



## Q1 2017 Results Presentation Analyst Meeting

19th May 2017







## rowing *P*rofit with *S*ustainability and *C*ontrol

## **Explore new opportunity** through 3 growth engines

Within 2019, GPSC will have 1,922 MW in power portfolio with CAGR at 11.6% by leveraging competitiveness and 3 growth engines:

- (1) Grow with PTT & Domestic,
- (2) International business expansion, and
- (3) Future Energy development.



# **Energy Storage System gearing up toward sustainability**

As market moves toward energy storage technology, GPSC reached cooperation deal with 24M in using the technology to produce and distribute Lithium-Ion batteries in ASEAN. With innovative technology, there will be varieties of electricity generating platforms supporting to GPSC's sustainable growth.

## 1Q17 Net profit delivered as planned

GPSC's **net profit in Q1/17 increased by THB 331 million** from Q4/16 thanks to continuously efficient cost management of Rayong Plants. For Sriracha Power Plant, revenue from availability payment increased. However, net profit decreased YoY by Baht 121

Profit

million or 14% because dividend incomes from RPCL decreased by Baht 60 million and operating profit of IRPC-CP Phase 1 decreased due to a turnaround of main customer.

Control

6 projects in progress meet milestones as planned

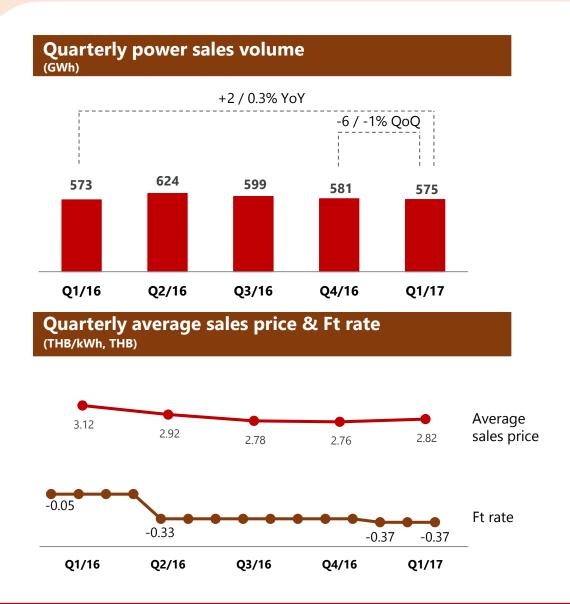
Three power plants are expected to COD by 2017 while another three power plants are expected to COD within 2019. All the projects are closely monitored by GPSC with construction specialists to meet the milestones as planned.







## **PSC** Rayong Power Plant (SPP): Power



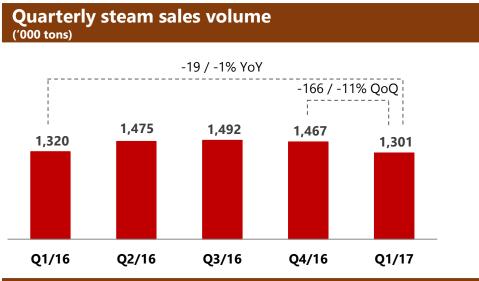
## Q1/17 VS Q4/16 (QoQ)

- Volume decreased by 6 GWh from customer's unplanned shutdown.
- Price increased by 0.06 Baht per kWh or 2% due to the increase in natural gas price.

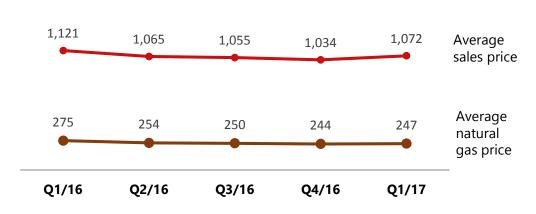
- Volume slightly increased by 2 GWh from the higher demands from customers during Q1/17 compare to Q1/16.
- Price decreased by 0.30 Baht per kWh or 10% due to the decrease in Ft rate.



## **PSC** Rayong Power Plant (SPP): Steam



#### Quarterly average sales price & natural gas price (THB/ton, THB/MMBTU)



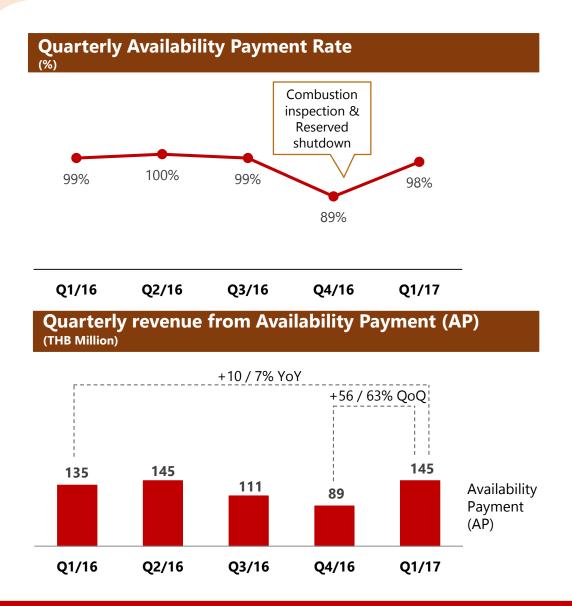
### Q1/17 VS Q4/16 (QoQ)

- Volume decreased by 166 thousand tons or 11% in Q1/17 because some customers had maintenance shutdown in Q1/17.
- Price increased by 38 Baht per ton or 4% in Q1/17 due to the increase in natural gas price.

- Volume decreased by 19 thousand tons or 1% due to customer shutdown in Q1/17.
- Price decreased by 49 Baht per ton or 4% due to the decrease in natural gas price.



## Sriracha Power Plant (IPP): Power



### Q1/17 VS Q4/16 (QoQ)

- Availability rate in Q1/17 increased from 89% to 98% due to the annual maintenance in Q4/16.
- Revenue from Availability Payment (AP) in Q1/17 also increased by THB 56 million or 63% from the improve in Availability Rate caused by the fact that there was no power plant maintenance in Q1/17 as in Q4/16.

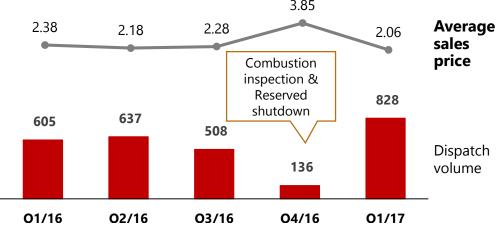
#### Q1/17 VS Q1/16 (YoY)

Revenue from Availability Payment in Q1/17 increased by THB 10 million or 7% from TFRIC#4 adjustment.

