

25 SEPTEMBER 2020

# THAILAND UTILITIES

## การนำเข้า LNG: ล่าช้าแต่ไม่ยกเลิก

### ปัญหาเล็กน้อยสำหรับผู้นำเข้า LNG

เมื่อวันที่ 21 ก.ย. 2020 คณะกรรมการกำกับกิจการพลังงาน (กกพ.) และรัฐมนตรีพลังงาน นายสุพัฒนพงษ์ พันธ์มีเชาว์ได้เลื่อนการพิจารณาระเบียบการเปิดนำเข้าเสรี LNG ไปอย่างไม่มีกำหนด โดยให้เหตุผลถึงปัญหาค้างคาในด้านการใช้กฎหมายเกี่ยวกับการเปิดให้ใช้หรือเชื่อมต่อบริเวณระบบส่งก๊าซธรรมชาติและสถานีแอลเอ็นจีแก่บุคคลที่สาม (Third-Party Access หรือ TPA) TPA มีจุดมุ่งหมายเพื่อเปิดตลาด LNG และก๊าซให้กับภาคเอกชนเพื่อส่งเสริมการแข่งขันและปรับปรุงความโปร่งใสภายในระบบเครือข่ายพลังงานในปัจจุบัน ณ สิ้นเดือน ก.ย. 2020 รัฐบาลไทยได้ให้ใบอนุญาตนำเข้า LNG แก่บริษัท 5 แห่งประกอบด้วย PTT (PTT TB, BUY, TP THB60) การไฟฟ้าฝ่ายผลิตแห่งประเทศไทย (EGAT) BGRIM GULF และ RATCH (โดยผ่าน Hin Kong Power Holding Co หรือ HKH)

### 3 ประเด็นหลักที่ต้องแก้ไขก่อนการนำเข้า LNG จะสามารถเดินหน้าได้

รัฐมนตรีพลังงานกล่าวว่า มี 3 ประเด็นหลักที่จำเป็นต้องแก้ไขก่อนที่บริษัทเอกชน 3 แห่งที่ได้รับใบอนุญาตนำเข้าประกอบด้วย GULF RATCH (ผ่านกิจการร่วมค้า HKH) และ BGRIM จะสามารถเริ่มนำเข้าก๊าซธรรมชาติเหลว (Liquefied Natural Gas หรือ LNG) สำหรับโรงงานไฟฟ้าของตน ประการแรก ภายใต้ TPA และแผนพัฒนากำลังผลิตไฟฟ้าแห่งชาติปี 2018 (The Power Development Plan 2018 หรือ PDP 2018) จำนวน ราคาและต้นทุนอื่นที่เกี่ยวข้องกับการนำเข้า LNG ต้องเป็นไปตามความต้องการไฟฟ้าปัจจุบันและราคาก๊าซธรรมชาติที่จำหน่ายให้แก่โรงไฟฟ้าของ กกพ. ผู้ผลิตไฟฟ้าอิสระ ผู้ผลิตไฟฟ้ารายเล็ก และผู้ใช้ก๊าซอื่นๆ (the pooled gas price) ประการที่สอง จำเป็นต้องจัดให้มีมาตรฐานสำหรับคุณภาพของก๊าซในแง่ของค่าความร้อนที่แตกต่างกัน (Different Heat Rates) และส่วนผสมอื่น ๆ เพื่อให้แน่ใจว่าได้คุณภาพก๊าซที่สม่ำเสมอเมื่อการนำเข้า LNG เริ่มขึ้น ประการที่สาม ต้องมีการประเมินผลกระทบที่อาจเกิดขึ้นจากการนำเข้า LNG ต่อข้อตกลงการขายก๊าซ (Gas Sales Agreement หรือ GSA) ในปัจจุบันของ PTT

### ผลกระทบทางการเงินที่อาจเกิดขึ้นจากการนำเข้า LNG

จากข้อมูลที่ได้จาก GULF BGRIM และผู้บริหารของ PTT การนำเข้า LNG ของบริษัทเอกชนมีแนวโน้มที่จะช้าออกไป 6 เดือน โดยอาจเริ่มได้ใน 1H21 เมื่อการนำเข้า LNG เริ่มขึ้น เราคาดว่า GULF อาจประหยัดต้นทุนก๊าซได้ถึง 0.1-0.2 พัน ลบ. ต่อปีจากการนำเข้า LNG จำนวน 0.3 mtpa ในขณะที่ BGRIM อาจประหยัดได้ 0.3-0.4 พัน ลบ. เริ่มตั้งแต่ปี 2021 โดยคิดจากปริมาณนำเข้า LNG ซึ่งเราคาดว่าเริ่มต้นจะอยู่ที่ 0.2-0.3 mtpa เพื่อป้องกันกับผู้ผลิตไฟฟ้ารายเล็กของบริษัท และเงินที่ประหยัดได้อาจเพิ่มเป็น 0.8-1.2 พัน ลบ. หลังปี 2023 เมื่อเราคาดว่า BGRIM จะนำเข้า LNG ตามจำนวนที่ได้รับอนุญาตที่ 0.65 mtpa

### เลือก GULF เป็นหุ้นเด่น

เราคงแนะนำซื้อสำหรับหุ้นผู้ผลิตไฟฟ้ารายเล็กของไทย กล่าวคือ GULF BGRIM และ GPSC จากแนวโน้มการเติบโตของกำไรสุทธิที่ดีใน 2H20-2022E โดยได้รับแรงผลักดันจาก 1) ต้นทุนก๊าซที่คาดว่าจะลดลง 10-30% จากต้นทุนใน 1H21E; 2) กำไรสุทธิ Upsides จากการนำเข้า LNG ซึ่งปัจจุบันเราคาดว่าจะเกิดขึ้นตั้งแต่ปี 2021 เป็นต้นไป; และ 3) การฟื้นตัวของความต้องการสำหรับผู้ใช้งานอุตสาหกรรม (Industrial Users หรือ IU) ใน 2H20E หลังลดลงอย่างรุนแรงใน 1H20 จากมาตรการปิดเมืองเพื่อป้องกันการแพร่ระบาด COVID-19



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บทวิเคราะห์ฉบับนี้แปลมาจากบทวิเคราะห์ของ FSSIA ฉบับวันที่ 25 กันยายน 2020

## LNG imports delayed, potentially to 1H21

According to the energy minister, three key issues need to be resolved before the three private companies that have been awarded shipper licences – GULF and RATCH via their JV HKH, and BGRIM – can actually start importing LNG for their power plants.

First, under TPA and PDP 2018, the LNG import amount, price, and any other related costs associated with LNG imports, needs to be aligned with the current electricity demand and the pooled gas price.

Second, a standard for the pooled gas quality, in terms of different heat rates and other content, needs to be established in order to ensure consistent gas quality once LNG imports proceed.

Third, the potential impact of LNG imports on PTT's current take-or-pay GSAs, which could impact the country's energy security – particularly for power and petrochemical sectors – needs to be assessed.

### Exhibit 1: Enterprises that TPA will apply to



Source: PTT

## Recap of Thai gas market liberalization

On 21 May-20, the Thai regulator, the ERC, finally approved one shipper licence for HKH and another license for GULF for the import of LNG. These were the first two licences for LNG ventures to be awarded to private companies, following the previous two licences that were awarded to PTT and EGAT; both current importers of LNG in Thailand. As of May-20, Thailand has awarded LNG import shipper licences to five companies, including PTT, EGAT, BGRIM, GULF, and RATCH via HKH.

The first licence awarded is for the import of 1.4mtpa of LNG under HKH, 49% owned by GULF and 51% by RATCH. According to GULF, HKH's LNG shipper licence will be used for HKP, a 1.4GW gas-fired independent power producer (IPP), 100% owned by HKH (commercial operation date (COD) scheduled for 2024).

