



บริษัท โกลบอล เพาเวอร์ ซินเนอร์ยี จำกัด (มหาชน)
Global Power Synergy Public Company Limited

Q2 | 2020

ANALYST MEETING

21 August 2020

THE INNOVATIVE POWER FLAGSHIP OF PTT GROUP

แท่นน้ำมันวิศวกรรมธุรกิจไฟฟ้ากลุ่ม ปตท.

Q2 | 2020 & RECENT KEY HIGHLIGHTS

"Growing profit with sustainability and control"



SIGNIFICANT GROWTH

No Significant COVID-19 Impact in Q2/2020

Our main customers, petrochemical customers in Map Ta Phut maintains normal operations from previous quarter while demand from automotive sector dropped but has no significant impact to our operating performance.

Strong Credit Profile

TRIS Rating affirms "AA-" with "stable outlook" to GPSC and assigns "AA-" to GPSC's THB 5 billion green debenture reflecting our strong credit profile and our goal to focus on renewable energy growth.

PROFIT

57% YoY Increase in Adjusted Net Income

due to lower natural gas and coal price, resulting in lower cost of sales on SPP portfolio.

Additionally, the decrease of NCI mainly from 99.83% recognition of GLOW shares in Q2/2020 while in Q2/2019, only 69.11% and 95.25% recognized before and after Mandatory Tender Offer (MTO)

16% QoQ Increase from Q1/2020

due to higher AP and weight factor from GHECO-One, increased power dispatch from HHPC and better performance of XPCL corresponding to higher water level

SUSTAINABILITY

Interim Dividend

1H/20 interim dividend payment of THB 0.50 per share and will be made on 14 Sep 2020

Award

"2020 Thailand Waste-to-Energy Company of the Year"

from Frost & Sullivan. The award demonstrates our continuing determination in operating our business sustainably

CONTROL

Projects Under Construction



Expansion phase, 96% construction progress, SCOD in Q3/2020



WTE, 70.6% construction progress, SCOD in Q2/2021

ERU, jointly operated with Thailoil, 39.5% construction progress, SCOD in 2023



SPP Replacement, replacement of:

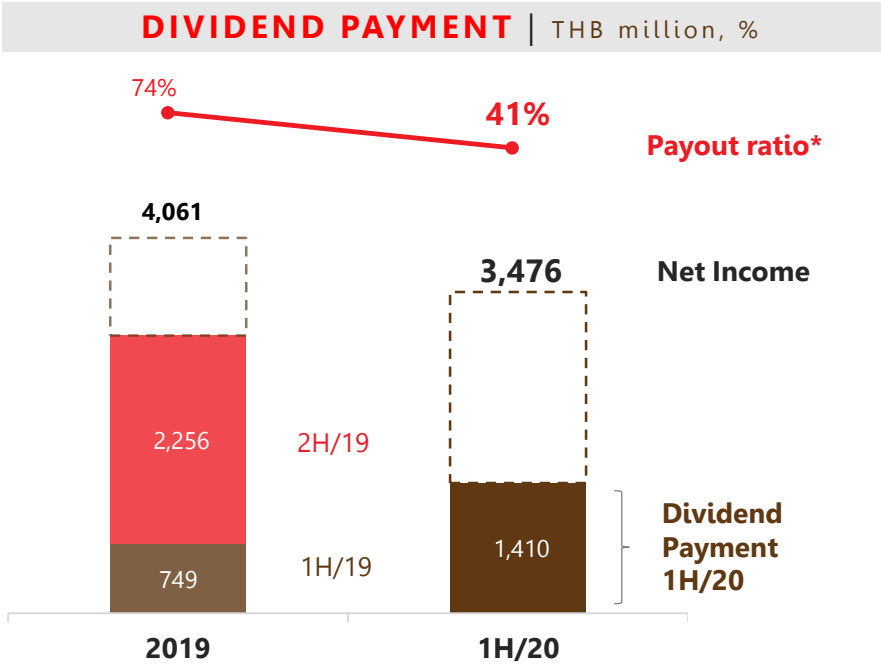
- **GE Phase 2 (Stage 1):** under construction with SCOD in 2022
- **GSPP2 and GSPP3 (Stage 2):** under feasibility study for internal investment approval

GPSC Announced Interim Dividend Payment

GPSC announced on the 19th August 2020 that the company will pay dividend of THB 0.5 per share aggregating to an amount of THB 1,409,864,684 or 41% of the total net profit for the company of 1H/2020.

DIVIDEND POLICY

Minimum dividend of not less than 30 percent of the **net profit** according to the financial statements of the Company after the deduction of tax, reserved funds as required by law (with additional conditions)

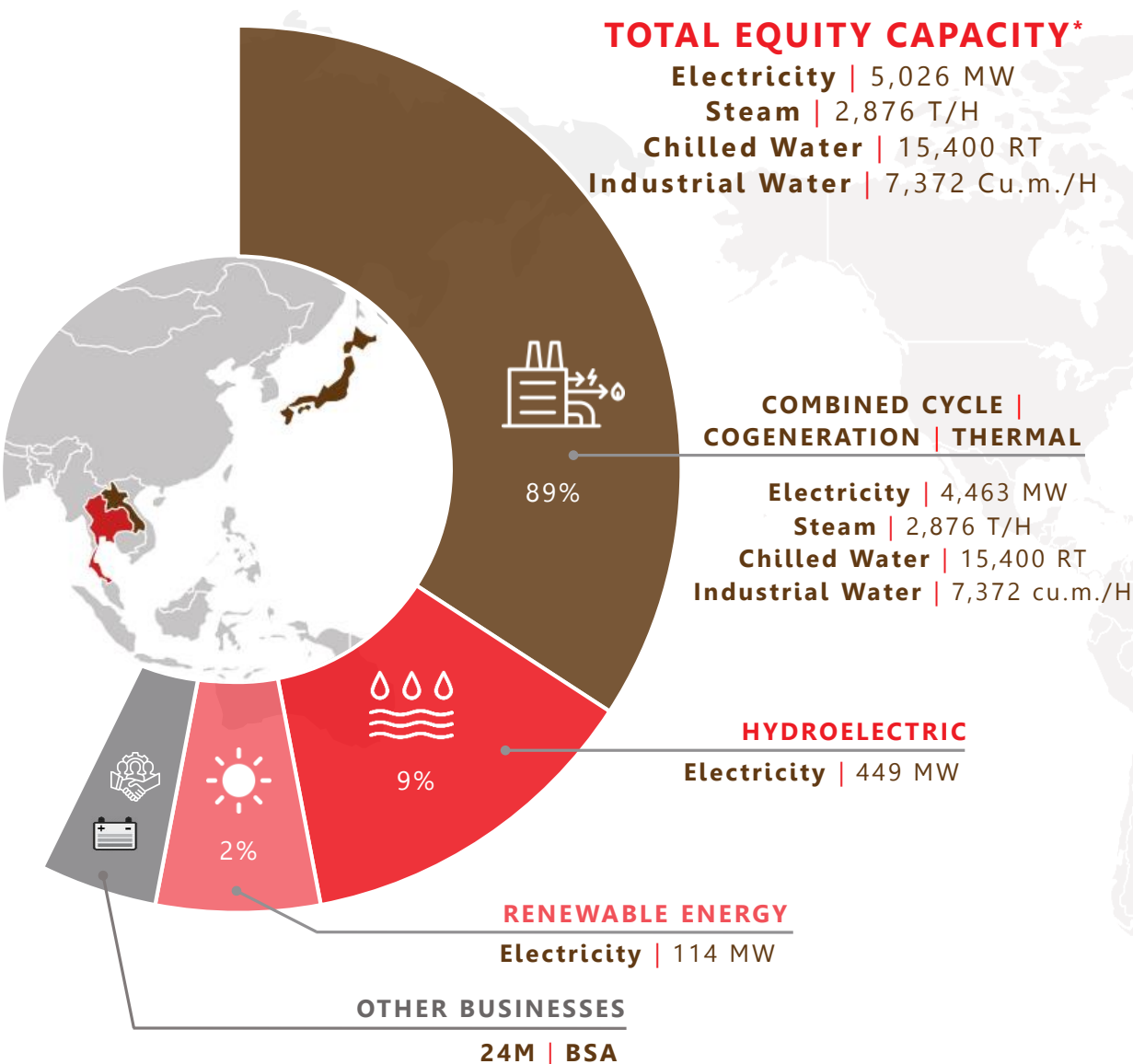


*2019 Payout is % of 2019 net profit while 1H/20 Payout is % of 1H/20 net profit.

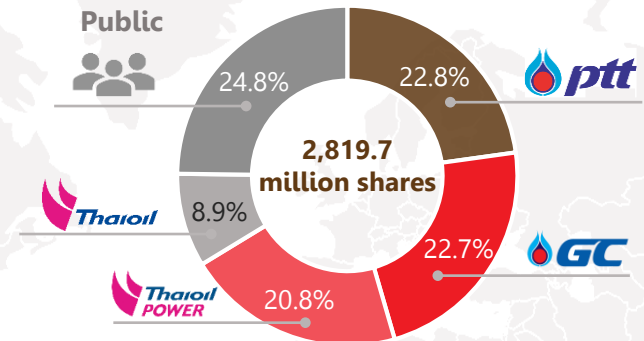


GPSC Innovative Power Company at a Glance

as of 13 Aug 2020



SHAREHOLDING STRUCTURE



COMPANY INFORMATION

Business Type | Energy & Utilities
Paid-up Capital | THB 28,197 million
Market Cap. | THB 198,790.9 million
Listed on | Stock Exchange of Thailand

CREDIT RATINGS

BBB- S&P Global

AA-

TRIS
RATING

A+ (tha) FitchRatings

Note: *Committed equity capacity



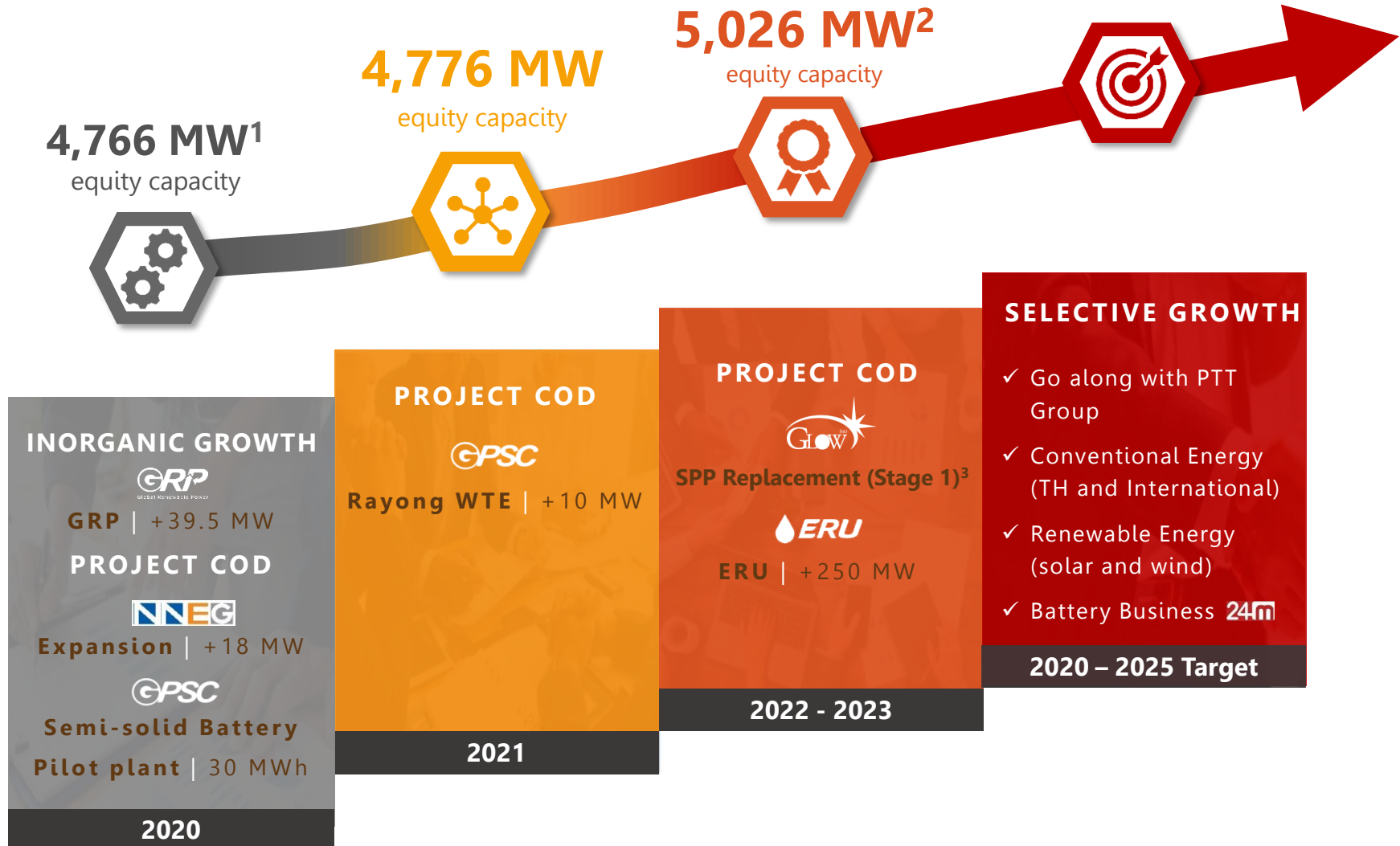
Growth and Strategic Directions

Update of Projects

Financial Activities and Plans

Financial Performance

GPSC Electricity Growth Pipeline



Notes: 1. Consisting of operating projects 4,708 MW (COD before 2020), GRP 39.5 MW, NNEG Expansion 18 MW




2. Maintain original capacity of Glow Cogeneration plants

3. **SPP Replacement Stage 1:** Glow Energy Phase 2 (new plant with 2 PPAs with EGAT, total capacity of 192 MW electricity and 300 T/h steam, SCOD in 2022; and

SPP Replacement Stage 2: Glow SPP2 and Glow SPP3 is under feasibility study for internal investment approval.