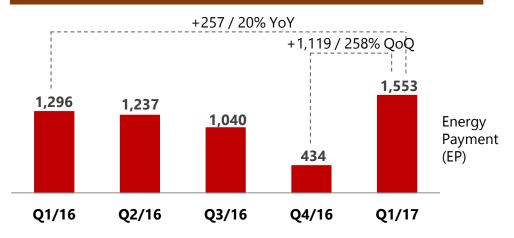


## Sriracha Power Plant (IPP): Power





#### **Quarterly revenue from Energy Payment (EP)** (THB Million)

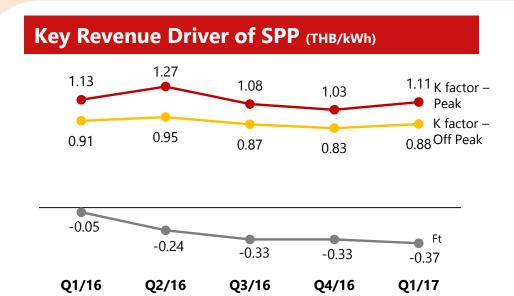


## Q1/17 VS Q4/16 (QoQ)

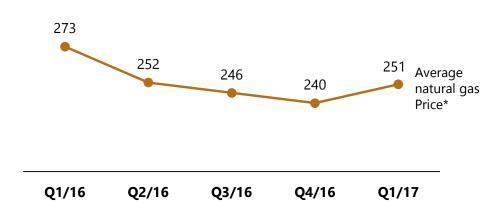
- Average sales price in Q1/17 decreased by 1.79 Baht per kWh due to the lower natural gas price.
- Revenue from Energy Payment (EP) increased by THB 1,119 million or 258% as a result of higher dispatch volume per EGAT's instruction partly caused by the maintenance of Myanmar gas field in Q1/17.

- Average sales price decreased by 0.32 Baht per kWh due to the lower natural gas price.
- Revenue from EP increased by THB 257 million due to the increase in dispatch volume.

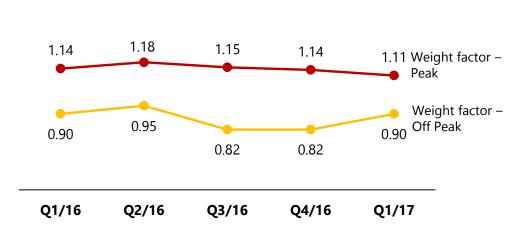
## **EPSC** Key factors



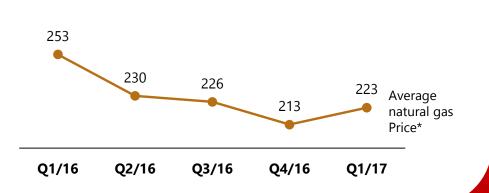
## Key Cost Driver of SPP (THB Million/MMBTU)



## Key Revenue Driver of IPP (THB/kWh)



### Key Cost Driver of IPP (THB Million/MMBTU)





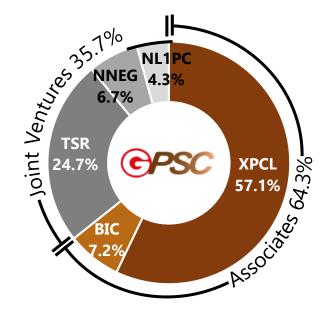




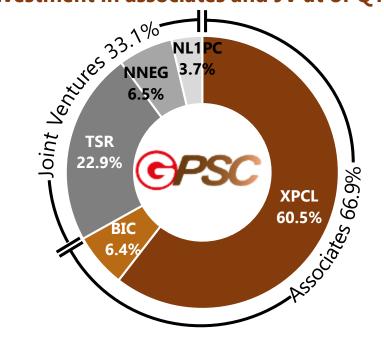
## PSC Investment in associates and joint ventures

Proportion of GPSC's investment in associates and joint ventures in Q1/17 and Q4/16 (THB Million, %)

**Investment in associates and JV at of Q1/17 Investment in associates and JV at of Q4/16** 



**Total of THB 6,938 million** 



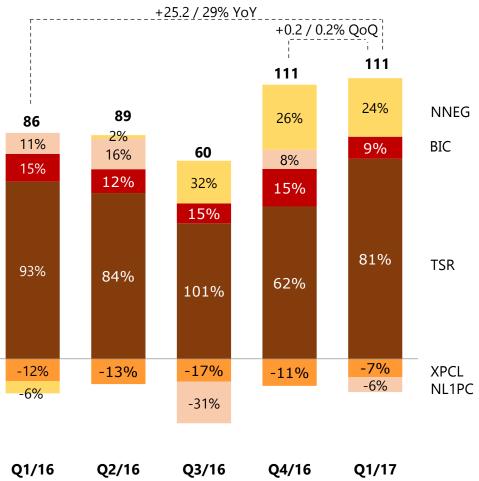
**Total of THB 7.602 million** 

- GPSC's investment in associates and joint ventures increased from THB 6,938 million in Q4/16 to THB 7,602 million in Q1/17 or approximately THB 664 million or 10% increase.
- The increase in investment in Q1/17 was mainly from the investment in XPCL which increased by THB 645 million while the share of profit from associates and joint ventures in Q1/17 contributed to an increase in the investments for THB 111 million.
- During Q1/17 the investments decreased from the dividends received from BIC and TSR for THB 20 million and THB 61 million, respectively.



## **Share of profits from investment**





## Q1/17 VS Q4/16 (QoQ)

- The total share of profit in Q1/17, totaling for THB 111 million, did not significantly change from Q4/16.
- Share of profit from **NNEG slightly decreased** from the increase in an operating expense.
- While the share of profit from **TSR** increased significantly for THB 21 million or 32% from the higher density of light used in generating electricity in Q1/17, causing the increase in earnings from operation.

- The total share of profits from investment in Q1/17 increased from Q1/16 by THB 25 million or 29%.
- The increase is mainly from the COD of **NNEG in June 2016** which contributed the share of profit for GPSC in Q1/17 for THB 26 million.



## CHPP Solar Cooperatives has started COD as planned with the first full quarter to realize revenue in Q1 2017







- ✓ CHPP Solar Cooperatives starts COD on 30 December
  2016 as planned with operating capacity of 5 MW
- ✓ Securing Feed-in-Tariff (FiT) at 5.66 THB per unit along 25 years of contract with Provincial Electricity Authority (PEA)
- ✓ Q1 2017 will be the first full quarter that performance of CHPP Solar Cooperatives will be consolidated to GPSC

#### **Shareholding**





## **PSC** IRPC Clean Power Phase 2 (IRPC-CP Phase 2)





### **IRPC Clean Power Company Limited (IRPC-CP)**

In IRPC Industrial Zone at Choeng Noen, Rayong Province (118 Rai)





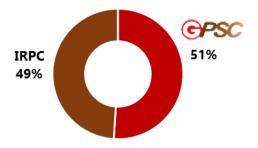
Equity % Progress	Туре	SPP Cogeneration	
Investment 1Q17 3,400 THB Million 95%	Capacity*	<ul><li>Electricity: 240 MW</li><li>Steam: 180-300 T/H</li></ul>	
4Q16 92% 49% Others	Customer*	<ul> <li>Electricity: EGAT 2x90 MW (25 years), IRPC 60 MW (27 years)</li> <li>Steam: IRPC 180-300 T/H</li> </ul>	
	SCOD	2017	
51% GPSC	Total Investment	13,600 THB Million	
	D/E	3:1	

### **Progress update**

#### **Phase 2 Under Construction**

- Construction progress of the project was 95%.
- Under construction of 230 kV transmission line.

## **Shareholding**



## **EPSC** Bangpa-In Cogeneration Phase 2 (BIC-2)





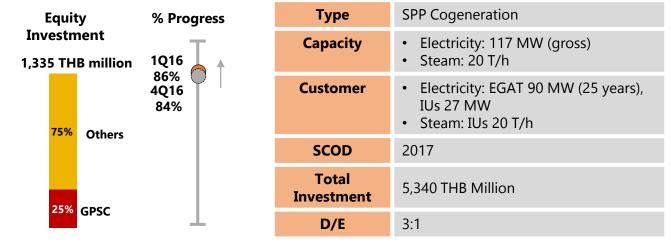






## **Bangpa-In Cogeneration Company Limited** (Phase 2)

Ayutthaya Province



#### **Progress update**

- Construction progress of the project was 86%.
- Fuel gas-introduced to gas compressor and gas turbine first firing test have been completed. Plant performance test and trial run plan will be proceeded for the next stage.