The second LNG shipper licence was awarded to GULF for the import of 0.3mtpa of LNG to supply its 19 small power producers (SPP), currently in operation, aiming to reduce gas costs, which account for 60-70% of the SPPs' total cost.

BGRIM was granted a shipper licence on 27 May-20 to import 0.65mtpa LNG for its 0.7GW SPPs under SPP replacement power purchase agreements (PPA), becoming the third private company to receive a licence from the ERC in 2020. The new licence could significantly reduce the gas cost of BGRIM's upcoming replacement SPPs, scheduled to start their CODs in 2022.

### TPA – the key to opening up the Thai gas market

All of the parties involved in Thailand’s gas market, including PTT, EGAT, IPPs, and SPPs will need to abide by a framework for technical and financial clarity, as well as follow principles of fairness in accordance with the energy minister’s directive. The TPA law is intended to open the LNG and gas market to the private sector in order to promote competition and improve transparency within the existing energy network system.

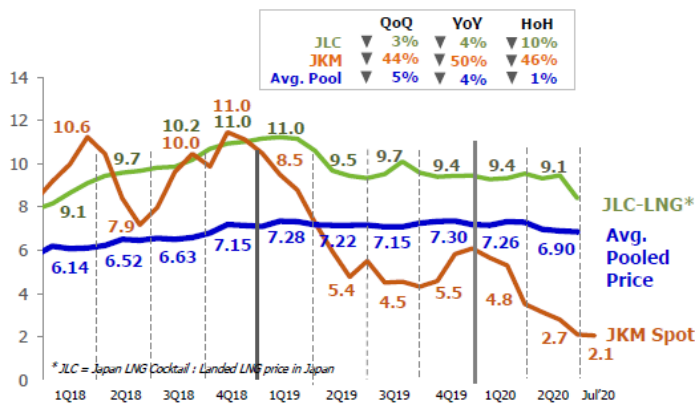
Exhibit 2: Definitions and procedures for TPA



Source: PTT

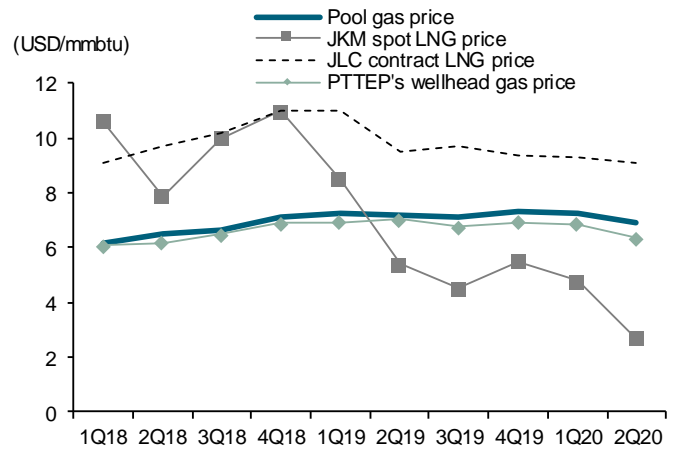
**Gas price impact under TPA.** Since TPA allows private companies with LNG shipper licences to import LNG for their own use and resales, there are two implications for the gas market. First, the current pooled gas price needs to be revised to incorporate the LNG prices from LNG imports. Second, a certain level of gas quality needs to be ensured in order to be consistent with the pipeline and overall gas system.

Exhibit 3: Thailand’s average gas pooled price, JLC contract LNG price, and JKM spot LNG price (USD/mmbtu)



Source: PTT

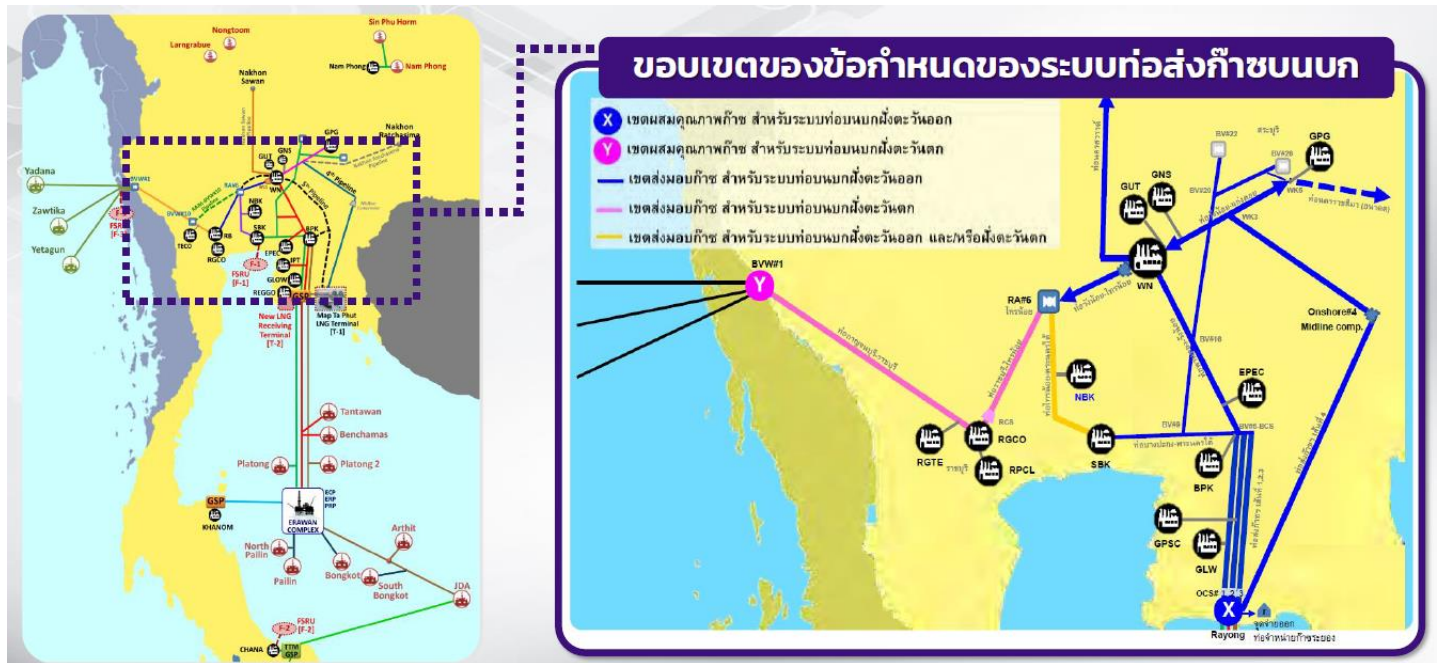
Exhibit 4: PTTEP’s average gas selling price, Thailand’s pooled gas price, JKM spot LNG price, and JLC contract LNG price



Source: PTT

**Gas price issue.** Thailand's pooled gas price is currently higher than the benchmark – the Japan-Korea Marker (JKM) LNG spot price at USD2.7/mmbtu – but lower than the Japan LNG Cocktail (JLC) contract price of USD9.1/mmbtu in 2Q20. We believe this is the main reason why Thai private power companies, including GULF and BGRIM, have been trying to attain shipper licences to import LNG for their own power plants – to capitalise on the currently low LNG spot price due to the LNG oversupply.

**Exhibit 5: Applicable onshore pipeline areas under TPA**



Source: PTT

**Transmission pipeline tariff issue.** In Thailand, PTT charges a transmission pipeline tariff (TM) for all gas flowing through its pipelines. The TM is comprised of two components – demand charge (TD) and commodity charge (TC). We estimate that the total TM charges for power companies amounts to THB21.9/mmbtu, comprising 1) THB1.3/mmbtu TC; 2) THB12.1/mmbtu TM zone 3; and 3) THB8.6/mmbtu TM zone 1. For other buyers like RATCH, that purchase imported gas from Myanmar, the TM charge differs according to the different pipeline used for gas transmission from Myanmar through western Thailand into the power plants in Ratchaburi province.