SYNERGY & INTEGRATION

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






SELECTIVE GROWTH

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



S-CURVE

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

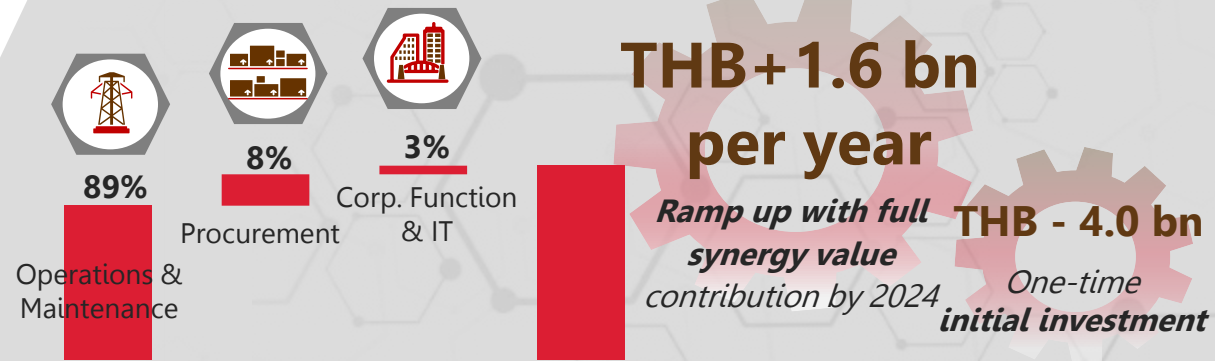
Strategic Direction and Growth Strategy | Synergy and Integration

SYNERGY AND INTEGRATION IMPLEMENTATION



*"working as one team
to deliver synergy"*

RECURRING SYNERGY VALUE BASED ON CURRENT PLAN



2020 ENDORSED SELECTED INITIATIVES TO LOCK-IN VALUE

As of 1H/2020, GPSC was able to recognize the synergy value of approx. THB 292 mm (pre-tax) from:

- **O&M** : Maintenance productivity optimization & Change from time based to activities based
- **Procurement** : Reduce total cost of power plant, indirect spend and coal management
- **Corporate Functions** : Optimize financing costs, insurance and working capital management

SYNERGY & INTEGRATION



Operation Excellence &
Asset Optimization



Corporate & Business
Infrastructure



2020 FOCUS MOVED FROM IDENTIFYING POTENTIAL TO DELEVERING PROMISES

- ✓ **Execution Focus** | Move to monitoring and controlling
- ✓ **Speed of Delivery** | Prioritization and planning
- ✓ **Enablement & Ownership Transfer**



Quick win **GLOW** steam to **CUP-3** (Realized Network Integration)

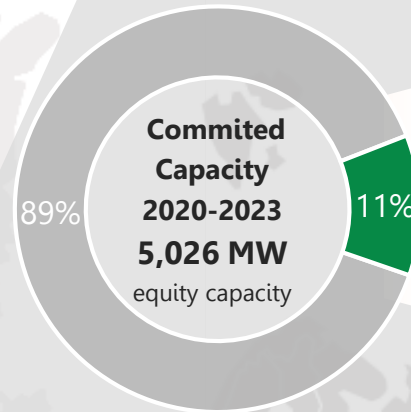
- First energy from GLOW to GPSC's network
- Completed commissioning on 17 June 2020
- Supply excess steam from GLOW to increase GPSC reliability and optimization



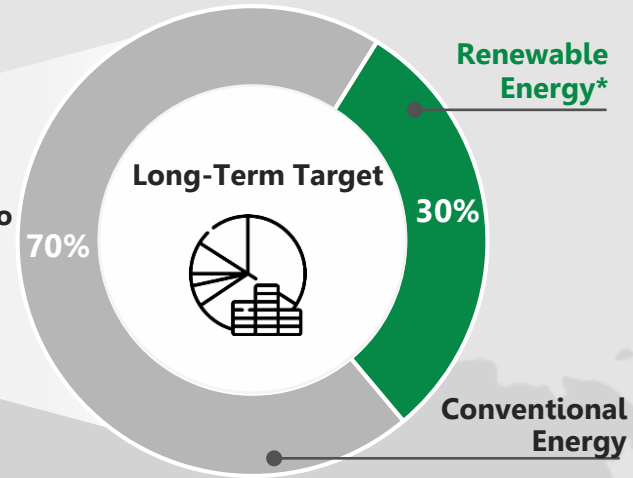
Strategic Direction and Growth Strategy | Selective Growth

SUSTAINABILITY STRATEGY & COMMITMENT

- ✓ To be listed in **DJSI by 2022**
- ✓ Increasing renewable energy up to **30% of GPSC's installed capacity**



Way forward to sustainable growth



SELECTIVE GROWTH



Go along with PTT Group



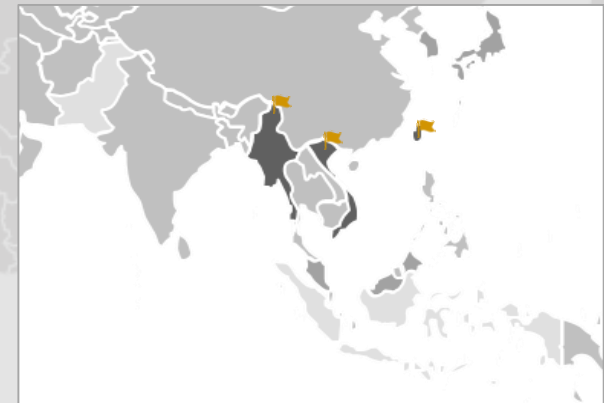
Domestic and international



Renewable

"Continuously seeking more international growth opportunities"

Focus Countries : Thailand, Myanmar Vietnam and Taiwan



Note: *Renewable energy mentioned on this page covers energy from solar, wind, waste, hydro, etc.

Strategic Direction and Growth Strategy | S-Curve

THE JOURNEY OF PTT AND GPSC NEW S-CURVE

Smart Energy Management & Solution Provider

Energy Storage & System Integration

Battery Business



Distributed Energy Resources

Transformation Enablement

Digital Energy



S-CURVE



Battery Business



Energy Storage & System Integrator



Smart Energy Management & Solution Provider

VISTEC
VIDYASIRIMEDHI
INSTITUTE OF SCIENCE AND TECHNOLOGY

SMART ENERGY MANAGEMENT
(Phase II: Q4/2020)



- ✓ 1.39 MW renewable energy (solar roof + floating)
- ✓ 1.2 MWh ESS for backup, renewable optimization and zero-import building
- ✓ Blockchain P2P energy trading
- ✓ EV chargers
- ✓ Artificial Intelligence



ESS FOR GC's INNOVATION CENTER
(Launched: Feb 2020)



- ✓ Increase gas engine efficiency
- ✓ Peak shift with ESS
- ✓ 250kW/1.5MWh
- ✓ Emergency backup power

GPSC ENERGY STORAGE SYSTEM PROJECT INFORMATION AND STATUS

Types	Customers	Capacity	Status
Residential	Chiang Mai University	10kW/17kWh	■
Industrial	GCL	625kW/625kWh with 2MWp solar	■
Industrial	GC	250kW/1.5MWh	■
Smart City	VISTEC	1MW/1MWh	■

■ Completed ■ Contracting

S-Curve Business | Shift Design to Decide

BATTERY MANUFACTURE



The New Energy Economy



Location

Map Ta Phut Industrial Estate



Plot No. :
S-7



Size :
12-1-3.63 Rai



Area : General Industrial
Area, Map Ta Phut
Industrial Estate



Land Owner :
Industrial Estate Authority
of Thailand (IEAT)



Investment :
1.1 Billion THB

BATTERY MANUFACTURE DEVELOPMENT



First Battery Cell by End of 2020

A large industrial facility, possibly a refinery or chemical plant, is shown at dusk. The sky is a deep purple and red, with some clouds. The facility features a tall, cylindrical distillation column on the left, various pipes, and a large, flat-roofed building in the center. In the background, other industrial structures and distant mountains are visible. The overall scene is illuminated by the warm glow of the setting sun and some artificial lights from the facility.

Growth and Strategic Directions

Update of Projects

Financial Activities and Plans

Financial Performance

Global Renewable Power Company Limited (GRP)

M&A project



PROJECT CLOSING | 26 MAR 2020

TYPE

ELECTRICITY (MW)



Solar Power Plants

39.5



GPSC's HOLDING

CUSTOMERS

100%
(through GRP)

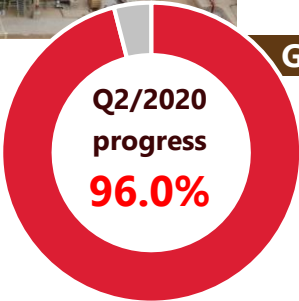


Provincial Electricity Authority (PEA)

	N.P.S Star Group	World X Change Asia	P.P. Solar	Global Renewable Power Operating
Capacity (MW)	18 (6*3)	17.9 (5.96*3)	3.6 (1.2*3)	 Service Company 
Off-taker	PEA	PEA	PEA	
Tariff Scheme	FiT at 5.66 THB/kWh	FiT at 5.66 THB/kWh	Adder at 8 THB/kWh	
COD	Dec 2015	Dec 2015	Mar 2014/Mar 2015	
Location	Pichit, Suphanburi and Lopburi	Pichit	Khon Kaen	

Nava Nakorn Electricity Generation (NNEG) Expansion

Project under construction



TYPE	ELECTRICITY (MW)	STEAM (T/h)
Gas-fired Cogeneration	Expansion 60	10
	Total 185	40
LOCATION	CUSTOMERS	
Nava Nakorn Industrial Promotion Zone, Pathumthani	Industrial Users	EGAT (SPP Firm, 90 MW, 25-yr)
GPSC's HOLDING	PROJECT UPDATE	

30%
of total share

The procurement of machinery and equipment is completed.
The engineering design, construction and system testing are on schedule.

30 MWh Semi-Solid Battery Pilot Plant

Project under
construction



**First Battery Cell
by End of 2020**

TYPE



**Semi-solid
battery**

PLANT CAPACITY (MWh/year)

30

LOCATION

Map Ta Phut
Industrial Estate,
Rayong, Thailand

CUSTOMERS



Mobility – E Bus/Tuktuk



BESS – Residential / C&I



Overseas Orders

PROJECT UPDATE

**Q2/2020
progress
24.4%**

100%

operating assets
under GPSC

The procurement of main machinery and equipment is completed and expect to installed in Q4/2020. The engineering design, construction and system testing are on schedule.

Rayong Waste to Energy (WTE)

Project under
construction



SCOD | Q2/2021

TYPE



Waste

ELECTRICITY (MW)

9.8

RDF (T/day)

300

LOCATION

Rayong, Thailand

CUSTOMERS



Provincial Electricity Authority (PEA)

Q2/2020
progress
70.6%

100%

operating assets
under GPSC

PROJECT UPDATE

- The RDF Project construction been starting to sort waste to produce RDF energy since 2018
- The RDF Power Plant Project construction progress is 70.6% and on schedule

SPP Replacement | Stage 1 : Glow Energy Phase 2

Project under construction



SCOD | Q4/2022



TYPE



Gas-fired
Cogeneration

ELECTRICITY (MW)

192

STEAM (T/h)

300

LOCATION

Map Ta Phut
Industrial Estate
Rayong, Thailand

CUSTOMERS



Industrial Users



EGAT
(SPP Firm, 2*30 MW, 25-yr)

GPSC's HOLDING

100%
of total share

PROJECT UPDATE

- Issued Notice to Proceed to EPC on 1 Aug 2020

Energy Recovery Unit (ERU)

Project under construction



SCOD | 2023



ERU Project is a thermal power plant project that produces electricity and steam by using petroleum pitch which is a result of the refinery of Clean Fuel Project (CFP) of Thailoil. The electricity and steam produced are sent back to the CFP at the Thai Oil Refinery.

TYPE

ELECTRICITY (MW)

STEAM (T/h)



Petroleum Pitch

250

175

BY PRODUCTS | Sulfuric acid, condensate water

LOCATION

CUSTOMERS

Thai Oil Refinery,
Sriracha, Chonburi,
Thailand



Thai Oil Public Company Limited

(25-year, 200 MW of electricity
and 175 T/h of steam)

GPSC's HOLDING

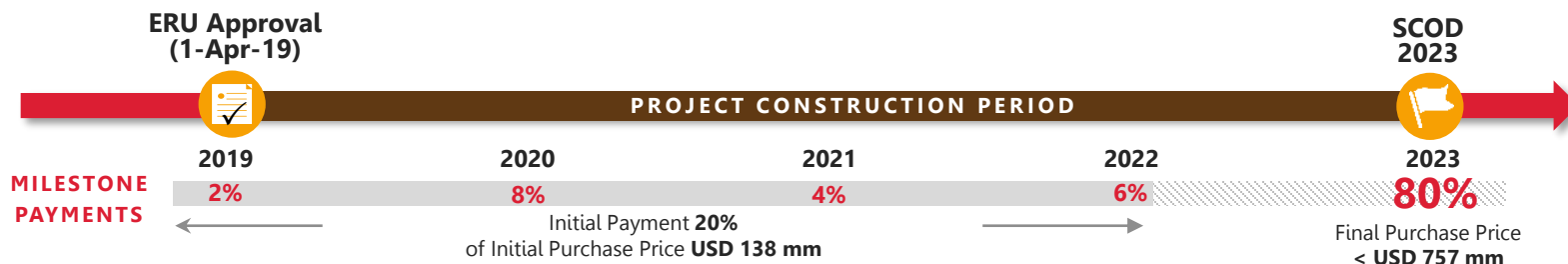
PROJECT UPDATE

100%

of total share in
ERU co.

