



\*\*TOP is under the process of

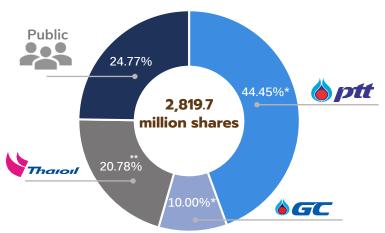
regulatory work to divest not

exceeding 10.8% of GPSC.

# The power and smart energy flagship of PTT Group

"GPSC, The global leading innovative and sustainable power company, the core business is to generate and supply electricity and utilities to customers and also developing new S-Curve business to create value to stakeholders."

# **GPSC's shareholding structure**



\* PTT stake includes 1.91% hold via SMH, a wholly-owned indirect subsidiary of PTT. The transaction was completed on June 8, 2021.

# COMPANY INFORMATION (as of Aug 13, 2021) Business Type | Energy & Utilities listed on SET

Paid-up Capital | THB 28,197 million

Market Cap. | THB 221,349 million

### **CREDIT RATINGS**

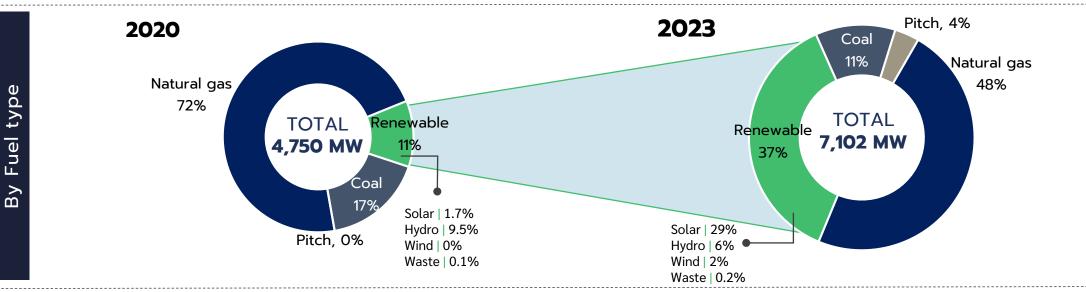
BB+ S&P Global

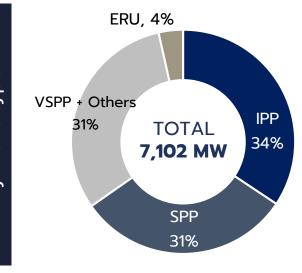
AA- TRIS

A+(tha) FitchRatings

"Creates value through business chain" 45% 45% 45% 64% PTT PTT 44.45%\* Group's IRPC **Business** PTTEP Power & smart Integrated Oil & Retail E&P Refinery **Energy Flagship** Petrochemical Refinery & Petro. \* PTT stake includes 1.91% hold via SMH

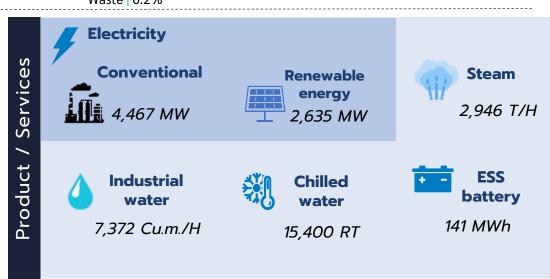
# Total committed equity capacity





### LT 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



# 1. Highlight in 2021

2. GPSC Corporate Strategy



# **GPSC** Achievement (YTD)



# Solar Power Platform in India Contracted Capacity | 4,560 MW (+816 MW from announcement date July 13, 2021) GPSC Hold | 41.6% of shares Increased 1,897 MW equity capacity to our portfolio





# Project COD and Closing in 1H/2021



Energy Storage Unit 30 MWh p.a. Start of regular production in June 2021



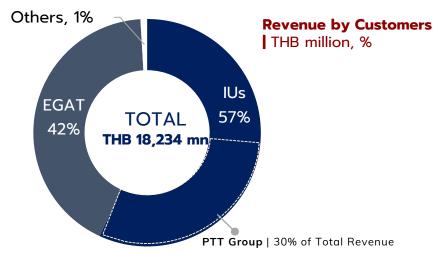
Rayong Waste to Energy Project COD on May 28, 2021



Solar projects of 25 MW in Taiwan Revenue recognition since May 28, 2021

# Q2/2021 Events & Highlights

### **Customer Portfolio**





Higher demand from industrial customers



Strong performance from affiliates, especially XPCL



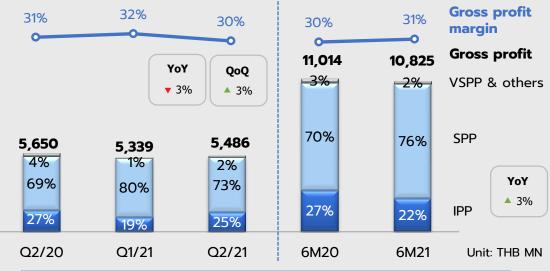
GLOW Energy Phase 5 Insurance claim THB 310 MN



Unplanned outage at GHECO-One and CFB3 in May 21

## **Q2/2021 Performance**





### **Net Income**



- 1. Highlight in 2021
- 2. GPSC Corporate Strategy



# The biggest threat to humanity is climate change

IPCC established



1988



1850

Nobel Peace Prize:
 Al Gore's An Inconvenient Truth



2006-7



 197 countries pledged to set targets for their own GHG cuts based on 2 °C target scenario

2015

PARIS2015

COP21-CMP11



- Greta Thunberg: Nominated Noble
   Peace Prize
- IPCC published a special report on impacts of 1.5 °C global warming, an irreversible consequences for the planet.