**Exhibit 6: Thailand's gas transmission pipeline tariffs**

Transmission pipeline tariff	Area	Fixed tariff (Tdf)		Variable tariff (Tdv)	
		(THB/mmbtu)		(THB/mmbtu)	
Area 1: offshore pipeline in Rayong	East coast	8.59		1.30	
Area 2: offshore pipeline in Khanom	South coast	14.22		1.30	
Area 3: nearshore pipeline	On the coast	12.07		1.30	
Area 4: onshore pipeline in Rayong	East inland	2.49		0.13	
Area 5: offshore pipeline in Namphong	Northeast inland	1.13		0.00	
<b>Total transmission pipeline (Area 1-5)</b>		<b>38.49</b>		<b>4.04</b>	
LNG terminal fee		18.00		0.86	

Sources: Energy Policy and Planning Office (EPPO); FSSIA estimates

For the LNG terminal fee, under Thailand's third-party access regulation that allows any private company to lease and use PTT's existing infrastructure facilities, including LNG terminals and gas pipelines, the ERC has set a THB18.86/mmbtu charge for LNG terminal leasing, comprising a THB18/mmbtu fixed tariff (Tdf) and a THB0.86/mmbtu variable tariff (Tdv).



Based on our gas cost-savings estimate under our import LNG price assumptions of blended LNG prices at 70% spot and 30% contract, we found that the net import LNG price would be 35% cheaper for SPPs and 33% for IPPs. However, for IPPs, the gas cost-savings would be fully passed through to the buyer, EGAT, and hence result in no financial benefit from LNG imports. We think that only the 1.75% mark-up margin may be offset by LNG imports, and hence result in a small financial benefit for IPPs, such as HKP.

**Exhibit 7: LNG import price vs gas prices for IPPs and SPPs (2Q20)**

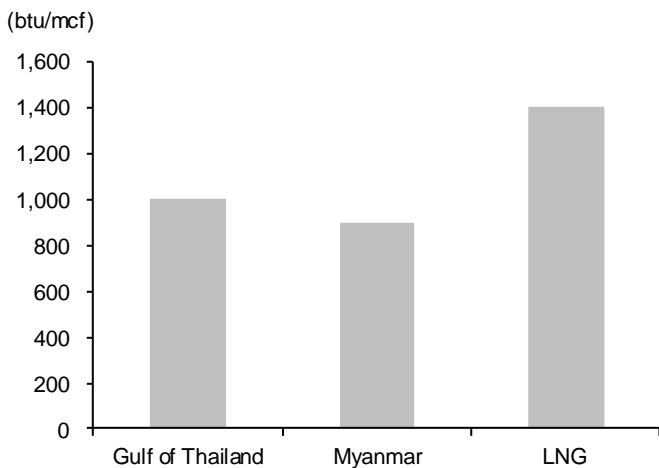
	Price	% of LNG import	
	(USD/mmbtu)	(%)	
JKM spot	2.7	70.0	
JLC contract	9.1	30.0	
(USD/mmbtu)	Import LNG price	SPP gas price	IPP gas price
Blended import LNG	4.6		
LNG terminal fee	0.6		
TM charge		0.8	0.8
Gas supply charge		0.4	0.1
Pool gas		6.9	6.9
Net price	5.2	8.0	7.7
Discount to existing gas price (%)		35	33

Sources: PTT; FSSIA estimates

**Gas quality issue.** In addition to the pipeline capacity needed to accommodate the gas supply, there is another important consideration about the blended quality of gas transmitted in the pipeline system, which is measured in the Wobbe Index (WI). In general, the WI for natural gas has to be within a certain range in order to ensure the quality compatibility of the gas to be distributed to each user, particularly power plants with different gas qualities and heat values.

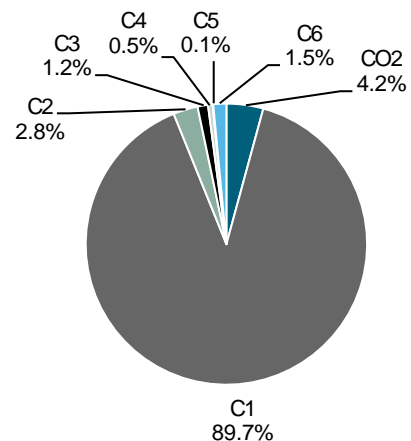
For import LNG, while the heat rate is higher than the heat values of gasses from the Gulf of Thailand (GoT) and Myanmar, the difference in WI between LNG and gasses from the GoT and Myanmar have to be adjusted by PTT to make the blended gas pool in the pipeline align with each user.