- **Engineering design work:** 90% of 3D Model Review
- **Construction:** Foundation work, Major Equipment Foundation
- **Procurement of main machinery and equipment:** purchase, manufacturing plan, PIM can proceed according to plan

PROJECT TIMELINE & MILESTONE PAYMENTS



A wide-angle photograph of an industrial complex, likely a refinery or chemical plant, taken at dusk. The sky is a deep purple and pink. In the foreground, a tall, cylindrical distillation column with a spiral staircase is illuminated. To its right, a large, flat-roofed storage tank is visible. In the background, numerous other industrial structures, including distillation columns and storage tanks, are lit up, creating a glowing effect against the dark sky. The overall scene conveys a sense of industrial activity and scale.

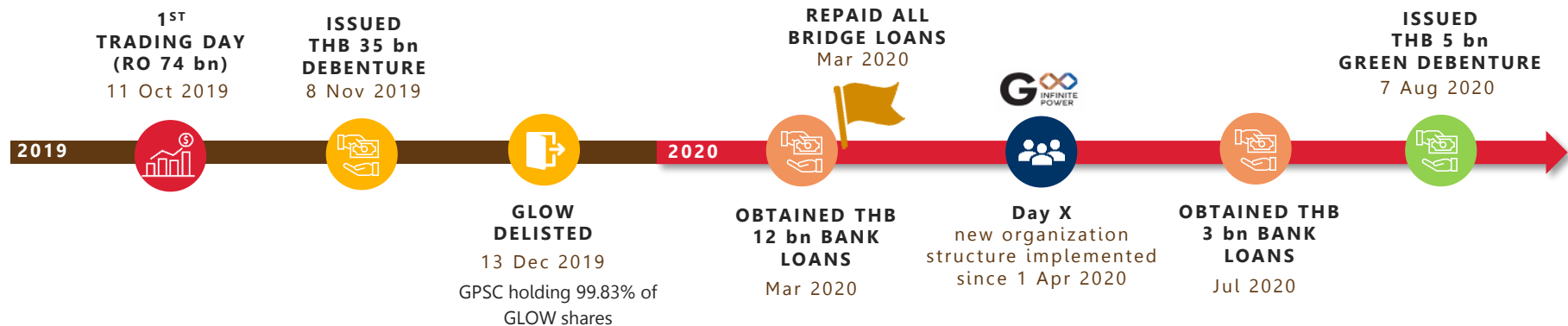
Growth and Strategic Directions

Update of Projects

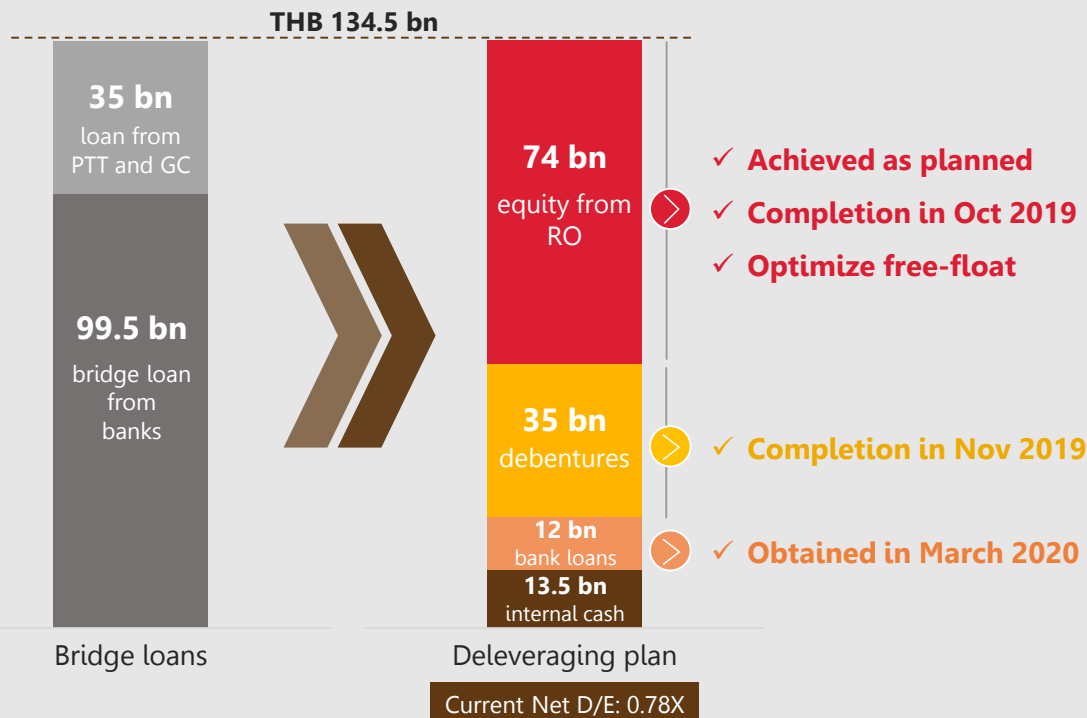
Financial Activities and Plans

Financial Performance

Key Financial Activities



SOURCE OF FUND AND DELEVERAGING PLAN FOR FUTURE GROWTH



GPSC's PRUDENT FINANCIAL POLICY

- 1 Net Debt to Equity $\leq 1.0x$**
- 2 Net Debt to EBITDA $\leq 4.0x$**
- 3 Dividend Policy | Minimum dividend at the rate of not less than 30% of the net profit**

according to the financial statements of the Company after the deduction of tax, reserved funds as required by law (with additional conditions)

A wide-angle photograph of an industrial complex, likely a refinery or chemical plant, taken at dusk. The sky is a deep purple and pink. In the foreground, a tall, cylindrical distillation column with a spiral staircase is illuminated. To its right, a large, flat-roofed storage tank is visible. In the background, numerous other industrial structures, including distillation columns and storage tanks, are lit up, creating a glowing effect against the dark sky. The overall scene conveys a sense of industrial activity and scale.

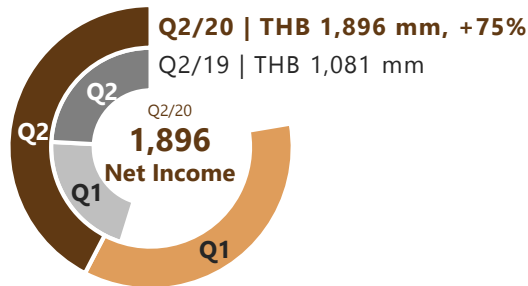
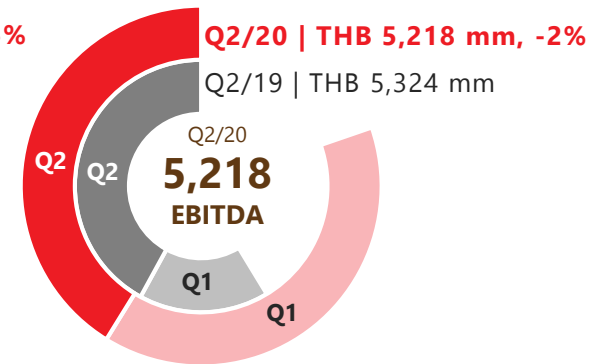
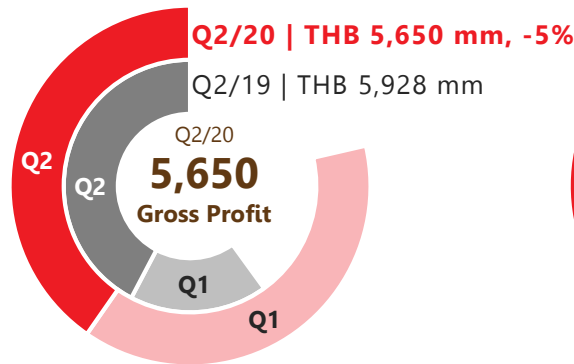
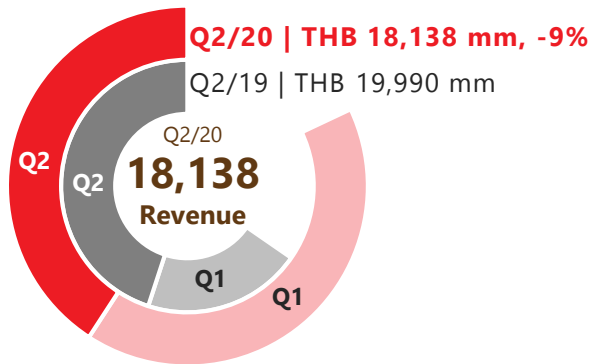
Growth and Strategic Directions

Update of Projects

Financial Activities and Plans

Financial Performance

Q2/2020 Key Financial Highlights | THB million



Q2/2020 Adjusted Net Profit increased 57% yoy and 16% qoq. The yoy increase was mainly from 99.83% recognition of Glow's results while the qoq increase was mainly due to the following:

IPP Gross Profit: THB 52 million, or 4% increase qoq

- GHECO-One's higher AP from higher Availability rate and weight factor
- HHPC's higher revenue from higher dispatch

SPP Gross Profit: THB 61 million or 2% increase qoq

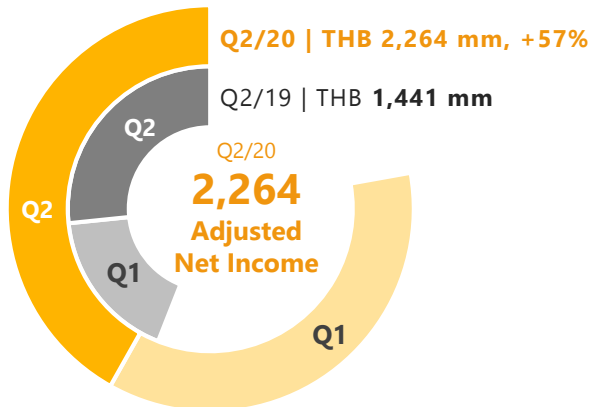
- Higher revenue from GPSC's SPP especially from Rayong Central Utility Plant (CUP) facilities due to higher sales volume to EGAT and industrial customers despite lower gross profit from GLOW's SPP due to an unplanned outage of GLOW Energy Phase 5 Plant in June 2020
- 6% lower average coal price and 1% lower average gas price qoq

VSPP's Gross Profit: THB 173 million or 240% increase qoq

- Recognition of GRP's results after the acquisition completion on 26 Mar 2020

Other income: THB 223 million increase qoq from rights of way compensation by EGAT

Shares of profit: THB 178 million increase qoq from Xayaburi's higher water flow and dispatch



GPSC Customers' Profile in Q2/2020



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



53% Industrial Users



45% EGAT

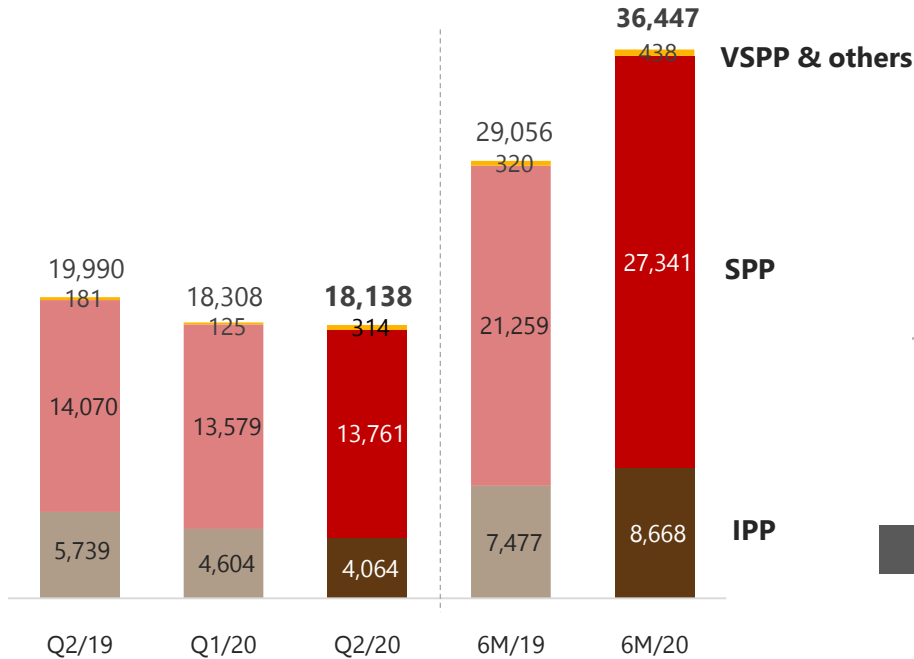


2% Others

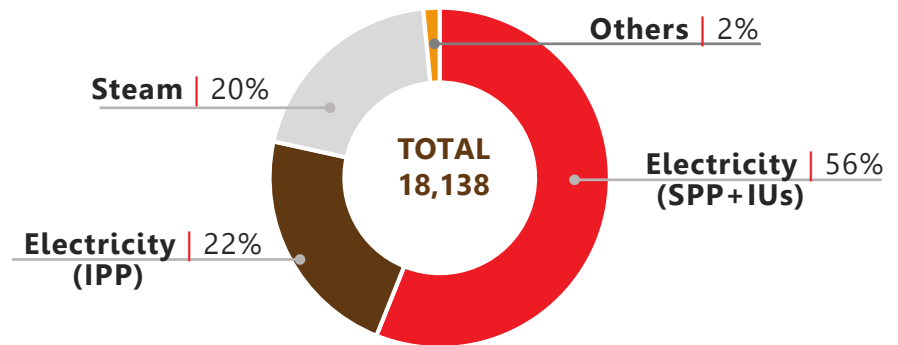
***Q2/2020 revenue by customers**

Q2/2020 Financial Performance Summary (1/2)

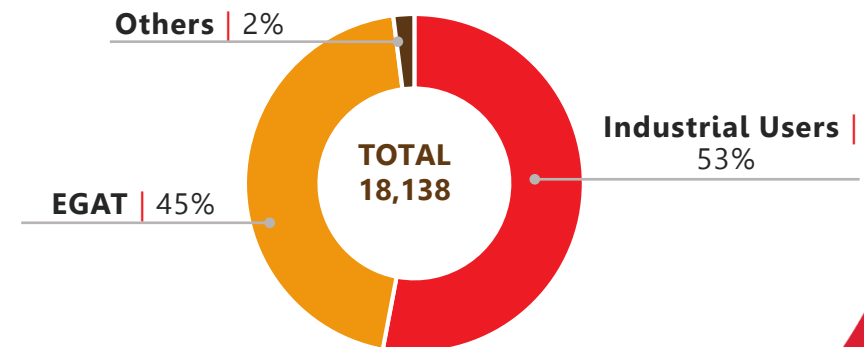
REVENUE BY TYPE OF POWER PLANT | THB million



