

# Thailand Utilities - Renewables

## New capacity for wind and solar coming soon

- EPPO has approved the opening of bids under PDP2018Rev1 for new renewable power generation projects scheduled to be operational in 2022-30.
- Under AEDP2018, the new capacity allowance for wind farms is 1,485MW, solar farms 3,368MW, and biogas 335MW.
- Our top picks in Thai renewable energy are EA, GULF, GUNKUL, and SSP.

### Up to 5.2GW in new renewable capacity up for grabs by 4Q22

On 6 May-22, the Energy Policy and Planning Office (EPPO), under Power Development Plan 2018 Revision 1 (PDP2018Rev1), approved the plan to open bidding for new renewable power projects that will commence their commercial operation dates (CODs) in 2022-30. Also, the Energy Regulatory Commission (ERC) has established the 2022-30 feed-in-tariff (FiT) structure covering non-firm power purchase agreements (PPAs) for renewable energy projects with a capacity of 90MW or less, including solar farms, wind farms, biogas (wastewater), and partial-firm PPAs for hybrid solar farms and battery energy storage systems (solar+BESS) with a PPA life of 20-25 years. Total PPA capacity will be 5.2GW for projects scheduled to COD during 2024-30.

### EIRR of 12-13% possible despite the new lower tariff rates

The winning bids will be based on four criteria including 1) competitive price; 2) entity qualifications (only private companies); 3) technical and financial qualifications; and 4) transmission constraints, in order of priority from the highest to the lowest: biogas (wastewater), wind farms, solar+BESS, and solar farms. The FiT structure will be the lowest ever for renewable energy projects in Thailand at THB2.07/kWh for biogas, THB3.1/kWh for wind farms, THB2.17/kWh for solar farms, and THB2.83/kWh for solar farms+BESS. With the sharp drop in the investment costs of solar farms, wind farms, and battery storage, we think an economic internal rate of return (EIRR) in the range of 12-13% is achievable.

### Bidding to open on 1.5GW of wind, 3.4GW of solar

Under AEDP2018, the capacity allowance for wind farms was 1,485MW, slightly lower than the projected 1,500MW in new wind farm capacity up for bidding in the coming round. New solar farm capacity at 3,368MW is lower than the 8,740MW allowance under AEDP2018, while the 335MW for biogas is in line with the previous allocation of 400MW. The new solar farm+BESS allowance, with a capacity of 1GW, is being introduced for the first time by Thailand's ERC, given the faster-than-expected development of battery production facilities in Thailand. While these are mostly for electric vehicles (EVs), they can also be deployed as energy storage systems for renewables as well as conventional power plant projects.

### EA, GULF, GUNKUL, and SSP are best positioned to win

We expect Thai power companies to secure regulatory approval for new renewable energy capacity in the next few months, including EA, GUNKUL, SSP, and conventional fossil-fuel based power plant companies who plan to participate in the bidding for renewable projects. Our top picks in the Thai renewable industry are EA, GULF, GUNKUL, and SSP.



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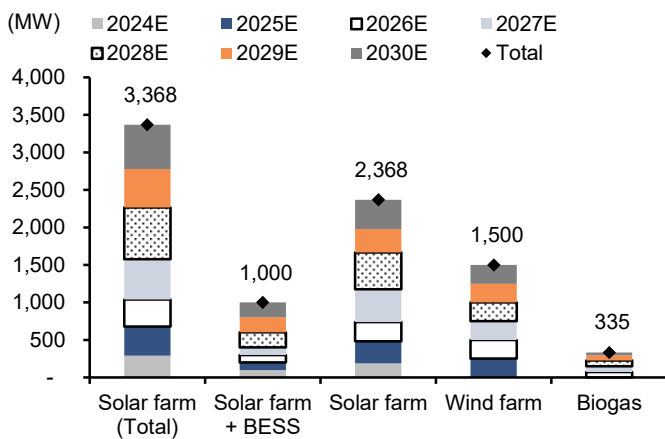
## New wind and solar capacity on the way

On 6 May-22, EPPO, under PDP2018Rev1, approved the plan to open a new round of bidding for additional renewable power capacity scheduled to COD in 2022-30.

In the latest step forward, the ERC has announced a new FiT tariff structure for 2022-30, with details as follows:

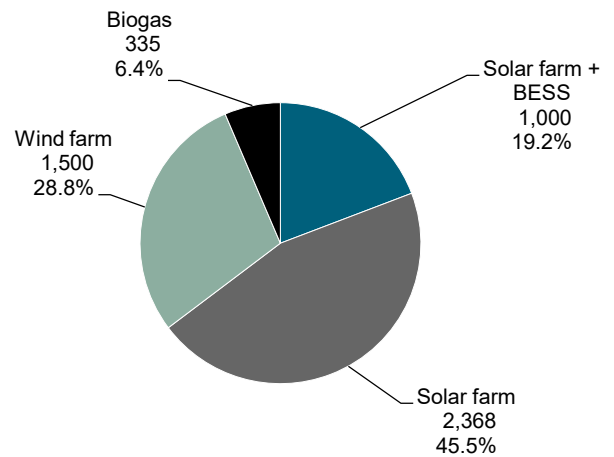
- Open bidding for new non-firm renewable power projects with a capacity of 90MW or less, including solar farms, wind farms, biogas (wastewater);
- Open bidding for partial-firm renewable power projects, including hybrid solar farms and solar+BESS with power purchase agreements covering 20-25 years;
- New PPAs with a total capacity of 5.2GW to COD during 2024-30.

