# FY2020 and Q4/2020 Analyst Meeting

February 19, 2021





### Feedback survey



# **GPSC: A Year in Review**

# **Strategic Directions (3S)**

- Synergy and Integration
- Selective Growth
- S-Curve

**Financial Performance** 

**Update of Projects** 



### **Overcome Emerging Challenges**

### COVID-19

### **Economic Slump**





The COVID-19 pandemic results in low energy demand for oil, LPG, LNG and electricity, etc.

**Economic slow down** together with global economic uncertainties

The drought situation is more severe than 2015, resulting in lower water level, as well as the rainfall that is lower than average.

### **US-China tension** Water crisis







# **Key Achievement**



**Better performance** & Better return to shareholders

Continue growth and build on new energy and innovation





### **Agility & Responsiveness**

To ensure stability and continuity of utilities to supply IUs



New way of work with digital literacy

- Measures against COVID-19 ex. Set up G-COVID center, safe house for operators (Golden Man)
- Set up water crisis management team for drought situation preparedness with mitigation plan and initiatives ex. 3Rs. sea water RO etc.



**Moving towards** sustainability

### **New Energy New Market**

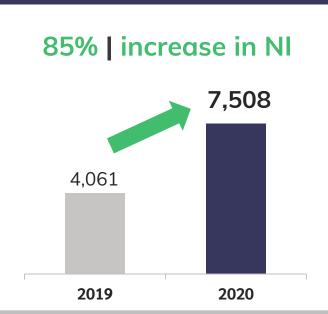
✓ Build on new energy and innovation

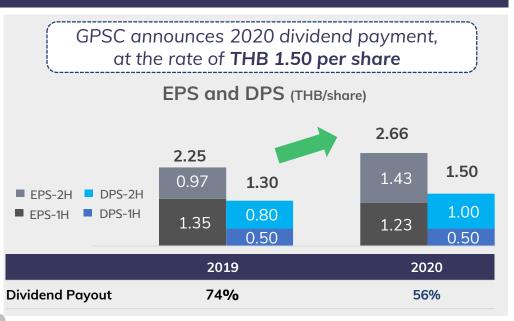




"Better performance & Better return to shareholders"

### 2020 FINANCIAL HIGHLIGHT





- **Solution** Full year recognition of **GLOW** performance
- O Lower avg. Natural Gas and Coal price
- Cower finance cost from capital restructuring and ST loan repayment
- Synergy value from GLOW appx. THB 701 mm

### **Strong Credit Profile**



"Continue growth and build on new energy and innovation"

### **Key Achievement Highlight**







- 24m Axxiva
- G-Cell, the first made semi-solid battery cell in Thailand
- Energy Storage Unit of 30 MWh in Q2/21
- 11.1% invest in AXXIVA, battery manufacturing business in China

### **SPP replacement**



Start construction of Glow Energy Phase 2 (SCOD 2022)



#### Co-investment



JV with PTT in GRP for growth in renewables



Success in issuing Green
Debentures of THB 5,000 mm

### "Move towards sustainability"

### Another step on the road to sustainability at the global level



GPSC is now listed in **Sustainability Yearbook 2021** of S&P Global

Participated for the Corporate Sustainability Assessment (CSA) in 2020 with top 15 percentile

#### **Environmental**

Global Power Synergy Public Co., Ltd. 80 Industry Mean 17 / Industry Best 99 / Rank in Industry 22 of 220

#### Social

Global Power Synergy Public Co., Ltd. 85 Industry Mean 15 / Industry Best 97 / Rank in Industry 16 of 220

#### **Governance & Economic**

Global Power Synergy Public Co., Ltd. 64
Industry Mean 21 / Industry Best 89 / Rank in Industry 27 of 220

### **Key achievement**



#### **Carbon Disclosure Project**

Carbon management services to a level that is managed well. (Management level : B)



#### The Stock Exchange of Thailand

Listed in the Thailand Sustainability Investment (THSI)



### Thailand Greenhouse Gas Management Organization

Low Carbon and Sustainability Award 2020



### The Asset Triple A Country Awards 2020 – Southeast Asia

Best Green Bond award (the 5 billion baht green debentures)

### **Ambitions**

To Be Listed in DJSI by Y2022



**GPSC:** A Year in Review

# **Strategic Directions (3S)**

- Synergy and Integration
- Selective Growth
- S-Curve

**Financial Performance** 

**Update of Projects** 



### Strategic Directions and Growth Strategy | 3S Strategy



**SYNERGY & INTEGRATION** 







ROE Uplift





Thailand Business Development



International Business Development



Co-investment with PTT



New Businesses











# **Synergy and Integration**

### **Synergy and Integration**

MOVE FORWARD Next Episode

"Better performance than targets in 2020 from collaboration, hardworking and responsibility"

Year **2020**, the recognized synergy value is approx. **THB 701 mm** (After tax) from O&M, procurement and corporate functions.