## **CPSC** Ichinoseki Solar Power (ISP1)



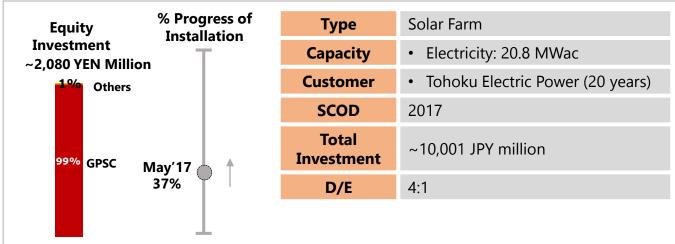






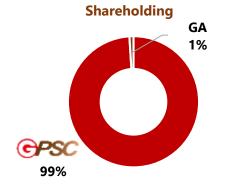
## ICHINOSEKI Ichinoseki Solar Power (ISP1)

SOLAR POWER 1 GK Ichinoseki City, Japan



#### **Progress update**

- Secure FiT at 40 JPY/kWh (exclude tax) for 20 years
- Foundation work and solar panel installation have already started in some area.
- GPSC first international project to COD in 2017



## **©PSC** Nam Lik 1 Power Company Limited (NL1PC)

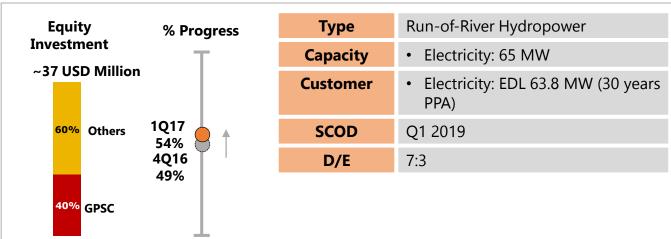




## Nam Lik 1 Power Company Limited (NL1PC) Lao PDR

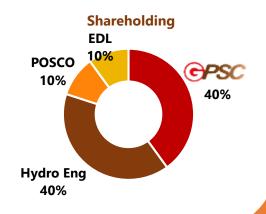






### **Progress update**

Construction progress of the project was 54%.
 NL1PC suggests EPC contractor to engage experience sub-contractor to be responsible for civil work.





## **PSC** Xayaburi Power Company Limited (XPCL)

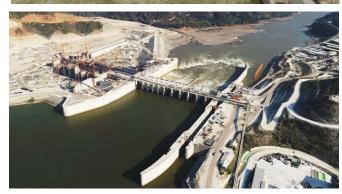


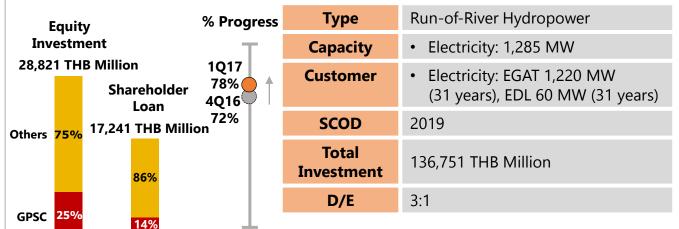


## **Xayaburi Power Company Limited (XPCL)**

Xayaburi, Lao PDR

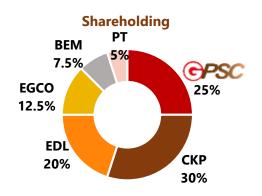






## **Progress update**

- Construction progress of the project was 78% evaluated by GOL's technical advisor, which concluded that the project is on schedule.
- The permanent structure such as powerhouse, intermediate block, fish passing facilities are progressing well.





## XPCL Project improvement according to environmental concerns





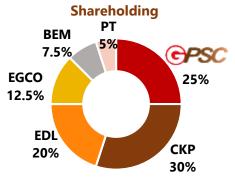


## Xayaburi, Lao PDR

The additional requirements from Lao PDR's Government upon an environmental concerns in constructing XPCL power plant has caused an incremental construction costs. Therefore, the Government granted XPCL the compensations which are:

- ✓ Decrease of corporate income tax
- ✓ Decrease of royalty fee
- ✓ Extend concession period for another 2 years (after COD date); Total 31 years





**CUP-1** 

-2

## **CPSC** Map Ta Phut Expansion Project

## **Grow with PTT: Be PTT Group's Power in Petrochemical Complex**

## Rayong Power Plant Rayong Province







Туре	Cogeneration		
Capacity	<ul> <li>CUP-1</li> <li>Electricity: 226 MW</li> <li>Steam: 890 T/h</li> <li>Industrial water: 720 Cu.m/h</li> <li>CUP-2</li> <li>Cu.m/H</li> <li>Industrial water: 510 Cu.m/h</li> <li>CUP-3</li> <li>Steam: 280 T/h</li> <li>Industrial water: 770 Cu.m/h</li> </ul>		
Customer	<ul><li>PTT Group</li><li>Other IU Customers</li><li>EGAT</li></ul>		
COD	2006-2009		
Contract	<ul> <li>CUP-1: 10-15 years ++</li> <li>CUP-2: 15 years ++</li> <li>CUP-3: 15 years ++</li> </ul>		
ALE	Sukhumvit Ro.  ETE Map Ta Phut		



## **CPSC** Waste to Energy Project





## **Waste Management Project**

Rayong Province



Туре	RDF	Waste to energy Power Plant (Future Development)
Capacity	Treat MSW at least 500 ton/day	Electricity 8 MW
Customer	RDF Power Plant/ Cement Plant	PEA
Contract	Waste Management Contract between GPSC & Rayong PAO (Secured feedstock)	PPA under Feed-in-tariff scheme

## **Progress update**

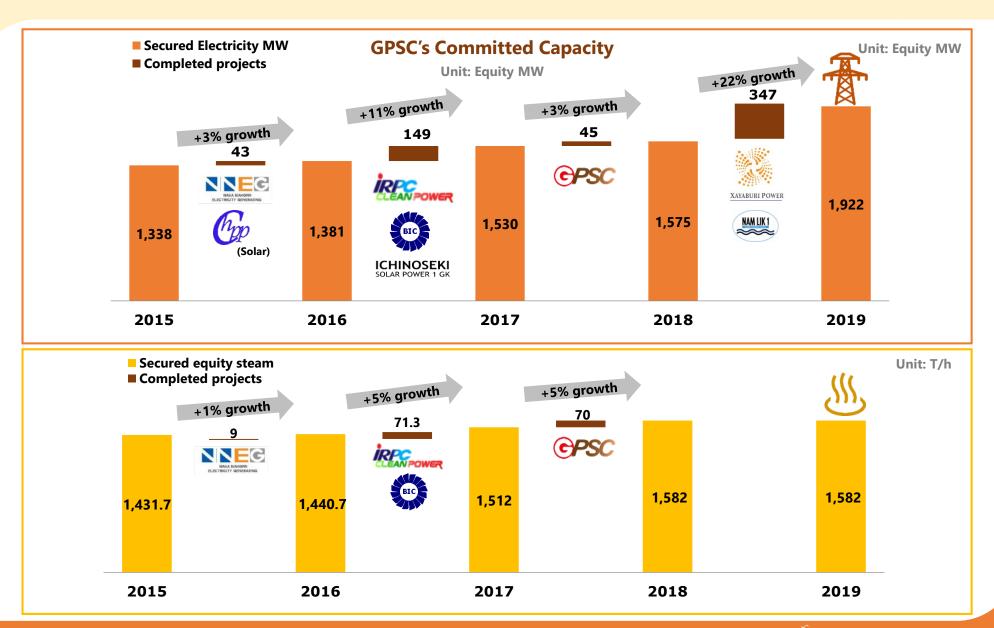
- Under the Public and Private Partnership (PPP), the Waste Management Contract is being proved by the Attorney General Thailand
- During process of apply PPA under Feed-in-tariff scheme
- ESA/CoP has been finished
- Completed Basic Engineering Design Package (BED)
- December 28, 2016, GPSC already signed the Rayong Integrated Waste Management by Private Operator Contract (by converting to RDF) with Rayong Provincial Administration Organization for 22 years