**Exhibit 1: Bidding for new renewable capacity by type**



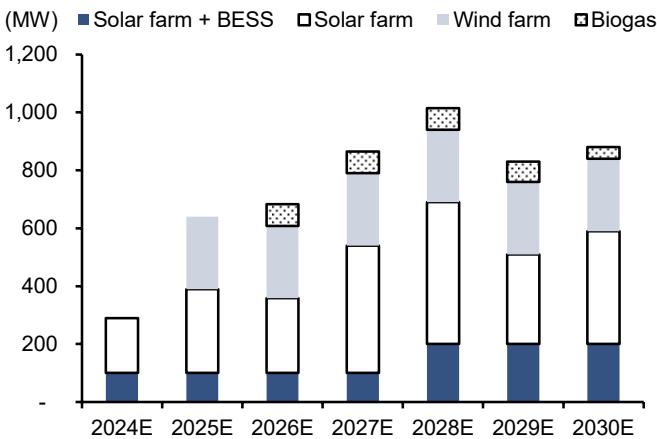
Source: ERC

**Exhibit 2: Breakdown of 5,203MW to COD in 2024-30**



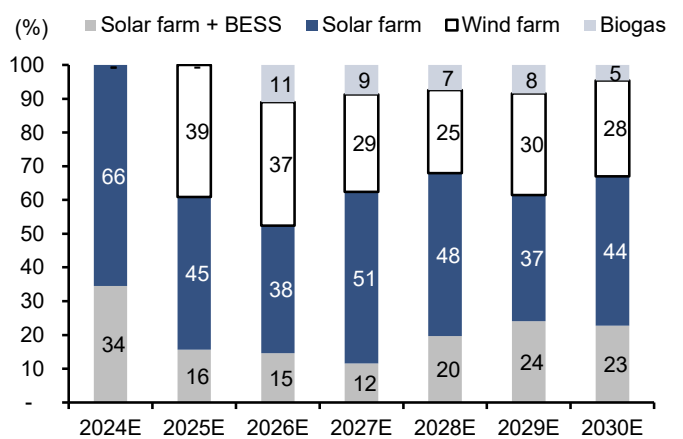
Source: ERC

**Exhibit 3: Renewable capacity by COD year**



Source: ERC

**Exhibit 4: Renewable capacity by COD year (%)**



Source: ERC

The winners will be picked based on 1) competitive price; 2) entity qualifications (only private companies, not state-owned or government agencies); 3) technical and financial qualifications; and 4) transmission constraints, in order of priority from highest to lowest: biogas (wastewater), wind farms; solar+BESS; and solar farms.

**FiT structure:** In this round of bidding, the FiT structure will be the lowest ever for renewable energy projects in Thailand, at THB2.07/kWh for biogas, THB3.1/kWh for wind farms, THB2.17/kWh for solar farms, and THB2.83/kWh for solar farms+BESS.

**Exhibit 5: Renewable capacity breakdown by type and COD year**

Project type	PPA type	FiT (THB/kWh)	PPA period	FiT for four southernmost provinces*
Biogas (wastewater)	Non-firm	2.0724	20	2.4724
Wind	Non-firm	3.1014	25	3.5014
Solar farm	Non-firm	2.1679	25	2.5679
Solar farm+BESS (10-90MW)**	Partial-firm	2.8331	25	3.2331

\*For projects in the four southernmost provinces of Yala, Narathivas, Pattani, and four districts in Songkla (Chana, Thepa, Sabayoi, and Nathawee)

\*\*Partial-firm PPAs for solar farm+BESS projects are:

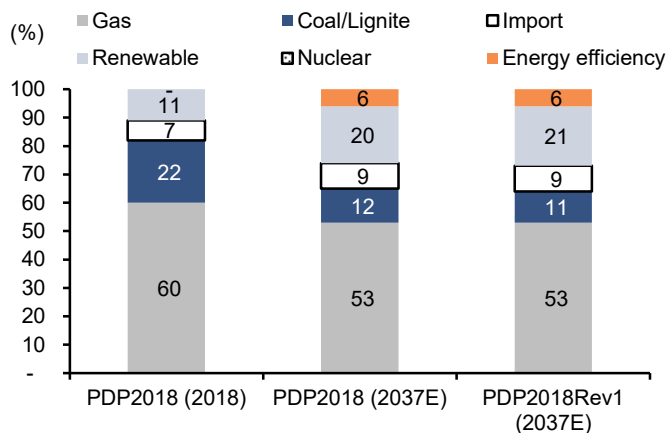
- 1) 09.00-16.00: purchase 100% of PPA electricity production;
- 2) 18.01-06.00: purchase based on availability at 60% of PPA contract for two hours
- 3) 06.01-09.00 and 16.01-18.00: purchase 100% of PPA electricity production