1997

 The 1st global agreement to reduce GHG is adopted but into force in 2005

Industrial Revolution

# Corporate Strategy 2021 | Background

- Now we already reach 1.2°C above preindustrial level
- Proven that temperature rise mostly comes from Human
- We have carbon budget (50% chance)
  - ✓ 500 Gt to 1.5 °C above pre-industrial level in 2030
  - ✓ 1,350 Gt to 2.0 °C above pre-industrial level in 2047



- COP26 expected outcomes;
  - ✓ New Net Zero target
  - Collaboration or Supporting programs
  - ✓ Consequent policies e.g. Carbon Taxation, Cross-border tax barrier, etc.
  - √ How's all industries will transform?
  - ✓ Carbon reduction technologies
  - ✓ Inevitable pathway

# Net-zero strategy framework

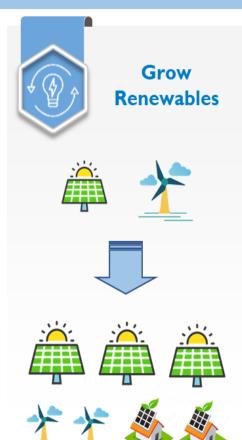
### INTERNAL CAPABILITY-BUILDING INITIATIVES







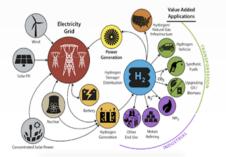






**Enhance** infrastructure

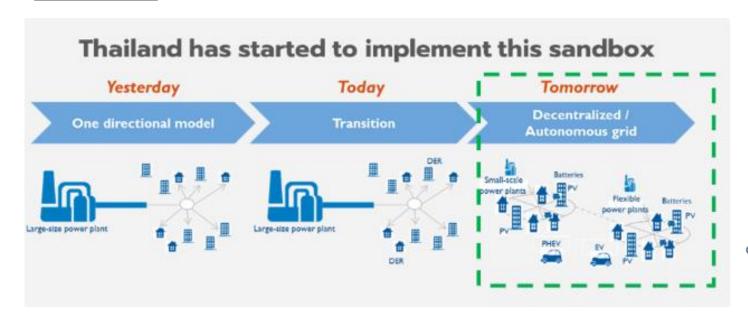


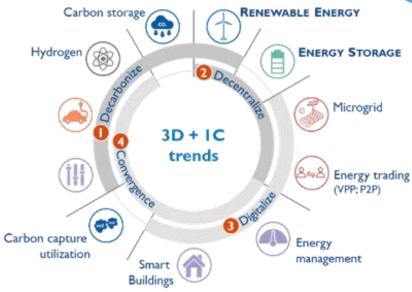


**GOVERNMENT POLICY AND SUPPORT** 

Source: WEF, GPSC's Strategy

# Corporate Strategy 2021 | Background





# **Thailand Smart Mobility 30/30 Plan**

three-phase development plan for the electric vehicle (EV) industry

- **Phase 1 (2021-2022),** the government will promote electric motorcycles and support infrastructure nationwide.
- Phase 2 (2023-2025), the EV industry will be developed to produce 225,000 cars and pick-up trucks, 360,000 motorcycles and 18,000 buses/trucks by 2025, including the production of batteries. This first milestone is designed to deliver cost advantages via economies of scale.
- Phase 3 (2026-2030) is driven by the "30/30 policy" to produce 725,000 EV cars and pick-ups plus 675,000 EV motorcycles. This will account for 30 percent of all auto production in 2030 and includes domestic manufacture of batteries.

The EV policy committee is also setting financial and tax incentives, as well as safety standards, for EV and battery manufacturers.

# **Thailand** | Public Charging Station



Selling price to charging station operators: THB 2.6/unit

# Corporate Strategy 2021 | Strategic house (2021 - 2030)

**GPSC** Vision The global leading innovative and sustainable power company **Aspiration** To be top 3 power company in Southeast Asia with more than half of MW from green portfolio To be a PTT GROUP power and smart energy flagship that innovatively pursue operational excellence to Mission create value for stakeholders by delivering reliable products to customers with responsibility to the planet Become a regional Retain existing Embrace energy Develop competitive player by diversifying Strategic customers and expand transition, sustainability advantages in core and geographic focus to tap core offerings to new and convergence trends **Objectives** new businesses into fast growing power to offer new solutions customers markets **S1 S2 S3** Shift to Customer-Strengthen and Scale-up Green S-curve & Batteries Strategic expand the Core centric Solutions energy **Pillars** Best in class operations Solar power scale-up Distributed generation Energy storage Customer-centric utility systems Wind power entry District cooling Expansion into EV & Mobility batteries ESS-RE hybrid power **Energy Management** adjacencies New S-Curves services entry (e.g., water) **Thailand** Taiwan Geography India **Vietnam** Agile & **Enablers Technology & Operational Financial Partnerships** Sustainability Resilient discipline **Digitalization Excellence Organization** 

# **Strategic Pillars**

SI

# Strengthen and expand the Core

Scale-up Green energy

S-curve & Batteries

Shift to Customer-centric Solutions



# Strengthen and expand the Core | Operational Excellence

# To drive "Operational Excellence" across all assets of GPSC

### **Shareholder satisfaction**

# Customer satisfaction and engagement

# Safety

Enablers



# Reliability



# **Profitability**



# Sustainability



- Align LOTO and Permit to Work procedures
- Quality lob Safety Analysis
- Introduce "Hold Point" in Permit to Work
- Standardize Behavioral Based Safety KPIs across all plants