#### Shareholding



Municipal Solid Waste (MSW) input

## PSC GPSC will deliver outstanding growth during 2017-2019





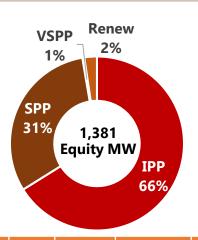




## Majority of GPSC's revenue is from electricity, PTT Group is GPSC's major customer

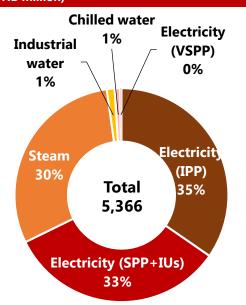
#### **ELECTRICITY CAPACITY BREAKDOWN**

(Unit: Equity Megawatt)



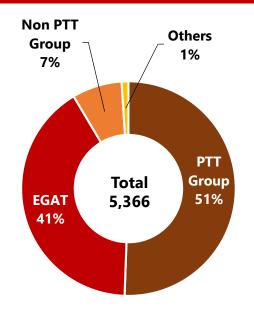
Туре	GPSC's	Total capacity	Equity capacity	Steam
	share %	(MW)	(MW)	(T/H)
IPP	100%	700	700	
SPP	100%	226	226	890
SPP	100%	113	113	170
SPP	100%	-		280
VSPP	100%	5	5	
SPP	51%	45	23	86.7
VSPP	100%	5	5	
Consolidate to Financial Statement				
Renew	40%	80	32	
SPP	30%	125	38	9
SPP	25%	117	29.25	5
IPP	15%	1,400	210	
Share of Profit / Dividend Income				
	To	otal operating	1,381	1,441
	IPP SPP SPP VSPP VSPP VSPP E to Fina Renew SPP SPP IPP	IPP   100%     SPP   100%     SPP   100%     SPP   100%     VSPP   100%     VSPP   100%     VSPP   100%     Example   100%     Example   100%     SPP   30%     SPP   25%     IPP   15%     Ipp   Ipp   Ipp     Ip	Type         GPSC's           share %         capacity (MW)           IPP         100%         700           SPP         100%         226           SPP         100%         -           VSPP         100%         5           SPP         51%         45           VSPP         100%         5           eto Financial Statement         80           SPP         30%         125           SPP         25%         117           IPP         15%         1,400	Type         GPSC's share %         capacity (MW)         capacity (MW)           IPP         100%         700         700           SPP         100%         226         226           SPP         100%         113         113           SPP         100%         5         5           SPP         51%         45         23           VSPP         100%         5         5           SPP         51%         45         23           VSPP         100%         5         5           S to Financial Statement         1,072           Renew         40%         80         32           SPP         30%         125         38           SPP         25%         117         29.25           IPP         15%         1,400         210           nare of Profit / Dividend Income         309

## Q1/2017 Revenue by product (THB million)



 Electricity and Steam are major sources of GPSC's revenue, accounted for 98% of total revenue.

## Q1/2017 Revenue by customer (THB million)

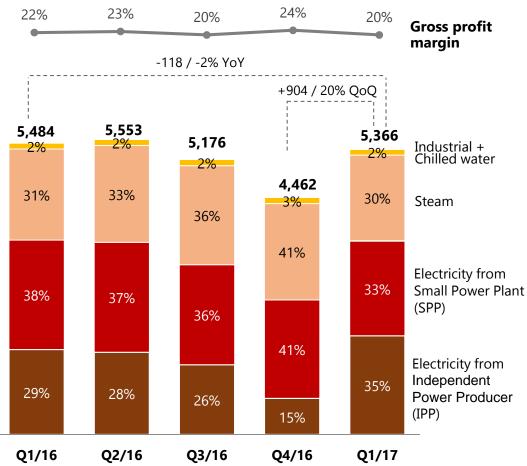


 Accounted for more than 50% of total revenue, PTT Group is consistently the largest customer of GPSC in Q1/17.



## Revenue increased THB 904 million or 20% QoQ mainly from SRC





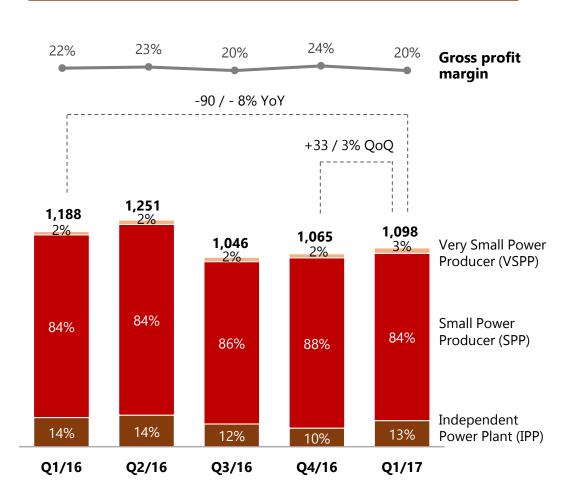
#### Q1/17 VS Q4/16 (QoQ)

Departing revenue in Q1/17 increased by THB 904 million or 20% compare to Q4/16. The increase was due to the higher revenue from Energy Payment (EP) resulted from the higher dispatch volume of Sriracha plant, which is an IPP, per EGAT's instruction.

- Operating revenue in Q1/17 decreased by THB 118 million or 2% due to **lower** sales volume of IRPC-CP Phase 1.
- CUP and IRPC-CP, which are SPPs, had maintenance shutdowns of some customers in Q1/17 causing the drop in revenue.

## **EPSC** SPP is GPSC's main and prospering profit generator

## Quarterly gross profit and gross profit margin\* (THB Million, %)



#### Q1/17 VS Q4/16 (QoQ)

- Gross profit in Q1/17 increased by THB 33 million or 3% due to the increase in availability rate of Sriracha.
- Also, the **lower maintenance cost of CUP** brought about the increase in quarterly gross profit.
- However, **GPM slightly declined** from the **increase in the Energy Payment revenue**, which is the revenue that passes through the cost to EGAT, of Sriracha plant.

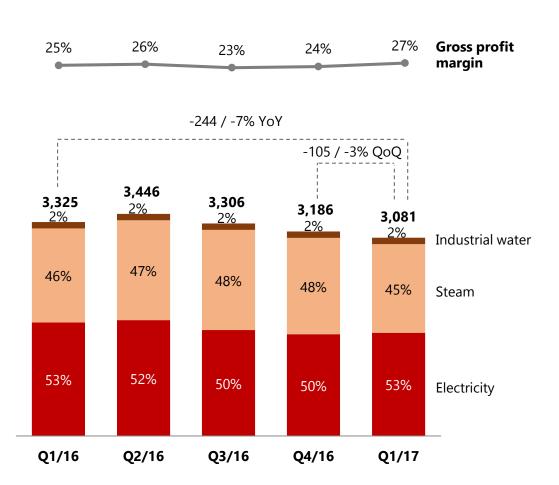
#### Q1/17 VS Q1/16 (YoY)

Compare with Q1/16, gross profit decreased by THB 90 million or 8%. The decrease was mainly from the drop in the profit of IRPC-CP because a major customer had maintenance shutdown in Q1/17.