Q2/2020 REVENUE BY PRODUCT | THB million, %



Q2/2020 REVENUE BY CUSTOMERS | THB million, %



QoQ
-1%

YoY
-9%

YTD
+25%

QoQ: Decreased due to:

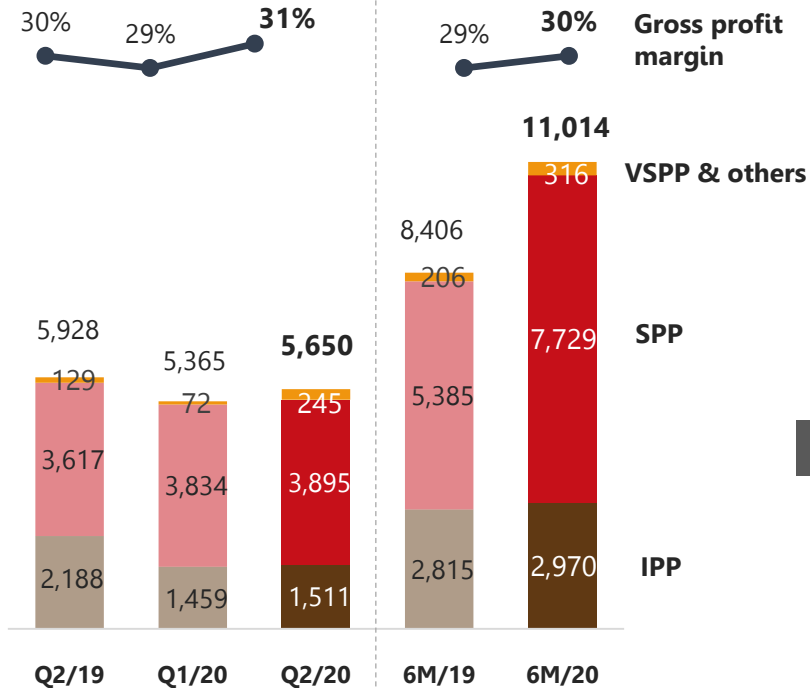
- Lower EP corresponding to dispatch instruction by EGAT from Sriracha Power Plant
- However, revenue from SPP's plant increased mainly from Rayong Central Utility Plant (CUP) due to higher electricity and steam sales volume

YoY: Decreased due to:

- Lower EP due to dispatch instruction by EGAT from Sriracha Power Plant
- Lower AP from GHECO-One Power Plant according to payment structure of the PPA with EGAT

Q2/2020 Financial Performance Summary (2/2)

GROSS PROFIT & GROSS PROFIT MARGIN BY TYPE OF POWER PLANT | THB million, %



QoQ: Increased due to:

- Higher AP and weight factor from GHECO-One plant, together with increased power dispatch of HHPC.
- Higher power and steam demands of IUs from Rayong Central Utility Plant (CUP)
- Recognition of gross profit from Global Renewable Power (GRP) after the acquisition completion on 26 Mar 2020

YoY: Decreased due to

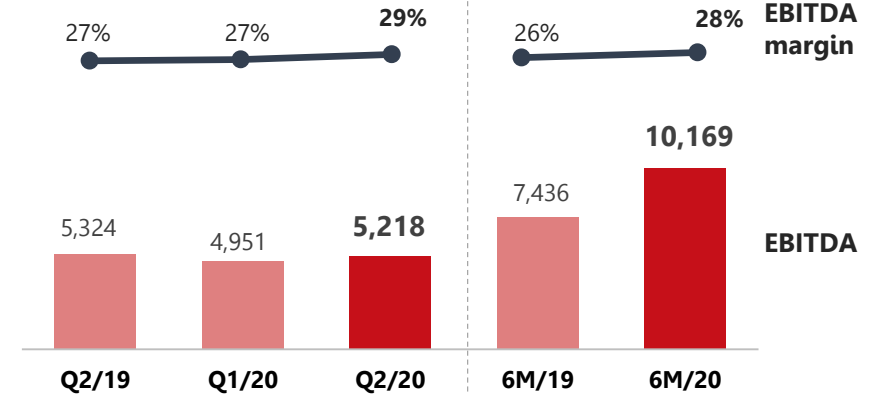
- Lower AP of GHECO-One Power Plant according to the payment structure of PPA with EGAT
- However, SPP portfolio increased corresponding to lower natural gas and coal price.

QoQ
+5%

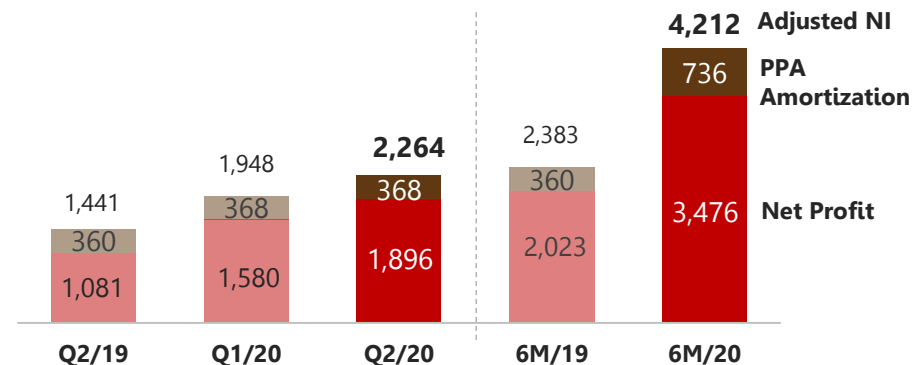
YoY
-5%

YTD
+30%

EBITDA & EBITDA MARGIN | THB million, %

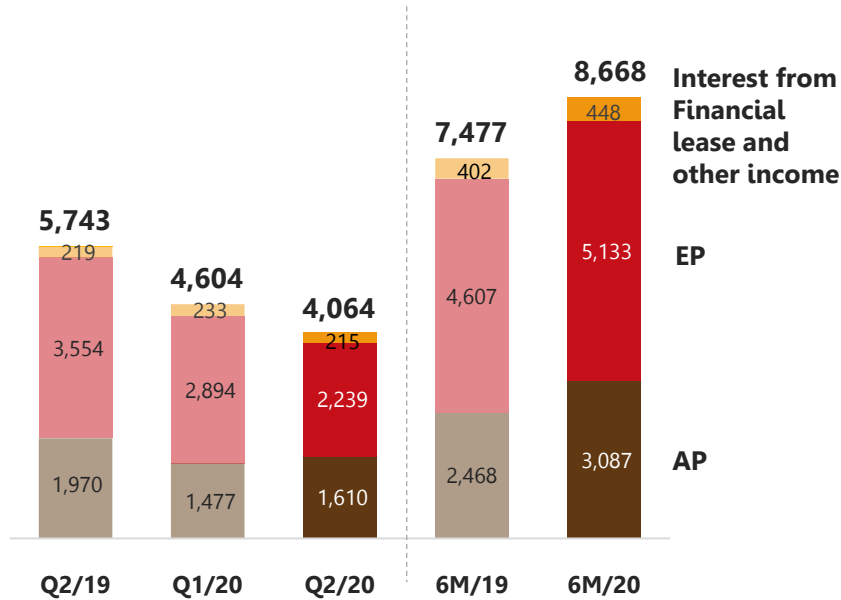


NET PROFIT & ADJUSTED NET INCOME* | THB million



***Adjusted Net Income** is net profit attributed to the company adjusted to *reflect the company's true earnings from its normal operations* which excludes: fair value of intangible asset from the acquisition of GLOW (PPA Amortization)

REVENUE | THB million



IPP POWER PLANTS



Sriracha



GHECO-One



HHPC

*GLOW IPPs consist of GIPP, GHECO-One and HHPC

TOTAL REVENUE

QoQ
-12%

QoQ: decreased mainly due to Sriracha's dropped EP reflecting lower power dispatch despite increased revenue of GHECO-One from higher AP due to higher Availability rate and weight factor.

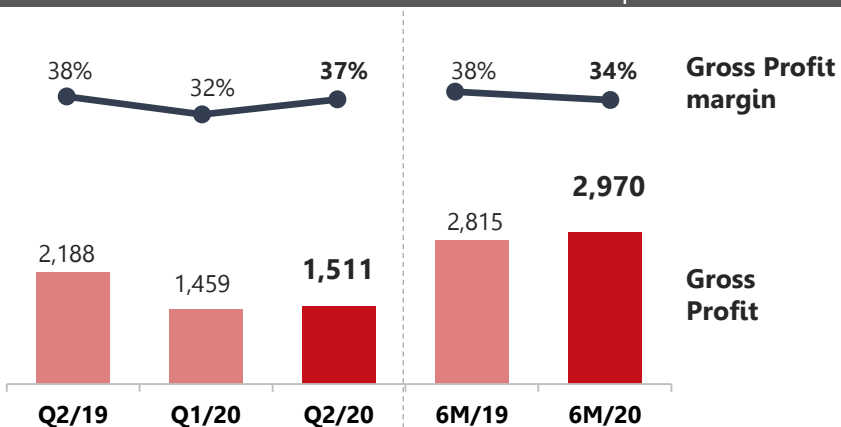
YoY
-29%

YoY: decreased mainly due to (i) Sriracha's dropped EP reflecting lower power dispatch and (ii) GHECO-One's lower AP and EP (EP drop was from 11% drop in coal price and 1% drop in electricity sales volume) despite increased Sriracha's AP and revenue from financial lease due to THB depreciation and TFRIC4 adjustment, respectively.

YTD
+16%

YTD: increased mainly due to full 6M recognition of GLOW's revenue in 2020 and increased Sriracha's AP and revenue from financial lease due to THB depreciation and TFRIC4 adjustment, respectively.

GROSS PROFIT & GROSS PROFIT MARGIN | THB million,%



GROSS PROFIT

QoQ
+4%

QoQ: increased due to GHECO-One's increased AP and higher weight factor and HHPC's higher revenue due to higher power dispatch.

YoY
-31%

YoY: decreased due to a drop in GHECO-One's AP and gross profit of HHPC following lower electricity sales volume due to lower level of water in the reservoir than last year's.

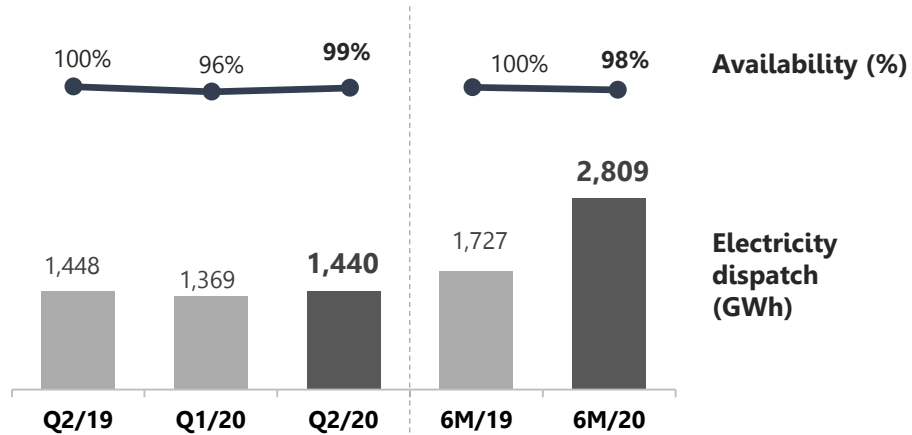
YTD
+6%

YTD: increased mainly due to full 6M recognition of GLOW's results in 2020.