- (power& Steam)
- Predictive Maintenance
- Classify critical equipment and replace obsolete equipment

GPSC-Glow Inter-connection

- Replace Obsolete Relay Protections
- Gen/Load Shedding
- "Go Live" Mamt. of Change
- Cascade Reliability KPI to all **O&M Staff**

- GPSC-Glow Inter-connection (power& Steam)
- Enhance Linear Pro. **Optimization Tool**
- Performance Monitoring of Major Equipment
- IoT for Energy Savings
- Plant O&M Cost Management
- Outage Interval Optimization
- Successful New-Built Project hand Over

- Competency and Gap Closing
- Incident Management Process (P-D-C-A)
- Quality RCA
- **End-Stage Operations** Organization
- **Best Practice Sharing**
- Use Yammer for group communication
- Succession Planning
- Industries Benchmarking
- Develop HV Competence Center

Organization and people: ACT Spirit, Effective Communication, Qualifications, Analytical Skills, HV Competence Center



OEMS: SSHE, ORM, RAI, OPS, VCM, CPM, MOC







# Strengthen and expand the Core | Customer-centric utility

Expansion into adjacencies

Becoming a customer centric utility player will enable GPSC to become a competitive player by retaining existing and grow new customers



- Apply strategy, techniques and technologies to understand unmet customer needs
- Retain and grow share of wallet of existing customers, and acquire new customers









- Identifying customer pain points, unmet needs and how to address them optimally
- Use digital tools to enable info. transparency and drive engagement with customers



- Product is commoditized, but knowledge and value-added offerings can be a differentiator
- E.g., energy analytics, energy optimization & management

# Organizational changes

■ Independent key account management (KAM) teams to maintain and improve long-term customer relationships

**Expansion into adjacencies** by capturing new customers as well as expand services to capture greater share of wallet of existing customer

# **Strategic Pillars**

Strengthen and expand the Core

**S2** 

Scale-up Green energy

S-curve & Batteries

Shift to Customer-centric Solutions



# Scale-up Green energy | Scale-up Solar & Wind | ESS-RE hybrid power entry



# Establish local base



# More focusing on platform growth

Build and maintain local relationships



Separate organization structure



Build on ground capabilities



# Solar power scale-up

- Become a developer and operator of solar IPP assets in Thailand and target markets
- Selectively participate in EPC for solar floating assets in Thailand

### Wind power scale-up

 Achieve scale by becoming developer and operator of wind assets in target markets

# **ESS-RE** hybrid power entry

Become a developer and operator of RE hybrid plants to increase power system efficiency and ensure a greater balance in energy supply

# Scale-up Green energy | Electricity Growth Pipeline

5,845 MW

6,608 MW equity capacity

>8,000 MW 7,102 MW<sup>1</sup> equity capacity

equity capacity

>50% of operated capacity from renewable portfolio

4,750 MW equity capacity



equity capacity



PROJECT IN PIPELINE



+ Growth in Avaada (Target of expanding capacity to 11,000 MW

in 2025)

+ SPP replacement  $(Stage 2)^2$ 

- PPA Expiration

2025

Utility of the future - growth driven by diversification



- √ Geographical expansion
- ✓ Building second home countries



✓ Diversified business (integrated utilities, energy management, renewable energy, etc.)



-35%

2030 Target

√ S-curve business (smart) energy, future energy, battery value chain, etc.)

**PROJECT COD** 

NNEG Expansion +18 MW



Private PPA +2.99 MW



**PROJECT COD** 



Rayong WTE +10 MW

**SEMI-SOLID ENERGY STORAGE** UNIT 30 MWh



Private PPA 9.13 MW



**GRSC** | +1,051 MW

**PROJECT COD** 



SPP Replacement (Stage 1)<sup>2</sup>



**CFXD** 

**GRSC** | +24 MW



**Private PPA** 

2022

**CFXD** 

**GRSC I** +125 MW

PROJECT COD

**ERU** 

**ERU** | +250 MW



2023

2021

-10%

2025 Target

2020

**GPSC Emission Roadmap Proposed target** (carbon intensity reduction based on 2020 levels)

Notes: 1. Maintain original capacity of Glow Cogeneration plants

2. 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.

# Scale-up Green energy | Net Zero Framework

Moving towards Low Carbon Utilities by Reducing Carbon Equivalent Intensity 35% by 2030

## The route to net zero for utilities

### INTERNAL **EXTERNAL** Reduce fossil **Enhance** Grow Trading / renewables fuel usage infrastructure Offsets Adopt best practice Execute the growth ESS with renewable Study carbon strategy as planned by operational energy generation credits, emissions excellence support and EMS trading schemes, Develop solar and shadow carbon Retrofit Implement digital wind power plants pricing, etc. non-renewable transformation Integrate distributed power plants, etc. solar and Switch to Study and adopt CCUS, etc. microgrid, etc. Renewable Energy **GPSC** Conventional Energy

**Note:** ESS: Energy Storage System EMS: Energy Management System

CCUS: Carbon Capture, Utilization and Storage

# **Strategic Pillars**

**S3** 

Strengthen and expand the Core

Scale-up Green energy

**S-curve & Batteries** 

Shift to Customer-centric Solutions



S-curve & Batteries | Energy storage systems EV & Mobility batteries New S-Curves

# GPSC will take lead in new S-Curve ventures pertaining to Renewables, Batteries and Digital power businesses



- Scale-up and Spin-out battery operations
- Build ESS and non-EV mobility battery business with current technology
- Enter EV battery business with additional partners

