

B.Grimm Power: Q2'2023 Opportunity Day

18 August 2023

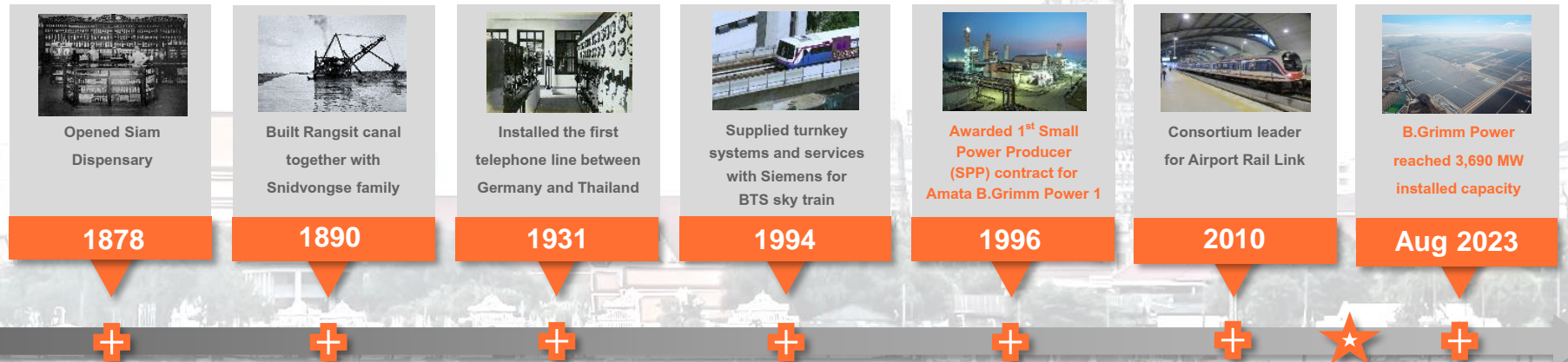


B.Grimm: More than 145 Years of Doing Business with Compassion

"Doing Business with Compassion for the Development of Civilization in Harmony with Nature"

Values: Positivity, Pioneering Spirit, Professionalism, and Partnership

- Longest established infrastructure, industrial, and healthcare group in Thailand since 1878
- Concessionaire and contractor of the largest infrastructure system in Thailand and Southeast Asia of the 1890s: Rangsit irrigation canals
- Introducing leading engineering technologies into Thailand since the 1880s until today with Krupp, Siemens, Carl Zeiss, Merck, Voith and United Technologies



Our strategy is guided by our vision: Empowering the world compassionately



EMPOWER

Build **human capabilities**, power industries, businesses and communities



THE WORLD

Find **trusted partners** and **great opportunities** in attractive countries
Grow our footprint all over the world



COMPASSIONATELY

Cultivate a culture of **mindfulness** and **compassion** among everyone at B.Grimm

That means **empowering great people and partners** to be a force for good in the **societies and the environment** where we operate.



Who we are

B.Grimm Power today

We are a top-tier energy utility, providing reliable and affordable energy, from natural gas and renewable energy, to single-buyer markets and industrial customers in our region.

3,690

Megawatt

**Installed
Capacity***

71.9

% of the operating capacity

**Natural Gas
Powered***

30.6

Billion Thai Baht

**1H'2023
Revenue**

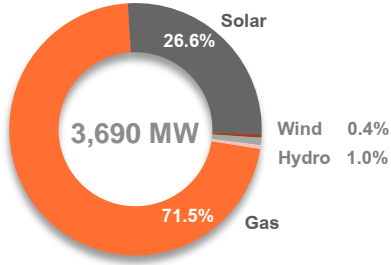
69.5

% of 1H'2023 revenue

**State-Owned
Off-taker**

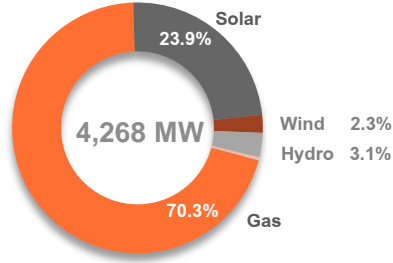
Empowering Energy Mix & Ventures

Capacity Breakdown by Fuel Type



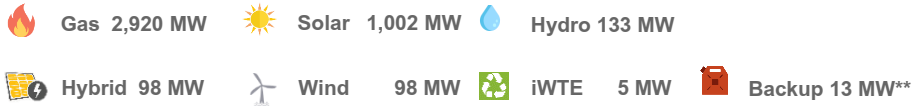
Aug'2023 (operating)

Conventional 72%
Renewable 28%



2026-2030 (existing PPA)*

Conventional 71%
Renewable 29%



As of August 2023

*Excluding 339.3 MW renewable projects - ERC Thailand renewable scheme

**For power trading

***Solar rooftop is not included in total installed capacity

Transmission & Distribution



Bien Hoa (Vietnam)

(with 13 MW back up for power trading)



Poi Pet PPSEZ (Cambodia)

Solar Rooftop***



Solar rooftop for industrial users and commercial buildings with up to 100 MW opportunity

Renewable Energy Certificate (REC)