Source: ERC

**Renewable capacity under PDP2018Rev1**

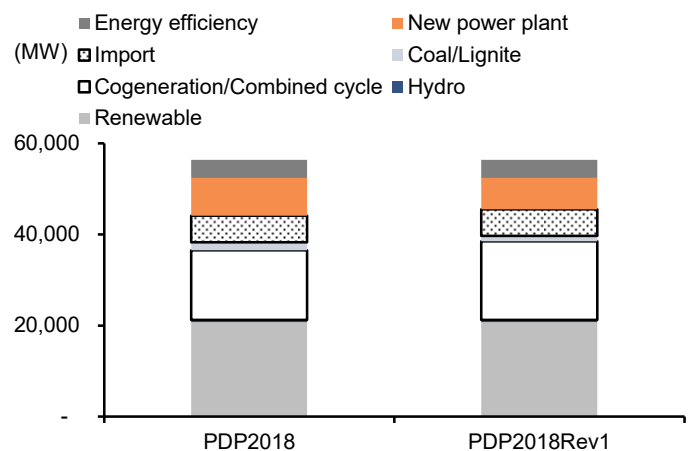
Approved in Oct-20, PDP2018Rev1 has effectively increased the power generation capacity of Thailand’s gas-fired power plants from 15.3GW in PDP2018 to 17.2GW and reduced coal-fired power plant capacity from 1.7GW to 1.2GW.

**Exhibit 6: Power generation by fuel type**



Source: EPPO

**Exhibit 7: New capacity allowances during 2018-37 under PDP2018 and PDP2018Rev1**



Source: EPPO

In addition, the ERC also lowered the total new renewable energy capacity allowance from the 20.8GW designated in PDP2018 down to 18.8GW in PDP2018Rev1, mainly due to the lower renewable capacity allocation under Thailand's Alternative Energy Development Plan (AEDP), which cuts new capacity for renewables down from 18.2GW in PDP2018 to 16.2GW in PDP2018Rev1.

### Exhibit 8: Change in renewable energy allowances under PDP2018 and PDP2018Rev1

Renewable energy	PDP2018	PDP2018Rev1	(+/-)
According to AEDP	18,176	16,243	(11)
Government promoted			
- Municipal waste	400	400	-
- Southern biomass	120	120	-
- Community	-	-	<i>nm</i>
Committed VSPP	528	528	-
Committed SPP	1,150	1,150	-
SPP hybrid firm	300	300	-
EGAT projects with cabinet approval	92	92	-
<b>Total</b>	<b>20,766</b>	<b>18,833</b>	<b>-</b>

Source: EPPO

Under AEDP2018, the new wind farm capacity allocation is 1,485MW, slightly lower than the projected 1,500MW in new wind farm capacity up for bidding in the coming round.

New solar farm capacity at 3,368MW is lower than the 8,740MW called for under AEDP2018, however, the 335MW in new capacity for biogas is in line with the plan's call for 400MW.

The solar farm+BESS capacity of 1GW is new for renewable energy projects in Thailand. Introduced for the first time by the ERC, it reflects the faster-than-expected development of battery production facilities in Thailand. Designed mainly for EVs, the batteries can also be deployed as energy storage systems for renewable as well as conventional power plant projects.

### Exhibit 9: Renewable capacity allocations in the draft PDP2018Rev1 vs current PDP2018

Projects	PDP2018	PDP2018Rev1
Projects under government-supportive policy		
- WTE-community waste	400	400
- Biomass (Pracharat)	120	120
- Community power for grassroots economy	-	1,933
<b>Subtotal</b>	<b>520</b>	<b>2,453</b>
<b>Projects under AEDP2018</b>		
Solar	10,000	8,740
Biomass	3,375	2,780
Biogas	546	400
Solar floating	2,725	2,725
Wind	1,485	1,485
WTE-industrial	44	44
Small hydro	-	69
<b>Subtotal</b>	<b>18,175</b>	<b>16,243</b>
<b>Total</b>	<b>18,695</b>	<b>18,696</b>

Source: EPPO

## Likely winners in the upcoming renewable capacity bidding process

We expect a number of Thai power companies to secure new renewable energy capacity in the next few months, including incumbent renewable players like EA, GUNKUL, SSP, and large-scale conventional fossil fuel-based power plant operators who plan to participate in the bidding for renewable projects. Our top picks in the Thai renewable energy industry are EA, GULF, GUNKUL, and SSP.