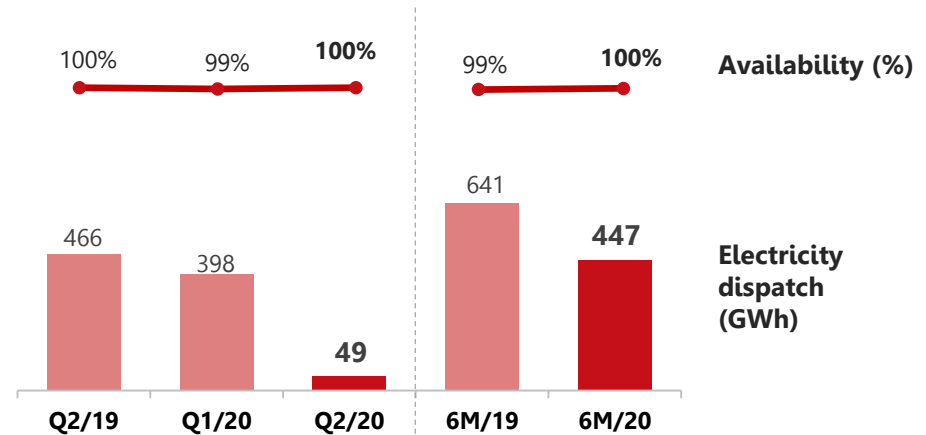
IPP's sales volume and availability



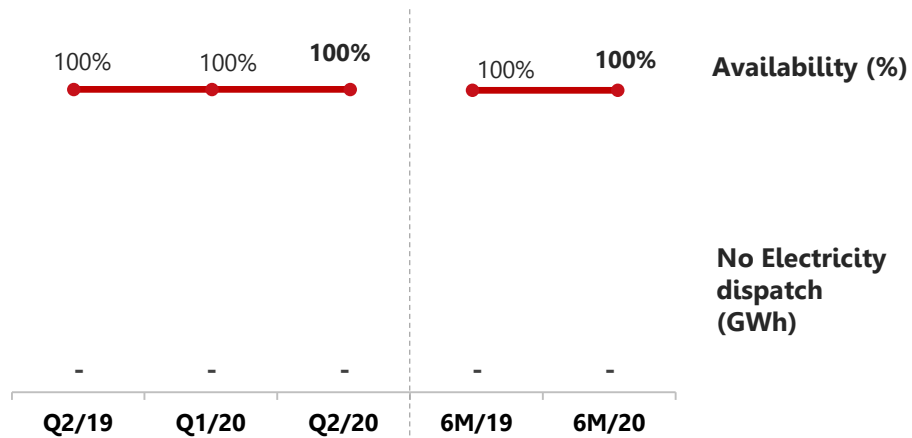
GHECO-One



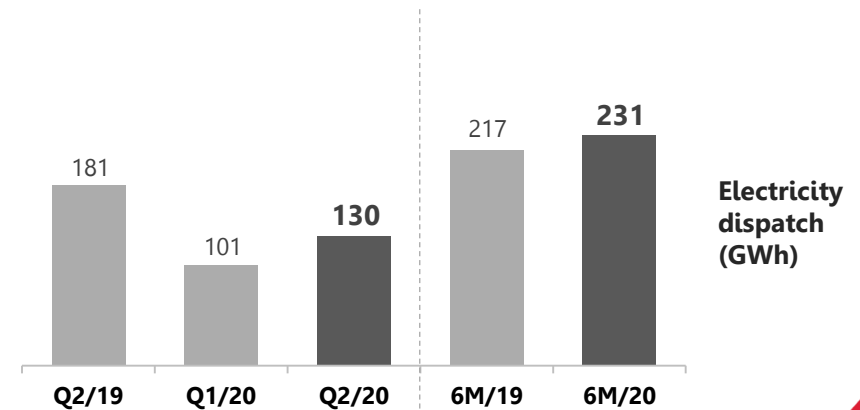
Sriracha



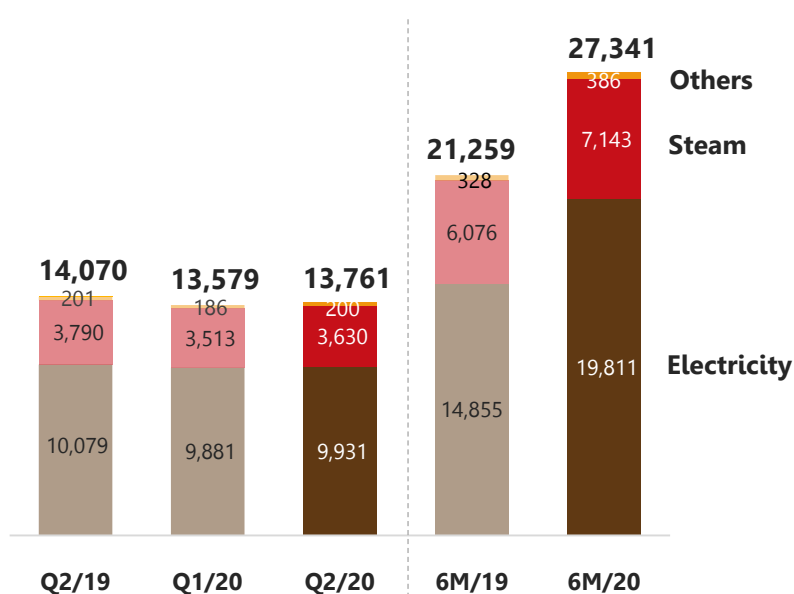
GIPP



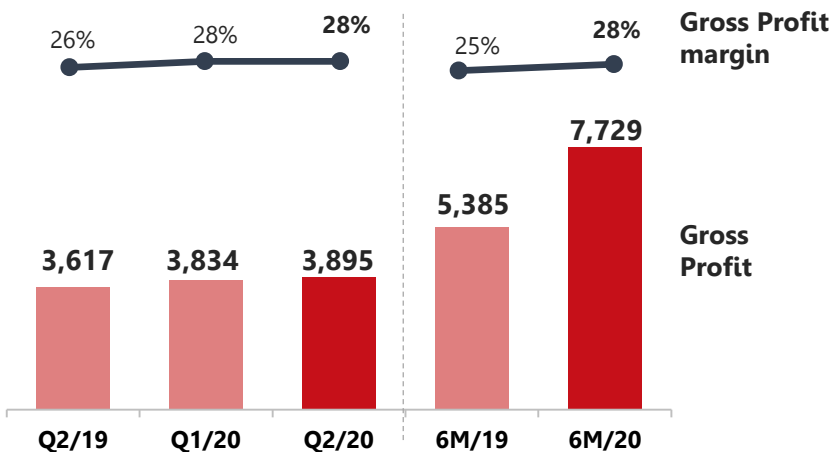
HHPC



SPP REVENUE | THB million



GROSS PROFIT & GROSS PROFIT MARGIN | THB million,%



SPP POWER PLANTS



TOTAL REVENUE

QoQ
+1%

QoQ: slightly increased due to higher revenue of CUP and IRPC-CP from EGAT and industrial customers' higher electricity and steam sales volume despite decreased GLOW SPP's revenue due to lower electricity sales volume to EGAT and automotive customers.

YoY
-2%

YoY: decreased mainly due to GLOW's SPP lower sales volume of electricity, steam and industrial water to industrial customers and lower steam selling price due to lower gas price despite an increase of CUP's revenue due to higher electricity sales volume to EGAT and industrial customers.

YTD
+29%

YTD: increased mainly due to full 6M recognition of GLOW's revenue in 2020

GROSS PROFIT

QoQ
+2%

QoQ: Increased mainly due to higher electricity and steam sales volume and lower average natural gas price

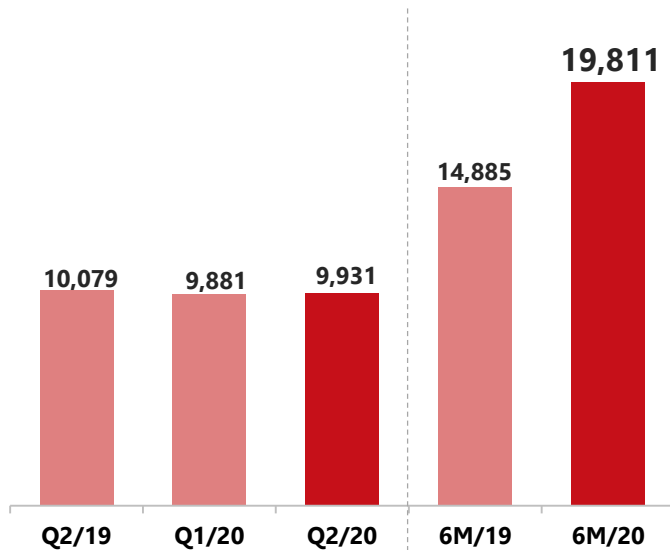
YoY
+8%

YoY: Increased mainly due to higher electricity sales volume and lower average natural gas price

YTD
+44%

YTD: increased mainly due to full 6M recognition of GLOW's revenue in 2020

POWER SALES | THB million



QoQ
+1%

QoQ: slightly increase due to increased sales volume especially from CUP and IRPC-CP despite lower selling price

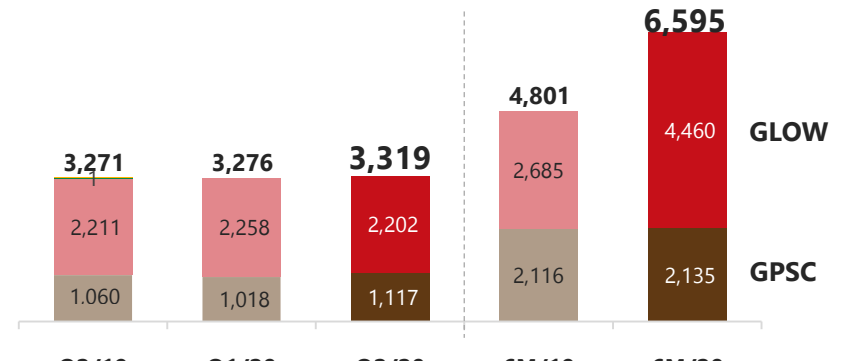
YoY
-1%

YoY: decreased from lower sales volume mainly from GLOW SPP and lower selling price

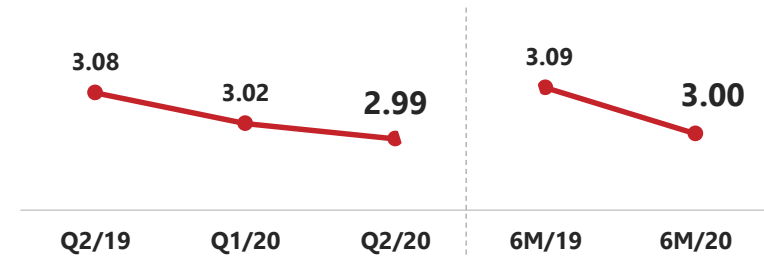
YTD
+33%

YTD: increased mainly due to full 6M recognition of GLOW's sales in 2020

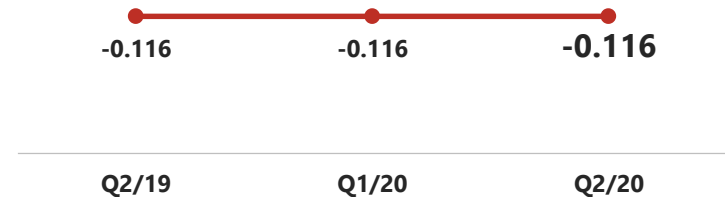
POWER SALES VOLUME | GWh



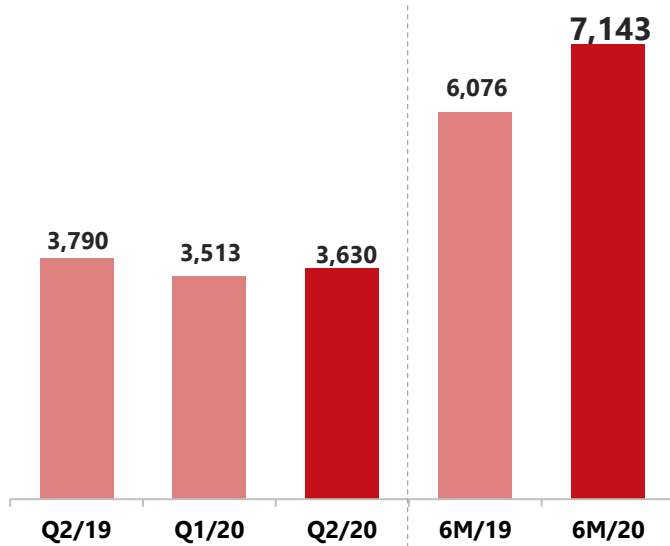
AVERAGE SELLING PRICE | THB/kWh



Ft RATE | THB



STEAM SALES | THB million



QoQ
+3%

YoY
-4%

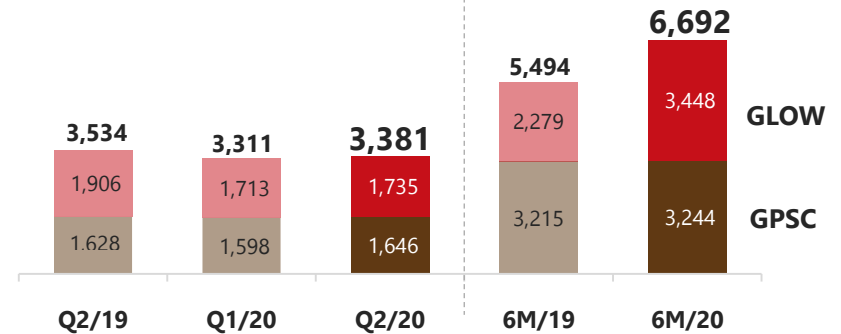
YTD
+18%

QoQ: increased mainly due to higher sales volume mainly from CUP and GLOW SPP

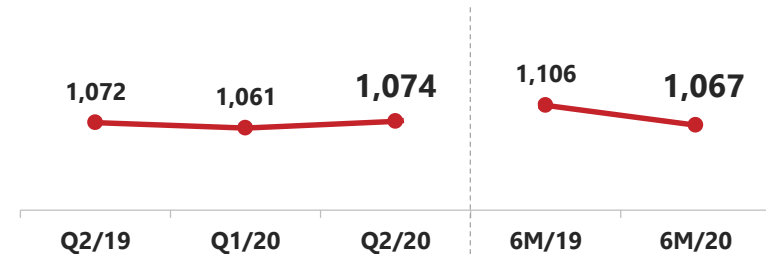
YoY: decreased due to lower sales volume especially from GLOW SPP and IRPC-CP

