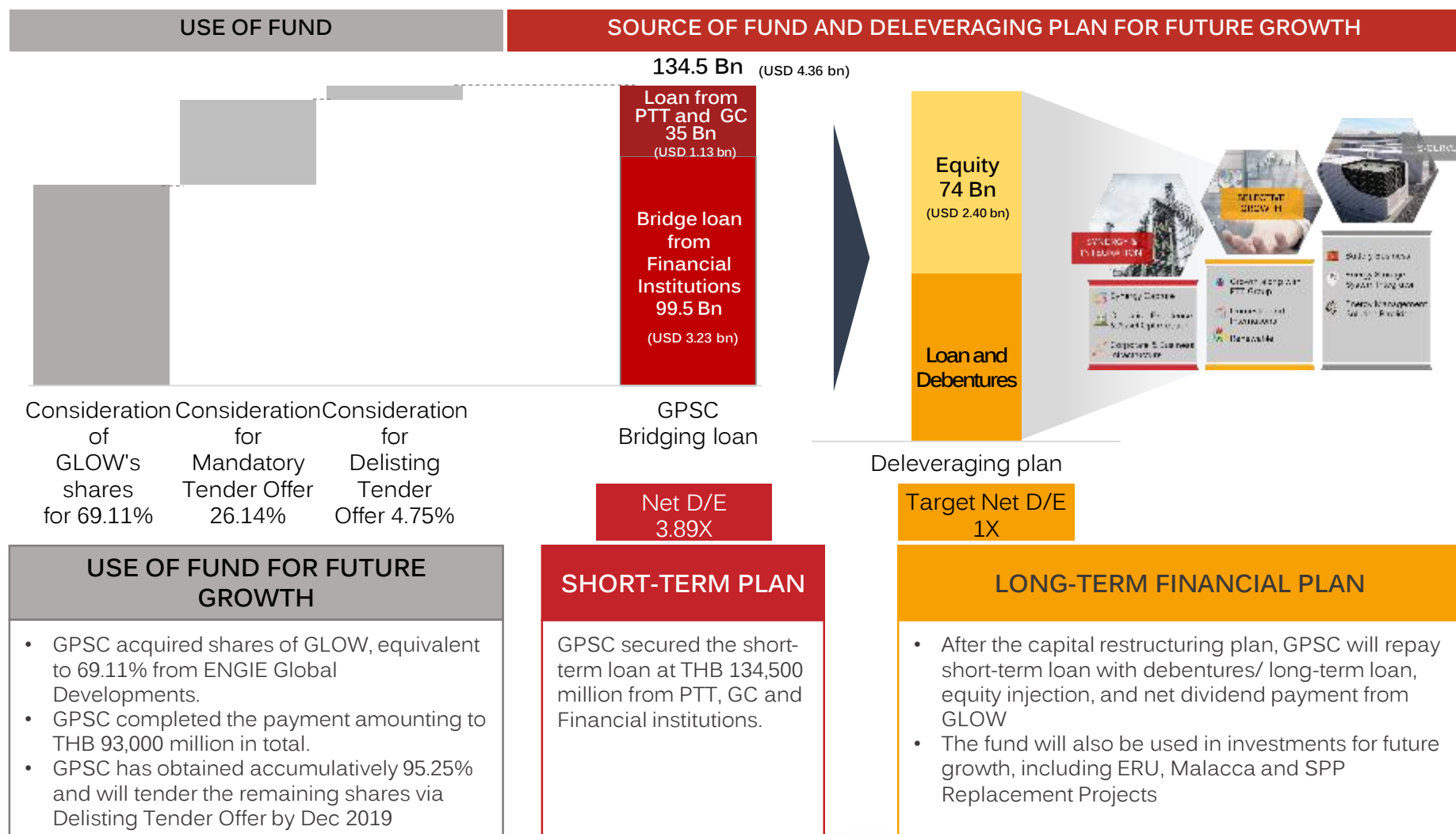


Financial Performance

Timeline : Equity Offering and GLOW Delisting



Use and Source of Fund with Deleveraging Plan



Rights Offerings

Key Terms

RO Amount

THB **74,000** million
(USD 2.40 bn)

RO Subscription Price

THB **56** per share
(USD 1.82)

Discount from 30D VWAP (THB 70)

20%

Numbers of Allotted Shares

1,321 million shares

Allocation Ratio (Old : New)

1 : 0.8819

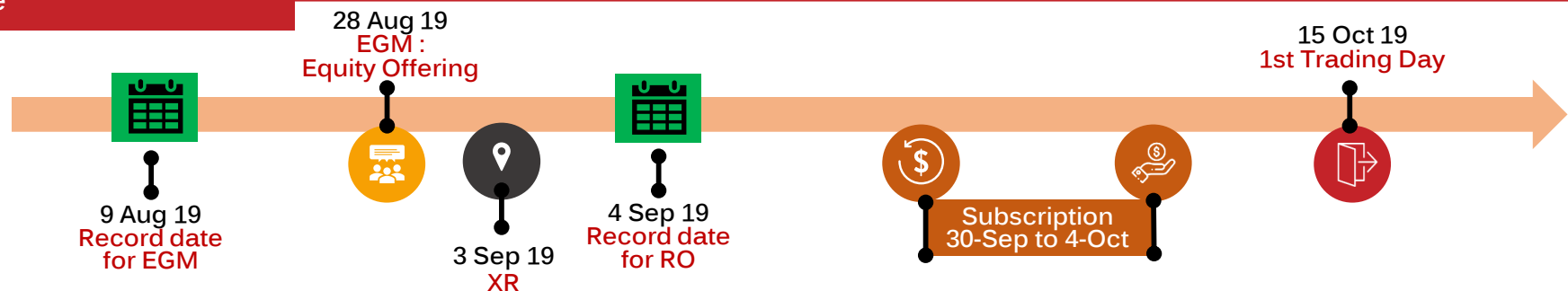
Allocation Method

- Allocate to existing shareholders proportionate to their respective shareholdings
- Oversubscription is allowed – allocate until there are no remaining or no shareholder subscribes for the remaining shares

Objective of Capital Increase

- Repayment of the short-term loan (Bridge Financing) to financial institutions and the major shareholders (i.e. PTT and GC)
- Maintaining financial ratio to be comparable with peers and financial structure which is suitable for the investment in the current and future projects

Timeline



Note: Use FX = 30.846 THB/USD ; the w.a. selling rate announced by the BOT on 15 Aug 2019

Equity Offering Summary

Objectives



(USD 2.40 bn)
Achieve THB 74 bn as required



Completion by 2019



Optimize Free-float



Right Offering



Giving rights to existing shareholders (no control dilution if rights are exercised)



Allow oversubscription for fund raising completion objective



Offered at discounted market price to attract existing shareholders to subscribe



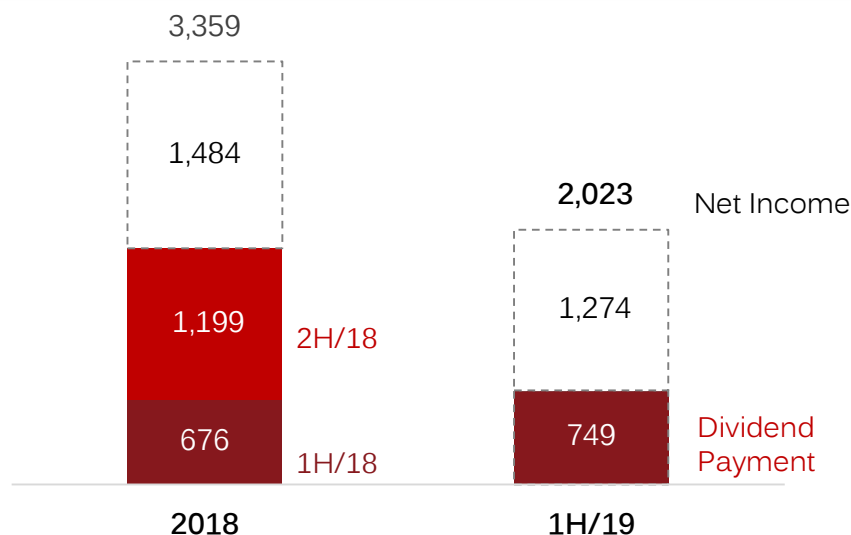
Appropriate method for meeting fund raising in timely manner

GPSC Announce Interim Dividend Payment

GPSC Announce to pay dividend of THB 0.50 per Share

Dividend Payment

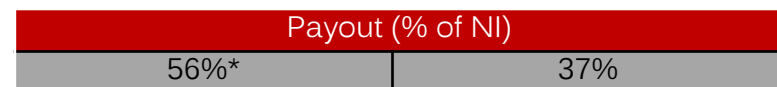
(THB Million)



GPSC announced on the 14th August 2019 that the company will pay dividend of THB 0.50 per share aggregating to an amount of THB 749 Million or 37% of the total net profit for the company of 1H/2019

The dividend payment is the result of:

- ✓ Successful acquisition of GLOW
- ✓ The better operating performance in 1H/2019
- ✓ The continuous growth of GPSC with 4 projects that is expected to COD within 2019 and 2020 including NL1PC, XPCL, CUP4 and NNEG