## PSC Rayong Power Plant (SPP): Revenue & GPM





#### Q1/17 VS Q4/16 (QoQ)

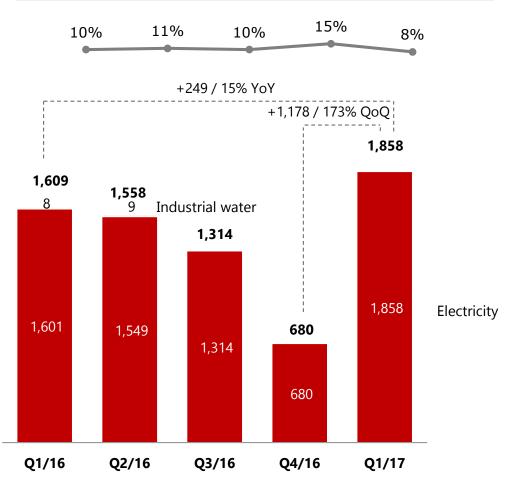
- Total revenue was lower by THB 105 million or 3% due to the volumes of electricity and steam sold decreased by 1% and 11%, respectively. This is because many customers had maintenance shutdowns in Q1/17.
- Gross profit margin increased by 3%. This was mainly from the drop in cost of **maintenance** as there was no maintenance for the machines at CUP-1 and 2 plants in this quarter.

- Total revenue decreased by THB 244 million or 7%, mainly from the average selling price of electricity and steam decreased by 10% and 4%, respectively from decrease in gas price.
- Gross profit margin improved by 2% as the natural gas price was much lower than in O1/16 for approximately 10%.



## PSC Sriracha Power Plant: Revenue & GPM





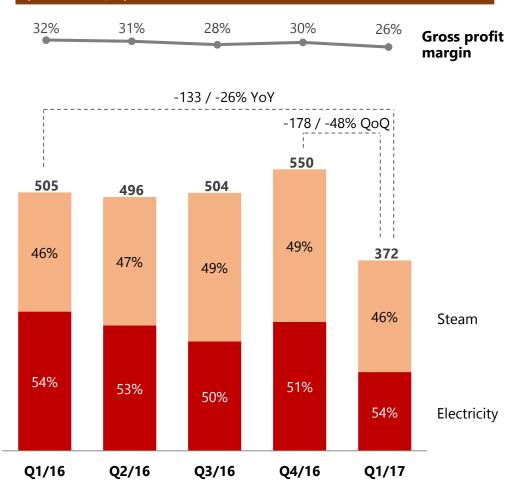
#### Q1/17 VS Q4/16 (QoQ)

- Total revenue in Q1/17 increased by THB 1,178 million or 173% mainly from an increase in the dispatch volume.
- While the GPM decreased because of **the increase in EP** which is the revenue that mainly passes through cost in energy production than generating profit.

- Total revenue in Q1/17 increased by THB 249 million or 15% mainly due to the higher sales volume of electricity submitted to EGAT
- But GPM decreased from the increase in revenue from EP as well.

## **PSC** IRPC - CP Power Plant (SPP): Revenue & GPM (1/3)

## Quarterly revenue & gross profit margin (THB Million, %)



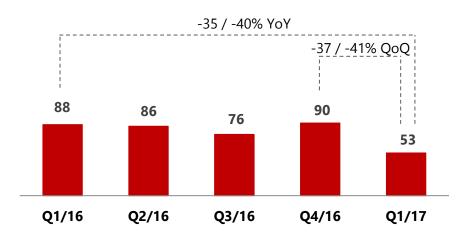
#### Q1/17 VS Q4/16 (QoQ)

- Total revenue in Q1/17 decreased by THB 178 million or 48% due to the maintenance shutdown from the main customer for a month.
- GPM decreased by 4% due to the increase in cost per unit was higher than the increase in selling price per unit.

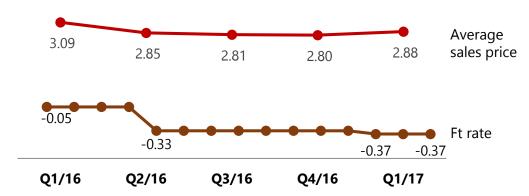
- Total revenue in Q1/17 decreased by THB 133 million or 26% because the one of the main customer had a maintenance shutdown for 1 month.
- Also, the GPM decreased from lower electricity and steam selling prices.

## **CPSC** IRPC - CP Power Plant (SPP): Power (2/3)

## Quarterly power sales volume (GWh)



## Quarterly average sales price & Ft rate (THB/kWh, THB)



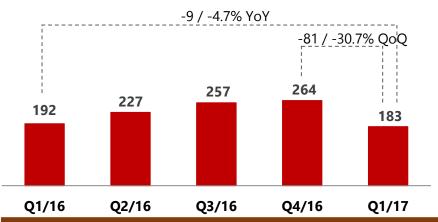
#### Q1/17 VS Q4/16 (QoQ)

- Volume decreased by 37 GWh or 41% due to a maintenance shutdown of one main customer.
- Price increased by 0.08 Baht per kWh or 2.9% due to the increase in k-factor and natural gas price.

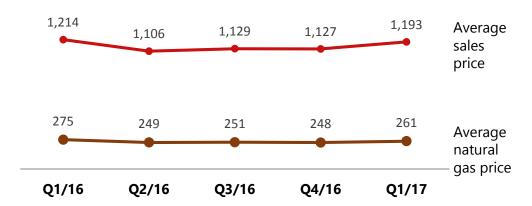
- Volume decreased by 35 GWh or 40% due to the main customer temporarily ceased the operation.
- Price decreased by 0.21 Baht per kWh or 6.8% due to the decrease in Ft rate and natural gas price.

## **EPSC** IRPC - CP Power Plant (SPP): Steam (3/3)

## Quarterly steam sales volume ('000 tons)



## Quarterly average sales price & natural gas price (THB/ton, THB/MMBTU)



#### Q1/17 VS Q4/16 (QoQ)

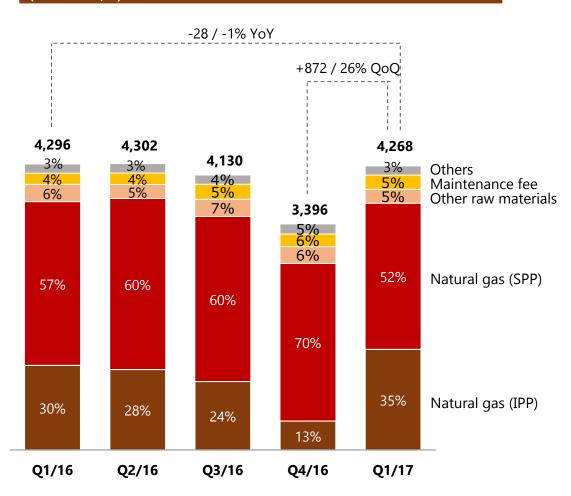
- Volume decreased by 81 thousand tons or 30.7% in Q1/17 due to customer's maintenance shutdown.
- Price increased by 66 Baht per ton or 5.9% in Q1/17 due to the increase in natural gas price.