**EA: best positioned to win.** With 278MW of solar and 364MW of wind farm capacity, EA stands out as one of the most promising bidders likely to secure some of the new wind, solar, and solar farm+BESS capacity, thanks to EA's proven track record of highly efficient operations and high profitability. In addition, EA operates a 1GWh plant producing lithium-ion batteries for the e-buses manufactured by its joint venture with EV manufacturer NEX Point (NEX TB, BUY, TP THB21.6).

**GULF: gearing up for renewable growth in the domestic market.** According to management, GULF has joined forces with GUNKUL, a wind farm project operator and developer in Thailand, by acquiring a 50% stake worth THB5b in GULF-GUNKUL Corporation (GGC), which now owns stakes in three wind farm projects with a total capacity of 170MW. GULF targets securing up to 1GW in renewable capacity in Thailand by 2027, based on management's guidance.

**GUNKUL: ready to grab growth.** GUNKUL, via its partnership with GULF, is well-prepared to bid on new wind farm projects in Thailand. GUNKUL currently operates 170MW of wind farm capacity and has a number of sites ready to host new wind farm projects.

**SSP: stacking up wind farm growth.** After successfully developing and operating a 48MW wind farm in Vietnam, SSP targets an additional 48MW under its phase 2 expansion in Vietnam, and potentially 50-150MW in wind farm capacity in Thailand.

**GPSC: battery and renewable growth.** GPSC, with its own battery manufacturing plant and a large number of renewable projects underway both in domestic and overseas locations, is likely to secure a slice of the renewable energy cake in the coming months.