GPSC Growth and Strategic Direction



Update of projects



Equity Offering

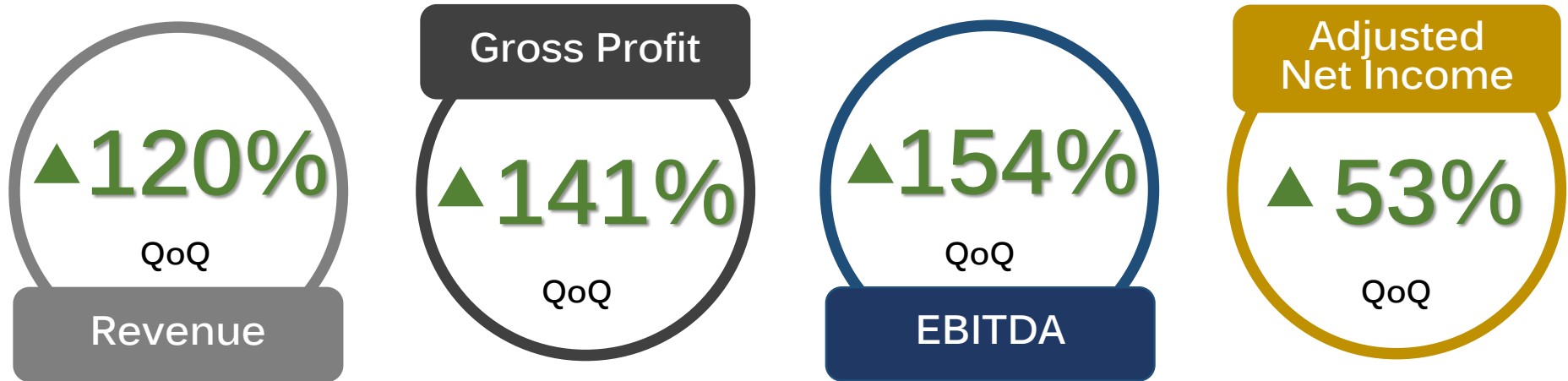


Financial Performance

Key Financial Highlights

Q2/2019

Key financial highlights



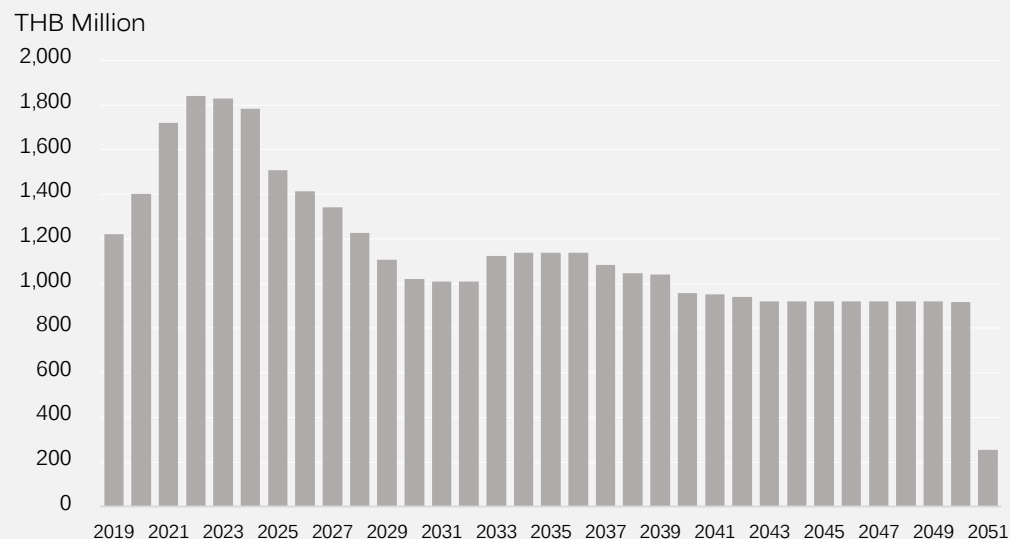
The better performance is mainly due to:

- ✓ The first full quarter recognition of GLOW's Independent Power Producer (IPP) and Small Power Producer (SPP) performance
- ✓ The consistency of GPSC's and GLOW's sales of both electricity and steam to industrial customers

Fair Value Measurement of Net Assets from the Acquisition of GLOW

Items	Book Value of GLOW (THB Million)	Fair Value of GLOW (THB Million)	Differential Value (THB Million)
Assets	107,655	155,500	47,845
Liabilities	(56,246)	(66,497)	(10,251)
Net Assets of GLOW at 14 March 2019	51,409	89,003	37,594 (USD 1,219 mm)
Non-Controlling interests at 30.89%		(32,092)	
Total Net Asset obtained GLOW at 69.11%		56,911 (USD 1,845 mm)	
Goodwill		36,090 (USD 1,170 mm)	
Proportion of acquisition cost 69.11%		93,001 (USD 3,015 mm)	

Amortization of Fair Value Measured from Net Assets acquired from GLOW during 2019 - 2051
(Computed based on 100% of GLOW shares)



GPSC has completed the acquisition of 69.11% on 14 March 2019 at a total of THB 93,001 million, the company has measured the fair value of GLOW net assets as follow:

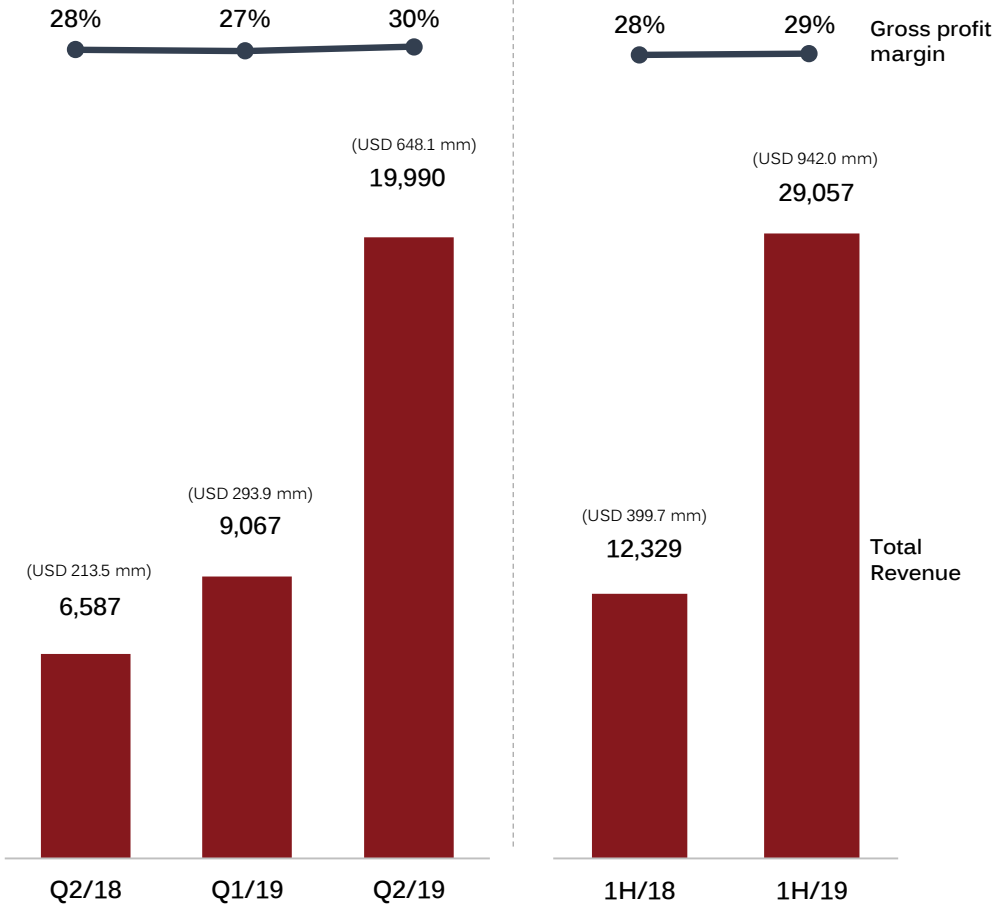
- The fair value uplift of THB 37,594 million from **Purchase Price Allocation (PPA)**
- **The fair value recognition of net assets** acquired from GLOW will be amortized yearly (based on the remaining period of the contract, 5 to 31 years).
- **Goodwill** will be subjected to an impairment test on a yearly basis.

Note: Use FX = 30.846 THB/USD ; the w.a. selling rate announced by the BOT on 15 Aug 2019

Q2/2019 Financial Performance Summary (1/2)

Revenue & Gross Profit Margin

(THB Million,%)



Gross profit margin

QoQ

▲ 3%

YoY

▲ 2%

1H

▲ 1%

QoQ, YoY and 1H: Increased due to

- 1) The first full quarter contribution of GLOW's performance
- 2) The better performance of both GLOW IPP and SPP Power Plants

Revenue

QoQ

▲ 120%

YoY

▲ 203%

1H

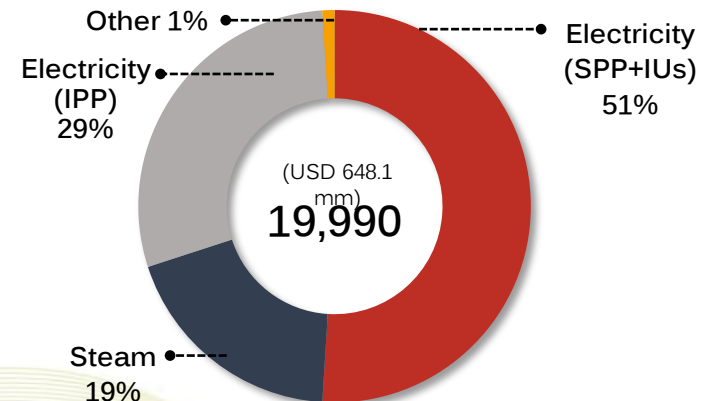
▲ 136%

QoQ, YoY and 1H : Increased due to

- 1) The first full quarter contribution of GLOW's performance
- 2) The higher Energy Payment (EP) and Financial Lease revenue from Sriracha Power Plant
- 3) The higher Electricity and Steam sales from GLOW's SPP plants

Q2/19 Revenue by product

(THB Million, %)

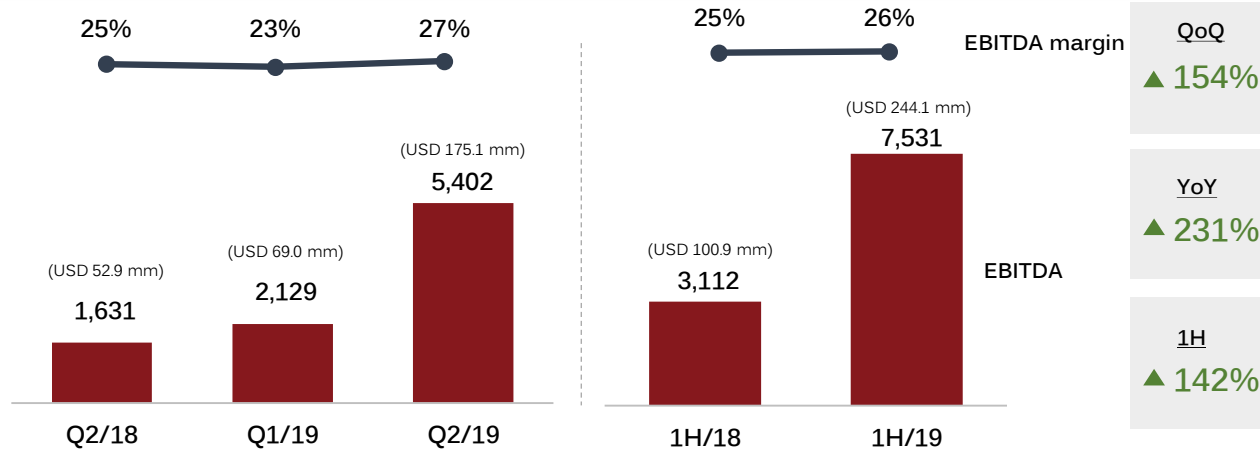


Note: Use FX = 30.846 THB/USD ; the w.a. selling rate announced by the BOT on 15 Aug 2019

Q2/2019 Financial Performance Summary (2/2)

EBITDA and EBITDA Margin

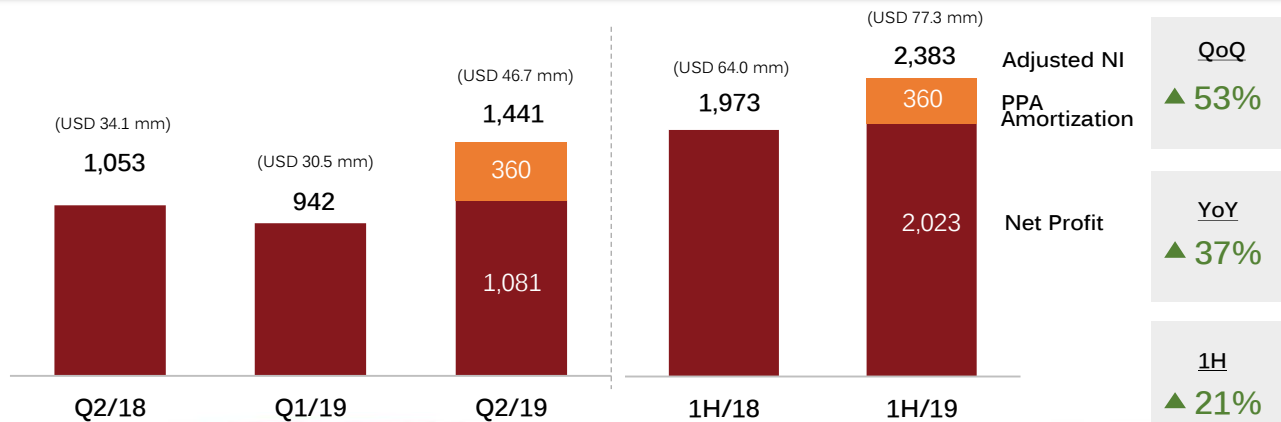
(THB Million, %)



QoQ, YoY and 1H: Increased mainly as a result of the immediate recognition of GLOW's performance after the acquisition of GLOW including Independent Power Producer (IPP), Small Power Producer (SPP) and Very Small Power Producer (VSPP) and Others.