- Seek opportunistic investments and strategic partnerships with startups
- Devise business and commercial offering for Virtual Power Plant (VPP), P2P
- Propose trials with C&I clients e.g., MTP area

# S-curve & Batteries | Energy storage systems

Energy storage systems

EV & Mobility batteries

New S-Curves

GPSC battery strategy focuses on 3 key pillars – ESS and Non-EV mobility will be main focus while EV pursued based on certain conditions



# **Strategic Pillars**

**S4** 

Strengthen and expand the Core

Scale-up Green energy

S-curve & Batteries

**Shift to Customer-centric Solutions** 



# Shift to Customer-centric Solutions | Distributed generation

Shift to customer-centric solutions



## **Distributed generation**

- Provide captive renewable power through distributed generation solutions (rooftop solar, microgrids, etc.) to C&I customers
- Offer full range of installation and O&M incl. monitoring services
- Bundle with BTM ESS to enhance reliability and maximize RE power consumption

# **District cooling**

- Provide turnkey district cooling development, operations and maintenance solutions
- Offer diverse selections of cooling systems suitable for different customers

# **Energy Management services**

- Provide all-round energy support, incl. energy audits & digital tools
  - e.g., Energy audits, real-time energy monitoring, remote mgmt. of C&H, energy efficiency equipment supply etc.
- Bundle EMS with distributed generation& district cooling offerings

# Shift to Customer-centric Solutions | Distributed generation

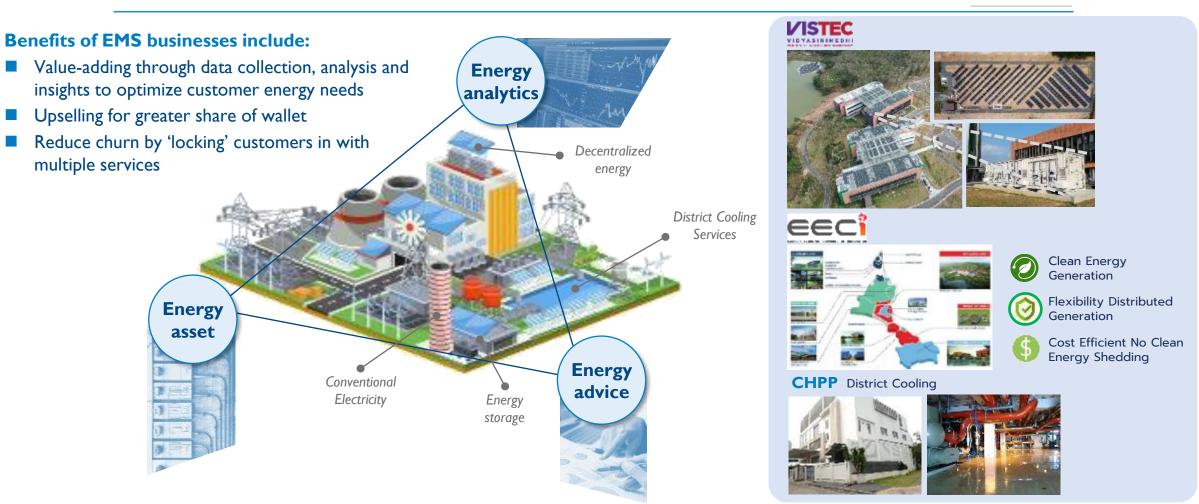
Distributed generation

District cooling

Energy Management services (EMS)

# Concept of Energy Management services

ILLUSTRATIVE



# **Q&A SESSION**

### **IR Contact:**

Pongsak Plaingam +662 140 4646 Thanaporn Tantiwinyupong +662 140 1808 Suthathip Charoenkij +662 140 5318 Achariya Sanrattana +662 140 1818 ir@gpscgroup.com www.gpscgroup.com

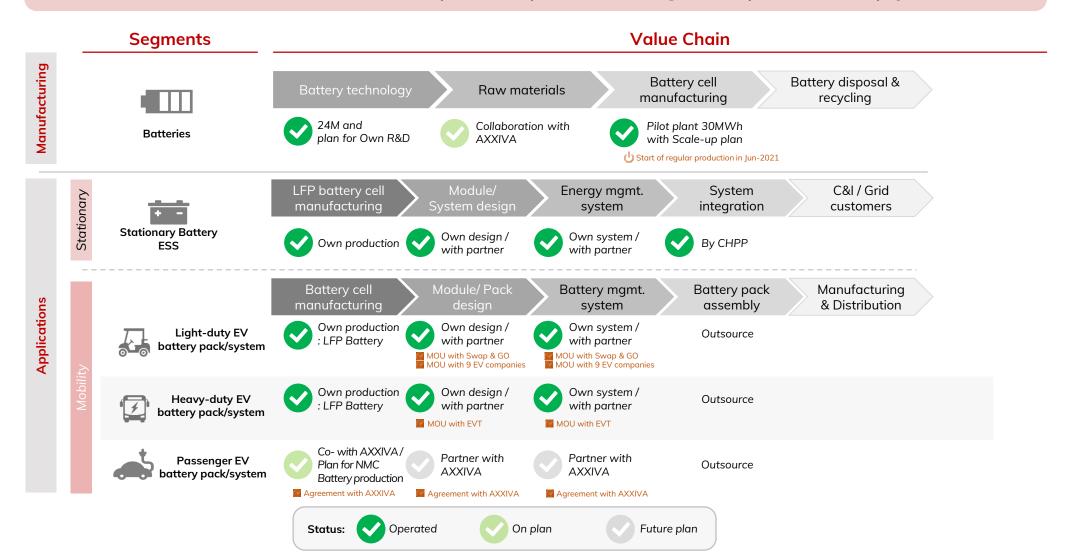




**Appendix** 

# S-curve & Batteries | Battery value chain

# GPSC has built capabilities across different segments of the value chain, with focus on stationary battery ESS and light duty EV battery pack