**Exhibit 8: Heating value comparison of gas**



Sources: PTT; BGRIM

**Exhibit 9: Thailand's gas components**

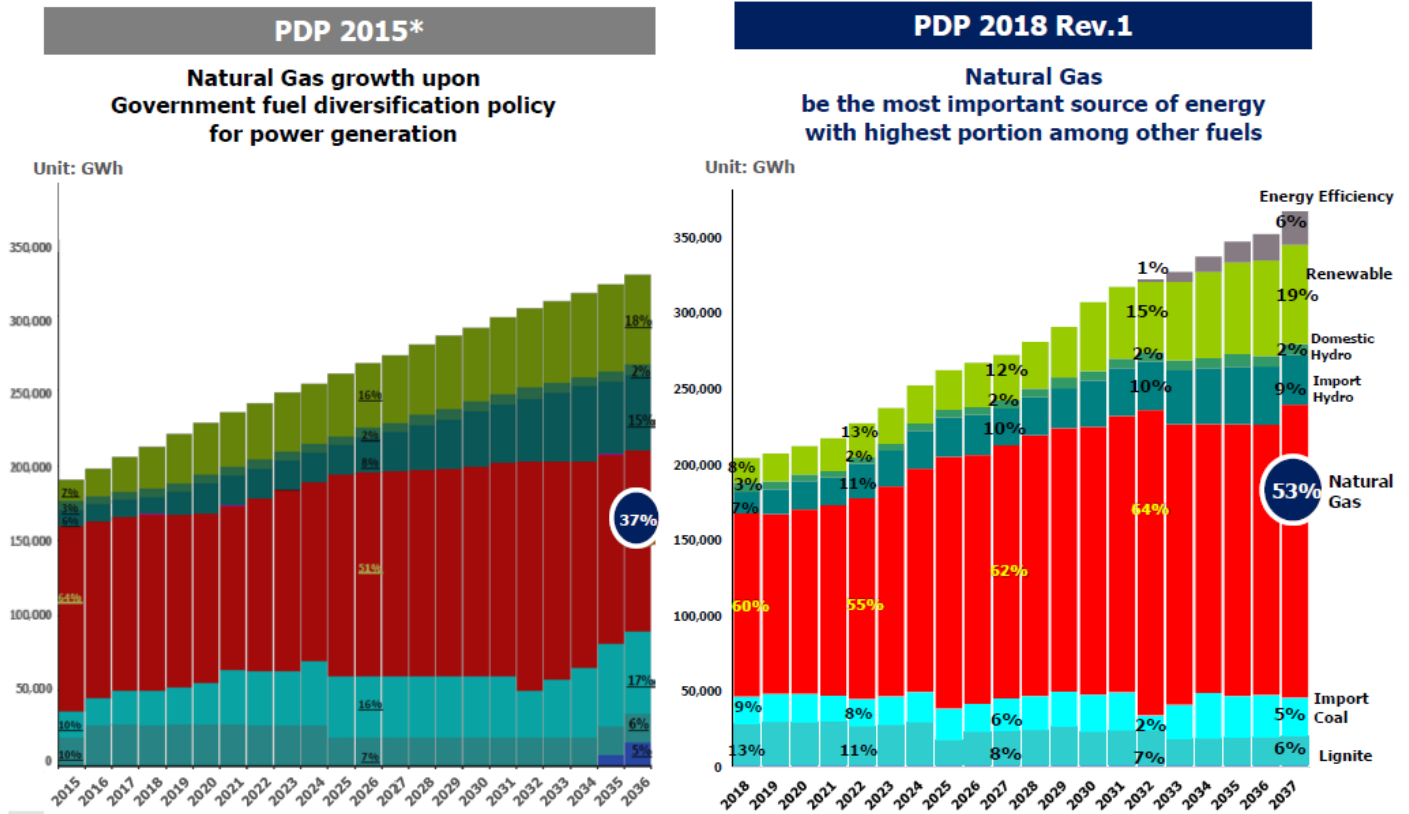


Source: PTT Distribution Service Center

In Thailand, the methane (C1) content of 89.7% is lower than the gasses from Myanmar and LNG, with C1 content of over 90%, hence the gas from the GoT has a higher content of non-C1, which could be used as feedstock to produce petrochemical products, while C1 is mainly used to produce fertilizer or as an energy source for power plants. While the LNG spot price for the shipper licences awarded to GULF and BGRIM could reduce the gas costs for those companies, we think the gas quality issue could prevent both GULF and BGRIM from completely relying on the imported LNG in the near term, at least until the gas quality concern can be resolved within one to two years, based on our estimate.

**Gas demand and existing take-or-pay GSAs.** The final key concern about permitting LNG imports by private companies is the potential impact it could have on the gas purchases made by EGAT, IPPs, and SPPs from the seller, PTT, via the existing GSAs for each gas field in Thailand. According to PTT’s management, GSAs for each gas field normally have long-term 10-year contracts and a minimum delivery contract quantity (DCQ), which we estimate to be around 75-80% of the normal gas demand purchased by each buyer.

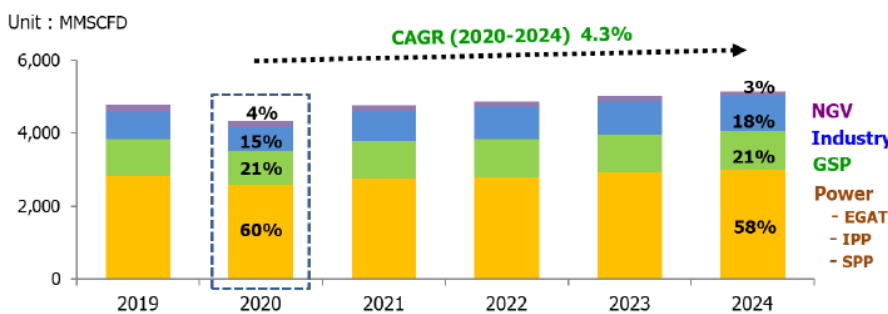
**Exhibit 10: Gas demand projections under PDP 2018 Revision 1 vs PDP 2015**



Sources: PTT; Ministry of Energy; EPPO

If buyers purchase gas quantities above the DCQ amount they could carry those “excess” gas purchases above the DCQ as the carried-forward reserve amount. They could then use those reserves as gas volume discounts against the minimum required DCQ for their future gas purchases. Hence, if BGRIM and GULF start to import LNG in 2021, they may purchase gas below their DCQs and potentially jeopardize PTT’s gas demand balance against the gas supply projection.

**Exhibit 11: Thailand’s gas demand outlook (short-term 5-year plan)**

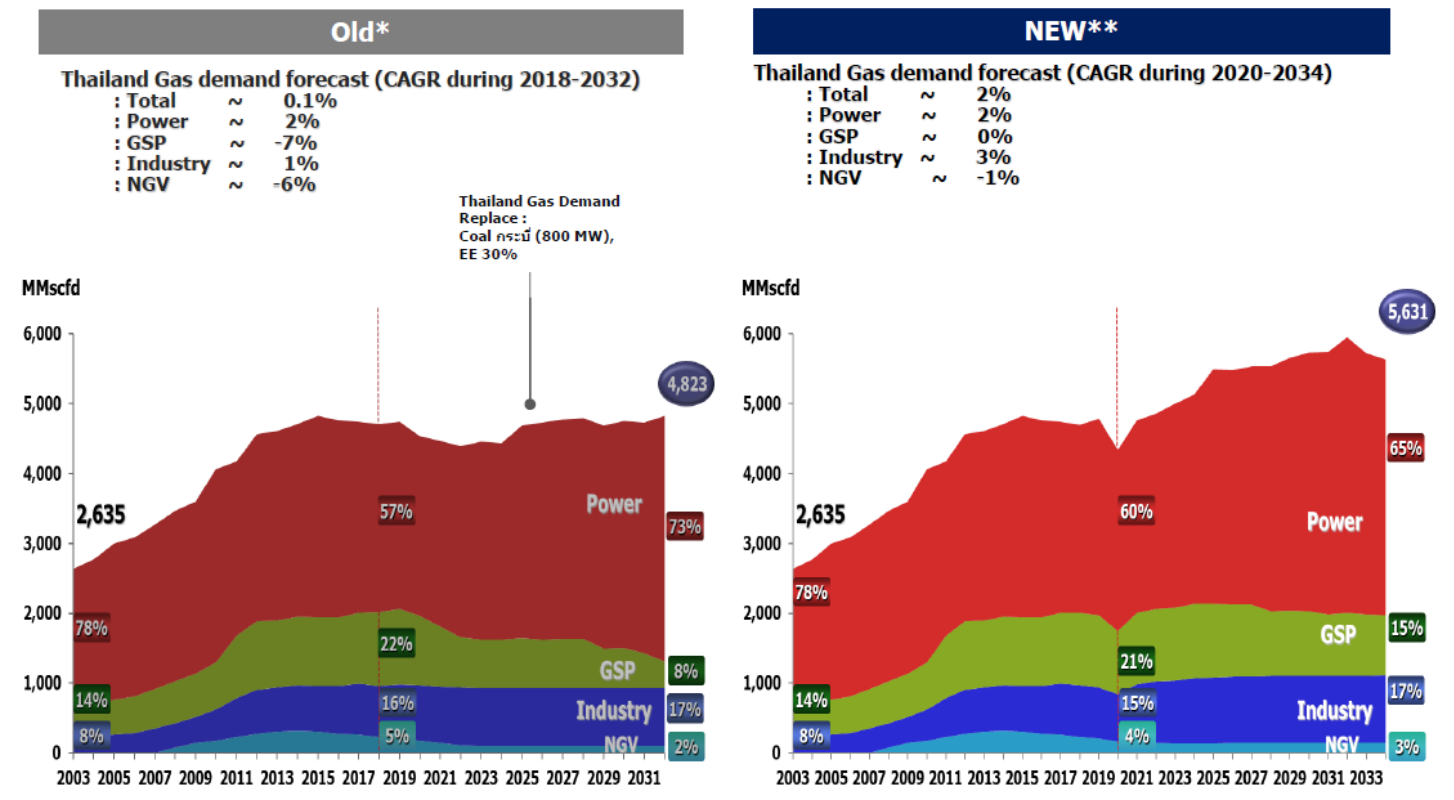


Source: PTT

However, we think BGRIM and GULF are unlikely to break their GSAs and should still be able to purchase gas at the allotted DCQs from PTT, based on:

- 1) The 0.65mtpa LNG import license for BGRIM and 0.3mtpa for GULF are expected to sufficiently supply gas for only 10-15% of the gas demand required for BGRIM's and GULF's SPPs currently in operation. Hence, both BGRIM and GULF will still have to purchase gas from PTT for their SPPs in order to run the SPPs at 90-95% utilisation rates, mainly to serve the required electricity sold to EGAT.
- 2) We think both BGRIM and GULF will gradually import LNG below their 0.65mtpa and 0.3mtpa awarded amount in 2021-22, due to their required DCQ gas purchase volume obligations with PTT and the uncertainty of the gas demand for their SPPs due to the less predictable electricity and steam demand for IUs.