Net Profit and Adjusted Net Income

(THB Million)



QoQ, YoY and 1H: Adjusted Net Income increased due to

- 1) The immediate first full quarter recognition of GLOW's performance after the acquisition
- 2) The increase in net profit by 15% showing that both GPSC and GLOW has shown consistency in the sales of both electricity and steam to industrial users

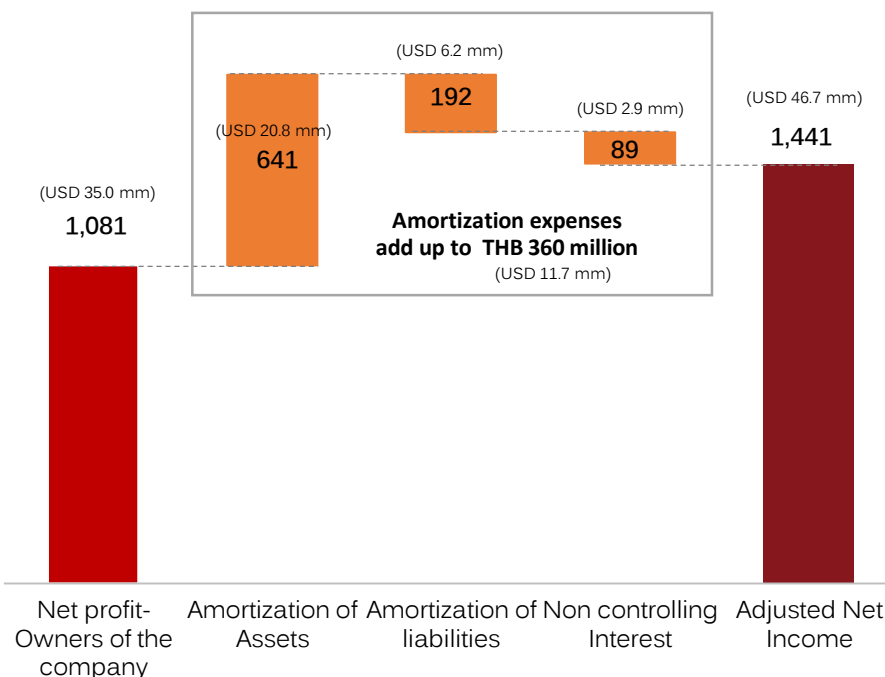
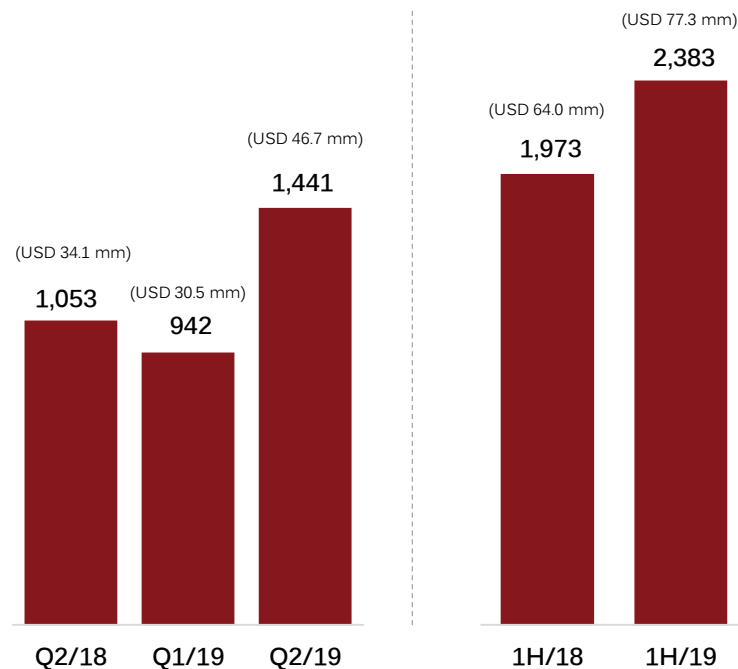
Adjusted Net Income increased as a result of the first full quarter acquisition of GLOW

Adjusted Net Income

(THB Million)

Adjusted Net Income of Q2/2019

(THB Million)



QoQ
▲ 53%

YoY
▲ 37%

1H
▲ 21%

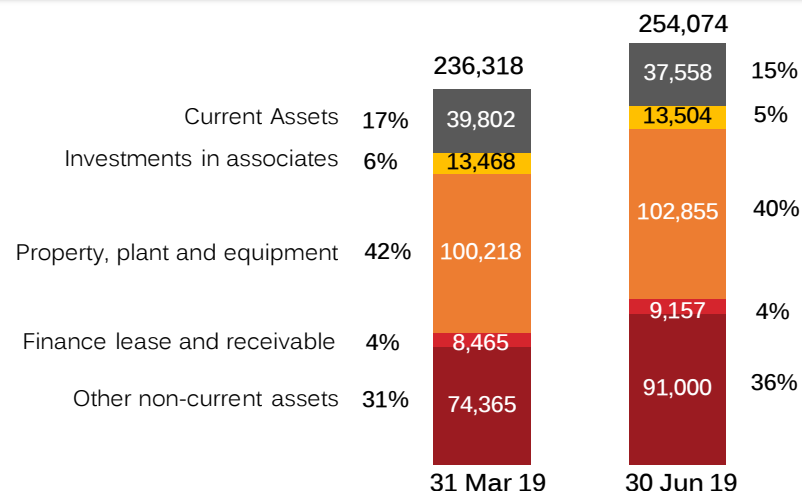
- QoQ, YoY and 1H: Increased from Q1/2019 and 1H/2018 respectively as a result of the first full quarter recognition from acquired GLOW despite the burden of interest expense from short-term loans

- Adjusted Net Income** is the net profit attribute to the company that excludes the "fair value of intangible asset from the acquisition of GLOW", the assessment of the fair value of net assets and allocation of business acquisition cost which has been calculated backwards from 14th March 2019 (the first day that GPSC has recognize GLOW's performance in the consolidated financial statement) according to the consolidated financial statement of the company

Financial Position of GPSC and Subsidiaries

Total Assets

(THB Million, %)



Assets

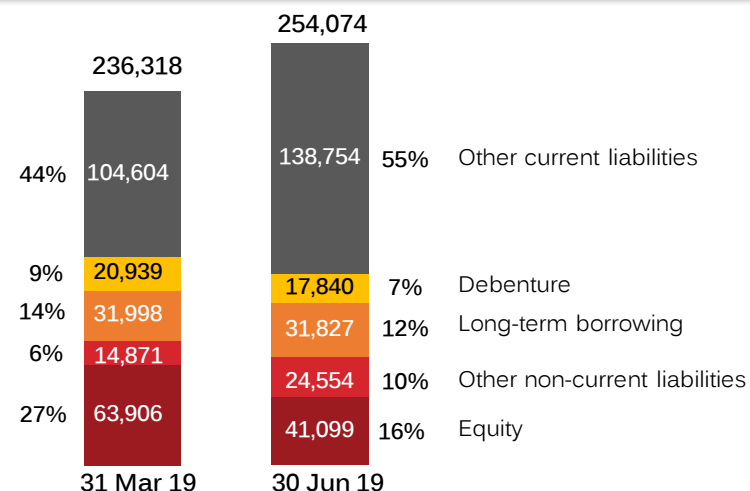
▲ 8%

Total assets increased mainly from:

- **Other non-current assets** increased by THB 16,635 million or 22% due to the recording of the fair value of net asset from the acquisition of GLOW
- **Property, plant and equipment**: increased by THB 2,637 million or 3% after recording the fair value of net asset from the acquisition of GLOW
- **Finance lease and receivable** net: increased by THB 692 million or 8%

Total Liabilities & Shareholders Equity

(THB Million, %)



Liabilities

▲ 24%

Total liabilities increased mainly from:

- **Current liabilities** increased mainly from an increase in short-term loan from financial institution for the acquisition of GLOW
- **Other non-current liabilities** increased mainly due to the increase in deferred tax liabilities of THB 8,932 million from recording the fair value of net asset from the acquisition of GLOW
- **Long-term borrowing and debentures** decreased from the repayment of loans to financial institution and debenture

Equity

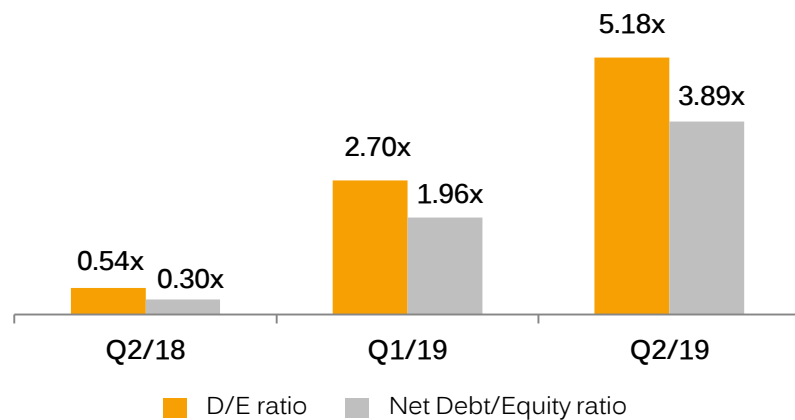
▲ 36%

Total Equity decreased mainly from:

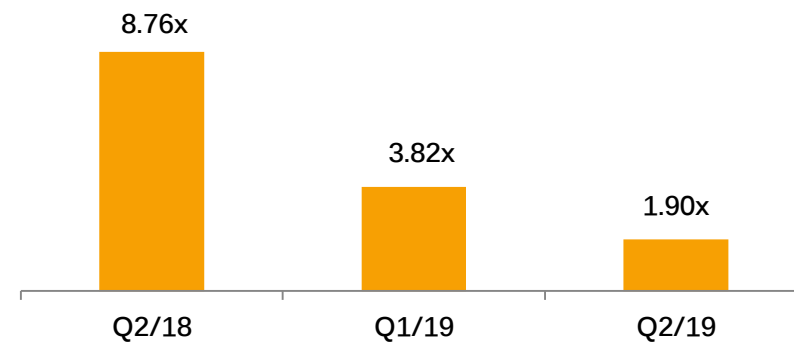
- The change in non-controlling interest and the difference from the change of investment proportion in subsidiaries resulted from the tender offer for acquisition of GLOW

Key Financial Ratio

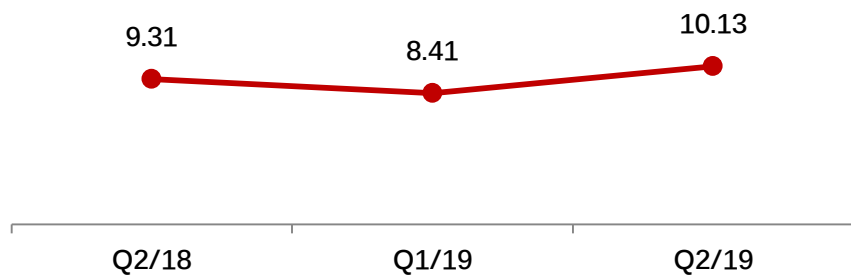
Total D/E and Net Debt/ Equity ratio (Times)



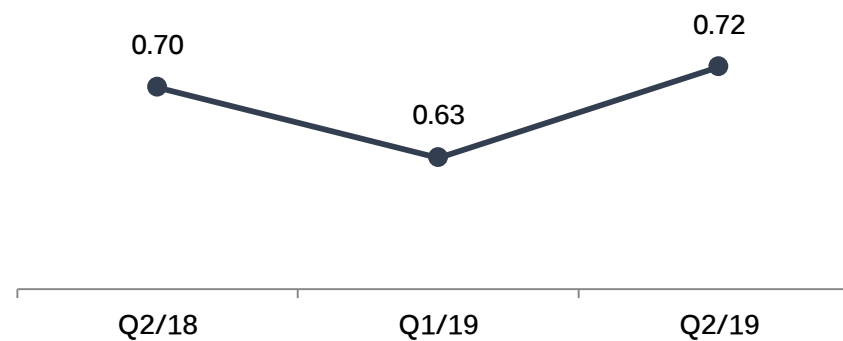
Interest Coverage Ratio (Times)



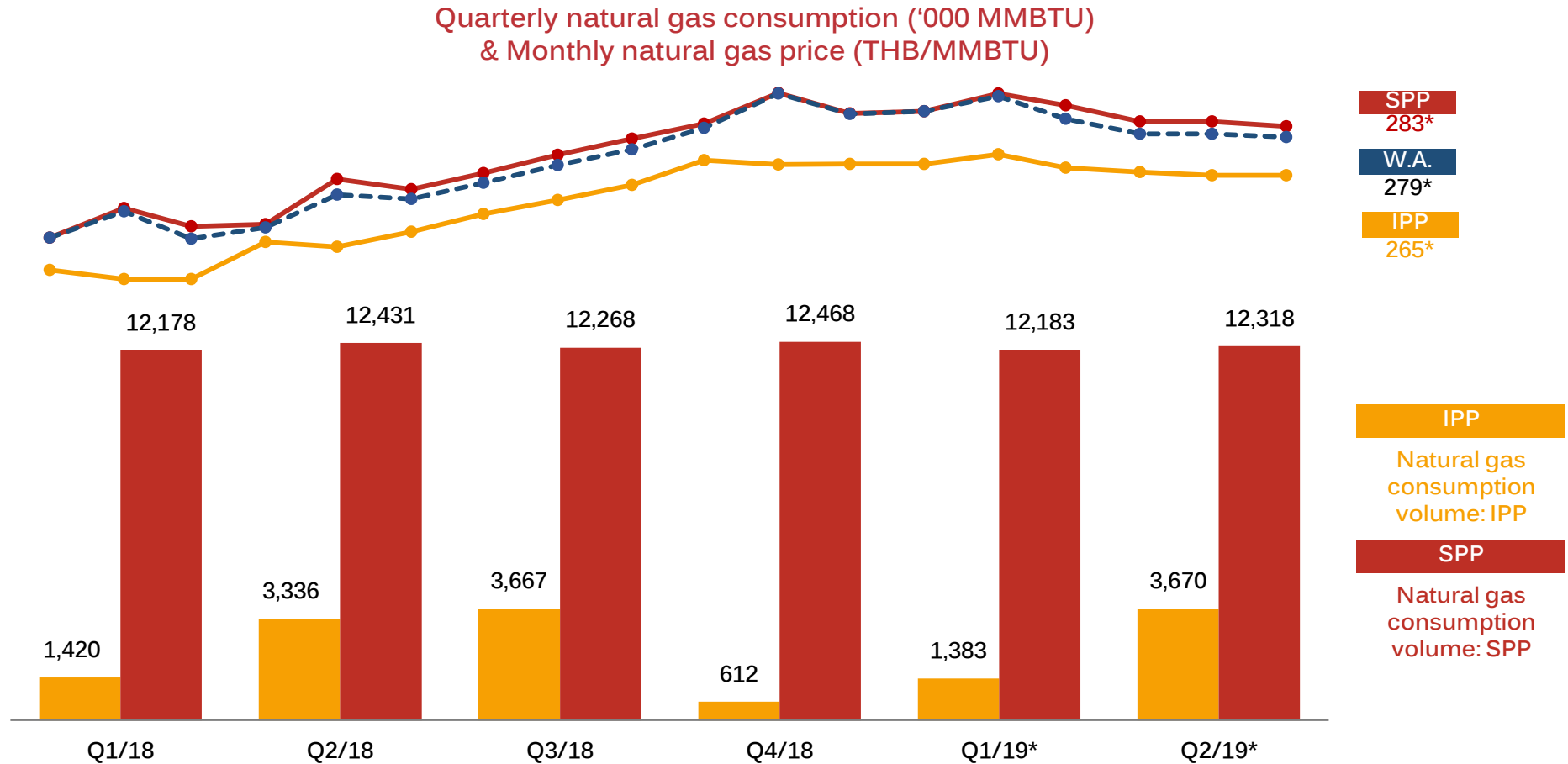
ROE (%)



Earning per share (EPS) (THB/share)



Natural Gas Consumption vs Price Trend



Remark: Latest price as of 30 June 2019

Note: *Excluded GLOW

THANK YOU

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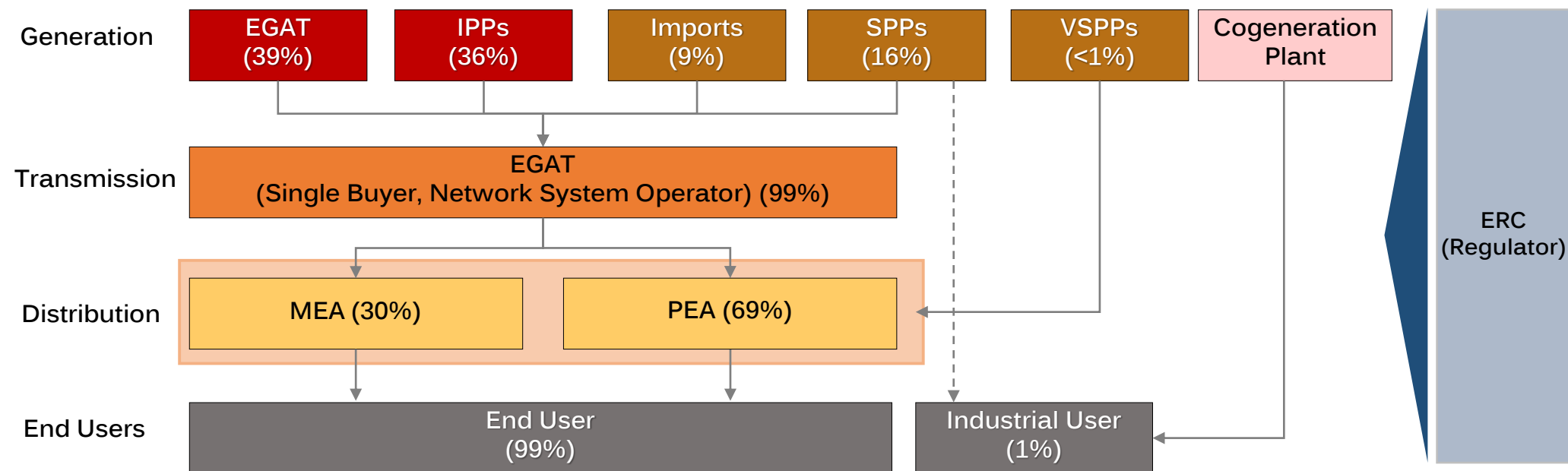
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Current Power Industry Structure in Thailand

- EGAT and IPPs dominate electricity generation market, with the combined market share 75%.
- EGAT is the sole purchaser for almost all of the electricity generated, while VSPPs sell electricity directly to the MEA and PEA
- SPPs sell electricity to both EGAT and directly to industrial users

Peak demand 34,317 GW in 2018



Definition

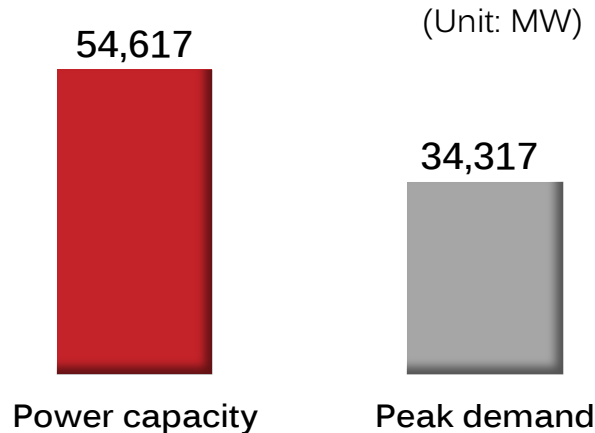
EGAT	Electricity Generating Authority of Thailand (State-owned entity)
IPP	Independent Power Producers
SPP	Small Power Producers
VSPP	Very Small Power Producers
MEA	Metropolitan Electricity Authority (State-owned entity)
PEA	Provincial Electricity Authority (State-owned entity)
ERC	Energy Regulatory Commission

Source: EGAT and GPSC

Summary of PDP 2018

Thailand Power Statistic

as of September 2018



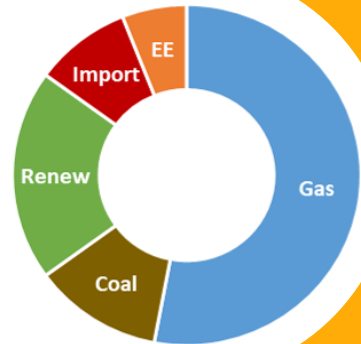
Implication

- Consideration on new demand and reserve capacity by regions will create opportunities for new round IPP bidding. Western region should be the first lot within 2019.
- This PDP revision is possible to adjust due to new AEDP&EEDP, study on smart grid study, energy storage, SPP power pool, private PPA are not finished, therefore the next revision will be launched recent year.