Facilitating and procuring REC certificates from various renewable sources in Thailand and Vietnam

Agenda



The Pathway to Sustainable Growth

Q2'2023 Highlights

Financial Performance



GreenLeap Strategy for long-term value creation



3 Sustainable Fuels



Invest in sustainable fuels

2 Independent Power Producer



Exponential growth in renewables



Continue highest operational efficiency in class

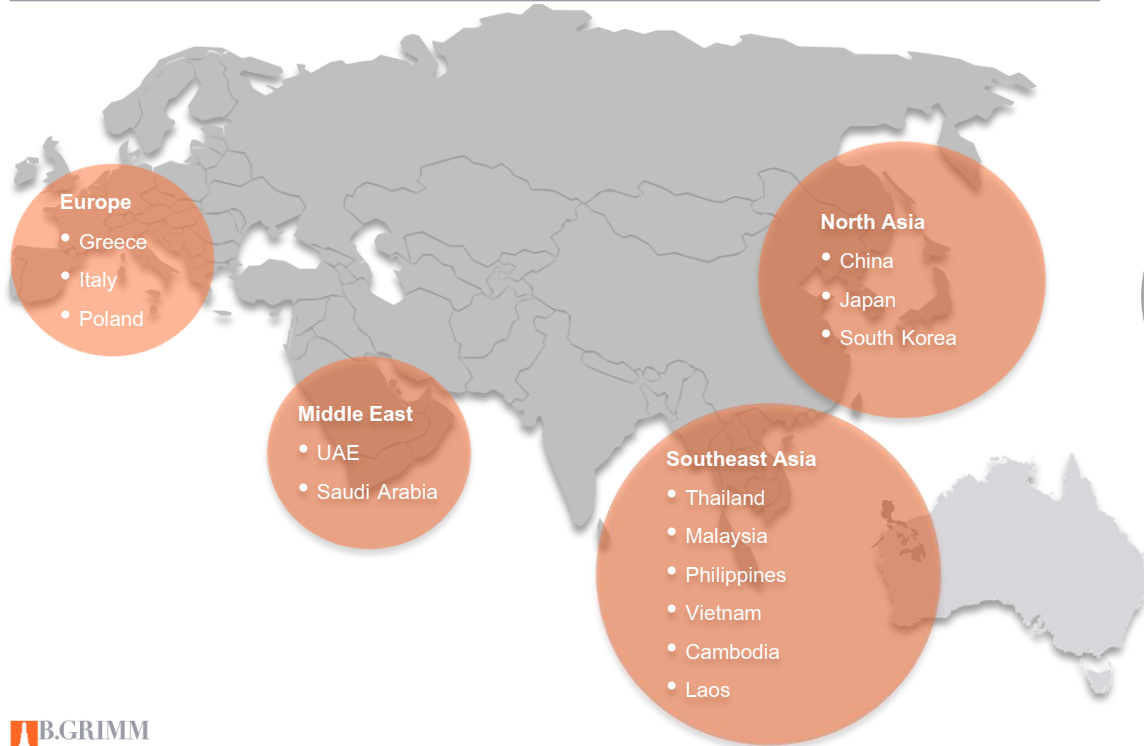
1 Industrial Solutions



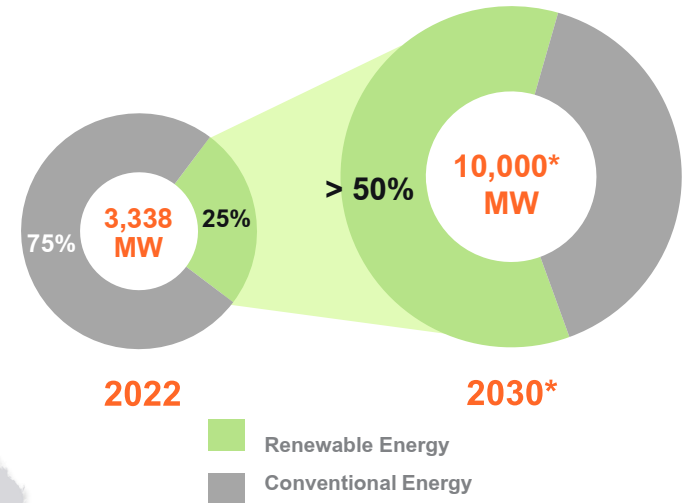
Superior margins through new industrial solutions (gas combined with renewables)

Empowering Global Expansion: B.Grimm's Integration of Renewable Energy Sources by 2030

Regions:



Total Installed Capacity:



*Based on PPA portfolio

Investment of Renewable Projects in South Korea



Offshore Wind

99 MW – Shinan / 99 MW - Cheonsa

Location: Eoui-ri, Eoui-do, Jido-eup, Shinan-gun, Jeollanam-do

BGRIM shareholding: 15%

SCOD: Q3'2025

240 MW - Gunghung

Location: Moogo-ri, Moonnae-meon, Haenam-gun, Jeollanam-do

BGRIM shareholding: 70%

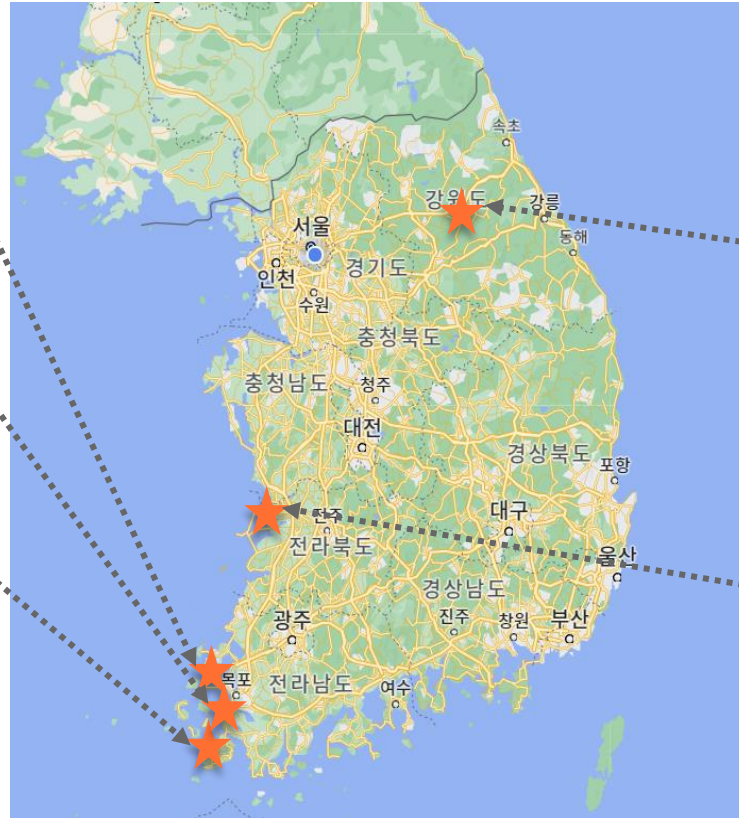
SCOD: Q1'2026

517 MW - Jodo

Location: Oebyeongdori, Jodo-myeon, Jindo-gun, Jeollanam-do

BGRIM shareholding: 70%

SCOD: 2027



Solar Power



Onshore Wind

95.78 MW - KOPOS

Location: Jeongseon-eup, Jeongseon-gun, Gangwon-do

BGRIM shareholding: 49.9%

SCOD: Solar - Aug 2023 (23.5 MW), Wind - 2024



Solar Power

98.99 MW – Saemangeum Sebit

Location: Osikdo-dong, Gunsan-si, Jeollbuk-do

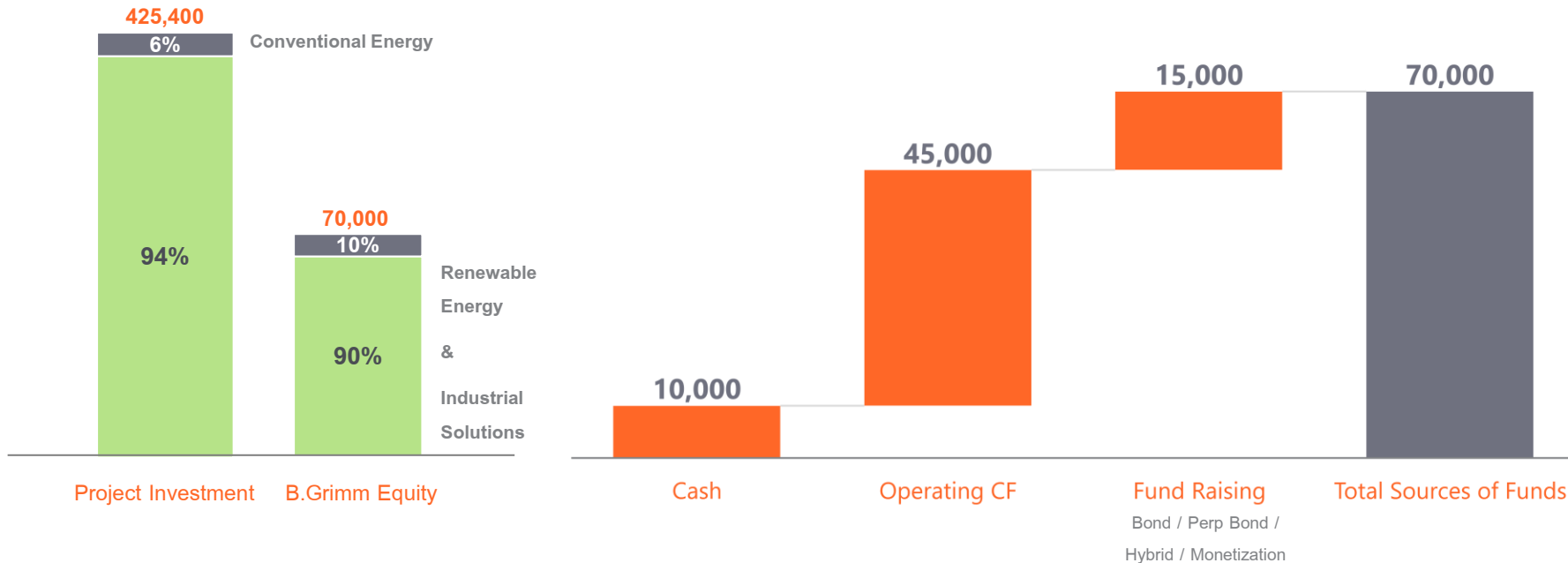
BGRIM shareholding: 21.3%

SCOD: March 2022

B.Grimm's strong financial position with well-managed capital structure will support funding of new investments until 2030