**Exhibit 12: Gas demand growth projections (Gas Plan 2015 vs the tentative gas plan under the new government's fuel diversification plan)**



Sources: Ministry of Energy, PTT business plan 2020

According to GULF, BGRIM, and PTT's management, the three key issues ordered by the new energy minister for review – the impact of LNG imports on the pooled gas price, pooled gas quality, and existing take-or-pay GSAs – are likely to be resolved within the next 6 months, and hence the LNG imports by private companies could begin at the earliest in 1Q21, in our view.

## Potential financial impacts from LNG import venture

**HKH (RATCH and GULF) should benefit when HKP commences its COD in 2024E.** We believe the financial benefit for HKH's 1.4mtpa LNG import volume shipper licence, which will be fully consumed by HKP, will be limited, as the gas cost for an IPP like HKP would normally be fully passed through to the buyer, EGAT. Hence, the cost savings for lower LNG costs may be fully passed through to EGAT.

At present, PTT sells its LNG to IPPs and EGAT at 1.75% and to SPPs at 9.3% fixed mark-up margins over pooled gas cost plus transmission pipeline tariff. Assuming the 1.75% margin is saved via LNG import, we estimate HKH to provide THB0.3b savings annually to HKP, and THB0.15b to GULF, based on GULF's 49% stake in HKP.

**GULF could see a gas cost-saving benefit of up to 0.2b annually starting in 2021.**

We believe the second shipper licence for LNG imports of 0.3mtpa under GULF will create a much higher financial benefit for the company, as 1) the currently paid gas price with a 9.3% fixed margin mark-up over the pooled gas price plus TM would be fully eliminated; 2) the LNG import price, based on the projected combination of 70% spot (JKM LNG price of USD2.7/mmbtu in 2Q20) and 30% long-term contract LNG price (JLC contract price of USD9.1/mmbtu in 2Q20) would result in a 33-35% lower LNG blended import price than the current gas price of USD8/mmbtu paid to PTT by GULF's 19 SPPs. We estimate that GULF could save up to THB0.1-0.2b in gas costs annually from its 0.3mtpa LNG imports, which are estimated to be 10-15% of the total annual gas consumption of GULF's 19 SPPs currently in operation. This could add THB2/shr to GULF, based on our estimate.

**BGRIM could benefit the most from LNG imports among the three awarded companies.** In May-20, BGRIM was granted a shipper license to import LNG in order to serve its own SPPs and sell to third parties. We think BGRIM's 0.65mtpa LNG import volume will be consumed entirely by its four SPP replacement PPA power plants with a total capacity of 0.7GW.

We estimate that BGRIM could save on gas costs for its four SPPs under SPP replacement PPAs, which consume gas at up to 0.65-0.75mt of LNG annually, based on our estimate. We project THB0.8-1.2b in additional net profit post 2023 from LNG imports, and this could add a THB10-12/shr value upside, based on the DCF valuation to our current SoTP-based TP of THB75 for BGRIM.



## Exhibit 13: Peer comparisons

Company	BBG code	Rec	Share Price	Target price	Upside	Market Cap	3Y EPS CAGR	PE		ROE		PBV		EV / EBITDA	
								20E	21E	20E	21E	20E	21E	20E	21E
			(Local curr)	(Local curr)	(%)	(USD m)	(%)	(x)	(x)	(%)	(%)	(x)	(x)	(x)	(x)
<b>THAILAND</b>															
B Grimm Power	BGRIM TB	BUY	41.50	75.00	81	3,424	47.4	23.6	15.4	15.5	20.8	3.5	3.5	10.4	8.7
Gulf Energy Deve	GULF TB	BUY	29.25	48.00	64	9,876	18.7	69.6	38.0	9.0	11.9	4.8	4.8	44.6	33.0
Global Power Syn	GPSC TB	BUY	59.00	112.00	90	5,266	32.5	22.2	17.6	7.3	8.8	1.6	1.6	12.6	11.6
Banpu Power	BPP TB	HOLD	13.30	15.20	14	1,283	13.5	12.0	9.4	8.5	10.5	1.0	1.0	22.3	37.4
Electricity Gen	EGCO TB	BUY	191.00	372.00	95	3,183	(2.8)	8.0	7.0	11.6	12.1	0.9	0.9	15.1	13.4
Ratch Group	RATCH TB	BUY	49.25	82.00	66	2,260	17.2	8.9	7.4	13.1	14.5	1.1	1.1	10.0	8.4
Wha Utilities&Pow	WHAUP TB	BUY	3.66	5.20	42	443	2.3	6.1	6.1	16.1	15.0	0.9	0.9	38.5	36.8
Bcpg	BCPG TB	BUY	11.90	17.40	46	753	(2.3)	16.1	14.2	10.1	9.9	1.3	1.3	22.3	20.7
Ck Power	CKP TB	BUY	5.85	6.60	13	1,505	46.0	45.0	20.9	4.4	9.0	2.0	2.0	16.1	11.3
Energy Absolute	EA TB	BUY	39.50	55.00	39	4,664	10.3	21.5	18.0	26.7	26.7	5.3	5.3	16.3	12.8
Gunkul Engineer	GUNKUL TB	BUY	2.30	3.20	39	639	(3.6)	9.6	8.8	18.9	18.6	1.7	1.7	10.0	9.1
Demco Pcl	DEMCO TB	HOLD	2.90	2.70	(7)	67	63.9	16.1	13.2	4.2	4.9	0.7	0.7	(61.5)	(64.8)
Power Solution	PSTC TB	BUY	1.61	1.09	(32)	121	38.7	32.2	20.1	10.0	14.1	3.1	3.1	22.1	15.0
Sermasang Power	SSP TB	BUY	7.05	9.20	30	206	12.0	9.3	8.5	17.1	16.9	1.5	1.5	9.4	8.2
Tpc Power	TPCH TB	BUY	11.60	15.00	29	147	18.6	8.3	7.7	18.6	17.5	1.5	1.5	6.0	5.7
Tpi Polene Power	TPIPP TB	BUY	4.18	5.70	36	1,111	0.6	7.3	7.5	17.2	16.2	1.2	1.2	6.3	6.2
<b>Thailand avg</b>						<b>34,950</b>	<b>19.9</b>	<b>32.9</b>	<b>20.6</b>	<b>12.6</b>	<b>14.6</b>	<b>3.0</b>	<b>3.0</b>	<b>22.6</b>	<b>18.5</b>
<b>HONGKONG</b>															
Datang Intl Power	991 HK	NA	0.98	NA	NA	4,968	(3.4)	7.2	6.2	3.2	4.1	0.3	0.3	8.6	8.4
Huadian Power	1071 HK	NA	2.02	NA	NA	4,754	28.7	4.6	4.1	6.3	7.1	0.3	0.3	8.1	7.9
Huaneng Power	902 HK	NA	3.08	NA	NA	10,419	71.3	5.7	5.3	7.0	7.4	0.4	0.4	8.2	7.7
China Power Inter	2380 HK	NA	1.45	NA	NA	1,835	103.3	6.8	5.0	5.7	7.4	0.4	0.4	9.2	7.9
China Resources	836 HK	NA	8.69	NA	NA	5,357	13.1	4.9	4.3	10.9	11.9	0.5	0.5	5.7	5.1
Clp Holdings Ltd	2 HK	NA	72.25	NA	NA	23,878	4.5	16.2	15.5	10.6	10.7	1.7	1.6	10.5	10.0
Power Assets	6 HK	NA	41.60	NA	NA	11,415	(8.0)	14.3	13.6	7.1	7.7	1.0	1.0	60.9	68.9
<b>Hongkong avg</b>						<b>62,625</b>	<b>18.2</b>	<b>11.3</b>	<b>10.6</b>	<b>8.3</b>	<b>8.8</b>	<b>1.0</b>	<b>1.0</b>	<b>18.5</b>	<b>19.6</b>
<b>MALAYSIA</b>															
Petronas Gas	PTG MK	NA	16.40	NA	NA	7,856	(2.3)	17.2	17.3	14.3	14.3	2.6	2.4	9.1	9.0
Tenaga Nasional	TNB MK	NA	10.82	NA	NA	14,908	7.7	13.5	12.1	7.9	8.6	1.1	1.0	7.5	7.2
Ytl Power Inte	YTLP MK	NA	0.68	NA	NA	1,251	(22.5)	16.6	16.2	2.7	2.7	0.4	0.4	10.5	10.5
<b>Malaysia avg</b>						<b>24,015</b>	<b>2.8</b>	<b>14.9</b>	<b>14.0</b>	<b>9.7</b>	<b>10.2</b>	<b>1.5</b>	<b>1.4</b>	<b>8.2</b>	<b>7.9</b>
<b>CHINA</b>															
China Datang	1798 HK	NA	1.17	NA	NA	1,070	21.2	7.1	6.2	7.7	6.7	0.5	0.4	8.7	7.8
China Gas	384 HK	NA	21.30	NA	NA	14,544	35.0	12.1	10.4	23.2	23.8	2.7	2.3	10.8	9.1
China Longyuan	916 HK	NA	4.75	NA	NA	4,946	23.2	7.1	6.4	8.9	9.2	0.6	0.6	6.8	6.2
Beijing Enterprises	392 HK	NA	23.45	NA	NA	3,835	5.1	3.9	3.6	9.8	9.9	0.4	0.3	8.8	8.6
Kunlun Energy	135 HK	NA	5.15	NA	NA	5,709	16.5	6.7	5.7	11.2	12.3	0.7	0.7	4.1	3.8
<b>China avg</b>						<b>30,104</b>	<b>25.3</b>	<b>9.0</b>	<b>7.9</b>	<b>16.3</b>	<b>16.8</b>	<b>1.6</b>	<b>1.4</b>	<b>8.5</b>	<b>7.5</b>
<b>INDONESIA</b>															
Perusahaan Gas	PGAS IJ	NA	960.00	NA	NA	1,572	105.1	16.2	8.1	2.8	4.5	0.6	0.6	5.7	5.3
<b>Indonesia avg</b>						<b>1,572</b>	<b>105.1</b>	<b>16.2</b>	<b>8.1</b>	<b>2.8</b>	<b>4.5</b>	<b>0.6</b>	<b>0.6</b>	<b>5.7</b>	<b>5.3</b>
<b>SINGAPORE</b>															
Sembcorp Indus	SCI SP	NA	1.32	NA	NA	1,714	(7.8)	16.9	6.9	1.7	8.1	0.5	0.5	14.2	10.7
<b>Singapore avg</b>						<b>1,714</b>	<b>(7.8)</b>	<b>16.9</b>	<b>6.9</b>	<b>1.7</b>	<b>8.1</b>	<b>0.5</b>	<b>0.5</b>	<b>14.2</b>	<b>10.7</b>
<b>Utilities under coverage</b>						<b>34,950</b>	<b>19.9</b>	<b>32.9</b>	<b>20.6</b>	<b>12.6</b>	<b>14.6</b>	<b>3.0</b>	<b>3.0</b>	<b>22.6</b>	<b>18.5</b>
<b>Average (all)</b>						<b>154,980</b>	<b>18.2</b>	<b>16.4</b>	<b>12.8</b>	<b>10.9</b>	<b>11.8</b>	<b>1.6</b>	<b>1.6</b>	<b>15.7</b>	<b>15.0</b>