THB >1.6 bn per year

Recurring synergy from





Ramp up with full synergy value contribution by 2024



### **Operational Excellence**

"To be **Top of Operational Excellence** in power and utilities business"

#### Major activities below:

- Performance Benchmarking: benchmarking of the group's competitiveness
- Best Practice Sharing: Expand knowledge application for higher productivity
- **Zero Unplanned Shutdown:** To ensure can prevent unplanned shutdown to minimize damage and impact on communities and the environment.
- **Continuous Performance Improvement:** Involves continuous operation improvement to ensure sustainable competitiveness.



### **GPSC Selective Growth**

**Thailand** 

**International** 



Conventional & Renewable



Conventional



Renewable

**GPSC's Focus Countries:** 

Thailand, Myanmar, Vietnam, Taiwan, India and China













Focusing on power plant projects
by Leveraging
PTT Group's Networking

**GRP** will be a

### "new energy platform"

for PTT Group Investing especially in renewable energy businesses internationally through:



Pooling assets, resources & Expertise



Financial capability



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





### **S-Curve Business**



#### **Commercial Scale** 1 GWh



#### Value

#### R&D / Lab

• Technology development in lab proven



- Manufacturing Scale-Up
- · Pre-Marketing
- Proven Cost

"G-Cell"

• Manufacturer with own R&D



**Commercial Scale** 

· Manufacturing Giga-scale

EV Market



#### **Business Collaboration**

- Sharing of experience
- Joint procurement of Electrode Active Materials
- Right to offtake product to Thailand and etc.

Key enabler for GPSC's other s-curves with strong competitive advantage





Energy **Storage** 



**E-Mobility** 

2014:

24m

and

lated



**24** 24 1

2020-21: **GPSC Factory** 

2021-22:

**Axxiva Factory** 

**Future expansion** 

### S-Curve Business

**GPSC** 



**Battery Manufacturer** 



Move towards System Integrator E-mobility & **Demand creations** 





One-stop service smart solution provider



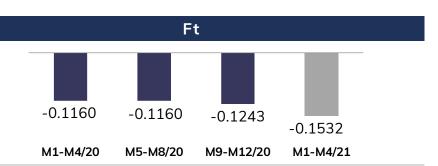
**Digital Energy and Expand business** 



### 2021 Outlook

#### **Performance Outlook**

- ▲ **Synergy value** from acquisition of GLOW is expected to be THB 900 million in 2021.
- Average gas price in 2021 lower than average 2020.
   Sideway up trend for gas price 2021.
- ▲ Demand of electricity and steam in the MTP area increased by 4%, approximately.
- GLOW Energy Phase 5 Plant will resume normal operation in April 2021, tentatively. Insurance payment claim is ongoing.
- ▼ GHECO-one has a major planned maintenance in Q1/2021.



Recently announced Ft for M1-M4/2021 is -15.32 Satang/unit.

### **Key Assumptions**



- Natural gas price is forecasted to increase slightly in the same direction with crude oil with lag time 6 – 12 months.
  - NG price will slightly increase from Q1/2021.
  - Blended gas cost of SPP portfolio is expected around 240 THB/MMBTU at year-end.
- Coal price is forecasted to slightly decrease from Q1/2021. Price range is expected about US\$ 75-80 per ton (NewCastle) at year-end.