Uses of Funds (THB, in million):

Sources of Funds (THB, in million):



Agenda

The Pathway to Sustainable Growth

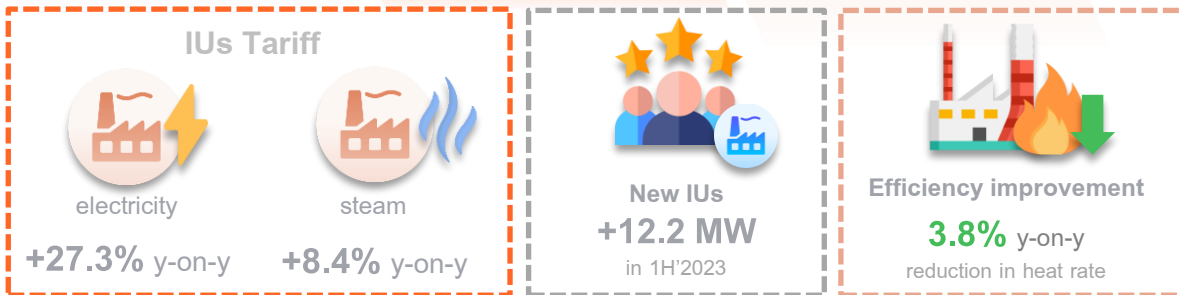
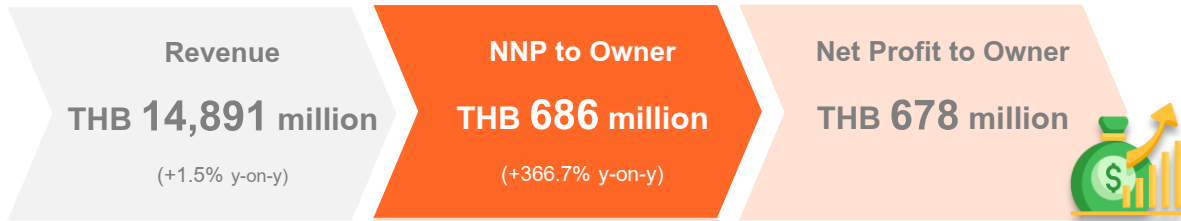


Q2'2023 Highlights

Financial Performance



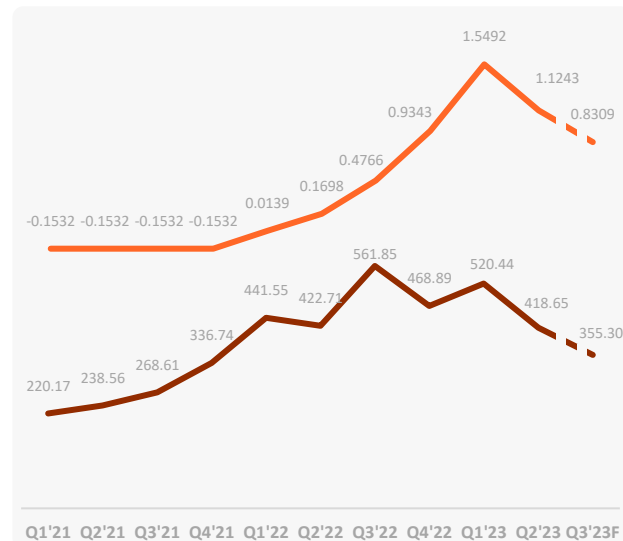
Q2'2023 Performance Highlights



39.86 satang/kWh average in 2022
 154.92 satang/kWh in Jan-Apr 2023
 91.19 satang/kWh in May-Aug 2023
 66.89 satang/kWh in Sep-Dec 2023



-4.4% y-on-y



Based on estimations;

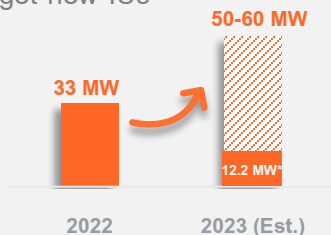
- THB 0.01 change in IU tariff would impact earnings by THB 21 million per annum.
- THB 1 /MMBTU change in gas cost would impact earnings by THB 18 million per annum

2023 Outlook

Operation

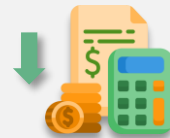


- Additional 632 MW from SCOD BGP2R, KOPOS (Solar), BGPAT2&3, an acquisition of 2 solar projects in Malaysia and solar project in the Republic of Korea
- Provide Energy Solutions for customers
- SPP gas per unit of THB 400-450/MMBTU
- Target new IUs