# **S-curve & Batteries** G-CELL and Applications





# GCELL Semi-Solid Battery Unique Design



Shorter **Process** 



Remove 40% Inactive Material



No binder Needed



**Low Risk** of Contamination

# Application and Manufacture Development for Semi-Solid Energy Storage Unit (30 MWh p.a.)

Energy Storage



**E-Mobility** 



# **Target applications**

**Commercial &** Industrial

- Charging station
- Industrial Estate

Micro-Grid

- Remote Area

**Residential (RESS)** and others

- Property Development
- ESS Mobility and others

**E-Mobility** 

- Battery for EVs
- Battery swapping















**Battery Pack** for EV

Energy Platform

# **S-curve & Batteries** G-CELL and Applications

# VISTEC SMART ENERGY MANAGEMENT

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





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

1.74 MW 4.312 MW 100-200 kWh AI &
Solar Rooftop Floating Solar Lithium-ion BESS Platform

- High efficiency BESS with management of solar power generation
- Blockchain-based smart grid and Al
- Cutting-edge innovation and smart energy platform



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



### **SMART Energy Management**

Clean Energy Generation

Flexibility Distributed Generation

Cost Efficient No Clean Energy Shedding

# **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 100 kW installed capacity for seaside of PTT Tank





- PTT Tank: Cut the electricity cost and reduce carbon dioxide emission
- GC developed special plastic "InnoPlus HD8200B"
- CHPP designed and installed the floating solar system

# S-curve & Batteries | G-Box : ESS x EV Charger Launched in 2021



# ESS Digital Energy Platform for Smart Grid





# ESS control and monitoring platform

 Manage energy flow in the system by ESS mechanism

# **GPSC** | Sustainability Management Framework





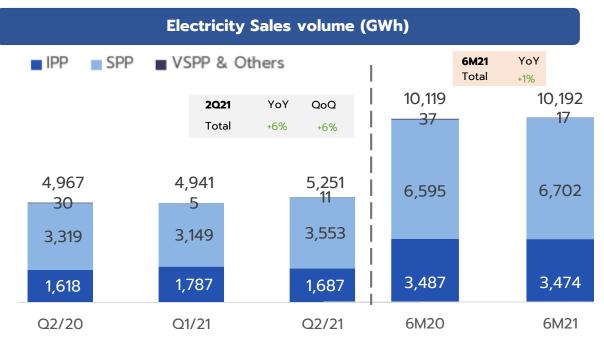
Remark:

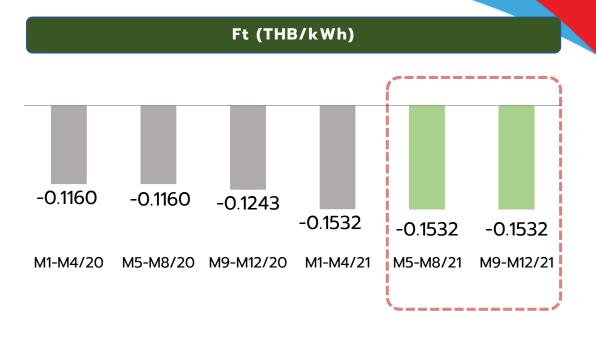
SDGs: The UN's Sustainable Development Goals

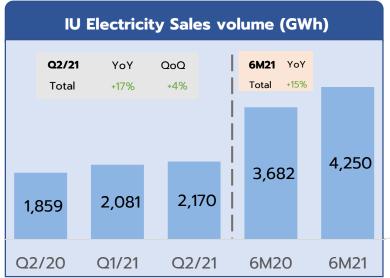
# **Q2/2021 Operating Results**

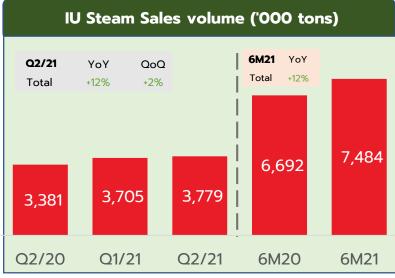
Overall operating results of the Company and its subsidiaries	Q2/20	Q1/21	Q2/21	change +/(-)		6M/20	6M/21	change +/(-)
(unit: THB million)				YoY	QoQ			YoY
Operating revenue	18,138	16,624	18,234	1%	10%	36,446	34,858	(4%)
Cost of sales (excluding depreciation and amortization)	(12,488)	(11,285)	(12,748)	2%	13%	(25,432)	(24,033)	(6%)
Gross profit	5,650	5,339	5,486	(3%)	3%	11,014	10,825	(2%)
Selling and administrative expenses	(437)	(434)	(516)	18%	19%	(855)	(950)	11%
Other operating income	5	5	5	1%	(6%)	10	10	5%
EBITDA	5,218	4,910	4,975	(5%)	1%	10,169	9,885	(3%)
Depreciation and amortization	(2,098)	(2,053)	(2,172)	4%	6%	(4,172)	(4,226)	1%
EBIT	3,120	2,856	2,803	(10%)	(2%)	5,997	5,659	(6%)
Finance costs	(991)	(974)	(987)	(0%)	1%	(2,032)	(1,961)	(4%)
Other non-operating income and expenses	335	264	512	53%	94%	511	775	52%
Dividend received and shares of profit of associates	113	297	522	362%	76%	42	819	1,850%
and joint ventures	113	231	522	30270	7070	7∠	015	1,03070
Income tax expenses	(284)	(453)	(348)	22%	(23%)	(537)	(800)	49%
Profit before FX and extraordinary items	2,293	1,990	2,502	9%	26%	3,981	4,492	13%
Net foreign exchange gain (loss)	(5)	2	(68)	1,261%	(3,770%)	(35)	(66)	89%
Net profit	2,288	1,992	2,434	6%	22%	3,946	4,426	12%
Non-controlling interests	(392)	(19)	(132)	(66%)	603%	(470)	(150)	(68%)
Net profit for the Company	1.896	1.973	2.302	21%	17%_	<u>3</u> ,476	4,276	23%
Adjusted Net Income <sup>1</sup>	2,264	2,359	2,720	20%	15%	4,212	5,079	21%
Gross profit margin (%)	31%	32%	30%	(1%)	(2%)	30%	31%	1%
Net profit margin (%)	10%	12%	13%	2%	1%	11%	12%	3%
Adjusted Net Income margin (%)	12%	14%	15%	2%	1%	12%	15%	3%