Demand

- System demand is not changed significantly.
- National demand (System demand plus Captive demand (IPS)) will be considered in PDP instead of only System demand as earlier.
- Supply will be considered by Regions.



Fuel mix

- Natural gas returns to be a major roles but Coal is limited.
- Renewable portion is increased especially in Private Solar however, most of all will be moved to mid-end PDP's period.
- Import power is not changed significantly.



Reserve Margin

- Change concept to determine safety margin of power supply, from Dependable capacity to Reliable capacity.
- Criteria of Reliable capacity shall be always higher than System demand

Comparison of Power Generation by Source of Fuel

(Unit: %)

Source of Fuel	PDP 2015 (in 2036)	New PDP 2018 (in 2037)
Natural Gas	37	53
Coal / Lignite	23	12
Hydro Power	15	9
Renewable	20	20
Nuclear	5	-
Others	0.1	0.06
Energy efficiency	-	6

Source: Ministry of Energy



Petroleum Authority of Thailand PLC (PTT), GPSC's parent company : the largest energy conglomerate in Thailand

	Business Area	Company	PTT's Holding (%)	Activities
Upstream	E&P	PTTEP	65.29%	Exploration and production
	Coal	PTT Global Management	100%	Coal business
	LNG	PTT Global LNG PTT LNG	50% 100%	LNG value chain LNG receiving terminal
Intermediate	Gas	Gas Pipeline*	100%	Sole owner/operation of the transmission pipeline
		S&M*	100%	Supply & marketing of natural gas
		GSP*	100%	Extracting hydrocarbon contents in natural gas for petrochemical's feedstock
Downstream	Trading	Trading*	100%	Import/Export/Out-out trading of petroleum and petrochemical products
	Oil Marketing	PTTOR**	100%	Retail service stations and commercial marketing
	Petrochemical & Refining	PTTGC TOP IRPC	48.18% 48.03% 48.05%	Petrochemical flagship Refinery flagship Integrated refinery & petrochemical
Technology & Engineering	Power		22.58%	Power flagship New S-Curve business of PTT group

Note: *Businesses directly operated by PTT PLC **Transferred asset to PTTOR on July 1, 2018
Source: PTT's Investor Update May 2019

Power Plants Portfolio of GPSC

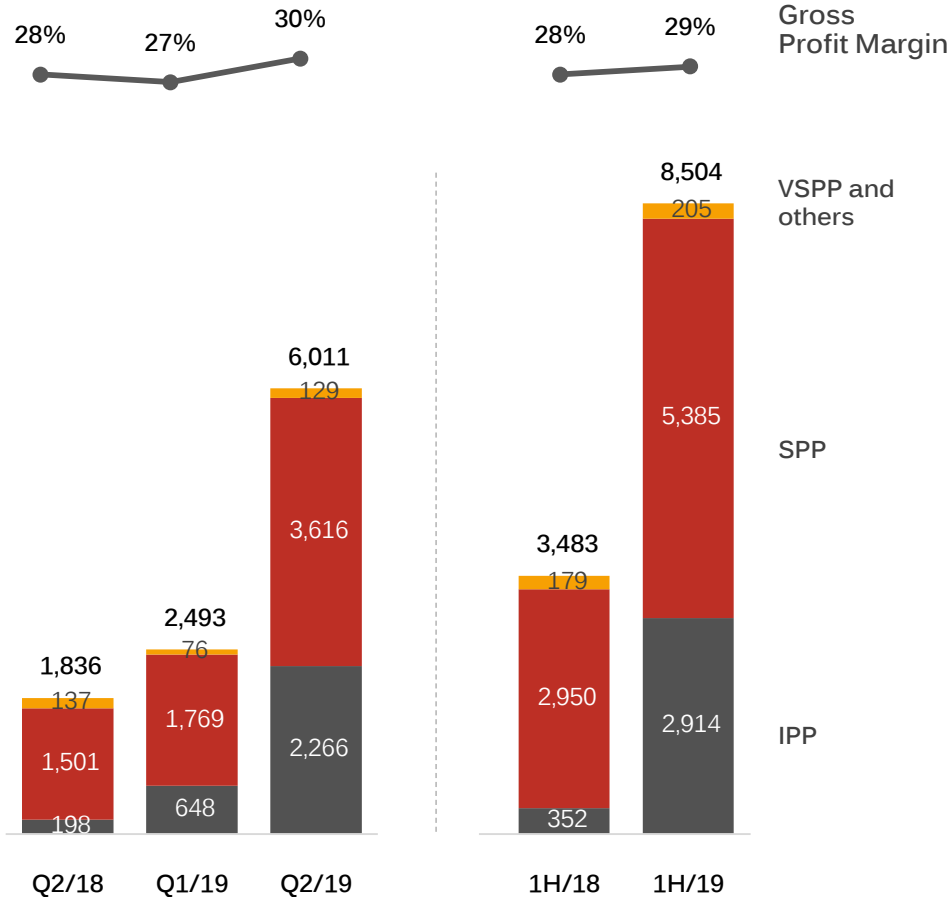
Name	Type	Total capacity (MW)	Equity Power capacity (MW)	Equity Operating Power capacity (MW)	Steam (T/H)	Industrial water (Cu.m/H)	Direct shareholding (%)	COD	Tenor
IN OPERATION									
IPP									
Huay Ho	IPP	152	102	102	-	-	GLOW (67%)	1999	30
Sriracha	IPP	700	700	700	-	80	GPSC (100%)	2000	25/2025
Glow IPP	IPP	713	677	677	-	-	GLOW (95%)	2003	25
RPCL	IPP	1,400	210	210	-	-	GPSC (15%)	2008	25/2033
GHECO-One	IPP	660	429	429	-	-	GLOW (65%)	2012	25
XPCL	IPP	1,285	321	-	-	-	GPSC (25%)	2019	29/2048
Total IPP		4,910	2,439	2,118	-	80			
SPP									
Glow Energy Phase 1	SPP	-	-	-	250	1,340	GLOW (100%)	1994	-
Glow Energy Phase 2	SPP	281	281	281	300	1,180	GLOW (100%)	1996	3
Glow Energy Phase 4	SPP	77	77	77	137	2,050	GLOW (100%)	2005	25
Glow Energy Phase 5	SPP	328	328	328	160	-	GLOW (100%)	2011	-
Glow SPP 2/ GLOW SPP 3	SPP	513	513	513	190	150	GLOW (100%)	1999	25
Glow SPP 11 Phase 1	SPP	120	120	120	-	360	GLOW (100%)	2000	25
Glow SPP 11 Phase 3	SPP	42	42	42	-	-	GLOW (100%)	2006	-
Glow SPP 11 Phase 2	SPP	110	110	110	-	212	GLOW (100%)	2012	25
CUP-1	SPP	226	226	226	890	720	GPSC (100%)	2006	10-15/2021++
CUP-2	SPP	113	113	113	170	510	GPSC (100%)	2008	15/2022++
CUP-3	SPP	-	-	-	280	770	GPSC (100%)	2009	15/2023++
Glow Energy CFB 3	SPP	85	85	85	79	-	GLOW (100%)	2010	-
BIC-1	SPP	117	29.25	29.25	5	-	GPSC (25%)	2013	25/2038
BIC-2	SPP	117	29.25	29.25	5	-	GPSC (25%)	2017	25/2042
IRPC-CP Phase 1	SPP	45	23	23	86.7	-	GPSC (51%)	2015	25/2040
IRPC-CP Phase 2	SPP	195	99.4	99.4	66.3	-	GPSC (51%)	2017	25-27/2044

Power Plants Portfolio of GPSC

Name	Type	Total capacity (MW)	Equity Power capacity (MW)	Equity Operating Power capacity (MW)	Steam (T/H)	Industrial water (Cu.m/H)	Direct shareholding (%)	COD	Tenor
IN OPERATION									
NNEG	SPP	125	38	38	9	-	GPSC (30%)	2016	25/2041
NNEG Expansion	SPP	60	18	-	3	-	GPSC (30%)	2020	25/2041
Rayong Expansion (CUP-3)	SPP	15	15	-	-	-	GPSC (100%)	2019	n/a
Rayong Expansion (CUP-4)	SPP	45	45	-	70	-	GPSC (100%)	2019	-
Total SPP		2,614	2,192	2,114	2,701	7,292			
VSPP and others									
CHPP	VSPP	5	5	5	-	-	GPSC (100%)	2008	30/2038
CHPP (Solar)	VSPP	5	5	5	-	-	GPSC (100%)	2016	2041
Glow Energy Solar Plant	VSPP	1.55	1.55	1.55	-	-	GLOW (100%)	2012	20-25
TSR (SSE1)	VSPP	80	32	32	-	-	GPSC (40%)	2013	25/2038
Glow Energy Solar PV Rooftop	VSPP	0.87	0.87	0.87	-	-	GLOW (100%)	2019	15
Glow Energy Solar PV Rooftop	VSPP	1	1	1	-	-	GLOW (100%)	2019	15
ISP1	Solar	20.8	20.59	20.59	-	-	GPSC (99%)	2017	20/2037
Solar Project	VSPP	39.5	39.5	39.5	-	-	GPSC (100%)	2014-15	2039/2040
NL1PC	Hydro	65	26	-	-	-	GPSC (40%)	2019	27/2044
Chonburi Clean Energy (CCE)	VSPP	8.6	2.87	-	-	-	GLOW (33%)	2019	20
Rayong WTE	VSPP	9.8	9.8	-	-	-	GPSC (100%)	2021	18/2039
Total VSPP and others		237	145	106	-	-			
ERU									
ERU	Cogen	250	250	-	175	-	GPSC (100%)	2023	25/2048
Total ERU		250	250	-	175	-			
Total capacity		8,011	5,026	4,338	2,876	7,372			

Gross Profit and Gross Profit Margin has increased significantly from contribution of GLOW and IPP's revenue

Gross profit and Gross profit margin by type of plant (THB Million, %)



Total Gross Profit

QoQ

▲ 141%

YoY

▲ 227%

1H

▲ 144%

QoQ, YoY and 1H: Increased mainly due to

- 1) The first full quarter of gross profit recognition of GLOW IPP and SPP plant
- 2) Consistency in sales of electricity and steam of both GPSC and GLOW

IPP Gross profit

QoQ

▲ 250%

YoY

▲ 1,040%

1H

▲ 728%

- QoQ, YoY and 1H: Increased mainly due to the first full quarter of gross profit recognition from GLOW. In addition, Energy payment revenues from GPSC increased as a result of the higher dispatch volume from Sriracha Power Plant instructed by EGAT

SPP Gross profit

QoQ

▲ 104%

YoY

▲ 141%

1H

▲ 83%

- QoQ, YoY and 1H: Increased mainly due to the first full quarter of gross profit recognition from GLOW despite the slight decrease in electricity sales volume and the downward trend of average steam selling price for GPSC SPP plants