## Exhibit 10: Peer comparisons

Company	BBG code	Rec	Share Price (LCY)	Target price (LCY)	Up side (%)	Market Cap (USD m)	3Y EPS CAGR (%)	PE		ROE		PBV		EV / EBITDA	
								22E (x)	23E (x)	22E (%)	23E (%)	22E (x)	23E (x)	22E (x)	23E (x)
<b>THAILAND</b>															
B Grimm Power	BGRIM TB	BUY	37.75	42	11	2,707	14.2	107.7	32.8	3.1	9.9	3.3	3.1	17.1	12.7
Gulf Energy Deve	GULF TB	BUY	55.75	60	8	17,992	21.1	47.6	44.2	13.6	13.6	6.2	5.9	35.0	32.7
Global Power Syn	GPSC TB	HOLD	68.5	70	2	5,313	11.2	39.7	25.2	4.5	7.0	1.8	1.7	21.0	17.5
Banpu Power	BPP TB	BUY	15.4	20	30	1,291	29.1	8.6	8.3	11.5	11.2	1.0	0.9	33.5	25.0
Electricity Gen	EGCO TB	BUY	179	245	37	2,592	13.8	5.5	5.5	14.3	13.1	0.8	0.7	11.7	10.8
Ratch Group	RATCH TB	BUY	42.75	55	29	2,557	(0.6)	11.1	8.8	9.9	10.5	0.9	0.9	13.2	12.6
Wha Utilities&Pow	WHAUP TB	BUY	3.94	4.5	14	415	18.2	11.7	11.1	10.2	10.6	1.2	1.2	32.0	30.8
Bcpg	BCPG TB	BUY	10.8	17	57	860	(9.7)	12.2	17.7	9.1	5.9	1.1	1.0	13.7	19.8
Ck Power	BKP TB	BUY	5.2	6.6	27	1,163	19.5	13.6	13.5	11.8	10.8	1.5	1.4	11.1	12.8
Energy Absolute	EA TB	BUY	87.75	101	15	9,003	28.5	27.6	27.7	31.5	25.0	7.6	6.3	24.0	22.8
Gunkul Engineer	GUNKUL TB	BUY	5.6	6.6	18	1,368	27.3	21.9	13.7	16.9	24.9	3.6	3.3	17.0	12.1
Demco Pcl	DEMCO TB	BUY	3.72	5.9	59	75	nm	12.8	11.0	4.4	4.9	0.6	0.5	(70.5)	(157.0)
Power Solution	PSTC TB	BUY	1.85	3.7	100	121	nm	12.5	11.2	5.8	6.1	0.7	0.7	14.7	13.9
Sernsang Power	SSP TB	BUY	10.4	20	92	357	34.0	9.6	8.4	18.0	18.0	1.6	1.4	9.1	8.3
Tpc Power	TPCH TB	BUY	7.85	14	78	87	60.3	6.6	5.6	15.8	17.0	1.0	0.9	6.7	5.6
Tpi Polene Power	TIIPP TB	BUY	3.64	5.7	57	841	nm	6.7	7.6	14.8	12.7	1.0	1.0	5.7	6.2
Absolute Clean	ACE TB	BUY	2.74	4.1	50	767	18.4	15.5	12.7	13.2	15.1	2.0	1.9	10.5	9.5
Earth Tech	ETC TB	BUY	3.4	3.8	12	209	nm	23.0	21.3	11.3	11.4	2.5	2.3	14.8	14.0
<b>Thailand avg</b>						<b>47,716</b>	<b>15.4</b>	<b>36.7</b>	<b>29.2</b>	<b>15.1</b>	<b>14.6</b>	<b>4.5</b>	<b>4.1</b>	<b>24.9</b>	<b>22.7</b>
<b>HONGKONG</b>															
Datang Intl Power	991 HK	n/a	1.86	n/a	NA	8,562	nm	1.7	1.4	10.9	11.9	nm	nm	nm	nm
Huadian Power	1071 HK	n/a	3.72	n/a	NA	8,552	nm	7.7	6.1	5.2	10.3	0.6	0.5	15.5	12.6
Huaneng Power	902 HK	n/a	4.67	n/a	NA	17,411	nm	35.3	8.3	2.2	8.0	0.6	0.6	11.3	8.7
China Power Inter	2380 HK	n/a	4.45	n/a	NA	5,894	nm	16.7	11.0	6.1	8.6	1.1	1.1	10.5	8.2