*As of June 2023

Expense control



Overall **gas consumption per unit to decline** from 7 new SPP power plants

Expense control throughout B.Grimm

Save maintenance cost from Digital Twins and AI health monitoring

DTE's cost savings from in-house O&M
~ THB 20-25* million per year

*based on exchange rate at times

Acquired 98.99 MW & COD 23.5 MW Solar Projects in South Korea



Project Information

Project Name	Saemangeum Sebit (SEBIT)
Project type	Solar farm
Location	Saemangeum, South Korea
Off-taker	Korea Electric Power Corporation (KEPCO)
PPA Period	19 years
Capacity	98.99 MW
BGRIM shareholding	21.27% voting right (33.85% dividend entitlement)
COD	March 2022

Project Name	KOPOS (Solar)
Project type	Solar farm
Location	Gangwon, South Korea
Off-taker	Korea Electric Power Corporation (KEPCO)
PPA Period	20 years
Capacity	23.5 MW
BGRIM shareholding	49.9%
COD	August 2023

Development of 1 MW Solar Rooftop project for Hino Motors



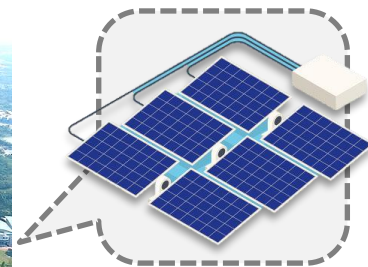
To developed a **1 MW Solar Rooftop project**
& provided **Renewable Energy Certificates (RECs)**
to Hino Motors Manufacturing (Thailand) Limited.



MOU with Amata Power in the development of Floating Solar Farm



“ To generate and supply electricity from solar floating platform within Amata City Chonburi Industrial Estate ”



*The first phase of development will be a **19.5 MW** installation*

Disposed 25% shares in BPLC1 to PEA ENCOM International



*“ To be... a **strategic partner** to explore business opportunities together for customers in industrial estate. ”*



Agenda

The Pathway to Sustainable Growth

Q2'2023 Highlights

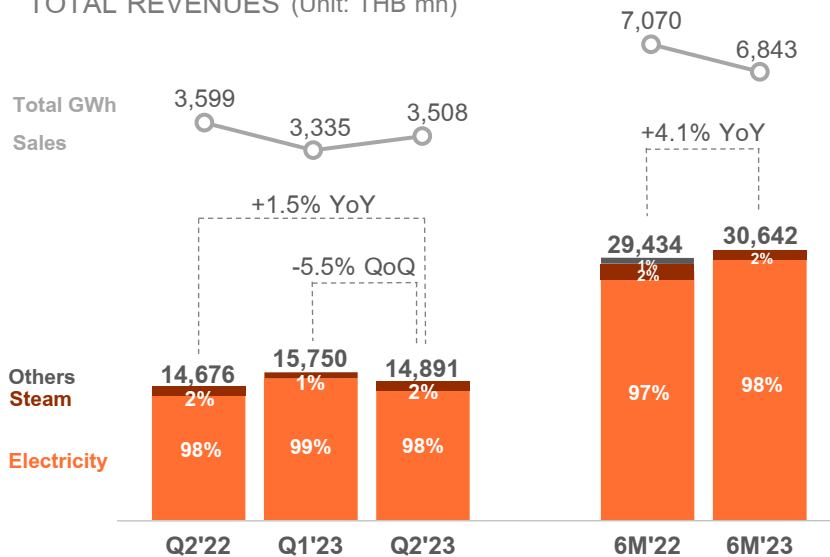


Financial Performance

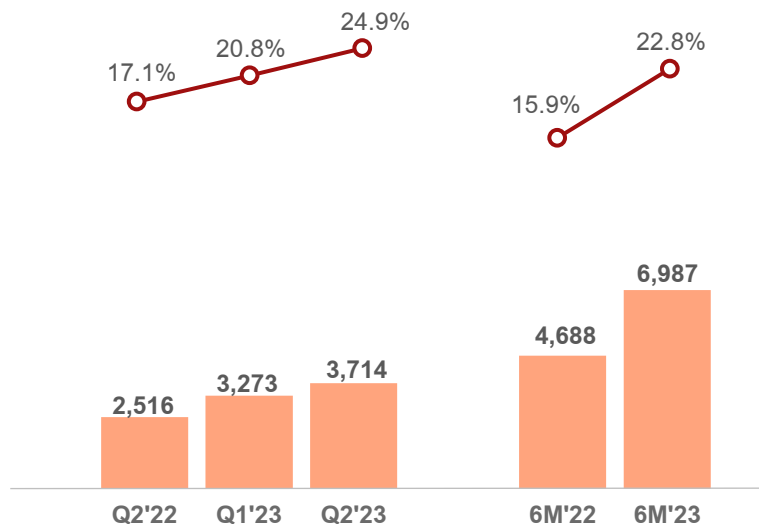


Steady cashflow from strong top line

TOTAL REVENUES (Unit: THB mn)



EBITDA AND EBITDA MARGIN (Unit: THB mn)