VSPP and Others Gross profit

QoQ

▲ 70%

YoY

▼ 6%

1H

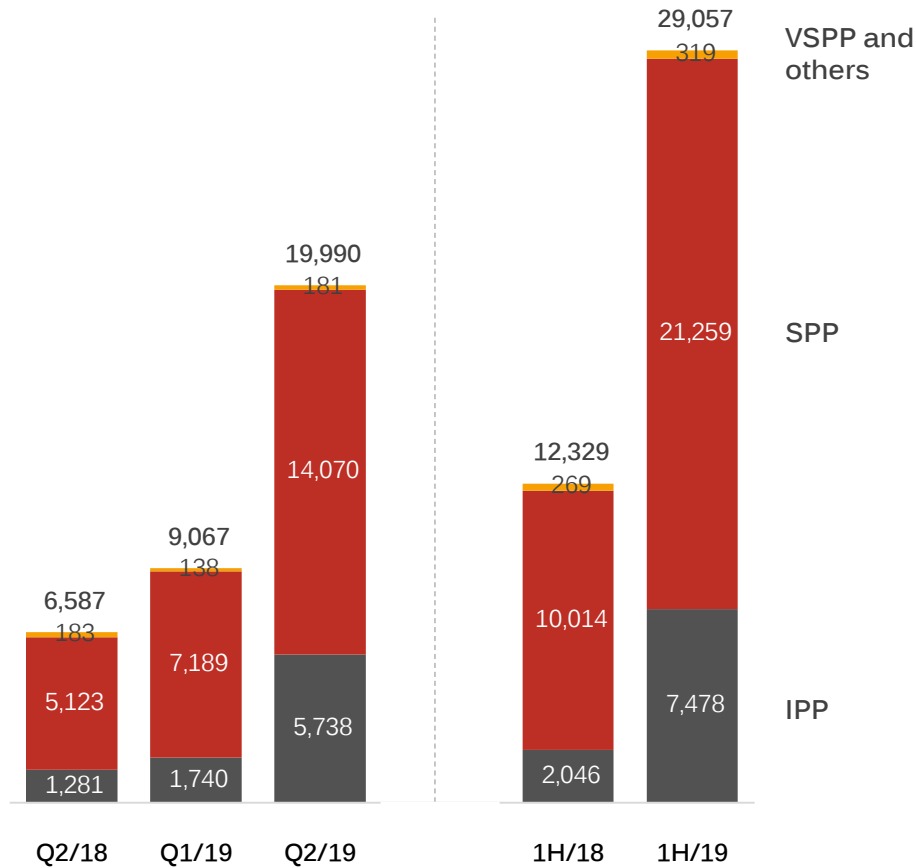
▲ 15%

- QoQ, YoY and 1H: Increased mainly due to the first full quarter of gross profit recognition from GLOW despite the slight decrease in electricity sales volume of and the downward trend of average steam selling price
- Increased mainly from 1) the contribution of GLOW 2) The increase in average price of natural gas of THB 27

Total revenue has increased due to the contribution of GLOW and the better performance of IPP and SPP

Revenue by type of plant

(THB Million, %)



Total Revenue

QoQ

▲ 120%

YoY

▲ 203%

1H

▲ 136%

QoQ, YoY, 1H: Increased due to

- 1) The first full quarter of contribution of GLOW IPP, SPP plants
- 2) The higher revenue of Sriracha Power Plant and VSPP plants

IPP Revenue

QoQ

▲ 230%

YoY

▲ 348%

1H

▲ 266%

QoQ, YoY, 1H: Increased due to

- 1) The contribution of GLOW
- 2) The higher revenue of Sriracha Power Plant in terms of Energy payment revenues as a result of the higher dispatch volume instructed by EGAT
- 3) Increase in revenue from financial lease

SPP Revenue

QoQ

▲ 96%

YoY

▲ 175%

1H

▲ 112%

QoQ: Increased due to the first full quarter of contribution of revenue from GLOW despite the decrease in revenue from GPSC on electricity and steam sales

YoY, 1H: Increased mainly from 1) The first full quarter of contribution of revenue from GLOW 2) Rise in average selling price of natural gas

VSPP and Others Revenue

QoQ

▲ 31%

YoY

▼ 1%

1H

▲ 19%

QoQ: Increased due to the increase in revenue from selling electricity caused by lesser snowfall during the quarter

YoY: Decreased mainly due to the fall in revenue from solar cell implementation service from CHPP

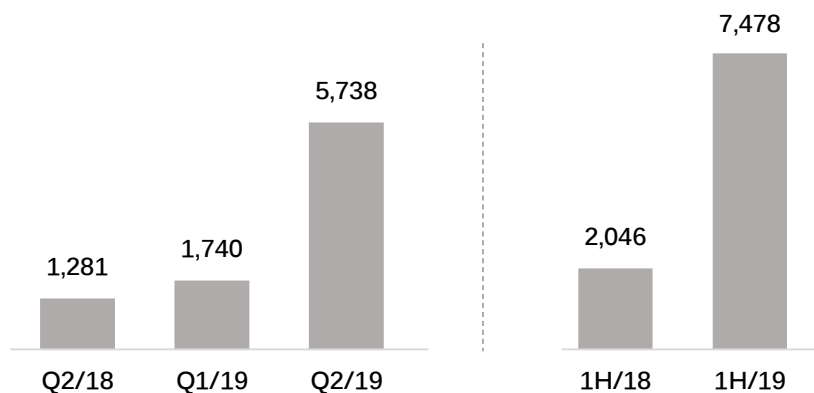
1H: Increased due to the better performance of electricity and chilled water sales



IPP Revenue: Increased By 230% QoQ and 348% YoY due to Higher dispatch volume from SRC and contribution from GLOW

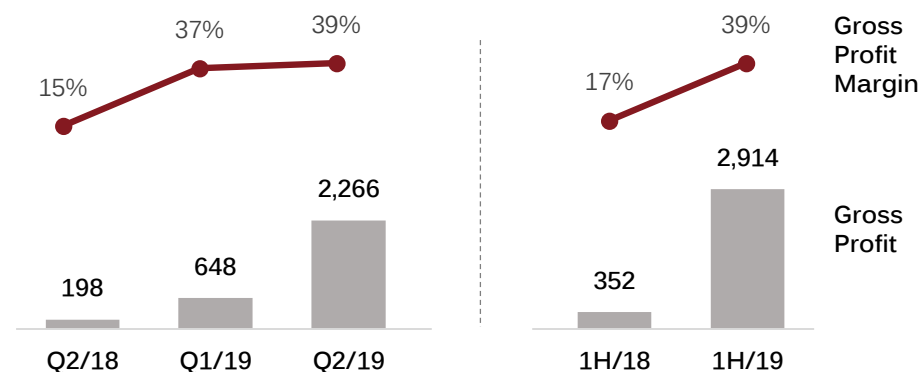
Revenue

(THB Million)



Gross Profit & Gross Profit Margin

(THB Million, %)



IPP Power Plants



Sriracha



GIPP



GHECO-ONE



HHPC

*GLOW IPPs consists of GIPP, GHECO-ONE and HHPC

Total Revenue

QoQ
▲ 230%

YoY
▲ 348%

1H
▲ 266%

QoQ, YoY, 1H: Increased due to

- 1) The higher Energy Payment (EP) as a result of higher dispatch volume of Sriracha Power Plant
- 2) First full quarter of revenue recognition from GLOW
- 3) Increase in revenue from financial lease

Gross profit

QoQ
▲ 250%

YoY
▲ 1,040%

1H
▲ 728%

- QoQ, YoY, 1H: Increased due to the first full quarter of gross profit recognition from GLOW despite the decrease of gross profit from Sriracha Power Plant due to an increase in producing cost corresponding to EGAT's dispatch instruction



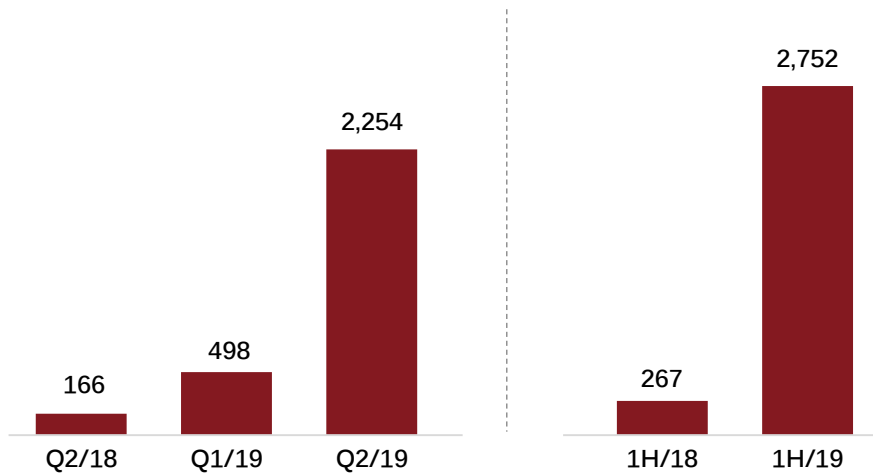
Availability Payment: Increased by 352% QoQ and 1,258% YoY

Availability Payment

(THB Million)

Availability Rate

(%)

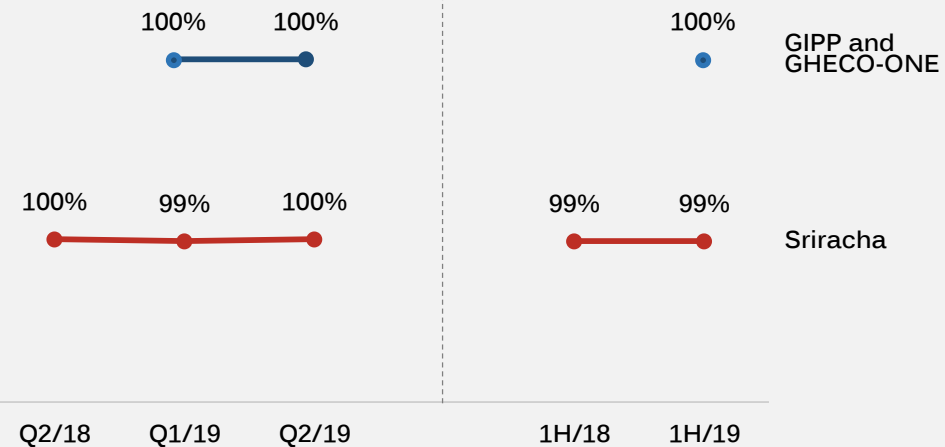


QoQ
▲ 353%

YoY
▲ 1,258%

1h
▲ 931%

- QoQ, YoY, 1H increase due to
 - 1) The first full quarter recognition of GLOW
 - 2) The increase was mainly from the lower power dispatch in Q1/19 as a result of planned maintenance of GHECO-ONE.