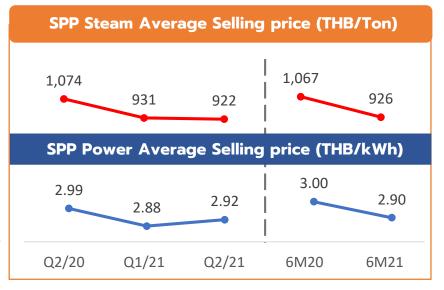
# **Q2/2021** | Key Drivers





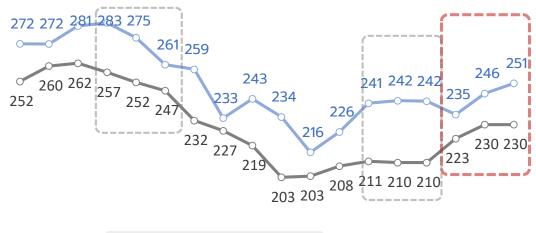






# **Q2/2021** | Key Drivers

## Natural Gas Cost 2020 - Q2/2021 (THB/MMBTU)

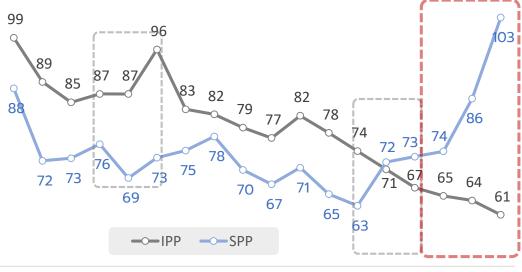


→ IPP → SPP (blended)

41120 41210 41210 41210 41210 41210 41210 41210 41210 41210 41210 41210 41211 41211 41211 41211 41211 41211 41211

IPP's Availability	Q2/20	Q1/21	Q2/21	Chang	e +/(-)	6M20	6M21	Change +/(-)
Rate (%)				YoY	QoQ			YoY
Sriracha	100%	99.80%	100%	0%	0%	100%	100%	0%
GIPP	100%	76%	100%	0%	23%	100%	88%	(12%)
GHECO- One	99%	59%	76%	(23%)	17%	98%	68%	(30%)

# **Coal Cost 2020 – Q2/2021 (USD/Ton JPU)**

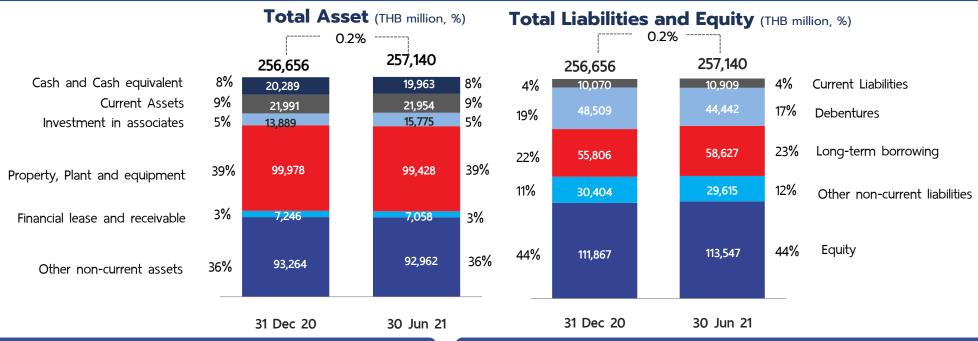


11/12 11/12

End-month FX (USD/THB)											
Apr20	32.55	Jan21	30.17	Apr21	31.37						
May20	32.02	Feb21	30.17	May21	31.44						
Jun20	31.07	Mar21	31.51	Jun21	32.22						
Avg.	31.88		30.62		31.68						
Avg.	6M20	31.92									
Avg.	6M21	31.15									

# Q2/2021 Operating Results (QoQ)

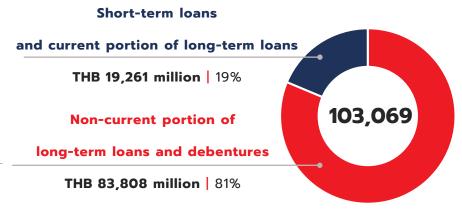
# **Summary of Financial Position**



### Total debt to equity and net debt to equity ratio | times

# 1.30 x 1.26 x 1.26 x 0.70 x 0.70 x Q2/20 Q1/21 Q2/21

# **Total Interest-Bearing Debt (THB million)**

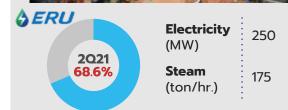


### As of Q2/2021:

- Avg. cost of debt:3.06%
- Avg. remaining tenor: **5.2 years**

# **Update of Projects**

# SCOD | 2023

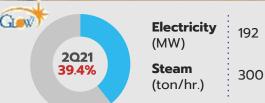


### **Project updates:**

- Engineering design work: 98% progress
- Under construction: Major Equipment Foundation of CFB Boiler Stack, Pitch Solidification and Cooling Tower.
- Overall, the project has reached 68.6% which is on schedule and expect to COD in the year 2023.