Share prices as of 24 September 2020

Sources: Bloomberg; FSSIA estimates

## Corporate Governance report of Thai listed companies 2019

EXCELLENT LEVEL										
AAV	ADVANC	AIRA	AKP	AKR	AMA	AMATA	AMATAV	ANAN	AOT	AP
ARROW	BAFS	BANPU	BAY	BCP	BCPG	BOL	BRR	BTS	BTW	BWG
CFRESH	CHEWA	CHO	CK	CKP	CM	CNT	COL	COMAN	CPALL	CPF
CPI	CPN	CSS	DELTA	DEMCO	DRT	DTAC	DTC	EA	EASTW	ECF
EGCO	GBX	GC	GCAP	GEL	GGP	GGC	GOLD	GPSC	GRAMMY	GUNKUL
HANA	HARN	HMPRO	ICC	ICHI	III	ILINK	INTUCH	IRPC	IVL	JKN
JSP	K	KBANK	KCE	KKP	KSL	KTB	KTC	KTIS	LH	LHFG
LIT	LPN	MAKRO	MALEE	MBK	MBKET	MC	MCOT	MFEC	MINT	MONO*
MTC	NCH	NCL	NKI	NSI	NVD	NYT	OISHI	OTO	PAP	PCSGH
PDJ	PG	PHOL	PJW	PLANB	PLANET	PORT	PPS	PR9	PREB	PRG
PRM	PSH	PSL	PTG	PTT	PTTEP	PTTGC	PYLON	Q-CON	QH	QTC
RATCH	ROBINS**	RS	S	S & J	SABINA	SAMART	SAMTEL	SAT	SC	SCB
SCC	SCCC	SCN	SDC	SEAFCO	SEAOIL	SE-ED	SELIC	SENA	SIS	SITHAI
SNC	SORKON	SPALI	SPI	SPRC	SSSC	STA	STEC	SVI	SYNTEC	TASCO
TCAP	THAI	THANA	THANI	THCOM	THIP	THREL	TIP	TISCO	TK	TKT
TMB	TMILL	TNDT	TOA	TOP	TRC	TRU	TRUE	TSC	TSR	TSTH
TTA	TTCL	TTW	TU	TVD	TVO	U	UAC	UV	VGI	VIH
WACOAL	WAVE	WHA	WHAUP	WICE	WINNER					
VERY GOOD LEVEL										
2S	ABM	ADB	AF	AGE	AH	AHC	AIT	ALLA	ALT	AMANA
AMARIN	APCO	APCS	AQUA	ARIP	ASAP	ASIA	ASIAN	ASIMAR	ASK	ASN
ASP	ATP30	AUCT	AYUD	B	BA	BBL	BDMS	BEC	BEM	BFIT
BGC	BGRIM	BIZ	BJC	BJCHI	BLA	BPP	BROOK	CBG	CEN	CENDEL
CGH	CHG	CHOTI	CHOW	CI	CIMBT	CNS	COLOR	COM7	COTTO	CRD
CSC	CSP	DCC	DCON	DDD	DOD	EASON	ECL	EE	EPG	ERW
ESTAR	ETE	FLOYD	FN	FNS	FORTH	FPI	FPT	FSMART	FSS	FVC
GENCO	GJS	GL	GLOBAL	GLOW**	GULF	HPT	HTC	HYDRO	ICN	IFS
INET	INSURE	IRC	IRCP	IT	ITD***	ITEL	J	JAS*	JCK	JCKH
JMART	JMT	JWD	KBS	KCAR	KBS	KIAT	KOOL	KWC	KWM	L&E
LALIN	LANNA	LDC	LHK	LOXLEY	LRH	LST	M	MACO	MAJOR	MBAX
MEGA	METCO	MFC	MK	MODERN	MOONG	MPG	MSC	MTI	NEP	NETBAY
NEX	NINE	NOBLE	NOK	NTV	NWR	OCC	OGC	ORI	OSP	PATO
PB	PDG	PDI	PL	PLAT	PNR	PPP	PRECHA	PRIN	PRINC	PSTC
PT	QLT	RCL	RICHY	RML	RWI	S11	SAAM	SALEE	SAMCO	SANKO
SAPPE	SAWAD	SCG	SCI	SCP	SE	SFP	SIAM	SINGER	SIRI	SKE
SKR	SKY	SMIT	SMK	SMP	SMT	SNP	SONIC	SPA	SPC	SPCG
SPVI	SR	SRICHA	SSC	SSF	SST	STANLY	STPI	SUC	SUN	SUSCO
SUTHA	SWC	SYMC	SYNEX	T	TACC	TAE	TAKUNI	TBSP	TCC	TCMC
TEAM	TEAMG	TFG	TFMAMA	THG	THRE	TIPCO	TITLE	TIW	TKN	TKS
TM	TMC	TMD	TMI	TMT	TNITY	TNL	TNP	TNR	TOG	TPA
TPAC	TPBI	TPCORP	TPOLY	TRITN	TRT	TSE	TSTE	TVI	TVT	TWP
TWPC	UBIS	UEC	UMI	UOBKH	UP	UPF	UPOIC	UT	UWC	VNT
WIJK	XO	YUASA	ZEN	ZMICO						
GOOD LEVEL										
A	ABICO	ACAP***	AEC	AEONTS	AJ	ALUCON	AMC	APURE	AS	ASEFA
AU	B52	BCH	BEAUTY	BGT	BH	BIG	BLAND	BM	BR	BROCK
BSBM	BSM	BTNC	CCET	CCP	CGD	CHARAN	CHAYO	CITY	CMAN	CMC
CMO	CMR	CPL	CPT	CSR	CTW	CWT	D	DIMET	EKH	EMC
EPCO	ESSO	FE	FTE	GIFT	GLAND	GLOCON	GPI	GREEN	GTB	GYT
HTECH	HUMAN	IHL	INGRS	INOX	JTS	JUBILE	KASET	KCM	KKC	KWG
KYE	LEE	LPH	MATCH	MATI	M-CHAI	MCS	MDX	META	MGT	MJD
MM	MVP	NC	NDR	NER	NNCL	NPK	NUSA	OCEAN	PAF	PF
PICO	PIMO	PK	PLE	PMTA	POST	PPM	PROUD	PTL	RCI	RJH
ROJNA	RPC	RPH	SF	SGF	SGP	SKN	SLP	SMART	SOLAR	SPG
SQ	SSP	STI	SUPER	SVOA	TCCC	THE	THMUI	TIC	TIGER	TNH
TOPP	TPCH	TPIPP	TPLAS	TQM	TTI	TYCN	UTP	VCOM	VIBHA	VPO
WIN	WORK	WP	WPH	ZIGA						
Score Range	Number of Logo					Description				
90-100						Excellent				
80-89						Very Good				
70-79						Good				
60-69						Satisfactory				
50-59						Pass				
Less than 50	No logo given					-				