### **GPSC:** A Year in Review

# **Strategic Directions (3S)**

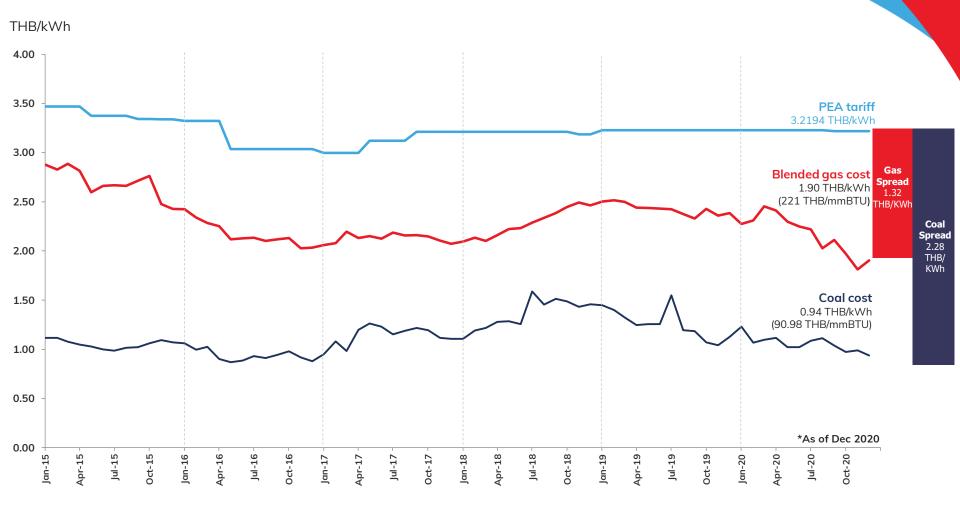
- Synergy and Integration
- Selective Growth
- S-Curve

## **Financial Performance**

**Update of Projects** 



### PEA Tariff and Gas and Coal Cost Trend



#### Notes:

- 1) PEA tariff = Base tariff (simple average of >69 kV TOU 4.2 Energy charge peak and off-peak) + Ft

  Dec 2020 Base Tariff = 3.3437 THB/kWh Dec 2020 Ft = 0.1243 THB/KWh
- 2) Blended Gas cost = Blended cost of SPP gas, cogeneration gas and industrial gas in THB/mmBTU x normalized gas-fired heat-rate at 8,600\* BTU/kWh/ 10^6
- 3) Coal Cost = Average FOB coal cost and freight cost in THB/mmBTU x normalized coal-fired heat-rate at 10,300 BTU/kWh / 10^6