YTD: increased mainly due to full 6M recognition of GLOW's sales in 2020

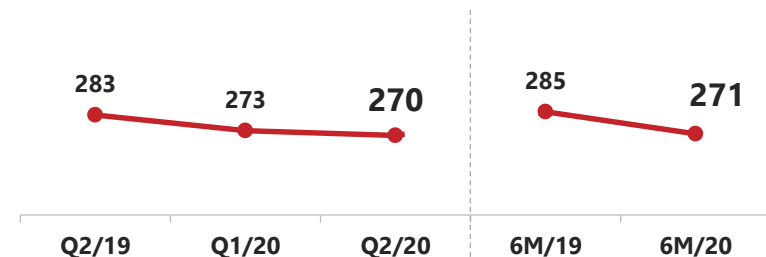
STEAM SALES VOLUME | '000 tons



AVERAGE STEAM SELLING PRICE | THB/ton

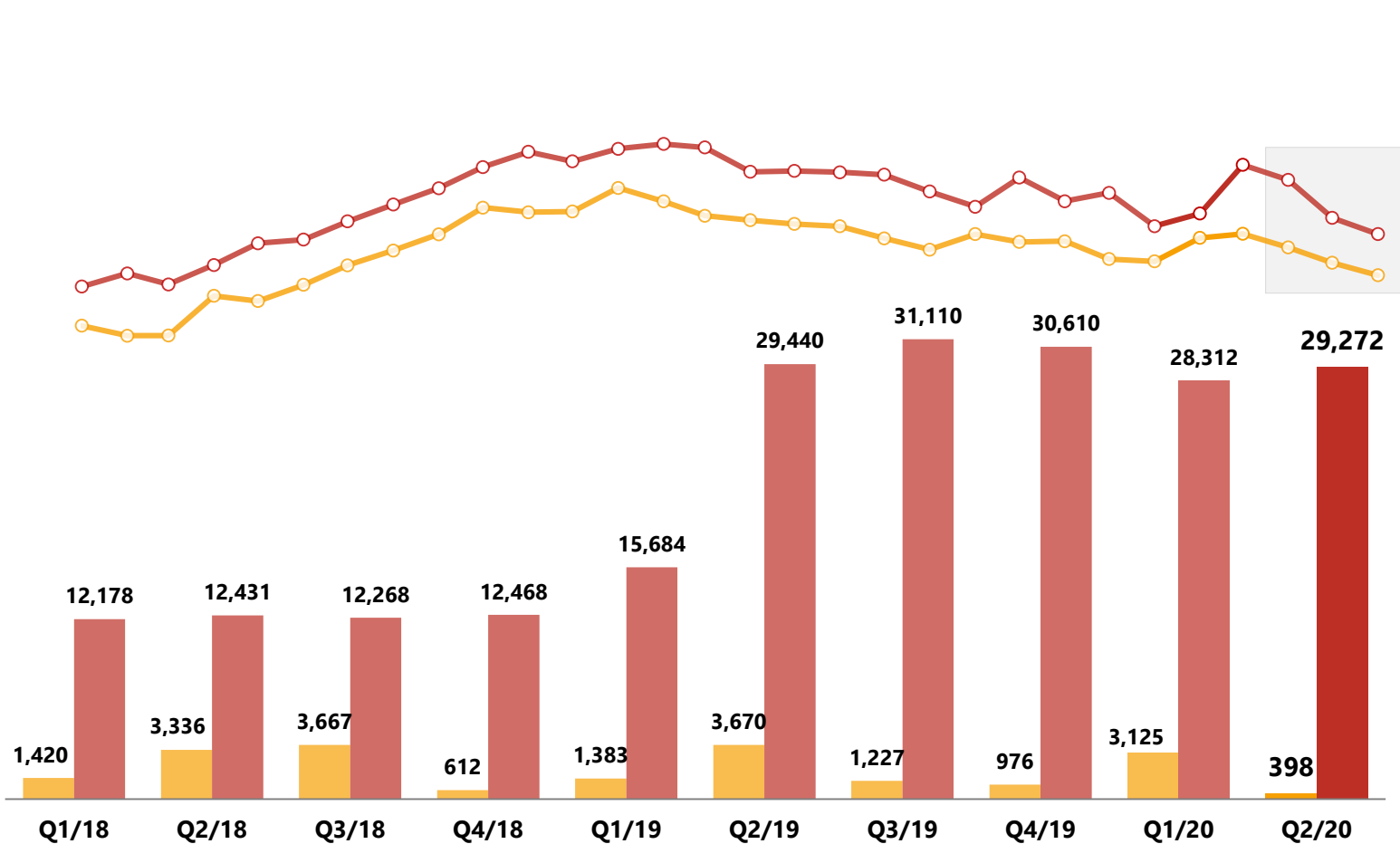


AVERAGE NATURAL GAS PRICE | THB/MMBTU



Natural Gas Consumption VS Price Trends | as of Q2/2020

QUARTERLY NATURAL GAS CONSUMPTION & MONTHLY NATURAL GAS PRICE | '000 MMBTU, THB/MMBTU



Average Monthly
Natural Gas Price
of Q2/2020
(THB/MMBTU)

**SPP
Portfolio**
270
IPP
252*

*Excluding GLOW IPP

Quarterly
Natural Gas
Consumption
('000 MMBTU)

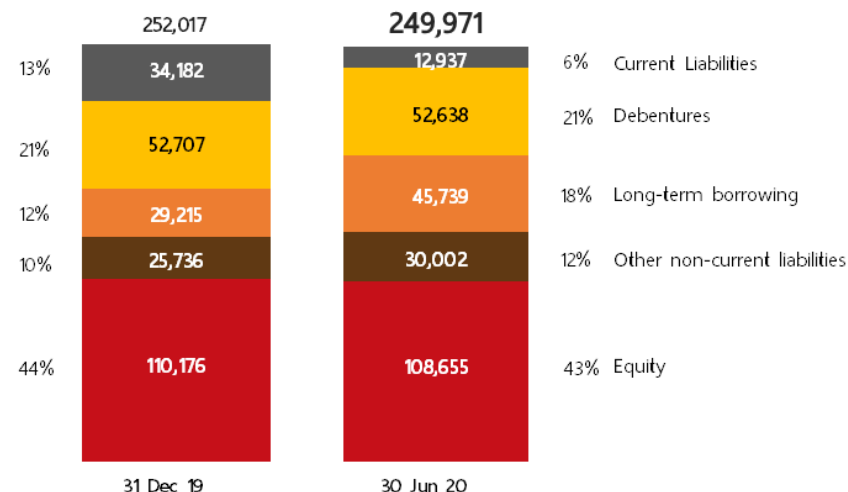
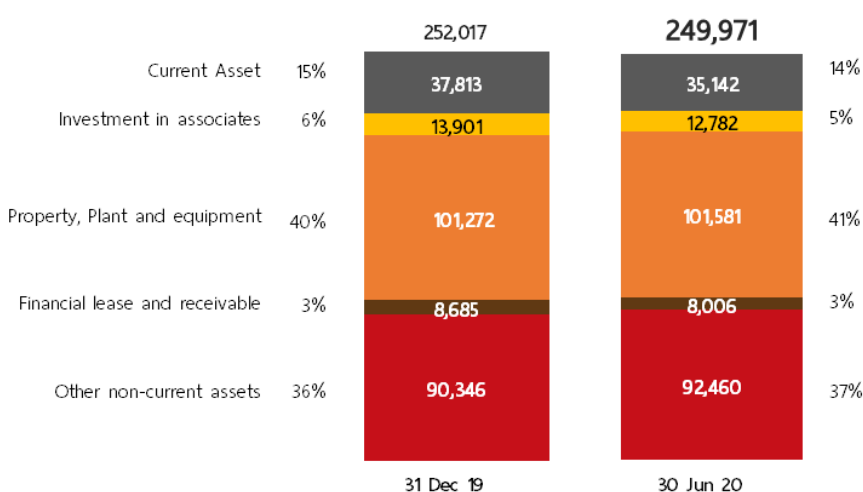
**SPP
Portfolio**

IPP

Financial Position of GPSC and Subsidiaries

TOTAL ASSETS | THB million,%

TOTAL LIABILITIES & SHAREHOLDERS EQUITY | THB million,%



ASSETS -1%

Total assets slightly decreased mainly from:

- **Current assets:** decreased by THB 2,671 million or 7% mainly due to (i) a decrease in cash and cash equivalent of THB 1,145 million; and (ii) a decrease in short-term investment of GPSC group of THB 965 million.
- **Other non-current assets:** increased by THB 2,114 million or 2% mainly due to an increase in right of use of assets totaling THB 2,607 million.
- **Financial lease and receivable-net:** decreased by THB 679 million or 7%

LIABILITIES -0.4%

Total liabilities increased mainly from:

- **Current liabilities:** decreased by THB 21,245 million or 62% mainly from decreased short-term loans by THB 14,760 million, decreased account payable by THB 2,281 million, and decreased short-term loans from the Company's subsidiaries by THB 4,913 million.
- **Long-term borrowings and debentures:** increased by THB 16,455 million or 20% mainly from drawdown of long-term loans with financial institutions to repay short-term loans.
- **Other non-current liabilities:** increased by THB 4,266 million or 17% mainly from recognition of long-term lease liabilities of THB 2,510 million and from recognition of derivatives liabilities of THB 2,215 million.

EQUITY -1%

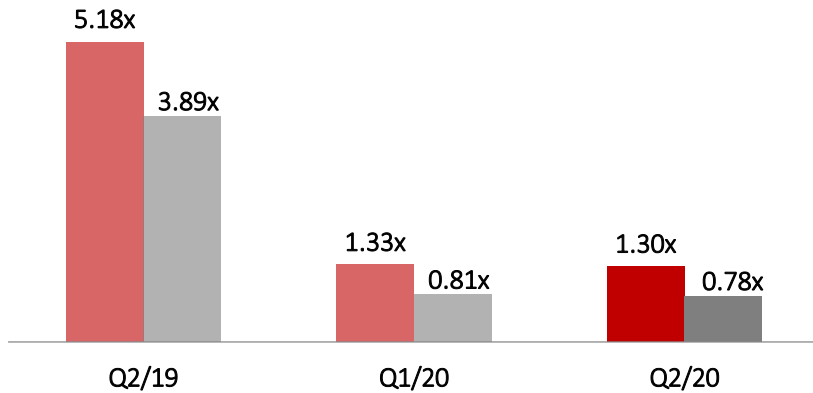
Total Equity decreased mainly from:

- decrease in other components of shareholders' equity of THB 1,980 million due to implementation of TFRS 9

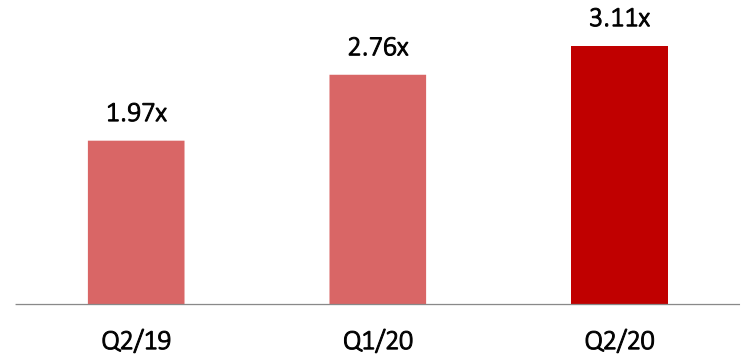
Key Financial Ratios

TOTAL D/E & NET D/E | times

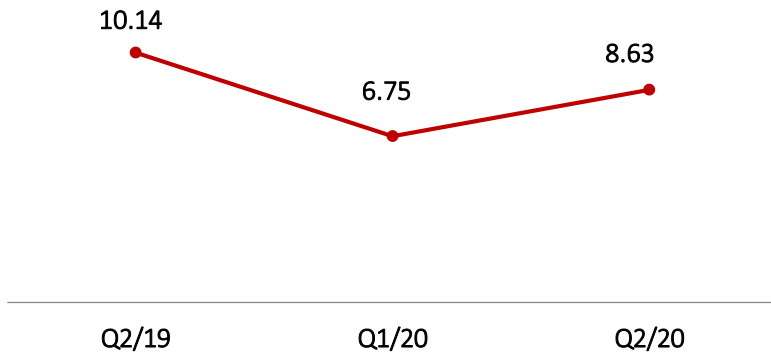
■ Total D/E ■ Net D/E



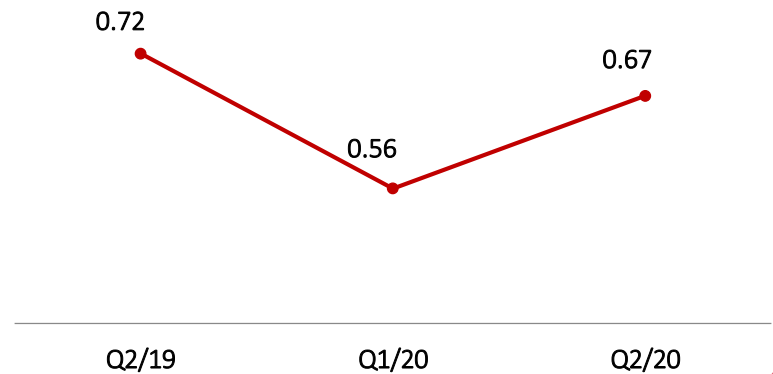
INTEREST COVERAGE RATIO | times



ROE | %



EARNING PER SHARE (EPS) | THB/share



Outlook 2H/2020

Economic Outlook

- The world economy is projected to experience a sharp contraction and business downturn from the spread of COVID-19
- Despite of fiscal stimulus with a historic relief package, the economic growth is projected to slowly rebound in 2H/2020

Key assumptions

- **Oil price** : Dubai crude oil price is expected to average US\$40-45 per barrel in 2020. Shrink demand is expected to recover in 2H/2020
- **NG** : Natural gas is forecasted to decrease in the same direction with crude oil with lag time 6 – 12 months
- **Coal** : Coal price will be remained in the range of US\$ 50-55 per ton in 2H/2020 due to limited of demand of both China and India
- **Ft rate** : Ft maintains -11.60 Satang/unit till Aug 2020 and -12.43 Satang/unit in Sep-Dec 2020

Performance outlook

- ▼ The economic downturn from COVID-19 pandemic may **continue impact to industrial customers** in automotive, export, industries related to tourism and hospitality, petrochemical and industrial sector.
- ▼ The lower price of natural gas trend in 2H/2020 **will have a positive impact on the company** in the short term
- ▲ The company expects to be able to recognize **the synergy value from the merger of approximately THB 400 - 500 million in 2020**
- ▲ The COD schedule of Nava Nakorn Electricity Generation (NNEG) Expansion in Q3/2020
The drought situation:
 - ▲ **Hydro power plants in Laos**: Entering wet season with higher water flow in 2H/2020
 - **Operation of SPP plants**: Closely monitor the drought situation and prepare next year plan
- ▼ Gross profit of GLOW SPP drops due to an **unplanned outage of GLOW Energy Phase 5 Plant in Jun 2020** and expect to return its normal operation in Oct 2020



Q&A SESSION

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THE INNOVATIVE
POWER FLAGSHIP
OF PTT GROUP

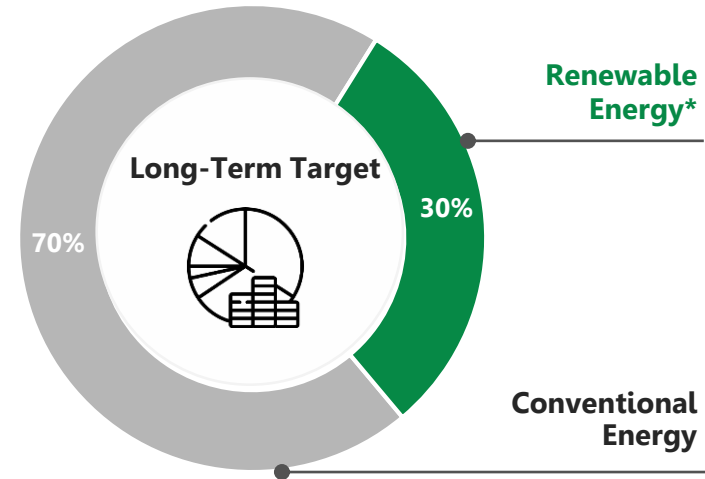


Sustainability at GPSC | Overview

- Sustainability is embedded in GPSC Strategic Direction and Growth Strategy,
3S Strategy | Selective Growth
 - ✓ To be listed in **DJSI by 2022**
 - ✓ Increasing renewable energy up to **30% of GPSC's installed capacity**
- GPSC has operated in line with its commitment to innovation development alongside social and environmental responsibilities, as sustainability business strategy, called **"Innovative & sustainable power for all"**, by employing the **sustainability management framework** and **3D Principles**.