**Disclaimer:**

The disclosure of the survey results of the Thai Institute of Directors Association ("IOD") regarding corporate governance is made pursuant to the policy of the Office of the Securities and Exchange Commission. The survey of the IOD is based on the information of a company listed on the Stock Exchange of Thailand and the Market for Alternative Investment disclosed to the public and able to be accessed by a general public investor. The result, therefore, is from the perspective of a third party. It is not an evaluation of operation and is not based on inside information.

The survey result is as of the date appearing in the Corporate Governance Report of Thai Listed Companies. As a result, the survey results may be changed after that date. FSS International Investment Advisory Company Limited does not confirm nor certify the accuracy of such survey results.

\* CGR scoring should be considered with news regarding wrong doing of the company or director or executive of the company such unfair practice on securities trading, fraud, and corruption SEC imposed a civil sanction against insider trading of director and executive; \*\* delisted

Source: Thai Institute of Directors Association (IOD); FSSIA's compilation

## Anti-corruption Progress Indicator

CERTIFIED										
ADVANC	AIE	AKP	AMANAHA	AP	APCS	AQUA	ARROW	ASK	ASP	AYUD
BAFS	BANPU	BAY	BBL	BCH	BCP	BCPG	BGRIM	BJCHI	BKI	BLA
BROOK	BRR	BSBM	BTS	BWG	CEN	CENTEL	CFRESH	CGH	CHEWA	CIG
CIMBT	CM	COM7	CPALL	CPF	CPI	CPN	CSC	DCC	DEMCO	DIMET
DRT	DTAC	DTC	EASTW	ECL	EGCO	FE	FNS	FSS	GBX	GC
GCAP	GEL	GFPT	GGC	GJS	GOLD	GPSC	GSTEEL	GUNKUL	HANA	HARN
HMPRO	HTC	ICC	IFS	INET	INSURE	INTUCH	IRPC	IVL	K	KASET
KBANK	KBS	KCAR	KCE	KGI	KKP	KSL	KTB	KTC	KWC	L&E
LANNA	LHK	LPN	LRH	M	MAKRO	MALEE	MBAX	MBK	MBKET	MC
MCOT	MFC	MINT	MONO	MOONG	MSC	MTI	NBC	NINE	NKI	NMG
NNCL	NSI	OCC	OCEAN	OGC	PAP	PATO	PB	PCSGH	PDG	PDI
PDJ	PE	PG	PHOL	PL	PLANB	PLANET	PLAT	PM	PPP	PPS
PREB	PRG	PRINC	PSH	PSTC	PT	PTG	PTT	PTTEP	PTTGC	PYLON
Q-CON	QH	QLT	QTC	RATCH	RML	S & J	SABINA	SAT	SC	SCB
SCC	SCCC	SCG	SCN	SE-ED	SELIC	SENA	SGP	SIRI	SIS	SITHAI
SMIT	SMK	SMPC	SNC	SNP	SORKON	SPACK	SPC	SPI	SPRC	SRICHA
SSF	SSI	SSSC	SST	STA	SUSCO	SVI	SYNTEC	TASCO	TCAP	TFG
TFI	TFMAMA	THANI	THCOM	THIP	THRE	THREL	TIP	TIPCO	TISCO	TKT
TMB	TMD	TMILL	TMT	TNITY	TNL	TNP	TNR	TOG	TOP	TPA
TPCORP	TRU	TRUE	TSC	TSTH	TTCL	TU	TVD	TVI	TWPC	U
UBIS	UEC	UKEM	UOBKH	VGI	VIH	VNT	WACOAL	WHA	WICE	WIIK
DECLARED										
2S	ABICO	AF	AI	AIRA	ALT	AMA	AMARIN	AMATA	ANAN	B
BM	BPP	BUI	CHG	CHO	CHOTI	CHOW	CI	CMC	COL	DDD
DELTA	EFORL	EPCO	ESTAR	ETE	FPI	FTE	ICHI	INOX	IRC	ITEL
JAS	JSP	JTS	KWG	LDC	LIT	META	MFEC	MPG	NEP	NOK
NWR	ORI	PRM	PSL	ROJNA	RWI	SAAM	SAPPE	SCI	SEOIL	SHANG
SKR	SPALI	STANLY	SYNEX	TAE	TAKUNI	TMC	TOPP	TPP	TRITN	TVO
UV	UWC	WHAUP	XO	YUASA	ZEN					

Level	
Certified	This level indicates practical participation with thoroughly examination in relation to the recommended procedures from the audit committee or the SEC's certified auditor, being a certified member of Thailand's Private Sector Collective Action Coalition Against Corruption programme (Thai CAC) or already passed examination to ensure independence from external parties.
Declared	This level indicates determination to participate in the Thailand's Private Sector Collective Action Coalition Against Corruption programme (Thai CAC)

**Disclaimer:**

The disclosure of the Anti-Corruption Progress Indicators of a listed company on the Stock Exchange of Thailand, which is assessed by Thaipat Institute, is made in order to comply with the policy and sustainable development plan for the listed companies of the Office of the Securities and Exchange Commission. Thaipat Institute made this assessment based on the information received from the listed company, as stipulated in the form for the assessment of Anti-corruption which refers to the Annual Registration Statement (Form 56-1), Annual Report (Form 56-2), or other relevant documents or reports of such listed company. The assessment result is therefore made from the perspective of Thaipat Institute that is a third party. It is not an assessment of operation and is not based on any inside information. Since this assessment is only the assessment result as of the date appearing in the assessment result, it may be changed after that date or when there is any change to the relevant information. Nevertheless, FSS International Investment Advisory Company Limited does not confirm, verify, or certify the accuracy and completeness of the assessment results.