Revenue grew strongly with total sales volume 3,508 GWh in Q2'2023

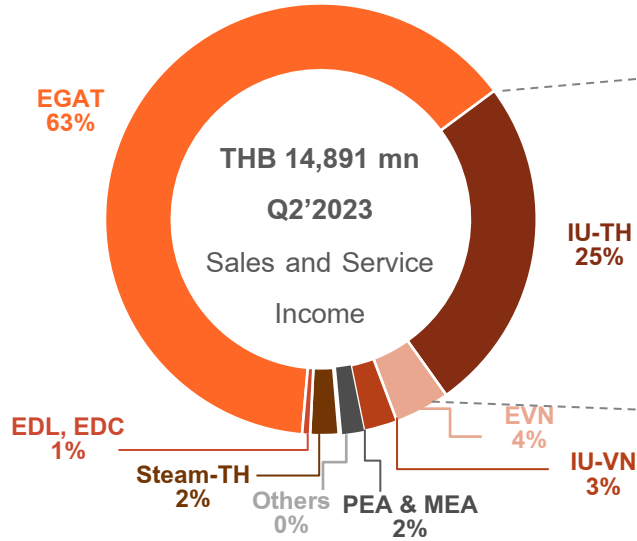
- Total revenue rose 1.5% y-on-y in Q2'2023 to THB 14,891 million and 4.1% y-on-y to THB 30,642 million in 6M'2023, mainly from
 - Increasing IU tariff from Ft adjustment
 - Increasing steam revenue from both volume and tariff
- Total sales volume slightly decreased 2.5% y-on-y in Q2'2023 to 3,508 GWh due to lower dispatch to EGAT from SPP Replacement scheme.

EBITDA improved continually

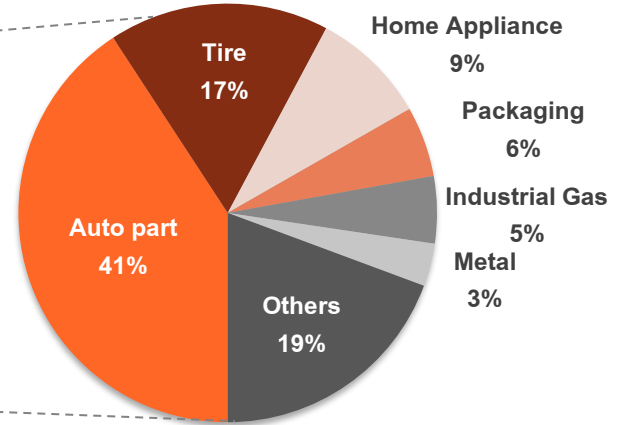
- EBITDA grew 47.6% y-on-y in Q2'2023 to THB 3,714 million and 49.0% y-on-y in 6M'2023 to THB 6,987 due to
 - Margin recovery from Ft adjustment to 112.43 satang/kWh in Q2'2023 from 39.86 satang/kWh average previous year
 - The successful reduction of gas consumption per unit by 3.8% in Q2'2023 and 4.2% in 6M'2023 from the SPP replacement scheme and continued improvement in plant efficiency.
- EBITDA margin was in upward trend to 24.9% in Q2'2023 and 22.8% in 6M'2023.