GPSC's commitment to the Sustainable Development Goals (SDGs)

- GPSC has embraced six main goals of the UN's Sustainable Development Goals as guidelines for the company's sustainable development management and for the benefit of all stakeholders.
 - Goal 7: Affordable and Clean Energy;
 - Goal 8: Decent Work and Economic Growth;
 - Goal 9: Industry, Innovation, and Infrastructure;
 - Goal 12: Responsible Consumption and Production;
 - Goal 13: Climate Action; and
 - Goal 16: Peace and Justice Strong Institutions.



Sustainability at GPSC | Innovative and Sustainable Power for All

Sustainability Management Framework

Power Accessibility



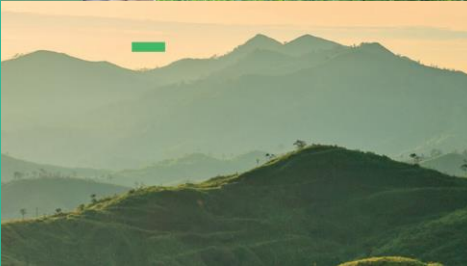
Enhance stability of access by investing in Solar Rooftop and Solar floating

Quality of Life



Empower for a better living by providing occupational training program, light for a better life program and zero-waste village

Eco-system



Eco-system of driving clean energy, cultivating the circular economy concept, and easing environmental impacts

Sustainable Innovation



Sustainable Innovation for the corporation to drive improvement initiatives through Artificial Intelligence (AI) and Blockchain, innovation culture and young social innovator



Decentralize

Decentralization refers to the decentralization of electricity from large power stations to small scale ones by harnessing renewable energy such as solar power from solar rooftops integrates into microgrid and smart grid systems. To enable decentralization, two things need to be developed: software and batteries. GPSC recognizes the importance of batteries in enabling exceptional energy storage to expand the possibilities for our customers. Therefore, the company has collaborated with 24M Technologies, Inc. in establishing a lithium ion battery factory for business expansion.



Decarbonize

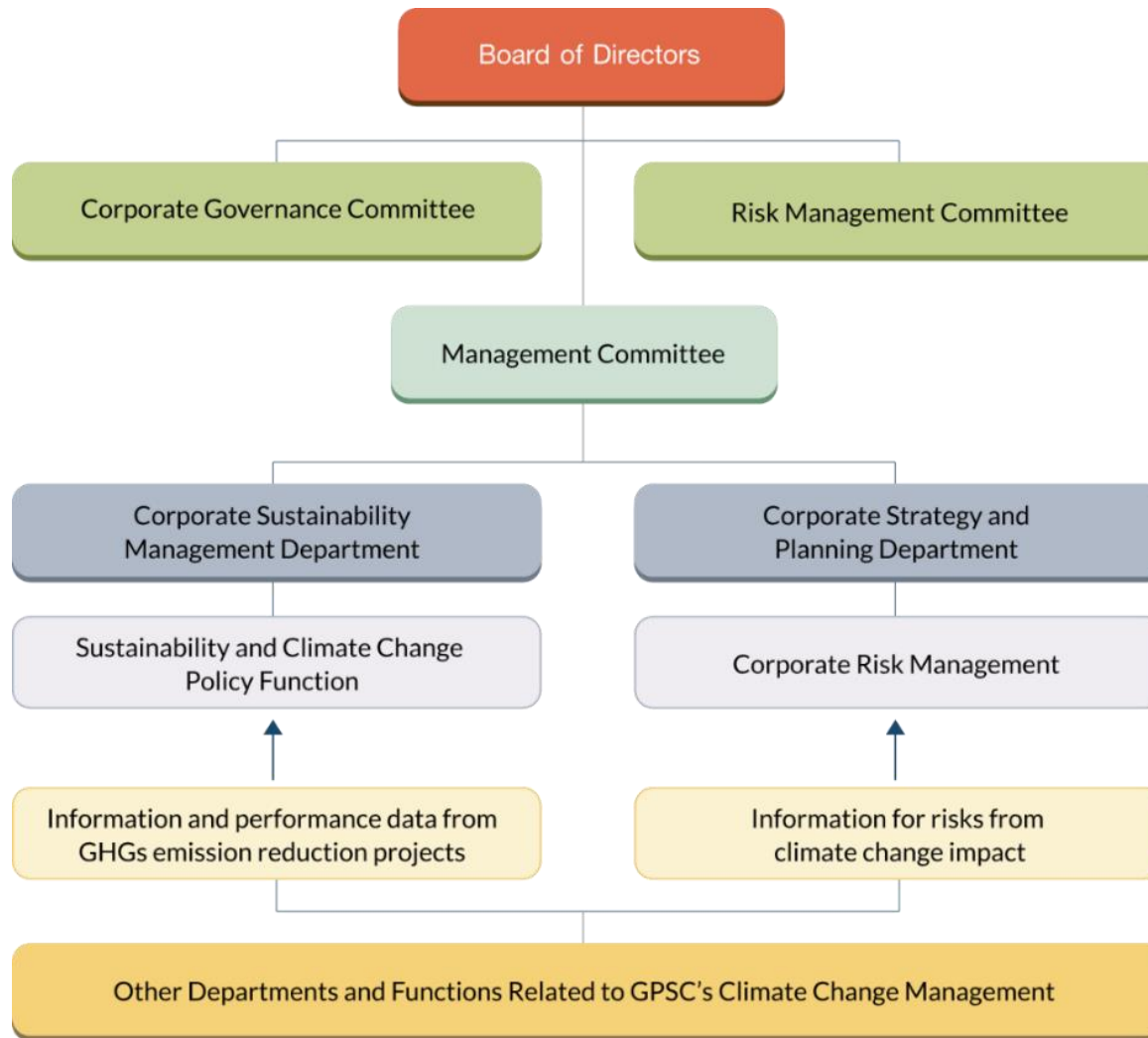
GPSC is committed to reducing pollution and using green products to reduce the impacts on the environment. The use of renewable energy is, therefore, pivotal in the company's operation. We are determined to develop batteries as renewable energy, embracing the future trend that gears towards renewable energy storage. Decarbonization is also in line with the ecological goals of Thailand's national integrated energy plan in terms of increasing power production from renewable energy and using advanced technologies to minimize impacts on the environment and communities.



Digitalize

GPSC uses digital technologies to increase work efficiency. Digital technologies enable us to cut unnecessary processes, reduce costs, transform businesses to technological societies and gain advantages in business competitiveness in this rapidly evolving world.

Sustainability at GPSC | Climate Change Management

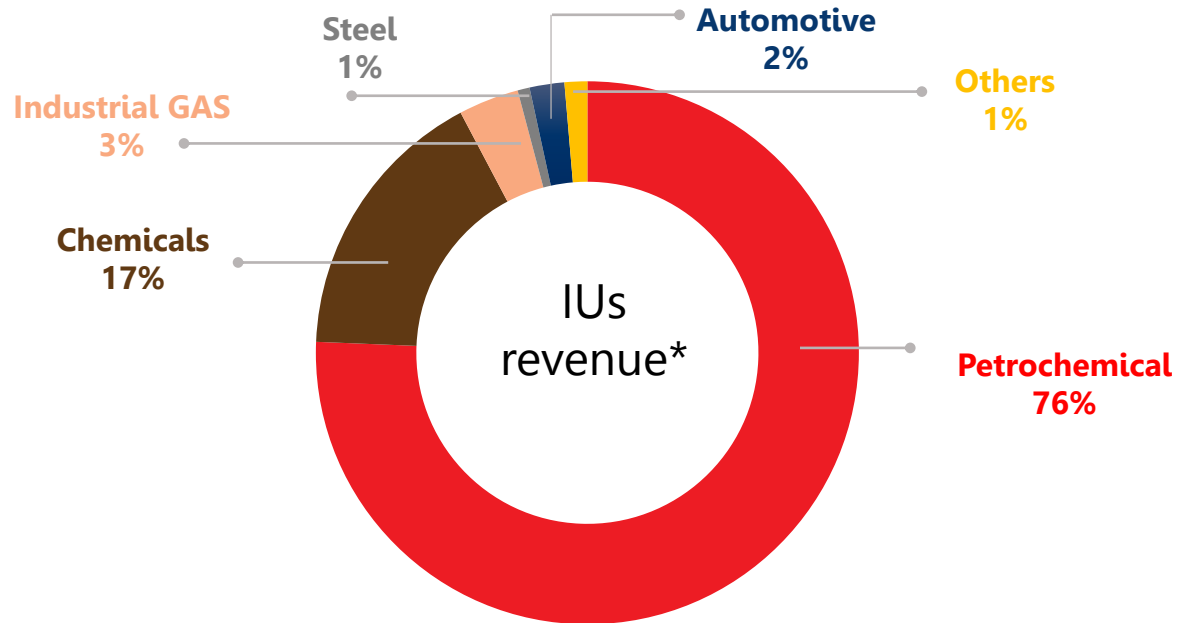


Climate Change Governance Structure

GPSC recognizes the risk and potential impacts from climate change and global warming and is committed to provide our full support and collaborating enthusiastically with every sector to achieve the challenging goal of reducing greenhouse gas emissions by adopting a robust climate change policy and management approach. Climate change management at GPSC is under the supervision of the executive team led by the **Chief Executive Officer and with the CEO serving as president.**

Industrial Users by sector

Revenue breakdown | by sector



Key monitoring

- + **Petrochemical:** continue to operate the plant as normal
- **Automotive:** some car maker factories are closed and some customers stopped operation and no overtime

**Based on power and steam sales which included GLOW from 1 Jan - 31 Dec 2019 for illustration only*

Measures to Prevent the Spread of COVID-19 Virus of GPSC Group

GPSC recognizes and gives priority to the **safety of all employees** and **strives for generating electricity and utilities** to continuously meet the customers' requirement

GPSC established **G-COVID Monitoring and Surveillance Center of GPSC Group** to monitoring the situation, defining plans and preventive measures, as well as providing and supporting necessary supplies

G-COVID Monitoring and Surveillance Center of GPSC Group



Monitor internal and external situations with PTT Group



Specifying measures and making plans to prevent the outbreak



Procure and support necessary resources



Performance report to the management



Establish a GPSC Group Communication Center



Measures to Prevent the Spread of COVID-19 Virus of GPSC Group



Employee Care Measures

- Classify employees into surveillance groups
- Give advice on conduct
- Set travel abroad measures
- Implement work from home policy
- Travel measures across provincial areas
- Communication and counseling measures
- Provide COVID-19 life insurance for all employees
- Provide alcohol gel and masks



Workplace Management Measures

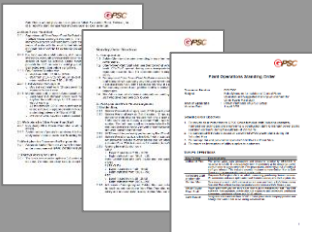
- Setting screening point in all areas with temperature checks at the entrance
- Make sure to clean all risk surfaces
- Measures for organizing rally activities
- Provide alcohol gel and necessary medical equipment
- Measures to take care of all workplaces and non-workplaces areas



Operation & Process Measures

- Identify the employees required for the operation "Golden Man" and manpower management
- Preparing special controlled workplaces or "safe houses" for Golden Man and necessary staffs
- Prohibit unauthorized persons enter into the production process areas and control rooms
- Manpower mobilization planning in case of an employee infected with COVID-19 virus
- Customer coordination plan and related parties in case of Safe Shutdown
- Medical check up for Golden Man staff