### SPP Replacement - Stage 1 | Glow Energy Phase 2





### **Project updates:**

The engineering design work, procurement and construction progress has been reached at 39.4% and on processing of foundation work for gas turbine, HRSG and Pipe Rack.

# **Update of Projects**

### **Avaada: Solar Power Platform in India**





Contracted Capacity 4,560 MW

GPSC Hold
41.6% of shares

Project	MW	COD			
<b>Operating</b> (14 projects)	1,500	Mar 2018 - July 2021			
Under construction (13 projects)	3,060	2021-2022			

### **CFXD**: Offshore wind in Taiwan





Contracted Capacity 595 MW

GPSC Hold 25% of shares

# **Project Status**

• Phase 1:96 MW, first power in 2022

Phase 2: 499 MW, first power in 2023

The project is expected to start full COD in the Q1/2024

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

Name	Туре	Shareholding (%)	Total capacity (MW)	Equity Power capacity (MW)	Equity Operating Power capacity (MW)	Steam (T/H)	Industrial water (Cu.m/H)	COD	Tenor
IPP									
Sriracha	IPP	GPSC (100%)	700	700	700	-	80	2000	25
Glow IPP	IPP	GLOW (95%)	713	677	677	-	-	2003	25
Huay Ho	IPP	GLOW (67%)	152	102	102	-	-	1999	30
GHECO-One	IPP	GLOW (65%)	660	429	429	-	-	2012	25
XPCL	IPP	GPSC (25%)	1285	321	321	-	-	2019	29
RPCL	IPP	GPSC (15%)	1400	210	210	-	-	2008	25
Total IPP			4,910	2,439	2,439	-	80		
SPP									
CUP-1	SPP	GPSC (100%)	226	226	226	890	720	2006	10-15
CUP-2	SPP	GPSC (100%)	113	113	113	170	510	2008	15
CUP-3	SPP	GPSC (100%)	-	-	-	280	770	2009	15
Rayong Expansion (CUP-3)	SPP	GPSC (100%)	15	15	15	-	-	2019	n/a
CUP-4	SPP	GPSC (100%)	49	49	49	140	-	2019	Long-term
Glow Energy Phase 1	SPP	GLOW (100%)	-	-	-	250	1,340	1994	-
Glow Energy Phase 2	SPP	GLOW (100%)	281	281	281	300	1,180	1996	(extension)
Glow Energy Phase 4	SPP	GLOW (100%)	77	77	77	137	2,050	2005	25
Glow Energy Phase 5	SPP	GLOW (100%)	328	328	328	160	-	2011	10-20
Glow SPP 2/ GLOW SPP 3	SPP	GLOW (100%)	513	513	513	190	150	1999	25
Glow SPP 11 Phase 1	SPP	GLOW (100%)	120	120	120	-	360	2000	25
Glow SPP 11 Phase 3	SPP	GLOW (100%)	42	42	42	-	-	2006	10-20
Glow SPP 11 Phase 2	SPP	GLOW (100%)	110	110	110	-	212	2012	25
Glow Energy CFB 3	SPP	GLOW (100%)	85	85	85	79	-	2010	10-20
IRPC-CP Phase 1	SPP	GPSC (51%)	45	23	23	86.7	-	2015	25-27
IRPC-CP Phase 2	SPP	GPSC (51%)	195	99.4	99.4	66.3	-	2017	25
NNEG	SPP	GPSC (30%)	125	38	38	9	-	2016	25
NNEG Expansion	SPP	GPSC (30%)	60	18	18	3	-	2020	21
BIC-1	SPP	GPSC (25%)	117	29.25	29.25	5	-	2013	25
BIC-2	SPP	GPSC (25%)	117	29.25	29.25	5	-	2017	25
Total SPP			2,618	2,196	2,196	2,771	7,292		

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

Name	Туре	Shareholding (%)	Total capacity (MW)	Equity Power capacity (MW)	Equity Operating Power capacity (MW)	Steam (T/H)	Industrial water (Cu.m/H)	COD	Tenor
VSPP and others									
Rayong WTE	VSPP	GPSC (100%)	9.8	9.8	9.8	-	-	2021	18
Glow Energy Solar Plant	VSPP	GLOW (100%)	1.55	1.55	1.55	-	-	2012	25
CHPP	VSPP	GPSC (100%)	5	5	5	_	-	2008	30
CHPP (Solar)	VSPP	GPSC (100%)	5	5	5	-	-	2016	25
ISP1	Solar	GPSC (99%)	20.8	20.59	20.59	-	-	2017	20
GRP (NPS, WXA, PPS)	VSPP	GPSC (50%)	39.5	19.75	19.75	-	-	2014-15	25
GRP1 (Sheng Yang)	Solar	GPSC (45%)	55.8	25.11	25.11	-	-	2016-21	20
Avaada (Solar Power Platform)	Solar	GPSC (41.6%)	4,560	1,897	624			2018-23	15-25
TSR (SSE1)	VSPP	GPSC (40%)	80	32	32	-	-	2013	25
NL1PC	Hydro	GPSC (40%)	65	26	26	-	-	2019	24
Chonburi Clean Energy (CCE)	VSPP	GLOW (33%)	8.6	2.87	2.87	-	-	2019	20
CFXD (Offshore wind farm)	Wind	GPSC (25%)	595	149	-	-	-	2022-24	20
Private PPA	Solar	GPSC Gr. (100%)	23.40	23.40	2.99			2018-21	Long-term
Total VSPP and others			5,469	2,217	750	-	-		
ERU									
ERU (under construction)	Cogen	GPSC (100%)	250	250	-	175	-	2023	25
	Total ERU		250	250	-	175	-		
Total capacity			13,247	7,102	5,385	2.946	7,372		