Revenue breakdown

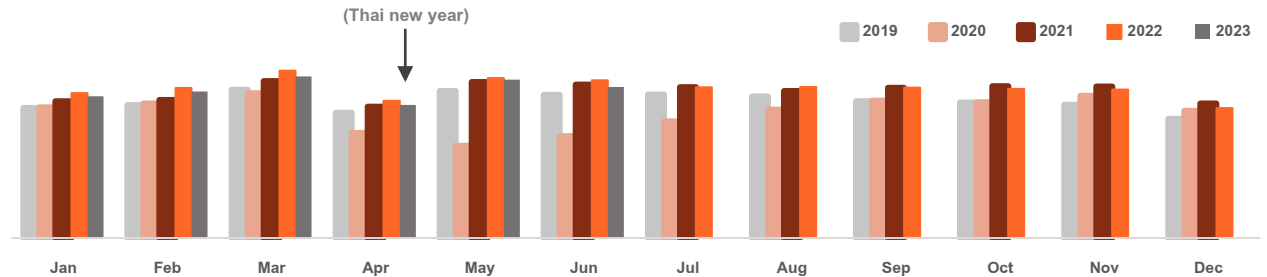
Q2'2023 REVENUE BREAKDOWN BY CUSTOMER



Q2'2023 IU VOLUME BREAKDOWN BY SECTOR

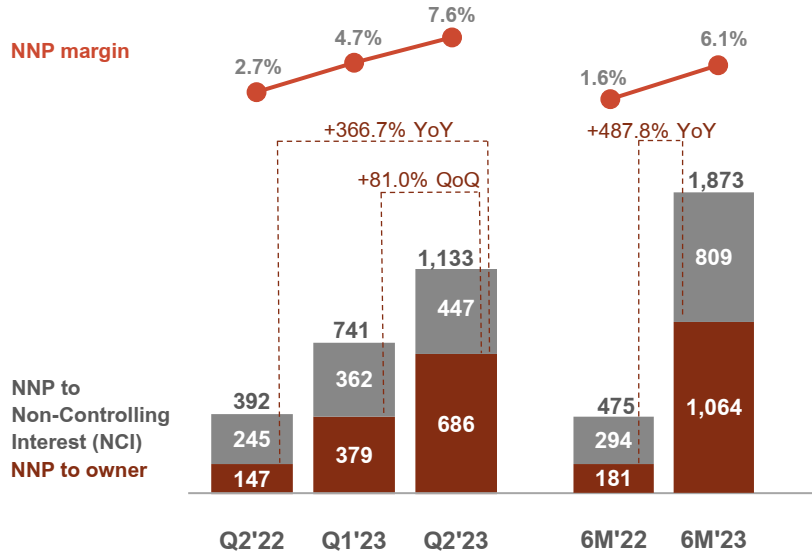


IU Volume



Normalised Net Profit

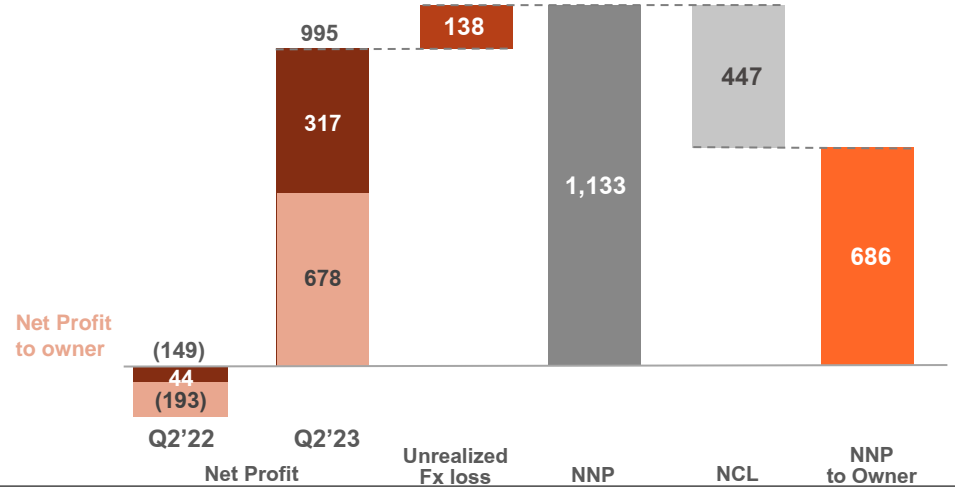
NORMALISED NET PROFIT (NNP) (Unit: THB mn)



NP to owner jumped by 366.7% y-on-y in Q2'2023 and 487.8% in 6M'2023

- **NP - owner of the parent** was THB 686 million in Q2'2023 and 1,064 in 6M'2023, an enormous leap of 366.7% and 487.8%, respectively due to solid recovery from a big impact from gas-price crisis in the same period of last year.

RECONCILE NORMALISED NET PROFIT (NNP) OF Q2'2023



Reconciliation Items:

- **Unrealised Fx loss of THB 138 million** in Q2'2023 was a non-cash item from the record of unrealised loss from translating USD debt which THB depreciated against USD.

Strong financial position with well-managed capital structure

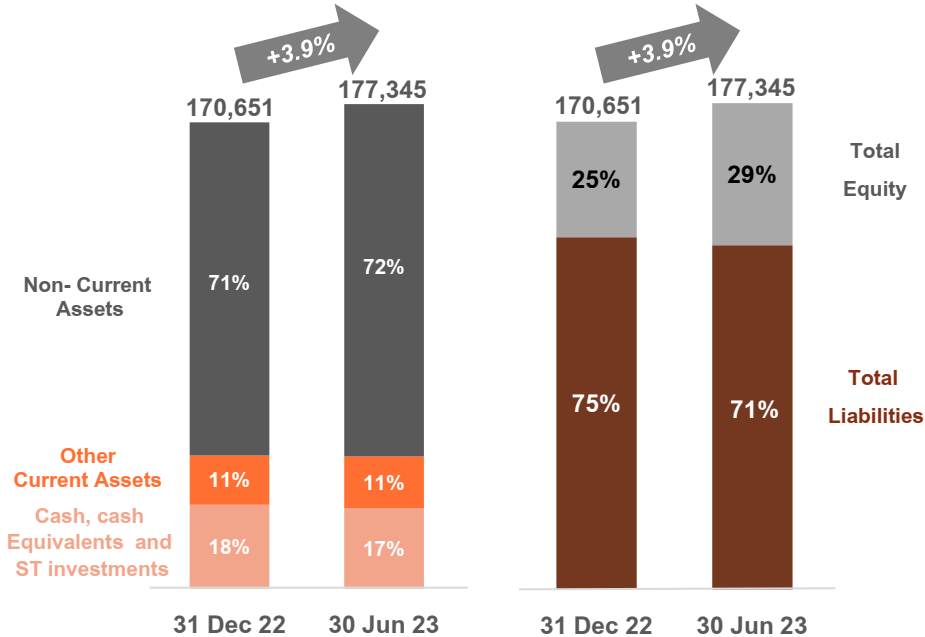
STATEMENT OF FINANCIAL POSITION (Unit: THB mn)

AS OF 30 JUNE 2023

Financial Position as of 30 June 2023

Assets

Liabilities and Equity



Total assets

↑ Total assets increased by 3.9%, primarily due to the continual expansion of project portfolio and short-term investment.