China Resources	836 HK	n/a	16.78	n/a	NA	9,941	103.5	8.5	6.4	10.3	12.4	0.8	0.7	7.2	6.0
Clp Holdings Ltd	2 HK	n/a	65.60	n/a	NA	21,406	5.5	20.2	14.8	9.5	10.5	1.5	1.5	12.1	9.5
Power Assets	6 HK	n/a	43.95	n/a	NA	11,951	3.3	13.9	14.1	7.8	7.5	1.1	1.1	39.3	68.3
<b>Hongkong avg</b>						<b>83,718</b>	<b>10.8</b>	<b>17.6</b>	<b>9.8</b>	<b>7.3</b>	<b>9.8</b>	<b>0.9</b>	<b>0.9</b>	<b>14.2</b>	<b>16.6</b>
<b>MALAYSIA</b>															
Petronas Gas	PTG MK	n/a	16.96	n/a	NA	7,479	(3.2)	18.5	17.7	13.7	14.2	2.5	2.4	9.4	9.5
Tenaga Nasional	TNB MK	n/a	8.78	n/a	NA	11,166	2.2	11.2	10.4	7.6	7.9	0.8	0.8	7.1	7.0
Ytl Power Inte	YTLP MK	n/a	0.76	n/a	NA	1,340	nm	nm	18.2	1.1	2.5	0.4	0.4	12.2	10.5
<b>Malaysia avg</b>						<b>19,985</b>	<b>(0.3)</b>	<b>3.2</b>	<b>3.3</b>	<b>2.3</b>	<b>2.4</b>	<b>0.3</b>	<b>0.3</b>	<b>2.0</b>	<b>1.9</b>
<b>CHINA</b>															
China Datang	1798 HK	n/a	2.43	n/a	NA	2,178	12.8	8.5	7.0	11.3	11.2	1.0	0.8	8.3	7.4
China Gas	384 HK	n/a	11.24	n/a	NA	7,971	(5.9)	7.5	7.7	14.4	12.4	1.0	0.9	8.6	7.9
China Longyuan	916 HK	n/a	13.30	n/a	NA	21,421	14.5	13.3	10.9	10.8	11.8	1.4	1.2	11.5	9.6
Beijing Enterprises	392 HK	n/a	25.35	n/a	NA	4,098	5.9	3.5	3.2	9.2	9.2	0.3	0.3	6.6	6.1
Kunlun Energy	135 HK	n/a	6.61	n/a	NA	7,226	4.4	8.2	7.9	10.1	10.0	0.8	0.8	3.6	3.5
<b>China avg</b>						<b>42,894</b>	<b>5.9</b>	<b>5.2</b>	<b>4.5</b>	<b>5.8</b>	<b>5.8</b>	<b>0.6</b>	<b>0.5</b>	<b>4.6</b>	<b>4.0</b>
<b>INDONESIA</b>															
Perusahaan Gas	PGAS IJ	n/a	1,875.00	n/a	NA	3,094	0.5	9.8	9.1	10.5	10.7	1.1	1.0	5.5	5.3
<b>Indonesia avg</b>						<b>3,094</b>	<b>0.5</b>	<b>0.4</b>	<b>0.3</b>	<b>0.4</b>	<b>0.4</b>	<b>0.0</b>	<b>0.0</b>	<b>0.2</b>	<b>0.2</b>
<b>SINGAPORE</b>															
Sembcorp Indus	SCI SP	n/a	3.34	n/a	NA	4,288	26.7	7.3	9.3	19.8	13.5	1.3	1.1	8.3	9.6
<b>Singapore avg</b>						<b>4,288</b>	<b>26.7</b>	<b>0.4</b>	<b>0.5</b>	<b>1.0</b>	<b>0.7</b>	<b>0.1</b>	<b>0.1</b>	<b>0.4</b>	<b>0.5</b>
<b>Utilities under coverage</b>						<b>47,716</b>	<b>15.4</b>	<b>36.7</b>	<b>29.2</b>	<b>15.1</b>	<b>14.6</b>	<b>4.5</b>	<b>4.1</b>	<b>24.9</b>	<b>22.7</b>
<b>Average (all)</b>						<b>201,695</b>	<b>14.3</b>	<b>17.4</b>	<b>12.3</b>	<b>8.1</b>	<b>9.0</b>	<b>1.6</b>	<b>1.5</b>	<b>13.0</b>	<b>13.3</b>