AR-Sriracha

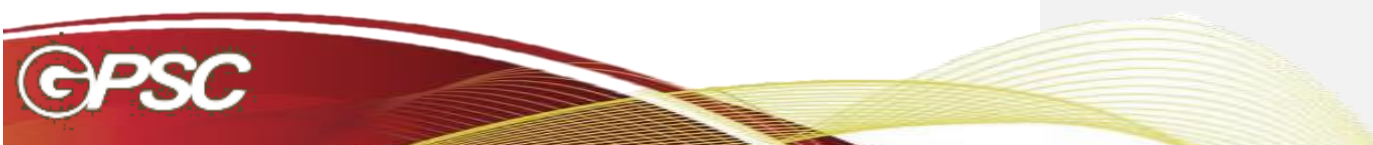
- QoQ: Rebounded as a result of the higher dispatch volume instructed by EGAT

AR-GIPP

- AR of GIPP remained at 100%

AR-GHECO ONE

- AR of GHECO ONE remained at 100%





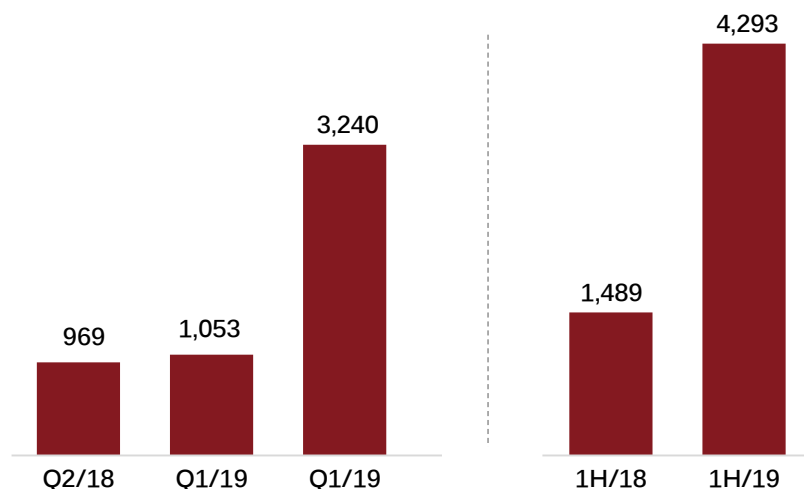
Energy Payment: Increased 208% QoQ and 234% YoY

Energy Payment

(THB Million)

Average Total Selling Price*

(THB/kWh)



QoQ
▲ 208%

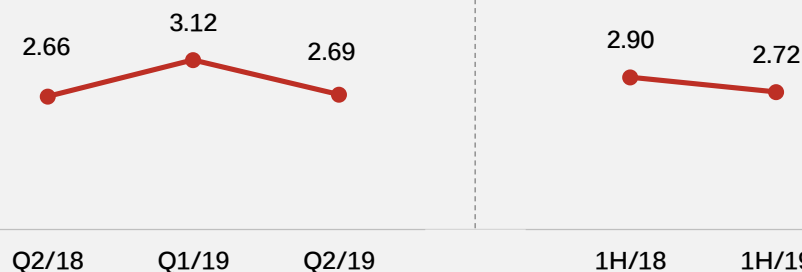
- **QoQ:** Increased due to
 - 1) The contribution of GLOW
 - 2) The increase in EP revenue of Sriracha due to the increase in dispatch volume following EGAT's instruction
 - 3) The higher coal cost reflects the increase in revenue of Gheco-one plant on Q2/2019

YoY
▲ 234%

- **YoY:** Increased due to
 - 1) The contribution of GLOW
 - 2) The increase in EP revenue of Sriracha due to the higher average price of natural gas has increased together with the higher dispatch volume to EGAT

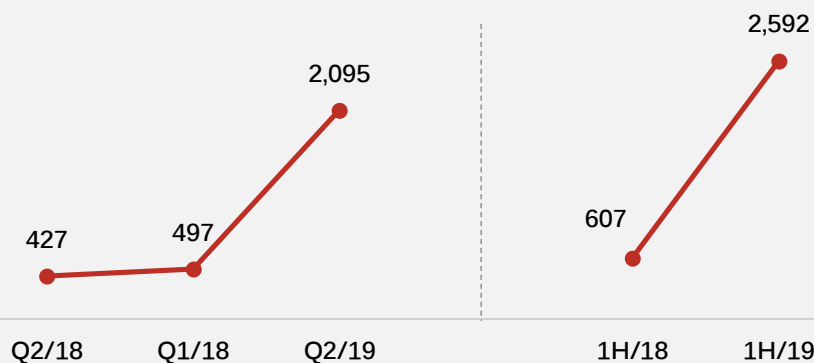
1h
▲ 188%

- **1H:** Increased due to
 - 1) The contribution of GLOW
 - 2) The increase in EP revenue of Sriracha due to the higher average price of natural gas



Sales Volume

(GWh)



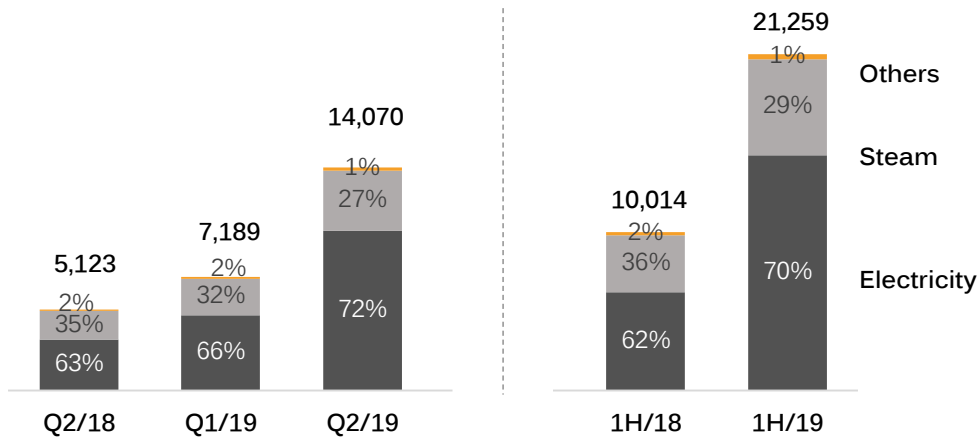
Note: *Average Total Selling Price is derived from the revenue of Availability Payment (AP) and Energy Payment (EP)



SPP Revenue: Increased 96% QoQ and 175% YoY due to the contribution from GLOW's SPP plants

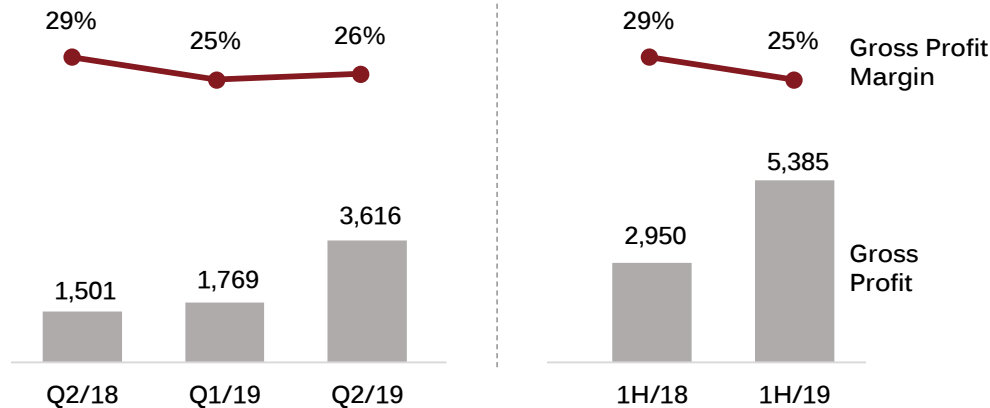
SPP Revenues

(THB Million, %)



Gross Profit & Gross Profit Margin

(THB Million, %)



GPSC SPP Powerplants



CUP-1



CUP-2



CUP-3



IRPC-CP



GLOW Energy
Phase 1,2,4,5



GLOW SPP 2-3



GLOW SPP 11
Phase 1-3



GLOW CFB3

Total Revenue

QoQ
▲ 96%

YoY
▲ 175%

1H
▲ 112%

- QoQ: Increased due to the first full quarter of revenue recognition from GLOW SPP power plant despite the decrease in electricity sales volume and decrease in steam average selling price of GPSC's SPP
- YoY and 1H: Increased due to the first full quarter of revenue recognition from GLOW SPP power plant. In addition, the electricity and steam sales of GPSC's SPP increased as a result of increase in average price of natural gas

Gross profit

QoQ
▲ 104%

YoY
▲ 141%

1H
▲ 83%

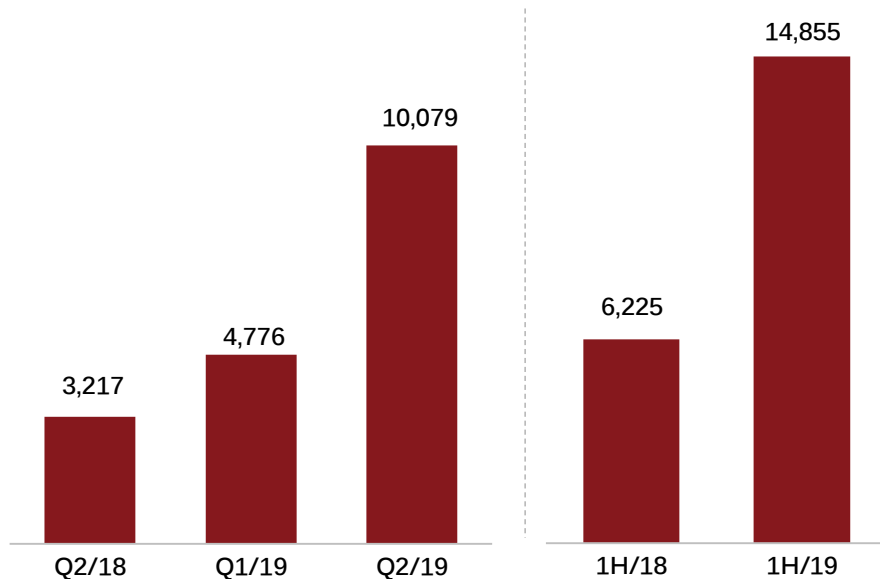
- QoQ: Increased due to the first full quarter of recognition of GLOW performance despite the decrease in GCSP's plant as a result of a decrease in average price of steam especially for IRPC-CP
- YoY: Increase due to the first full quarter of recognition from GLOW performance despite the decrease in GPSC's plants as a result of the increase in natural gas price
- 1H: Increased due to the first full quarter of revenue recognition from GLOW



SPP Power Sales: Increased 111% QoQ and 213% YoY

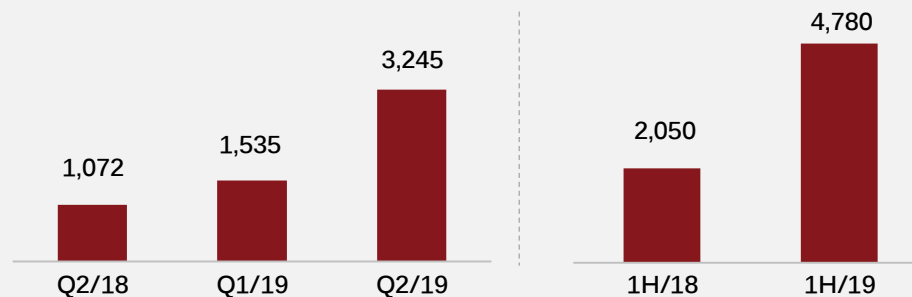
Power Sales

(THB Million)