### Note:

- Total committed equity capacity as of 13 Aug 2021.
  Equity capacity includes 100% stake in GLOW, CFXD, Private PPA and ERU.

# 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
	GTG-13	27 Days						12/	7 <b>MI</b>	2/8	17/	10 <b>1Y</b>	22/10	
CUP-1	HRSG-13	22 Days												
	GTG-12	20 Days									16/9 <b>F</b>	<b>SCIE</b> 5/10		
	GTG-16	3 Days					1,	/6 <b>1Y</b>	3/6					
	GTG-14	5 Days									17	/10 <b>1Y</b>	22/10	
CUP-2	GTG-21	29 Days			2/3 MI	31/3		12/	7 <b>MI</b>	2/8				
001 2	HRSG-21	29 Days			2/3 <b>3Y</b>	30/3		12/	7 <b>3Y</b>	2/8				
	GTG-22	5 Days						26/	7 <b>1</b> Y	28/7				
CUP-4	GTG-41	5 Days											29/12	RMI 2/
001 4	HRSG-41	11 Days						27/6 <b>1Y</b>	7/7					
	HRSG#1	14 Days										15/11	<b>3Y</b> 28/11	
SRC	HRSG#2	14 Days										15/11	<b>3Y</b> 28/11	
SKC	Steam Turbine.10	25 Days										15/1	1 <b>CI</b> 23/11	l
	GT-11	8.33 Days									7 MNI	13		
RDF	BMH Machine	7 Days												

	Notes: Rayong Site			Note	es: Sriracha Site
MI         Major Inspection for Gas Turbine         2:           STG         Minor         Inspection for Steam Turbine         1!           1MO         2nd Major Overhaul for Steam Turbine         2:           2MO         2nd Major Overhaul for Steam Turbine         2:           AB         1Y         One Year Inspection Aux. Boiler         1:	HRSG 14 days 1Y One Year Inspection HRSG 22 days 3Y Three Year Inspection HRSG Others 15 days 17 One Year Inspection NG Station Test 23 days 5Y Five Year Inspection NG Station (NDT) 27 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 MO Major Overhaul for Gas Turbine RCIE Rotor and Casting Inspection Evaluation	8 days 26 days 33 days 49 days	HRSG 1Y One Year Inspection HRSG 8 days 3Y Three Year Inspection HRSG 33 days Other 1Y One Year Inspection NG Station Test Online 5Y Five Year Inspection NG Station (NDT) Online FO Forced Outage Depending on physical damage

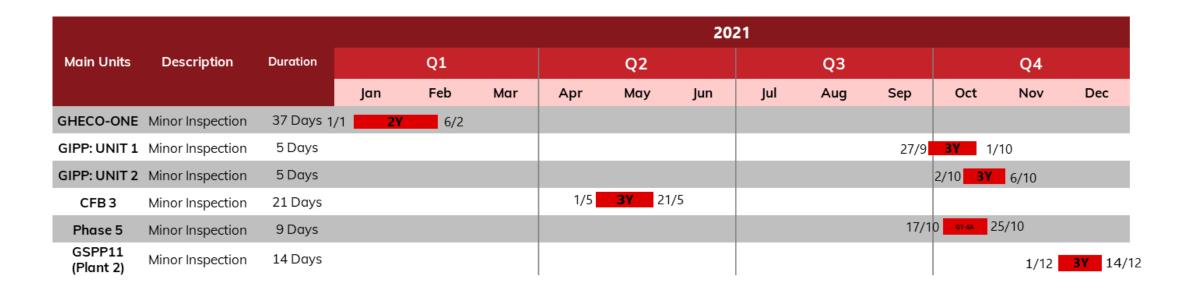
# 2021 Maintenance Schedule | IRPC-CP

								202	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	YI	15 Days						15						

### Notes:

- MI Major Inspection
- YI Yearly Inspection Aux Boiler
- 15 days
- B CTG/HRSG Inspection Level B
- 20 days
- C CTG /HRSG Inspection Level C Excluded 1 Day maintenance
- 22 days

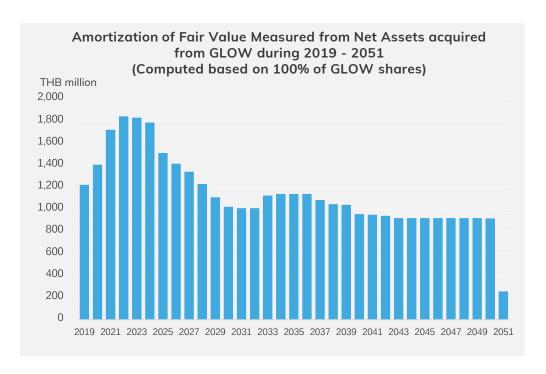
# 2021 Maintenance Schedule | GLOW's Main Units



# Fair Value Measurement of Net Assets from Acquisition of Glow

unit: THB million

		uiii. i	
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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