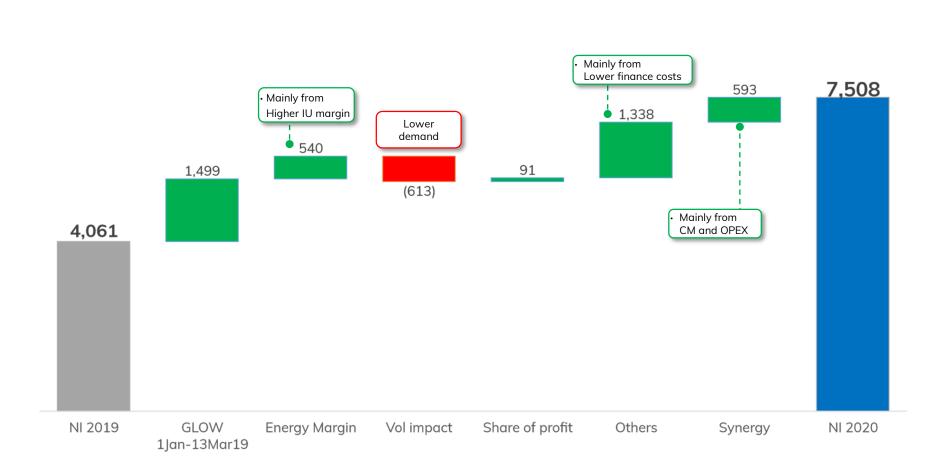
# Income statement: 2020 vs 2019

GPSC GROUP (MTHB)	Y2020A	Y2019A	2020A vs	2019A	Q4/20	Q3/20	Q4/19	Q4/20 v	s Q3/20	Q4/20 v	rs Q4/19
Revenue	69,579	66,562	3,016	5%	16,532	16,601	18,279	(68)	(0%)	(1,747)	(10%)
Variable cost	(43,375)	(43,696)	320	1%	(10,078)	(10,055)	(12,069)	(22)	(0%)	1,992	17%
Contribution Margin	26,204	22,867	3,337	15%	6,455	6,545	6,210	(90)	(1%)	245	4%
Fixed cost	(4,854)	(4,188)	(666)	(16%)	(1,518)	(1,156)	(1,522)	(362)	(31%)	4	0%
SG&A	(1,790)	(1,896)	105	6%	(528)	(408)	(488)	(120)	(29%)	(39)	(8%)
EBITDA	19,559	16,783	2,776	17%	4,409	4,981	4,199	(572)	(11%)	210	5%
DD&A	(8,287)	(7,207)	(1,080)	(15%)	(2,046)	(2,068)	(2,163)	22	1%	116	5%
Finance cost	(4,024)	(5,140)	1,116	22%	(965)	(1,026)	(1,197)	61	6%	231	19%
Dividend income	396	185	211	114%	123	270	5	(147)	(54%)	118	2180%
Share of profit	924	837	87	10%	244	638	463	(394)	(62%)	(219)	(47%)
Net non-operating income (expense)	913	789	124	16%	146	294	155	(149)	(51%)	(9)	(6%)
Earnings before Tax	9,483	6,248	3,235	52%	1,910	3,089	1,463	(1,179)	(38%)	447	31%
Income Tax	(992)	(247)	(744)	(301%)	(141)	(314)	(43)	173	55%	(98)	(228%)
NET INCOME	8,491	6,001	2,490	41%	1,769	2,776	1,420	(1,007)	(36%)	349	25%
Non-controlling interest	(983)	(1,940)	957	49%	(311)	(201)	(275)	(109)	(54%)	(35)	(13%)
NET INCOME (owners to parent)	7,508	4,061	3,448	85%	1,458	2,574	1,145	(1,116)	(43%)	315	27%

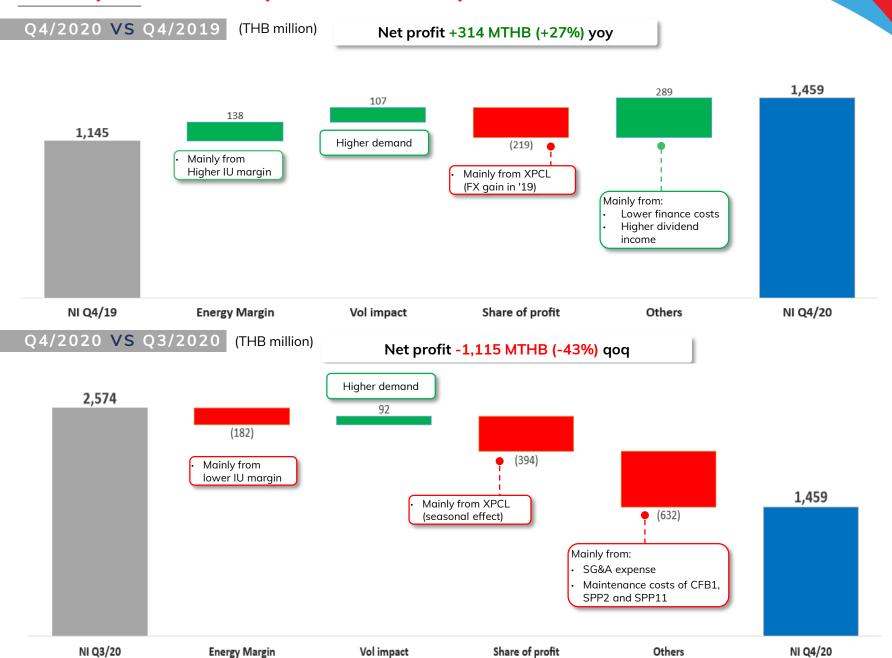
### 2020 vs 2019 Net Profit and Adjusted Net Profit

Adjusted Net Profit of 2020 VS 2019 (THB million)





### Q4/2020 vs Q4/2019 and Q3/2020 Net Profit

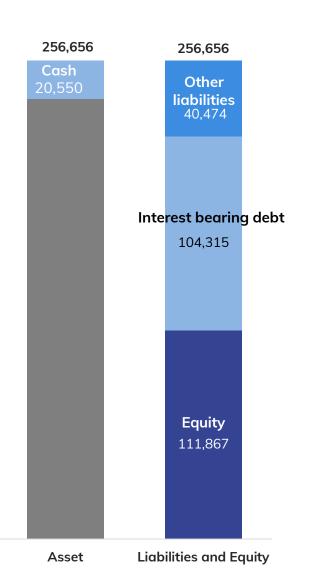


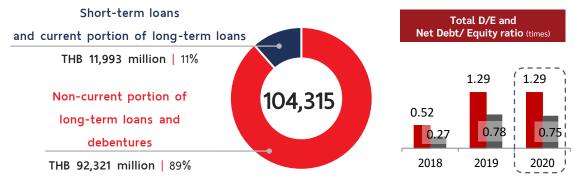
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### Financial Positions and Debt Profile