- Volume decreased by 9 thousand tons or 4.7% due to a main customer had a maintenance shutdown.
- Price decreased by 21 Baht per ton or 1.7% due to the decrease in natural gas price.



## **PSC** Natural gas is main operating cost, increased 26%QoQ

#### Quarterly cost of sales and services\* (THB Million, %)



#### Q1/17 VS Q4/16 (QoQ)

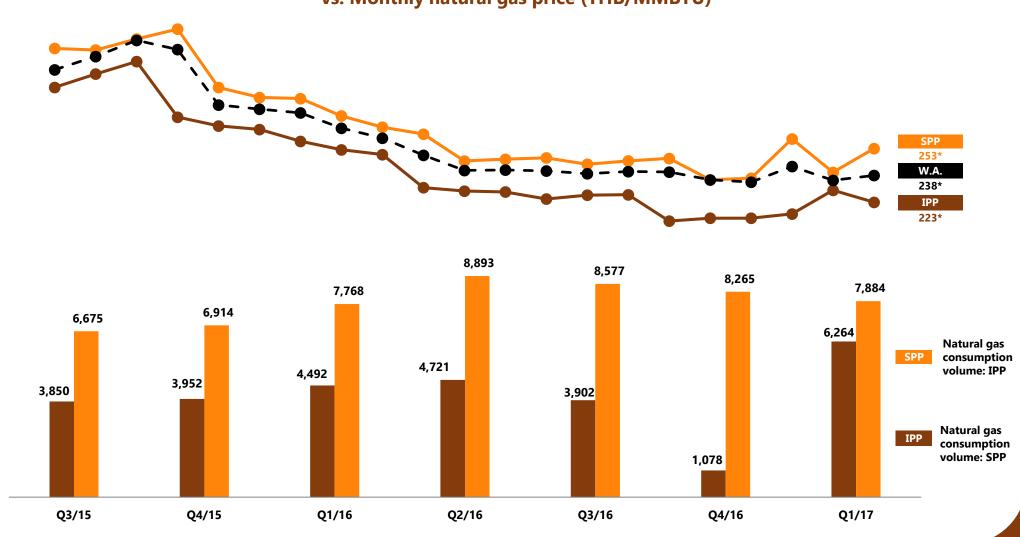
Cost of sales and services in Q1/17 increased by THB 872 million or 26% due to the higher cost of raw materials, mainly natural gas (IPP), in relation to higher dispatch volume of Sriracha plant.

- Cost of sales and services decreased by THB 28 million or 1% due to lower cost of natural gas resulted from the decrease in sales volume of IRPC-CP from a main customer's maintenance shutdown.
- Also, the cost decreased from the price of natural gas which drop YoY following the trend of an oil price.



## **EPSC** Natural gas price and consumption

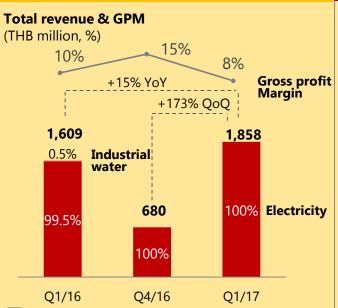




## **CPSC** Q1/17 Revenue and GPM by Major plant

01/16

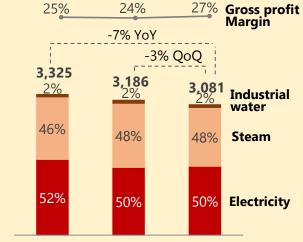




- QoQ: Total revenue was higher by THB 1,178 million mainly from an increase in the dispatch volume while the GPM decreased because of the increase in EP which is the revenue that mainly passes through cost in energy production than generating profit.
- YoY: Total revenue increased by THB 249 million, mainly due to the higher sales volume of electricity submitted to EGAT but GPM decreased from the increase in revenue from EP as well.

## **Rayong Plant (SPP)**

#### **Total revenue & GPM** (THB million, %) 24% 25% -7% YoY



QoQ: Total revenue was lower by THB 105 million due to the volumes of electricity and steam decreased by 1% and 11%. respectively. This is because customers had maintenance shutdowns in Q1/17.

04/16

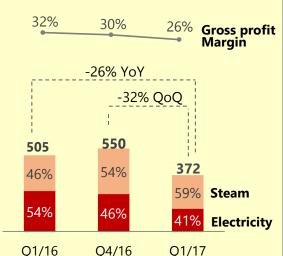
01/17

YoY: Total revenue decreased by THB 244 million, mainly from the average selling price of electricity and steam decreased by 10% and 4%, respectively from decrease in gas price.

### **IRPC-CP Phase 1 Plant (SPP)**

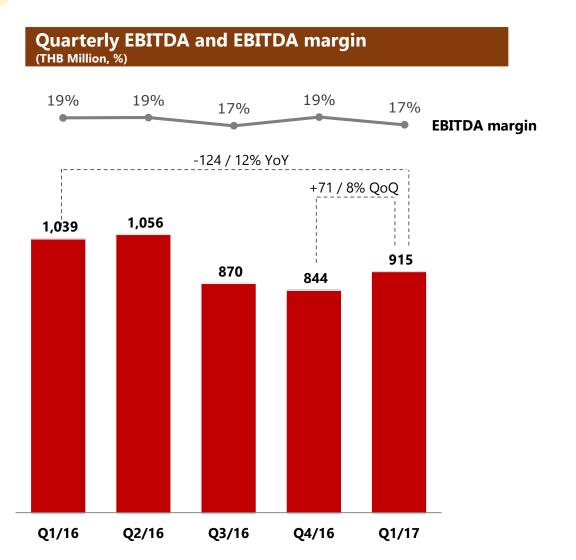
#### **Total revenue & GPM**

(THB million, %)



- QoQ: Total revenue was lower by THB million mainly from the maintenance shutdown from the main customer for a month.
- **YoY**: The revenue of IRPC-CP Phase 1 in Q1/17 decreased from Q1/16 mainly because the one of the main customer had a maintenance shutdown for 1 month. Also, the GPM decreased from lower electricity and steam selling prices.

## **PSC** EBITDA increased 8% QoQ from efficient cost management



#### Q1/17 VS Q4/16 (QoQ)

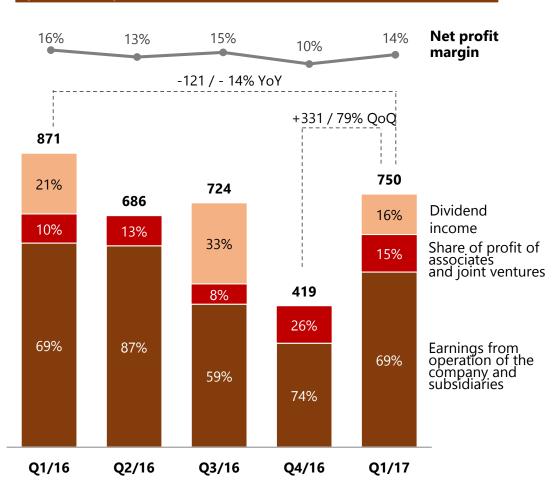
- EBITDA in Q1/17 increased by THB 71 million or 8% to THB 915 million due to better performance of the company's power plants.
- Moreover, the increase in EBITDA caused by the decrease in the selling and administrative expenses relating to the business development costs.

- **EBITDA** decreased by THB 124 million or 12% due to the decrease in operating profit from maintenance shutdown of IRPC's main customer during Q1/17.
- the increase in business Also, development costs resulted in the drop in the EBITDA in Q1/17.