Share prices as of 12 September 2022

Sources: Bloomberg, FSSIA estimates

## Corporate Governance report of Thai listed companies 2021

EXCELLENT LEVEL – Score range 90-100										
AAV	BCPG	CPALL	GCAP	K	MSC	PLANET	SAMART	SPI	THRE	TVD
ADVANC	BDMS	CPF	GFPT	KBANK	MST	PLAT	SAMTEL	SPRC	THREL	TVI
AF	BEM	CPI	GGC	KCE	MTC	PORT	SAT	SPVI	TIPCO	TVO
AH	BGC	CPN	GLAND	KKP	MVP	PPS	SC	SSSC	TISCO	TWPC
AIRA	BGRIM	CRC	GLOBAL	KSL	NCL	PR9	SCB	SST	TK	U
AKP	BIZ	CSS	GPI	KTB	NEP	PREB	SCC	STA	TKT	UAC
AKR	BKI	DDD	GPSC	KTC	NER	PRG	SCCC	STEC	TMT	UBIS
ALT	BOL	DELTA	GRAMMY	LALIN	NKI	PRM	SCG	STI	TNDT	UV
AMA	BPP	DEMCO	GULF	LANNA	NOBLE	PROUD	SCGP	SUN	TNITY	VGI
AMATA	BRR	DRT	GUNKUL	LH	NSI	DRSH	SCM	SUSCO	TOA	VIH
AMATAV	BTS	DTAC	HANA	LHFG	NVD	PSL	SDC	SUTHA	TOP	WACOAL
ANAN	BTW	DUSIT	HARN	LIT	NWR	PTG	SEAFECO	SVI	TPBI	WAVE
AOT	BWG	EA	HMPRO	LPN	NYT	PTT	SEAOIL	SYMC	TQM	WHA
AP	CENTEL	EASTW	ICC	MACO	OISHI	PTTEP	SE-ED	SYNTEC	TRC	WHAUP
ARIP	CFRESH	ECF	ICHI	MAJOR	OR	PTTGC	SELIC	TACC	TRU	WICE
ARROW	CHEWA	ECL	III	MAKRO	ORI	PYLON	SENA	TASCO	TRUE	WINNER
ASP	CHO	EE	ILINK	MALEE	OSP	Q-CON	SHR	TCAP	TSC	ZEN
AUCT	CIMBT	EGCO	ILM	MBK	OTO	QH	SIRI	TEAMG	TSR	
AWC	CK	EPG	INTUCH	MC	PAP	QTC	SIS	TFMAMA	TSTE	
AYUD	CKP	ETC	IP	MCOT	PCSGH	RATCH	SITHAI	TGH	TSTH	
BAFS	CM	FPI	IRPC	METCO	PDG	RS	SMK	THANA	TTA	
BANPU	CNT	FPT	ITEL	MFEC	PDJ	S	SMPC	THANI	TTB	
BAY	COM7	FSMART	IVL	MINT	PG	S & J	SNC	THCOM	TTCL	
BBL	COMAN	GBX	JSP	MONO	PHOL	SAAM	SONIC	THG	TTW	
BCP	COTTO	GC	JWD	MOONG	PLANB	SABINA	SPALI	THIP	TU	
VERY GOOD LEVEL – Score range 80-89										
2S	ASIMAR	CHOW	FLOYD	IT	LOXLEY	OCC	RPC	SKY	TCC	TVT
7UP	ASK	CI	FN	ITD	LRH	OGC	RT	SLP	TCMC	TWP
ABICO	ASN	CIG	FNS	J	LST	PATO	RWI	SMIT	TEAM	UEC
ABM	ATP30	CMC	FORTH	JAS	M	PB	S11	SMT	TFG	UMI
ACE	B	COLOR	FSS	JCK	MATCH	PICO	SA	SNP	TFI	UOBKH
ACG	BA	CPL	FTE	JCKH	MBAX	PIMO	SAK	SO	TIGER	UP
ADB	BAM	CPW	FVC	JMART	MEGA	PJW	SALEE	SORKON	TITLE	UPF
AEONTS	BC	CRD	GEL	JMT	META	PL	SAMCO	SPA	TKN	UPOIC
AGE	BCH	CSC	GENCO	KBS	MFC	PM	SANKO	SPC	TKS	UTP
AHC	BEC	CSP	GJS	KCAR	MGT	PMTA	SAPPE	SPCG	TM	VCOM
AIT	BEYOND	CWT	GYT	KEX	MICRO	PPP	SAWAD	SR	TMC	VL
ALL	BFIT	DCC	HEMP	KGI	MILL	PPP	SCI	SRICHA	TMD	VPO
ALLA	BJC	DCON	HPT	KIAT	MITSIB	PRIME	SCN	SSC	TMI	VRANDA
ALUCON	BJCHI	DHOUSE	HTC	KISS	MK	PRIN	SCP	SSF	TMILL	WGE
AMANAHA	BLA	DOD	HYDRO	KOOL	MODERN	PRINC	SE	STANLY	TNL	WIJK
AMARIN	BR	DOHOME	ICN	KTIS	MTI	PSG	SFLEX	STGT	TNP	WP
APCO	BROOK	DV8	IFS	KUMWEL	NBC	PSTC	SFP	STOWER	TOG	XO
APCS	CBG	EASON	IMH	KUN	NCAP	PT	SFT	STPI	TPA	XPG
APURE	CEN	EFORL	IND	KWC	NCH	QLT	SGF	SUC	TPAC	YUASA
AQUA	CGH	ERW	INET	KWM	NETBAY	RBF	SIAM	SWC	TPCS	
ASAP	CHARAN	ESSO	INSET	L&E	NEX	RCL	SINGER	SYNEX	TPS	
ASEFA	CHAYO	ESTAR	INSURE	LDC	NINE	RICHY	SKE	TAE	TRITN	
ASIA	CHG	ETE	IRC	LEO	NRF	RML	SKN	TAKUNI	TRT	
ASIAN	CHOTI	FE	IRCP	LHK	NTV	ROJNA	SKR	TBSP	TSE	
GOOD LEVEL – Score range 70-79										
A	BGT	CITY	GIFT	JTS	MDX	PK	SGP	SUPER	TQR	YGG
AI	BH	CMAN	GLOCON	JUBILE	MJD	PLE	SICT	SVOA	TTI	ZIGA
AIE	BIG	CMO	GREEN	KASET	MORE	PPM	SIMAT	TC	TYCN	
AJ	BLAND	CMR	GSC	KCM	MUD	PRAKIT	SISB	TCCC	UKEM	
ALPHAX	BM	CPT	GTB	KK	NC	PRAPAT	SK	THMUI	UMS	
AMC	BROCK	CRANE	HTECH	KKC	NDR	PRECHA	SMART	TNH	UNIQ	
APP	BSBM	CSR	HUMAN	KWI	NFC	PTL	SOLAR	TNR	UPA	
AQ	BSM	D	IHL	KYE	NNCL	RJH	SPACK	TOPP	UREKA	
ARIN	BTNC	EKH	IIG	LEE	NOVA	RP	SPG	TPCH	VIBHA	
AS	BYD	EMC	INGRS	LPH	NPK	RPH	SQ	TPIPL	W	
AU	CAZ	EP	INOX	MATI	NUSA	RSP	SSP	TIPIP	WIN	
B52	CCP	F&D	JAK	M-CHAI	PAF	SABUY	STARK	TPLAS	WORK	
BEAUTY	CGD	FMT	JR	MCS	PF	SF	STC	TPOLY	WPH	