#### Financial Positions as of end of 2020

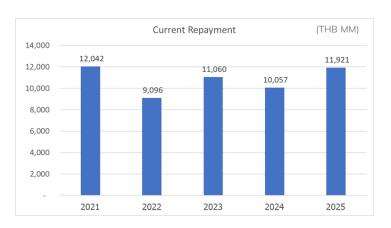






Note: \*accounting book value of interest bearing debt according to loan amortization

#### **Debt Profile**



#### As of YE2020:

- Average Cost of Debt 3.06%
- Average Remaining Tenor: 5.5 years

**GPSC:** A Year in Review

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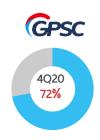


# **Update of Projects**

**GPSC** 

### Semi-Solid Energy Storage Unit | 30 MWh





Capacity 30 (MWh/yr.)

#### Rayong Waste to Energy (WTE)





Electricity 9.8 (MW)

#### SPP Replacement - Stage 1 | Glow Energy Ph. 2





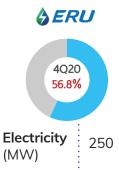
Electricity (MW)

Steam (ton/hr.)

192

### **Energy Recovery Unit (ERU)**





Steam (ton/hr.)

175

### **Q&A SESSION**



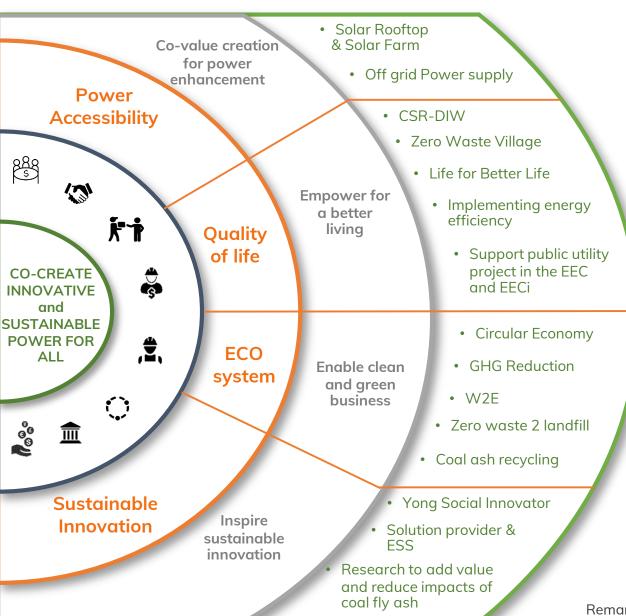
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# **Sustainability at GPSC**



### Sustainability at GPSC | Framework and SDGs



















Remarks:

SDGs: The UN's Sustainable Development Goals

### Sustainability at GPSC

#### **Long Term Value Creation Innovation & Sustainable Energy**

#### **Environmental**

Low carbon Utilities

- Energy Efficiency
- Renewable Energy

#### Social

Empower for better living

- Human Rights Protection
- Human Capital Development

#### Governance

Creating the value of growth for a sustainable

- ❖ Strive for excellence
- . Innovation Culture
- ❖ Portfolio Resilience

















#### **Power Accessibility**

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

- ✓ Increases in opportunities for new electric power business.
- Reduction in energy consumption costs



#### **Quality of Life**

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

- ✓ Economic growth
- ✓ Good image
- Enhancement of knowledge, skills and expertise



#### Eco - system

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

 Reduction of the long-term impacts of climate change and environmental impacts



#### **Sustainable Innovation**

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

 Transfer of new technology and innovation

### 3D Principles

"To prepare readiness to catch up with the present global situations."



#### **Decentralize**

The decentralization of electricity from large power stations to small scale ones by harnessing renewable energy



#### Decarbonize

GPSC is committed to reducing pollution and using green products to reduce the impacts on the environment.



### Digitalize

GPSC uses digital technologies to increase work efficiency and transform businesses to technological societies.