## Net profit grew 79% QoQ from strong operating earnings and supported by returns from investments

## **Quarterly net profit and net profit margin** (THB Million, %)



#### Q1/17 VS Q4/16 (QoQ)

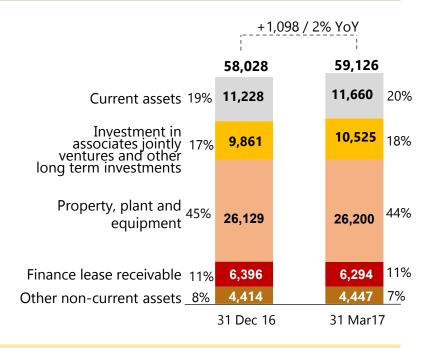
- The net profit increased by THB 331 million or 79% from the continuously efficient cost management and the decrease in maintenance cost of Rayong CUP.
- Furthermore, the increase in the availability rate at Sriracha plant contributed to higher profit.
- Also, GPSC received dividend income from RPCL for THB 120 million.

- Net profit decreased by THB 121 million or 14% due to the dividend income from RPCL was lower than in Q1/16 by THB 60 million.
- Moreover, the drop in profits from IRPC-CP and Rayong CUP caused by the customers' maintenance shutdowns decreased GPSC's overall net profit in Q1/17.



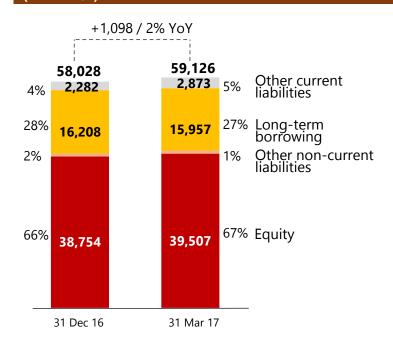
## Summary of financial position of GPSC and its subsidiaries

#### **Total Assets** (THB Million)



- Total assets increased by THB 1,098 million or 2% from THB 58,028 million to THB 59,126 million in Q1/17.
- The increase was mainly from the increase in investment in XPCL for THB 645 million, GPSC hold 25% of shares, and the increase in fixed assets of the power plant during Q1/17.

#### **Total Liabilities & Shareholders equity** (THB million)



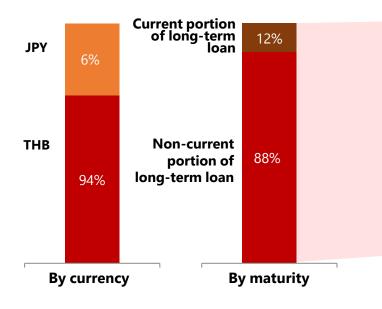
- Total liabilities increased by THB 345 million or 2% to THB 19,619 million due to the increase in the payable balance resulted from higher natural gas consumption from Sriracha plant.
- Equity increased by THB 753 million or 2% to THB 39,507 million from an increase in retained earnings thanks to the growths of from operating performance.



## **PSC** Well-managed debt profile and continuous deleveraging

#### **Debt profile**

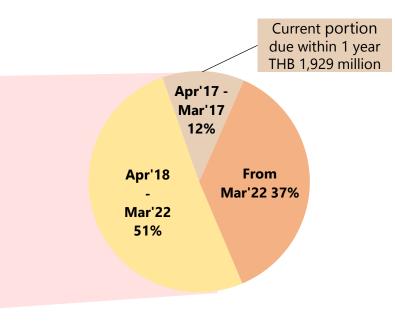
#### Total interest-bearing debt: THB 15,957 Million



### All debt balance as at 31 March 2017 is in THB and JPY currency.

• 100% of total interest-bearing debt is long-term loan which includes 12% of current portion.

#### **Debt repayment plan**



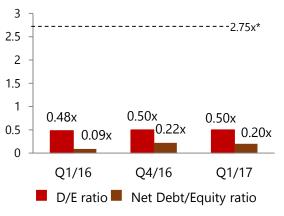
% to total interest-bearing debt

- Non-current portion of long-term debt equals to THB 14,028 million while current portion equals to THB 1,929 million.
- 51% of total interest-bearing debt will be repaid between April 2018 - March 2022.

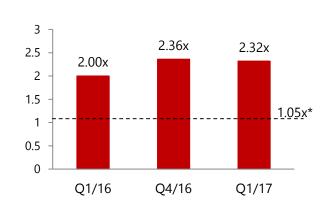


## **PSC** Key financial ratio support GPSC's strong financial position

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



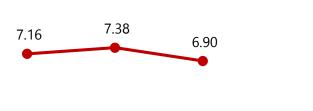
## **DSCR** (Times)

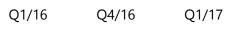


#### Earning per share (EPS) (Baht/share)



#### **ROE** (%)









#### **Book value per share (BVPS)** (Baht/share)







# **GPSC** Growth Strategies

# **Maximize**

**Optimize and Manage cost on existing operating asset** 

# Manage

**Project Management / Portfolio Management** 

## Move

# Grow with PTT & Domestic

## **International Business**

**3 Growth Engines** 

# **b**ptt

- Be PTT Group's power supplier of choice
- New customers in Thailand
- Positioned for new Energy Policy





- Focus countries
- Enhance country knowledge and relationship
- Strategic partners

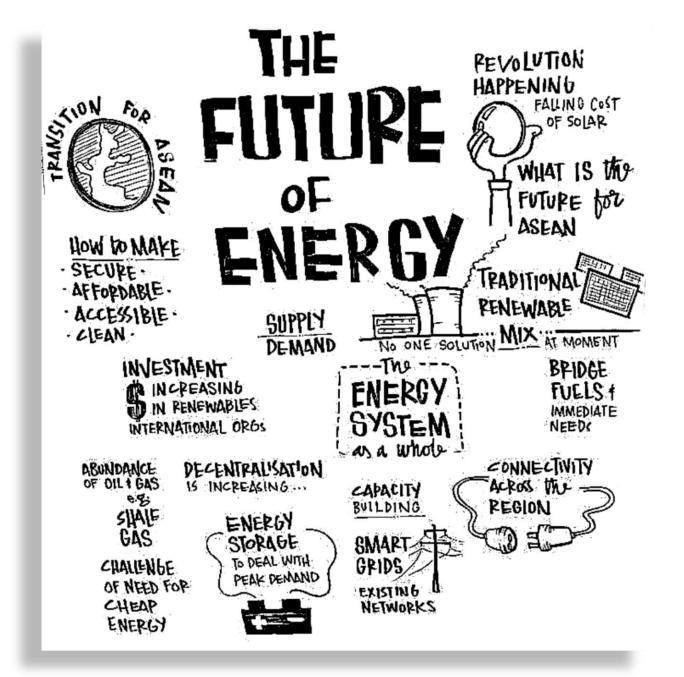
## **Future Energy**



- power grid generation
- Smart grids for smart cities

**New Organization / Process to support the model** 







# THANK YOU

## **Global Power Synergy Public Company Limited**

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## **IR Contact**

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#### www.qpscqroup.com Disclaimer