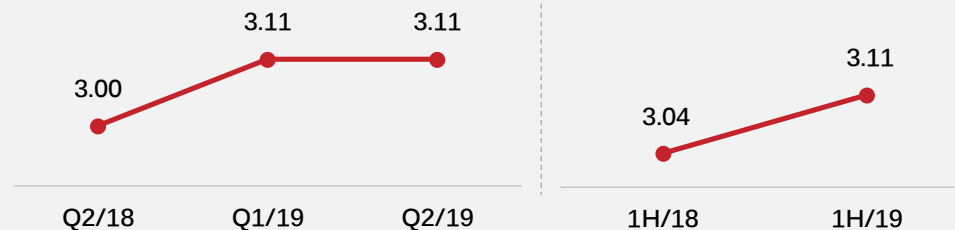
Power Sales Volume

(GWh)



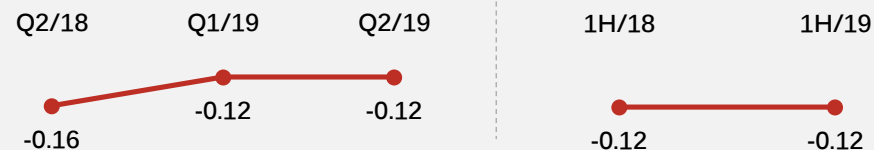
Average Selling Price

(THB/kWh)



Ft rate

(THB)



QoQ

▲ 111%

YoY

▲ 213%

1H

▲ 139%

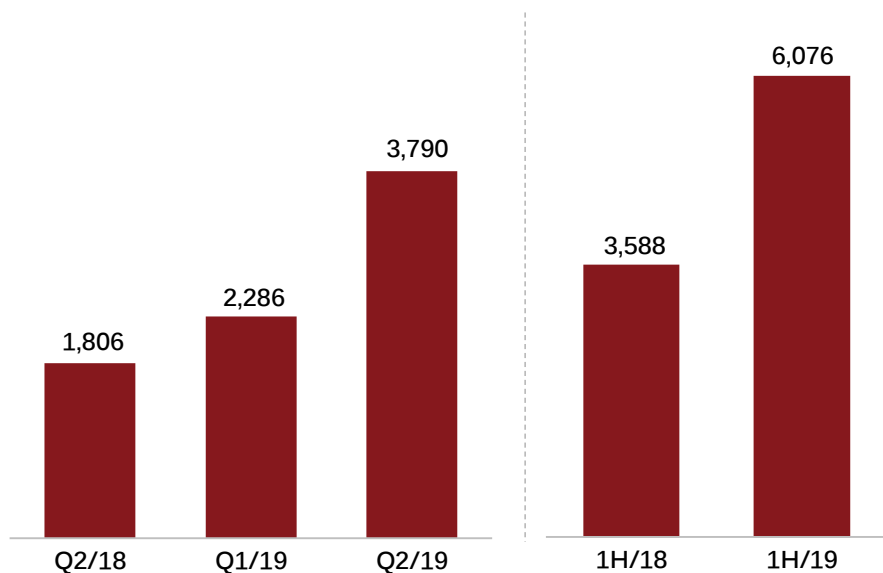
- QoQ: Increased due to the first full quarter recognition of GLOW's performance especially when SPP takes account for the majority of GPSC's portfolio.
- YoY: Increased mainly due to the first full quarter recognition of GLOW's performance as well as the revenue from electricity and steam of GPSC's SPP as the average price of natural gas increased by 10%
- 1H: Increased due to the revenue from electricity and steam of GPSC's SPP as the average price of natural gas increased by 14%



SPP Steam Sales: Increased 66% QoQ and 110% YoY

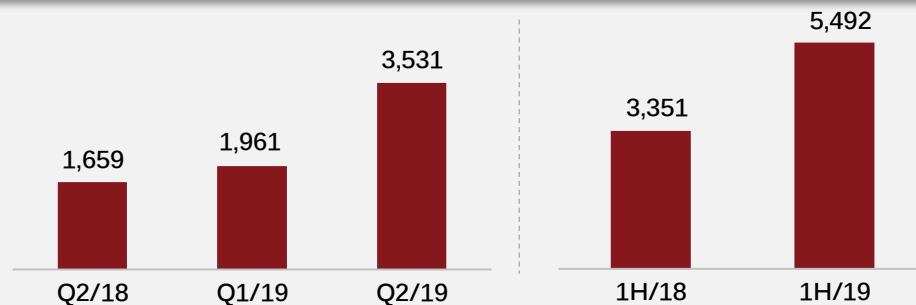
Steam Sales

(THB Million)



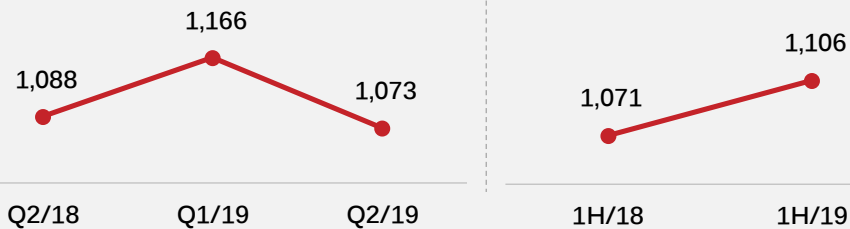
Steam Sales Volume

('000 tons)



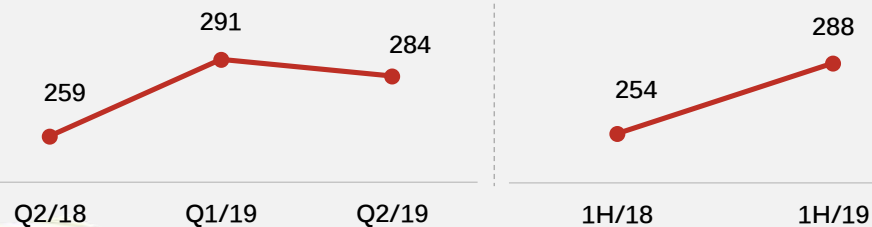
Average Steam Selling Price

(THB/Ton)



Average Natural Gas Price

(THB/MMBTU)



QoQ

▲ 66%

YoY

▲ 110%

1H

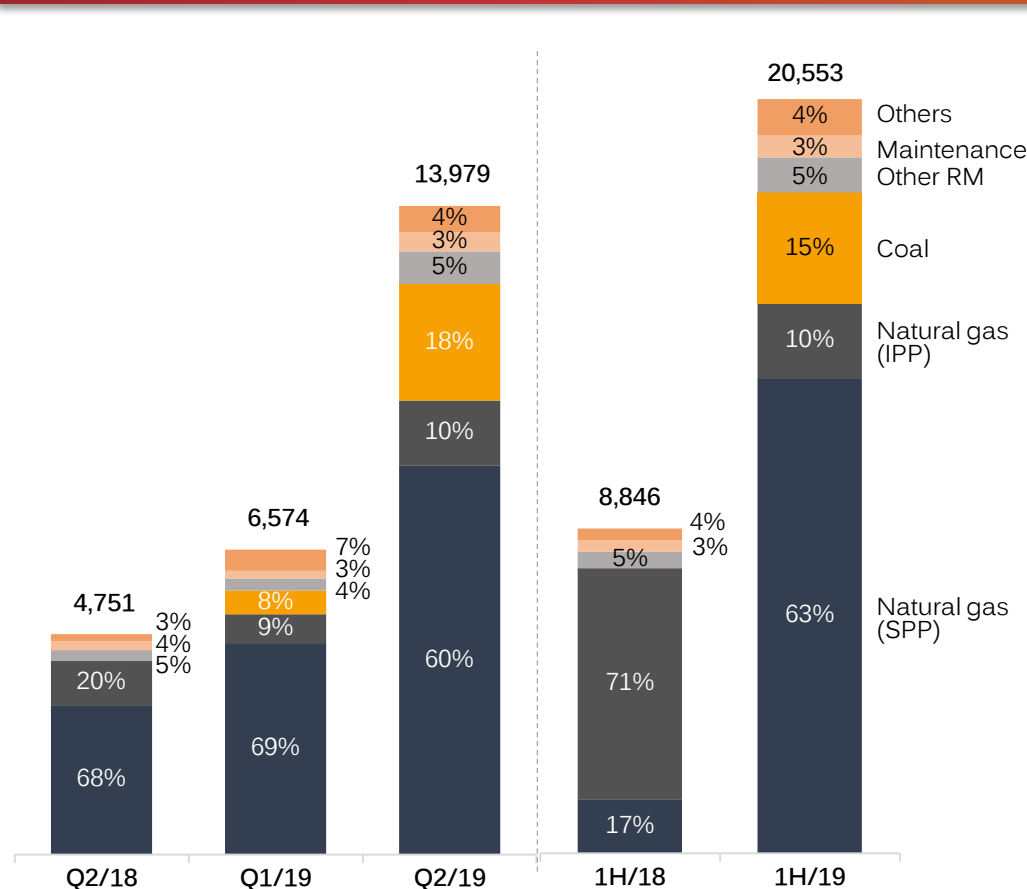
▲ 69%

- QoQ, YoY and 1H: Increased due to the first full quarter recognition of GLOW's performance, while the average price of steam for Rayong Central Utility Plant (CUP) and IRPC-CP decreased
- In QoQ, the steam sales volume was mainly increased from IRPC-CP

Total Cost Of Sales and Services: Increased in Line with Revenues

Total Costs of sales and services*

(THB Million, %)



Note: exclude depreciation and amortization

Total Costs

QoQ
▲ 113%
YoY
▲ 194%
1H
▲ 132%

- QoQ, YoY and 1H: Total costs increased mainly from first full quarter consolidation of GLOW's power plant, the higher dispatch volume of IPP corresponding to EGAT's instruction and the increase in maintenance cost of IRPC-CP

Natural Gas

QoQ
▲ 89%
YoY
▲ 134%
1H
▲ 93%

- QoQ : Natural gas costs increased mainly due to the contribution of GLOW and the higher dispatch volume of Sriracha Power Plant corresponding to EGAT's instruction
- YoY and 1H: Natural gas costs increased mainly due to the contribution of GLOW that has many gas SPPs as well as the increase in the price of natural gas

Coal and Other Raw Materials

QoQ
▲ 313%
YoY
▲ 1,253%
1H
▲ 767%

- QoQ and YoY: Costs of coal increased mainly due to the contribution of GLOW that has coal as a fuel source as well as other raw material costs that increased by THB 438 million

Maintenance cost and Others

QoQ
▲ 59%
YoY
▲ 194%
1H
▲ 156%

- QoQ and YoY: Maintenance costs and other costs increased due to the contribution of GLOW that as well as the increase in maintenance and cleaning cost for IRPC-CP in April 2019 as planned

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