# **Others**



### **GPSC Battery: G CELL**





# Semi Solid Battery Unique Design



Shorter **Process** 



Remove 40% Inactive Material



No binder Needed



### **Target Applications**



**E-Mobility** 



**Energy Storage** 



### Applications and Achievement in Renewable & Smart Energy Projects

### **Application and Target Market for** Semi-Solid Energy Storage Unit

### **Energy Storage Unit (30 MWh)**

**Mobility: EV Bus** 

- Bangkok Mass Transit Authority
- PTT Group shuttle bus

**Commercial &** Industrial

- Charging station
- Industrial Estate

Micro-Grid

Remote Area

**Residential Energy Storage System** (RESS)

**Others Business** 

- Property Development
- Backup server
- **Energy Storage Mobility**
- Others

#### **ESS FOR GC's INNOVATION CENTER**

(Launched: Feb 2020)





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



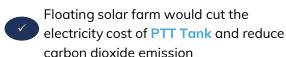
#### First offshore floating solar farm

TANK 100 kW floating solar farm installed for seaside of PTT Tank

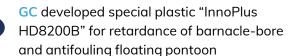
















**CHPP** designed and installed the floating solar system



### Applications and Achievement in Renewable & Smart Energy Projects

#### Solar PPPA and Energy Management for Retail Customers

SMART ENERGY MANAGEMENT

#### **Target Market**



PTT Group network



**Reputable Industrial &** commercial

(Phase II: Q1/2021)



Government offices. University, Hospitals

#### **Product**

**Solar PPPA**: Synergy with partners

**EPC**: Exclusive EPC

**ESS:** Partnership with strategic suppliers, tech experts

Pontoon: Market development & add more reference sites

Others business: Initiative & pilot projects

#### 6 MW Smart Energy Project at Suranaree University To create a low carbon university



**Solar Rooftop** 



Solar Rooftop: Mono PERC Half-Cell Module (1.68 MW)



Solar Rooftop: Bifacial cells (60 kW)



Floating Solar



100-200 kWh Lithium-ion BESS



AI & **Smart Energy Platform** 



Using special-grade polyethylene floating pontoons developed by GC



High efficiency BESS with management of solar power generation for optimum energy production's decision-making



Blockchain-based smart grid and Artificial Intelligence (AI)



Cutting-edge innovation and smart energy platform for inter-building energy trading and real-time management



#### @Wangchan Valley | Smart Natural Innovation Platform

✓ 1.39 MW renewable energy

(solar roof + floating)

zero-import building

✓ Artificial Intelligence

✓ EV chargers

√ 1.2 MWh ESS for backup,

renewable optimization and

✓ Blockchain P2P energy trading



Commercial area Research and innovation Phase 1: 794 Rai Phase 2 - 1 183 Rai Estimated Population



#### **SMART Energy Management**



Clean Energy Generation



Flexibility Distributed Generation



Cost Efficient No Clean Energy Shedding

### **GPSC's Prudent Financial Policy**

### **GPSC's FINANCIAL POLICY**

- 1 Net Debt to Equity ≤ 1.0x
- Net Debt to EBITDA ≤ 4.0x
- 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)

# **GPSC Power Plant Portfolio (1/2)**

Name	Туре	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
Glow IPP	IPP	713	677	677	-	-	GLOW (95%)	2003	25
RPCL	IPP	1400	210	210	-	-	GPSC (15%)	2008	25
GHECO-One	IPP	660	429	429	-	-	GLOW (65%)	2012	25
XPCL	IPP	1285	321	321	-	-	GPSC (25%)	2019	29
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
CUP-2	SPP	113	113	113	170	510	GPSC (100%)	2008	15
CUP-3	SPP	-	-	-	280	770	GPSC (100%)	2009	15
BIC-1	SPP	117	29.25	29.25	5	-	GPSC (25%)	2013	25
BIC-2	SPP	117	29.25	29.25	5	-	GPSC (25%)	2017	25
IRPC-CP Phase 1	SPP	45	23	23	86.7	-	GPSC (51%)	2015	25-27
IRPC-CP Phase 2	SPP	195	99.4	99.4	66.3	-	GPSC (51%)	2017	25