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Ratios	Formula						
Construction of the construction	Gross profit						
Gross profit margin	Revenue from sales of goods and service + Revenue from finance lease						
	Net profit						
Net profit margin	Total Revenue						
Total Dobt to Favity	Total liabilities						
Total Debt to Equity	Total shareholder's equity						
Net debt to Equity ratio	Interest bearing debts – (Cash and cash equivalents + Restricted cash + Current investments)						
Net debt to Equity fatio	Total shareholder's equity						
DCCD	EBITDA for DSCR for the last 12 months						
DSCR	Principal and Interest to be paid in the next 12 months						
F : (FDC)	Net profit for the company						
Earning per share (EPS)	Weighted average number of shares						
DOE	Net profit for the company						
ROE	Average shareholder's equity						
DOA	Net profit (last 12 months)						
ROA	Average assets						
De alcuelus mar share (D) (DC)	Shareholder's equity for the company						
Book value per share (BVPS)	Average shareholder's equity for the company						



# **EPSC** 2017 Maintenance schedule: Sriracha and Rayong plants

								20	17						
Plant	Tag no.	Description	Q1				Q2			Q3			Q4		
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
CUP-1	H-13701	Aux. Boiler.11			1Y 2	2-12/3									
	N-13901 H-13702	GTG11 HRSG11		1Y 18	3-28/2										
	N-13902 H-13703	GTG12 HRSG12			/4 HG //4 3Y	HG 30/3-1 3Y 30/3-1									
	N-13903 H-13704	GTG13 HRSG13		13-26/	3 <b>PSV</b> 2	3-26/3	10-20	/6 <b>1Y</b>	1Y 4	-14/7					
	N-13904 H-13705	GTG14 HRSG14		13-26/ 1Y 3	3 PSV 2 -13/2	3-26/3						1Y 1	5-25/10		
	N-13961 H-13761	GTG15 HRSG15													
	N-13962 H-13762	GTG16 HRSG16	8 <b>MI</b> 29 8 <b>3Y</b> 29												
CUP-2	H-23701	Aux. Boiler.21					16-26	/6 1Y	1Y 1-	11/7					
	N-23901 H-23701	GTG21 HRSG21					16-26	/6 1Y						11-21/12 1Y	
	N-23902 H-23702	GTG22 HRSG22						/6 1Y /6 3Y					HG 1- 3Y 1-	14/11 14/11	
	N-23911	Steam Turbine21					16-30	/6 MI					MI 16	5-30/11	
CUP-3	H-33701	Aux. Boiler 31								3Y 1	-13/8				
	H-33711	Aux. Boiler 32										3Y	1-13/10		
	H-33712	Aux. Boiler 33									3Y 15	5-27/9			
SRC	11MB 1-211-SG-101	GT11 HRSG#1											1Y		
	12MB 1-211-SG-201	GT12 HRSG#2											17		
Notes MI	Majo	ong Site			22 d	lays	No CI	tes	<b>Sriracha</b> Combusti	Site on Inspection f	or Gas Turbine		9	days	

Notes	Rayong Site		Notes	Sriracha Site	
MI	Major Inspection for Gas Turbine	22 days	CI	Combustion Inspection for Gas Turbine	9 days
HGPI	Hot Gas Path Inspection for Gas Turbine	14 days	1Y	One Year Inspection HRSG	8 days
MO	2nd Major Overhaul for Steam Turbine	27 days			•
Mi	Minor Inspection for Steam Turbine	15 days	,,		
1Y	One Year Inspection Aux. Boiler	11 days	Mainte	enance schedule as of 4Q16	
3Y	Three Year Inspection Aux. Boiler	13 days			



# **Maintenance schedule: IRPC-CP**

		2016											
Plant	Unit	Q1			Q2			Q3			Q4		
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
IRPC-CP	CTG 2B								22/	09 A 30,	/09		
	HRSG2B								22/	09 <b>YI</b> 30,	/09		
	Aux. Boiler				23/0	)5 <b>YI</b> 27/	05						

Notes

A Level A inspection 5 days
YI Yearly inspection 5 days

			2017										
Plant	Unit	Q1			Q2			Q3			Q4		
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
IRPC-CP	CTG 2B	12,	02 IRPC	13/03			27/06	1st Synchron	ization/Com	missioning	16/09		
	HRSG2B	12/	02 IRPC Turnarour	13/03			27/06	1st Synchron	ization/Com	missioning	16/09		
	Aux. Boiler	7/0	2 IRPC Turnaroun	7/03			26 <b>SD</b> 30	)					



24M Technologies, Inc. is a Boston-based "startup company" in the field of Lithium-ion battery (LiB) technology. Founded and led by some of the battery industry's foremost inventors, scientists and entrepreneurs.



24M's Innovation	24M's semisolid lithium-ion battery cell design and begets an advanced manufacturing process, when fully implemented, will reduce the cost of today's lithium-ion batteries by 50% and improve the performance of lithium-ion batteries.
Founded	2010 by 3 Founders  – <u>Dr. Yet-Ming Chiang</u> : Dr. Chiang is a professor of Material Science and Engineering at MIT and one of the top battery researchers in the world.  – <u>Dr. W. Craig Carter</u> : Dr. Carter is a Professor in the Materials Science and Engineering department at MIT.  – <u>Throop M. Wilder</u> : Mr. Wilder is a veteran entrepreneur with roots in communications and networking technologies.
Headquarters	Cambridge, Massachusetts (MA), USA
Recent Development	<ul> <li>Industry Recognitions:</li> <li>Bloomberg New Energy Finance:</li> <li>2016 Energy Innovation Pioneers</li> <li>IHS Energy CERAWEEK: 2016 New Energy Pioneers</li> <li>MIT Technology Review: 50 Smartest Companies 2016</li> <li>World Economic Forum: Technology Pioneers 2016</li> <li>Goverment Grant &amp; Funding:         <ul> <li>The United States Advanced Battery Consortium (USABC) Awards \$7 Million Contract to 24M to Develop lower cost EV batteries manufacturing process. The competitively bid contract award is 50 percent cost share-funded by the U.S. Department of Energy (DOE).</li> </ul> </li> </ul>



of GPSC Portion

\*Outstanding (Non-Fully Diluted basis) share as of 2016 year end





The Future of...



million











Advanced Research Projects Agency • ENERGY





## PSC 24M Technologies, Inc. (24M)



## 24M Technologies, Inc. (24M) Cambridge, Massachusetts (MA), USA

**Business** Lithium-Ion Battery technology **Application** Energy Storage System (ESS)

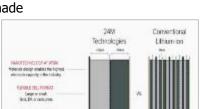
2010 2011 2012 2013  24M was Developed Developed established 5x thicker end to end eliminate	•
Developed Developed Automa	3 2014
electrodes than cell production coating, previously etc. possible	tes 9000 <sup>th</sup> Experiment

#### **Progress update**

- On October'16, 24M Delivers Initial Quantity of Production-size Semisolid Lithium-ion Cells to NEC Energy Solutions (NECES) for Testing and Validation.
  - Currently, 24M is working on the **developing of High Volume Manufacturing production line.**

#### **Awards & Recognition**

- Throughout 2016, 24M has received many awards and recognition. For example:
  - 2016 Energy Innovation Pioneers: CERAWEEK, HIS Energy
  - 2016 New Energy Pioneers: Future of Energy Summit, BENF
  - Listed in "50 Smartest Companies 2016": MIT Technology Review
  - 2016 Platts Global Energy Awards finalists: Breakthrough Solution of the Year
  - 2016 Zayed Future Energy Prize finalists



2015

volume unit

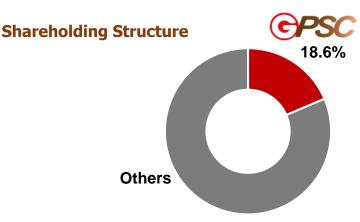
operation

Proven key high

2016 - 2017

Leverage existing investment





**Total Investment of GPSC Portion** 

~22 USD million