**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

Sources: Thai Institute of Directors Association (IOD); FSSIA's compilation; data as of 26 October 2021



## Anti-corruption Progress Indicator

CERTIFIED										
2S	BCH	CPALL	GC	K	MFC	PE	QLT	SNP	THCOM	TU
7UP	BCP	CPF	GCAP	KASET	MFEC	PG	QTC	SORKON	THIP	TVD
ADVANC	BCPG	CPI	GEL	KBANK	MILL	PHOL	RATCH	SPACK	THRE	TVI
AF	BE8	CPN	GFPT	KBS	MINT	PK	RML	SPALI	THREL	TVO
AI	BEYOND	CSC	GGC	KCAR	MONO	PL	RWI	SPC	TIDLOR	TWPC
AIE	BGC	DCC	GJS	KCE	MOONG	PLANB	S & J	SPI	TIPCO	U
AIRA	BGRIM	DELTA	GPI	KGI	MSC	PLANET	SAAM	SPRC	TISCO	UBE
AKP	BJCHI	DEMCO	GPSC	KKP	MST	PLAT	SABINA	SRICHA	TKS	UBIS
ALPHAX	BKI	DIMET	GSTEEL	KSL	MTC	PM	SAPPE	SSF	TKT	UEC
AMA	BLA	DRT	GUNKUL	KTB	MTI	PPP	SAT	SSP	TMD	UKEM
AMANAHA	BPP	DTAC	HANA	KTC	NBC	PPPM	SC	SSSC	TMILL	UOBKH
AMATA	BROOK	DUSIT	HARN	KWC	NEP	PPS	SCB	SST	TMT	UPF
AMATAV	BRR	EA	HEMP	KWI	NINE	PR9	SCC	STA	TNITY	UV
AP	BSBM	EASTW	HENG	L&E	NKI	PREB	SCCC	STOWER	TNL	VGI
APCS	BTS	ECL	HMPRO	LANNA	NMG	PRG	SCG	SUSCO	TNP	VIH
AQUA	BWG	EGCO	HTC	LH	NNCL	PRINC	SCN	SVI	TNR	WACOAL
ARROW	CEN	EP	ICC	LHFG	NOBLE	PRM	SEAOIL	SYMC	TOG	WHA
AS	CENTEL	EPG	ICHI	LHK	NOK	PROS	SE-ED	SYNTEC	TOP	WHAUP
ASIAN	CFRESH	ERW	IFEC	LPN	NSI	PSH	SELIC	TAE	TOPP	WICE
ASK	CGH	ESTAR	IFS	LRH	NWR	PSL	SENA	TAKUNI	TPA	WIKK
ASP	CHEWA	ETE	ILINK	M	OCC	PSTC	SGP	TASCO	TPP	XO
AWC	CHOTI	FE	INET	MAKRO	OGC	PT	SINGER	TBSP	TRU	ZEN
AYUD	CHOW	FNS	INSURE	MALEE	ORI	PTG	SIRI	TCAP	TRUE	
B	CIG	FPI	INTUCH	MATCH	PAP	PTT	SITHAI	TCMC	TSC	
BAFS	CIMBT	FPT	IRC	MBAX	PATO	PTTEP	SKR	TFG	TSTE	
BAM	CM	FSMART	IRPC	MBK	PB	PTTGC	SMIT	TFI	TSTH	
BANPU	CMC	FSS	ITEL	MC	PCSGH	PYLON	SMK	TFMAMA	TTA	
BAY	COM7	FTE	IVL	MCOT	PDG	Q-CON	SMPC	TGH	TTB	
BBL	COTTO	GBX	JKN	META	PDJ	QH	SNC	THANI	TTCL	
DECLARED										
AJ	CHG	DDD	ETC	JR	MAJOR	NUSA	RS	SSS	TQM	YUASA
ALT	CPL	DHOUSE	FLOYD	JTS	NCAP	NYT	SAK	STECH	TSI	ZIGA
APCO	CPR	DOHOME	GULF	KEX	NCL	OR	SCGP	STGT	VARO	
B52	CPW	ECF	III	KUMWEL	NOVA	PIMO	SCM	TKN	VCOM	
BEC	CRC	EKH	INOX	LDC	NRF	PLE	SIS	TMI	VIBHA	

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 26 October 2021) are categorised into: 1) companies that have declared their intention to join CAC, and; 2) companies certified by CAC.

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



## GENERAL DISCLAIMER

### ANALYST(S) CERTIFICATION

#### Suwat Sinsadok, CFA, FRM, ERP 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 37.75	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.
Gulf Energy Development	GULF TB	THB 55.75	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 commercial operation dates.
Global Power Synergy	GPSC TB	THB 68.50	HOLD	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. Upside risks are a lower gas price and higher sales volume.
Banpu Power	BPP TB	THB 15.40	BUY	Downside risks to our SOTP valuation are the start-up delays of its new projects and government intervention in the electricity tariff.
Electricity Generating	EGCO TB	THB 179.00	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.
Ratch Group	RATCH TB	THB 42.75	BUY	The downside risks to our SoTP-based TP include 1) lower-than-expected demand for electricity in Thailand; 2) lower crude price; and 3) delays in starting new projects.
WHA Utilities & Power	WHAUP TB	THB 3.94	BUY	Downside risks to our SoTP-based TP include 1) lower-than-expected demand for electricity in Thailand; and 2) lower crude prices.
BCPG	BCPG TB	THB 10.80	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.
CH. Karnchang	CK TB	THB 21.70	BUY	Key downside risks to our SoTP-based TP are delays in new bids, political instability, fluctuations in construction material prices, cost overruns, and the prolonged Covid-19 pandemic.
Energy Absolute	EA TB	THB 87.75	BUY	Downside risks to our SoTP-based TP include: 1) lower-than-expected demand for electricity in Thailand; 2) lower crude prices; and 3) lower-than-expected demand for batteries.
Gunkul Engineering	GUNKUL TB	THB 5.60	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 3.72	BUY	Downside risk includes delays in bidding for power transmission projects.
Power Solution Technologies	PSTC TB	THB 1.85	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.
Sermasang Power Corp	SSP TB	THB 10.40	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 7.85	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 3.64	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 shutdown of the company's power plants.
Absolute Clean Energy	ACE TB	THB 2.74	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.
Earth Tech Environment	ETC TB	THB 3.40	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 industrial waste volumes.
Nex Point	NEX TB	THB 18.70	BUY	Downside risks to our SOTP-based TP include: 1) a lower-than-expected bus sales volume; 2) delays in bus deliveries; and 3) risk from regulatory changes.

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

FSSIA may incorporate the recommendations and target prices of companies currently covered by FSS Research into equity research reports, denoted by an 'FSS' before the recommendation. FSS Research is part of Finansia Syrus Securities Public Company Limited, which is the parent company of FSSIA.

All share prices are as at market close on 12-Sep-2022 unless otherwise stated.

**RECOMMENDATION STRUCTURE****Stock ratings**

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

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.