Plant Operation Standing Order

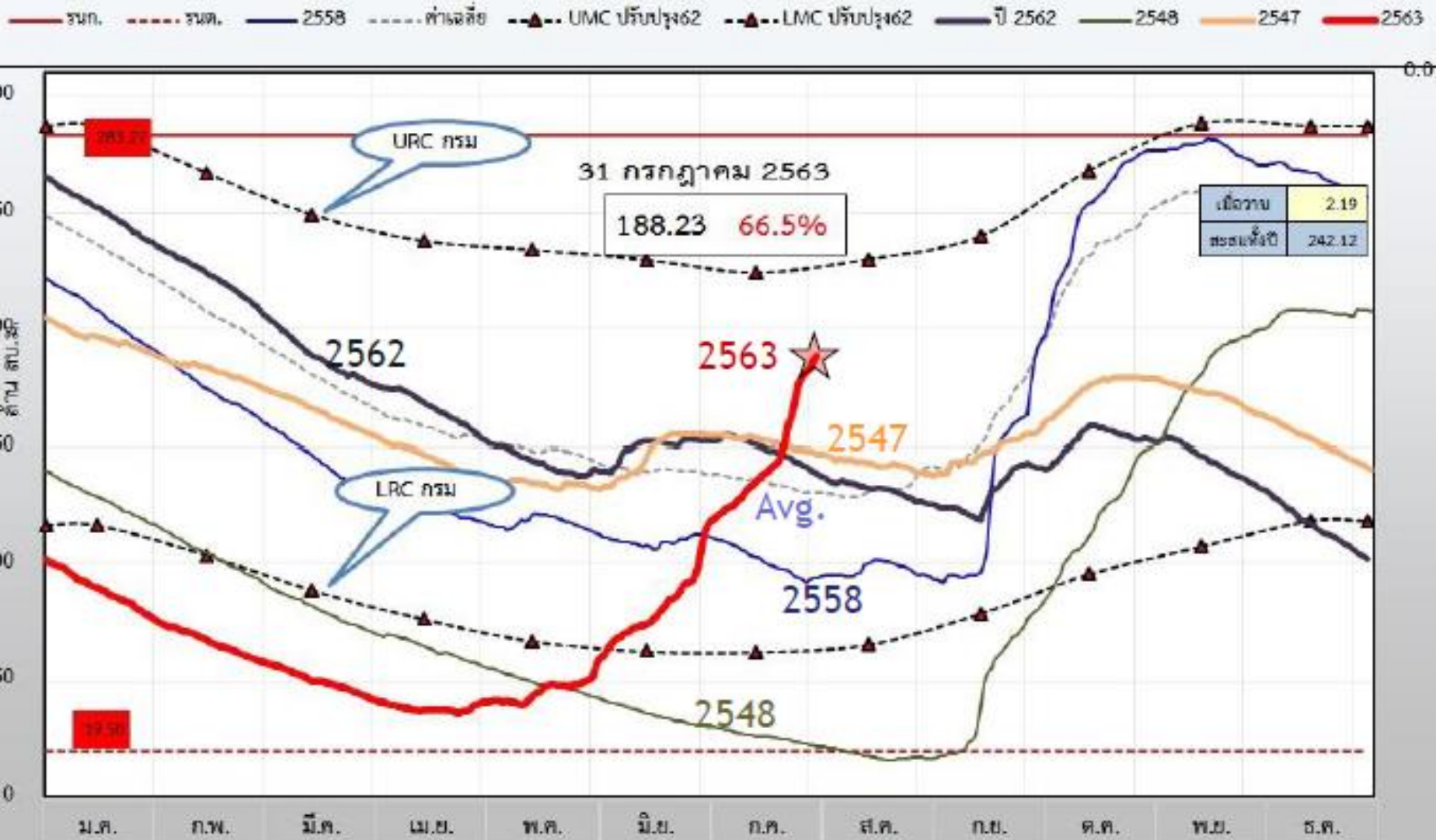


Countermeasures
against COVID-19



Water situation in Rayong | GPSC continues closely monitor the water situation

กราฟปริมาณน้ำ รวม 3 อ่าง ลุ่มน้ำคลองใหญ่



ที่มา: ฝ่ายจัดสรรน้ำ โครงการชลประทานระยอง, บริษัท จัดการและพัฒนาทรัพยากรน้ำภาคตะวันออก จำกัด (มหาชน) (EW)

GPSC Power Plant Portfolio (1/2)

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
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	321	-	-	GPSC (25%)	2019	29/2048
Total IPP		4,910	2,439	2,439	-	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
Glow Energy CFB 3	SPP	85	85	85	79	-	GLOW (100%)	2010	-
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++
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

Note: Equity capacity includes 100% stake in GLOW and ERU

GPSC Power Plant Portfolio (2/2)

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
NNEG	SPP	125	38	38	9	-	GPSC (30%)	2016	25/2041
NNEG Expansion (under construction)	SPP	60	18	-	3	-	GPSC (30%)	2020	25/2041
Rayong Expansion (CUP-3)	SPP	15	15	15	-	-	GPSC (100%)	2019	n/a
Rayong Expansion (CUP-4)	SPP	45	45	45	70	-	GPSC (100%)	2019	-
Total SPP		2,614	2,192	2,174	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
GRP	VSPP	39.5	39.5	39,5	-	-	GPSC (100%)	2014-15	2039/2040
NL1PC	Hydro	65	26	26	-	-	GPSC (40%)	2019	27/2044
Chonburi Clean Energy (CCE)	VSPP	8.6	2.87	2.87	-	-	GLOW (33%)	2019	20
Rayong WTE (under construction)	VSPP	9.8	9.8	-	-	-	GPSC (100%)	2021	18/2039
Total VSPP and others		293	145	134.5	-	-			
ERU									
ERU (under construction)	Cogen	250	250	-	175	-	GPSC (100%)	2023	25/2048
Total ERU		250	250	-	175	-			
Total capacity		8,011	5,026	4,748	2,876	7,372			

Note: Equity capacity includes 100% stake in GLOW and ERU

2020 Maintenance Schedule | Sriracha and Rayong Plants

Site	Description	Duration	2020											
			Q1			Q2			Q3			Q4		
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
CUP-1	HRSG-11	8 Days					1Y							
	GTG16/HRSG16	14 Days	HGPI/3Y											
	HRSG14	8 Days	1Y											
	Aux. Boiler.11	8 Days			1Y									
	GTG12/HRSG12	22 Days				MI/3Y								
	HRSG13	8 Days							1Y					
	HRSG15	8 Days										1Y		
CUP-2	HRSG21	8 Days			1Y									
	GTG22/HRSG22	22 Days						MI/3Y						
	Aux. Boiler.21	8 Days							1Y					
	STG21	27 Days								2M				
CUP-3	Aux. Boiler.31	13 Days								3Y				
	Aux. Boiler.32	13 Days										3Y		
	Aux. Boiler.33	13 Days									3Y			
	Steam Turbine.31	-												
CUP-4	GTG41	5 Days												RM
	HRSG41	11 Days							1Y					
SRC	GT11	-												
	HRSG#1	8 Days											1Y	
	GT12	8.33 Days											1Y	
	HRSG#2	8 Days											1Y	
RDF	All Equipment	7 Days										1Y		

Notes: Rayong Site

GTG	Hot Gas Path Inspection for Gas Turbine	14 days	HRSG	One Year Inspection HRSG	11 days
HGPI	Major Inspection for Gas Turbine	22 days	3Y	Three Year Inspection HRSG	14 days
STG			Others		
Minor	Minor Inspection for Steam Turbine	15 days	1Y	One Year Inspection NG Station Test	Online
1MO	2nd Major Overhaul for Steam Turbine	23 days	5Y	Five Year Inspection NG Station (NDT)	Online
2MO	2nd Major Overhaul for Steam Turbine	27 days	FO	Forced Outage	Depending on physical damage
AB					
1Y	One Year Inspection Aux. Boiler	11 days			
3Y	Three Year Inspection Aux. Boiler	13 days			

Notes: Sriracha Site

GTG	Combustion Inspection for Gas Turbine	8 days	HRSG		
CI					
HGPI	Hot Gas Path Inspection for Gas Turbine	26	1Y	One Year Inspection HRSG	8 days
days			3Y	Three Year Inspection HRSG	33 days
MO	Major Overhaul for Gas Turbine	33	Other		
days			1Y	One Year Inspection NG Station Test	Online
RCIE	Rotor and Casting Inspection Evaluation	49	5Y	Five Year Inspection NG Station (NDT)	Online
days			FO	Forced Outage	Depending on physical damage

2020 Maintenance Schedule | IRPC-CP

Plant	Unit	2020			
		Q1 (F)	Q2 (F)	Q3 (F)	Q4 (F)
IRPC-CP	<u>Block 1</u>				
	CTG 21	6	1	1	1
	HRSR 21	6	1	1	1
	CTG 22	6	1	1	1
	HRSR 22	6	1	1	1
	STG 23	6			
	<u>Block 2</u>				
	CTG 31	1	6	1	1
	HRSR 31	1	6	1	1
	CTG 32	1	1	1	6
	HRSR 32	1	1	1	6
	STG 33				6
	Aux. Boiler		7		

Notes:

YI Yearly Inspection 5 days
 YI Yearly Inspection Aux Boiler 15 days
 1 = 1 Day (24 hours)
 3 = 3 Days (72 hours)
 6 = 6 Days (144 hours)
 7 = 7 Days (168 hours)

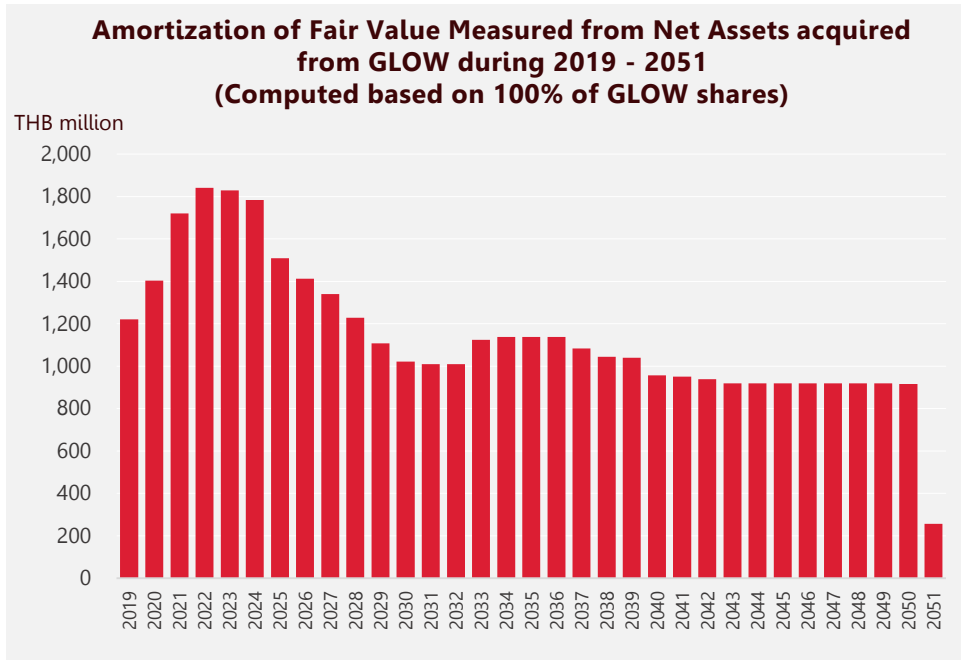
2020 Maintenance Schedule | Glow's Main Units

Main Units	Planned Maintenance Duration (Days)							
	2017	2018	2019	2020	2020 by quarter			
					Q1	Q2	Q3	Q4
GHECO-One	36	-	39	-				
GI PP: Unit 1	-	-	-	-				
GI PP: Unit 2	-	-	-	-				
CFB 1	38	27	5	25				25
CFB 2	27	5	21	23	2			21
CFB 3	7	26	45	3			3	
Phase 5	31	5	23	-				

Fair Value Measurement of Net Assets from Acquisition of Glow

unit: THB million

Items	Book Value of GLOW	Fair Value of GLOW	Differential Value
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
Non-Controlling interests at 30.89%		(32,092)	
Total Net Asset obtained GLOW at 69.11%		56,911	
Goodwill		36,090	
Proportion of acquisition cost 69.11%		93,001	



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 follows:

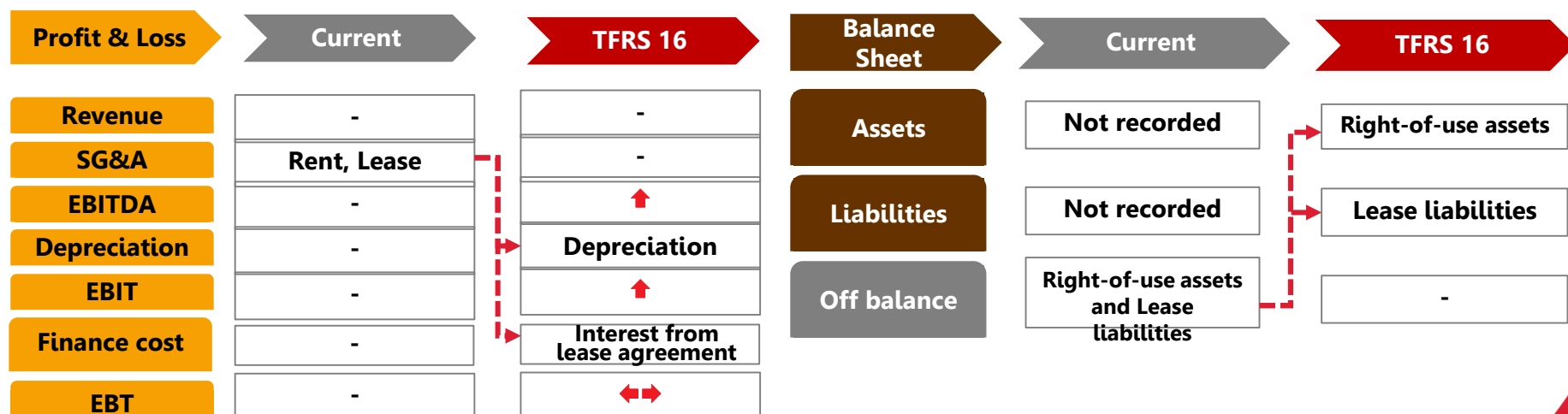
- The fair value uplift of THB 37,594 million from **Purchase Price Allocation (PPA)**
- **The fair value recognition of net assets** acquired from GLOW will be amortized yearly (based on the remaining period of the contract, 5 to 31 years).
- **Goodwill** will be subjected to an impairment test on a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

Accounting Impacts in 2020

TFRS 9

Assets	As-Is GPSC Policy	Impacts on TFRS 9
1. Derivatives (e.g. IRS ,CCS , FW)	<ul style="list-style-type: none"> Disclosed in the notes to the financial information 	<ul style="list-style-type: none"> Recorded at fair value
2. Other long-term investments (e.g. RPCL, 24M)	<ul style="list-style-type: none"> Recorded at cost Gain or loss on sale of assets are presented in the statement of income 	<ul style="list-style-type: none"> Recorded at fair value Gain or loss on sale of assets are not presented in the statement of income
3. Impairment of assets (e.g. receivables, loans)	<ul style="list-style-type: none"> Impairment from historical information 	<ul style="list-style-type: none"> Consider the future credit risk of the debtor which may cause impairment faster

TFRS 16 (Accounting for lessees)





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