Note: Companies participating in Thailand's Private Sector Collective Action Coalition Against Corruption programme (Thai CAC) under Thai Institute of Directors (as of June 24, 2019) are categorised into: 1) companies that have declared their intention to join CAC, and; 2) companies certified by CAC.

Source: The Securities and Exchange Commission, Thailand; \* FSSIA's compilation

## GENERAL DISCLAIMER

### ANALYST(S) CERTIFICATION

#### Suwat Sinsadok FSS International Investment Advisory Securities Co., Ltd

The individual(s) identified above certify(ies) that (i) all views expressed in this report accurately reflect the personal view of the analyst(s) with regard to any and all of the subject securities, companies or issuers mentioned in this report; and (ii) no part of the compensation of the analyst(s) was, is, or will be, directly or indirectly, related to the specific recommendations or views expressed herein.

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Company	Ticker	Price	Rating	Valuation & Risks
B.Grimm Power	BGRIM TB	THB 41.50	BUY	The downside risks to our SoTP-based TP include 1) lower-than-expected demand for electricity in Thailand; 2) a lower crude price; and 3) unplanned shutdowns of its SPPs.
Global Power Synergy	GPSC TB	THB 59.00	BUY	The downside risks to our SoTP-based TP on GPSC include 1) lower-than-expected demand for electricity in Thailand; 2) a lower crude price; and 3) lower-than-expected demand from industrial users.
Gulf Energy Development	GULF TB	THB 29.25	BUY	The downside risks to our SoTP-based TP on GULF include 1) lower-than-expected demand for electricity in Thailand; 2) a lower crude price; and 3) delays in project CODs.
PTT	PTT TB	THB 32.50	BUY	Risks to our SoTP-based valuation are the oil price and potential earnings downsides from government intervention.
Ratch Group	RATCH TB	THB 49.25	BUY	The downside risks to our SoTP-based TP include 1) lower-than-expected demand for electricity in Thailand; 2) a lower crude price; and 3) delays in starting new projects.
Banpu Power	BPP TB	THB 13.30	HOLD	Downside risks to our SoTP valuation are the start-up delays of its new project and government intervention in the electricity tariff. Upside risk includes the lower coal price.
Electricity Generating	EGCO TB	THB 191.00	BUY	Downside risks to our SoTP-based TP include 1) lower-than-expected demand for electricity in Thailand; 2) delays in project commencement or commercial operation dates (COD); and 3) government intervention in electricity tariff subsidies.
WHA Utilities & Power	WHAUP TB	THB 3.66	BUY	Downside risks to our SoTP-based TP include 1) lower-than-expected demand for electricity in Thailand; and 2) a lower crude price.
BCPG	BCPG TB	THB 11.90	BUY	The downside risks to our SoTP-based TP include: 1) lower-than-expected demand for electricity in Thailand, the Philippines and Indonesia; and 2) government intervention by way of electricity tariff subsidies.
CK Power	CKP TB	THB 5.85	BUY	The downside risks to our SoTP-based TP include lower-than-expected demand for electricity in Thailand and lower-than-expected water supply for hydro projects.
Energy Absolute	EA TB	THB 39.50	BUY	Downside risks to our SoTP-based TP include: 1) lower-than-expected demand for electricity in Thailand; 2) lower crude price; and 3) lower-than-expected demand for batteries.
Gunkul Engineering	GUNKUL TB	THB 2.30	BUY	The downside risks to our SoTP-based TP on GUNKUL include 1) lower-than-expected demand for electricity in Thailand; 2) declining EPC backlogs; and 3) lower-than-expected utilisation rates for solar and wind farms
Demco	DEMCO TB	THB 2.90	HOLD	The upside risks to our SoTP-based TP on DEMCO include 1) higher-than-expected demand for electricity in Thailand; and 2) higher EPC demand. Downside risk includes delays in bidding for power transmission projects.
Power Solution Technologies	PSTC TB	THB 1.61	BUY	The downside risks to our SoTP-based TP on PSTC include 1) lower-than-expected demand for electricity in Thailand and delays of power plant project start-ups.
Sermuang Power Corp	SSP TB	THB 7.05	BUY	The downside risks to our SoTP-based TP for SSP include 1) a lower-than-expected demand for electricity in Thailand; 2) a lower crude price, and 3) project start-up delays.
TPC Power Holding	TPCH TB	THB 11.60	BUY	The downside risks to our SoTP-based TP include 1) lower-than-expected demand for electricity in Thailand, 2) a lower crude price; and 3) higher costs of biomass feedstock.
TPI Polene Power	TPIPP TB	THB 4.18	BUY	Downside risks to our SoTP-based TP include 1) lower-than-expected demand for electricity in Thailand; 2) lower crude price; and 3) unplanned shutdowns of the company's power plants.

Source: FSSIA estimates

#### Additional Disclosures

Target price history, stock price charts, valuation and risk details, and equity rating histories applicable to each company rated in this report is available in our most recently published reports. You can contact the analyst named on the front of this note or your representative at Finansia Syrus Securities Public Company Limited

All share prices are as at market close on 24-Sep-2020 unless otherwise stated.

## RECOMMENDATION STRUCTURE

### Stock ratings

Stock ratings are based on absolute upside or downside, which we define as (target price\* - current price) / current price.

BUY (B). The upside is 10% or more.

HOLD (H). The upside or downside is less than 10%.

REDUCE (R). The downside is 10% or more.

Unless otherwise specified, these recommendations are set with a 12-month horizon. Thus, it is possible that future price volatility may cause a temporary mismatch between upside/downside for a stock based on market price and the formal recommendation.

\* In most cases, the target price will equal the analyst's assessment of the current fair value of the stock. However, if the analyst doesn't think the market will reassess the stock over the specified time horizon due to a lack of events or catalysts, then the target price may differ from fair value. In most cases, therefore, our recommendation is an assessment of the mismatch between current market price and our assessment of current fair value.

### Industry Recommendations

**Overweight.** The analyst expects the fundamental conditions of the sector to be positive over the next 12 months.

**Neutral.** The analyst expects the fundamental conditions of the sector to be maintained over the next 12 months.

**Underweight.** The analyst expects the fundamental conditions of the sector to be negative over the next 12 months.

### Country (Strategy) Recommendations

**Overweight (O).** Over the next 12 months, the analyst expects the market to score positively on two or more of the criteria used to determine market recommendations: index returns relative to the regional benchmark, index sharpe ratio relative to the regional benchmark and index returns relative to the market cost of equity.

**Neutral (N).** Over the next 12 months, the analyst expects the market to score positively on one of the criteria used to determine market recommendations: index returns relative to the regional benchmark, index sharpe ratio relative to the regional benchmark and index returns relative to the market cost of equity.

**Underweight (U).** Over the next 12 months, the analyst does not expect the market to score positively on any of the criteria used to determine market recommendations: index returns relative to the regional benchmark, index sharpe ratio relative to the regional benchmark and index returns relative to the market cost of equity.