Note: Equity capacity includes 100% stake in GLOW, ERU and GRP1

# **GPSC Power Plant Portfolio (2/2)**

Name	Туре	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
NNEG Expansion (COD: 31-Oct-2020)	SPP	60	18	18	3	-	GPSC (30%)	2020	21
Rayong Expansion (CUP-3)	SPP	15	15	15	-	-	GPSC (100%)	2019	n/a
Rayong Expansion (CUP-4)	SPP	49	49	49	140	-	GPSC (100%)	2019	Long-term
Total SPP		2,618	2,196	2,196	2,771	7,292			
VSPP and others									
CHPP	VSPP	5	5	5	-	-	GPSC (100%)	2008	30
CHPP (Solar)	VSPP	5	5	5	-	-	GPSC (100%)	2016	25
Glow Energy Solar Plant	VSPP	1.55	1.55	1.55	-	-	GLOW (100%)	2012	25
TSR (SSE1)	VSPP	80	32	32	-	-	GPSC (40%)	2013	25
ISP1	Solar	20.8	20.59	20.59	-	-	GPSC (99%)	2017	20
GRP (NPS, WXA, PPS)	VSPP	39.5	19.75	19.75	-	-	GPSC (50%)	2014-15	25
GRP1 (Solar in Taiwan) (not closing)	Solar	55.8	25.11	-	-	-	GRP (90%)	2016-21	20
NL1PC	Hydro	65	26	26	-	-	GPSC (40%)	2019	24
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
Private PPA	Solar	21.90	21.90	4.08			GPSC Gr. (100%)	2018-21	Long-term
Total VSPP and others		313	170	117	-	-			
ERU									
ERU (under construction)	Cogen	250	250	-	175	-	GPSC (100%)	2023	25
	Total ERU	250	250	-	175	-			
Total capacity		8,091	5,055	4,752	2.946	7,372			

Note: Equity capacity includes 100% stake in GLOW, ERU and GRP1
Committed equity capacity which also based on GRP restructure shareholding to be completed on Q1/2021

### 2020 Maintenance Schedule | Sriracha and Rayong Plants



	Notes: Rayong Site		Notes: Sriracha Site				
GTG HGPI Hot Gas Path Inspection for Gas Turbine MI Major Inspection for Gas Turbine STG Minor Minor Inspection for Steam Turbine 1MO 2 <sup>nd</sup> Major Overhaul for Steam Turbine 2MO 2 <sup>nd</sup> Major Overhaul for Steam Turbine AB 1Y One Year Inspection Aux. Boiler 3Y Three Year Inspection Aux. Boiler	HRSG  14 days 22 days 37 Three Year Inspection HRSG Others 15 days 17 One Year Inspection NG Station Test 23 days 57 Five Year Inspection NG Station (NDT) 7 days FO Forced Outage  11 days 13 days	11 days 14 days Online Online Depending on physical damage	GTG CI Combustion Inspection for Gas Turbine HGPI Hot Gas Path Inspection for Gas Turbine days MO Major Overhaul for Gas Turbine days RCIE Rotor and Casting Inspection Evaluation days	8 daysHRSG 26 1Y One Year Inspection HRSG 8 days 37 Three Year Inspection HRSG 33 days 33 Other 17 One Year Inspection NG Station Test Online 49 5Y Five Year Inspection NG Station (NDT) Online FO Forced Outage Depending on physical damage			

# 2021 Maintenance Schedule | Sriracha and Rayong Plants

								2021						
Site	Description	Duration		Q1			Q2			Q3			Q4	
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
CUP-1	GTG-13	22 Days						12	2/7 <b>MI</b>	2/8				
CO1-1	HRSG-13	22 Days						12	2/7 <b>3Y</b>	2/8				
CUP-2	GTG-21	22 Days		9	MI	30								
001 2	HRSG-21	22 Days		g	3Y	30								
CUP-4	GTG-41	5 Days											15/11	<b>RMI</b> 9/12
001 1	HRSG-41	11 Days						27/6	7/7					
	HRSG#1	14 Days											15/11 3Y	28/11
SRC	HRSG#2	14 Days											15/11 <b>3Y</b>	28/11
5110	Steam Turbine.10	25 Days											_	_
	GT-11	8.33 Days											15/11 C	23/11
RDF	BMH Machine	7 Days									7	MNI 13	3	

	Notes: Rayong Site	Notes: Sriracha Site				
GTG HGPI Hot Gas Path Inspection for Gas Turbine MI Major Inspection for Gas Turbine STG Minor Minor Inspection for Steam Turbine 1MO 2nd Major Overhaul for Steam Turbine 2MO 2nd Major Overhaul for Steam Turbine AB 1Y One Year Inspection Aux. Boiler 3Y Three Year Inspection Aux. Boiler	HRSG  14 days 17 One Year Inspection HRSG 22 days 37 Three Year Inspection HRSG Others  15 days 17 One Year Inspection NG Station Test 23 days FO Forced Outage  11 days 13 days	11 days 14 days Online Online Depending on physical damage	GTG CI Combustion Inspection for Gas Turbine HGPI Hot Gas Path Inspection for Gas Turbine days MO Major Overhaul for Gas Turbine days RCIE Rotor and Casting Inspection Evaluation days	8 daysHRSG 26 1Y One Year Inspection HRSG 8 days 3Y Three Year Inspection HRSG 33 days 33 Other 1Y One Year Inspection NG Station Test Online 49 5Y Five Year Inspection NG Station (NDT) Online FO Forced Outage Depending on physical damage		

## 2020 Maintenance Schedule | IRPC-CP

			20	)20	
Plant	Unit	Q1 (A)	Q2 (A)	Q3 (A)	Q4 (A)
IRPC-CP	Block 1				
	CTG 21	6	1	1	1
	HRSG 21	6	1	1	1
	CTG 22	6	1	1	1
	HRSG 22	6	1	1	1
	STG 23	6			
	Block 2				
	CTG 31	1	6	1	1
	HRSG 31	1	6	1	1
	CTG 32	1	1	1	6
	HRSG 32	1	1	1	6
	STG 33				6
	Aux. Boiler		7		

#### Notes:

YI Yearly Inspection

20 days

YI Yearly Inspection Aux Boiler

15 days

B CTG/HRSG Inspection Level B

20 days

C CTG /HRSG Inspection Level C

22 days

1 = 1 Day (24 hours)

2 = 2 Days (72 hours)

6 = 6 Days (144 hours)

7 = 7 Days (168 hours)

# 2021 Maintenance Schedule | IRPC-CP

								20	21					
Main Unit	Descripti on	Duration		Q1			Q2			Q3			Q4	
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Block 1														
CTG 21	В	20 Days				20								
HRSG 21	В	20 Days				20								
CTG 22	В	20 Days				20								
HRSG 22	В	20 Days				20								
STG 23	МІ	20 Days				20								
Block 2														
CTG 31	В	20 Days					20							
HRSG 31	В	20 Days					20							
CTG 32	С	22 Days							22					
HRSG 32	С	22 Days							22					
STG 33	MI	20 Days							20					
Aux. Boiler	ΥI	15 Days						15						

#### Notes:

MI Major Inspection

Yl Yearly Inspection Aux Boiler 15 days

B CTG/HRSG Inspection Level B 20 days

C CTG /HRSG Inspection Level C

22 days

Excluded 1 Day maintenance

# 2020 & 2021 Maintenance Schedule | GLOW's Main Units

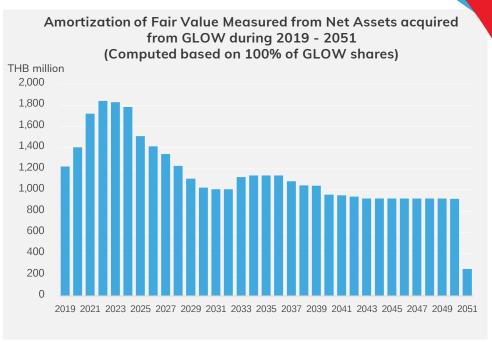
		Planned Maintenance Duration (Days)										
Main Units					2020 by quarter							
	2017	2018	2019	2020	Q1	Q2	Q3	Q4				
GHECO-One	36	-	39	-								
GIPP: Unit 1	-	-	-	-								
GIPP: Unit 2	-	-	-	-								
CFB 1	38	27	5	25				25				
CFB 2	27	5	21	23	2							
CFB 3	7	26	45	3			3					
Phase 5	31	5	23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

		2021												
Main Units	Description	Duration		Q1			Q2			Q3			Q4	
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
GHECO-ONE	Minor Inspection	37 Days <sub>1,</sub>	/1 <b>2Y</b>	6/2										
GIPP: UNIT 1	Minor Inspection	5 Days									27/9	<b>3Y</b> 1/	10	
GIPP: UNIT 2	Minor Inspection	5 Days										10 <b>3Y</b>	14	
CFB 3	Minor Inspection	7 Days				22/4	<b>3</b> Y	12/5						
Phase 5	Minor Inspection	5 Days			29/3	1.25 2/	4							
GSPP11 (Plant 2)	Minor Inspection	14 Days							18 <b>3Y</b>	31				
GCDD11	Major Inspection	5 Days										10 <b>5.7Y</b>	14	

### Fair Value Measurement of Net Assets from Acquisition of Glow

unit:		

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.



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