Total liabilities

↓ Total liabilities decreased by 2.3%, primarily due to debt repayment

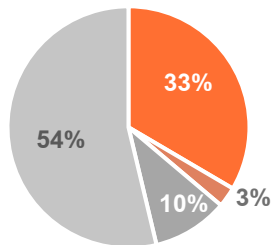
Total Equities

↑ Total equity increased by 22.8%, primarily due to increase in retained earnings and perpetual bond issuance.

Well-managed debt profile – Lower Cost of Debt

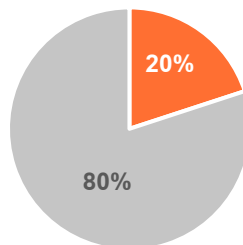
DEBT PROFILE

Debt by Level



■ Corp. Debenture ■ Corp. Loan
■ Proj. Debenture ■ Proj. Loan

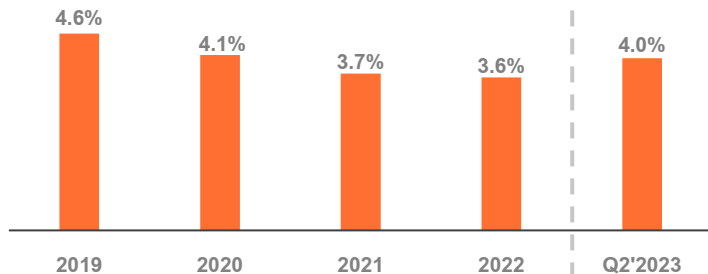
Debt by Currency



■ USD ■ THB

- Only 36% loan represents debts at the corporate level. **The remaining 64% contributes to debts at power plant level** with limited recourse to sponsor
- Interest obligations **not exceeding 80% of power plant level debts** are swapped to fixed rate
- **Only 20% of total loan as of 30 June 2023 is denominated in USD** which is matched with a proportion of EGAT tariff indexation to USD at project level, so called “Natural Hedge” strategy

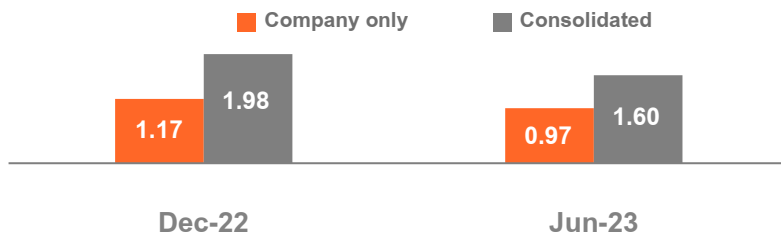
FINANCING COSTS*



- **Financing costs increased to 4.0% in Q2'2023** due to
 - Start recording the interest expenses from 5 SPP replacement projects
 - A corporate bond issuing totaling THB 12,200 million in May 2022

Capital Structure and Dividend Policy

NET INTEREST-BEARING DEBT TO EQUITY RATIO



Gearing Ratios

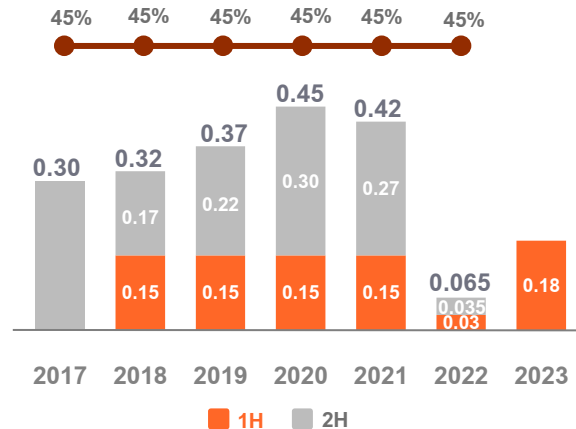


Due to the increase in retained earnings and perpetual bond issuance in March 2023, the **net interest-bearing debt to equity ratio decreased to 1.60x on a consolidated basis** and 0.97x for B.Grimm Power stand-alone.

CAPITAL STRUCTURE

- Manage debt and equity funding to optimise capital structure
- Seek to obtain financing at project level
 - Limited-recourse project loan with back-end equity
 - Target 3.0x debt to equity project financing at outset, delivering over project life
- Consolidated debt **included** loans at power plants because BGRIM holds **majority** in most of the projects

DIVIDEND PER SHARE (Unit: THB)



Dividend payout based on normalised net profit

DIVIDEND POLICY

- Minimum 40% of normalised net profit of consolidated financial statements



Thank You

Investor Relations:

✉ ir@bgrimpower.com

☎ +66 (0) 2710 3528

🌐 www.bgrimpower.com

Contacts for investors and analysts:

Solaya Na Songkhla solaya.n@bgrimpower.com

Gunnlapat Wichutarat gunnlapat.w@bgrimpower.com

Nattchanon Chawinsittangkul nattchanon.c@bgrimpower.com

Thunruethai Makaraphan thunruethai.m@bgrimpower.com

Address:

Dr. Gerhard Link Building,

5 Krungthepkreetha Road, Huamark, Bangkapi, Bangkok 10240, Thailand

Tel: +66 (0) 2710 3400 Fax: +66 (0) 2379 4245

Disclaimer

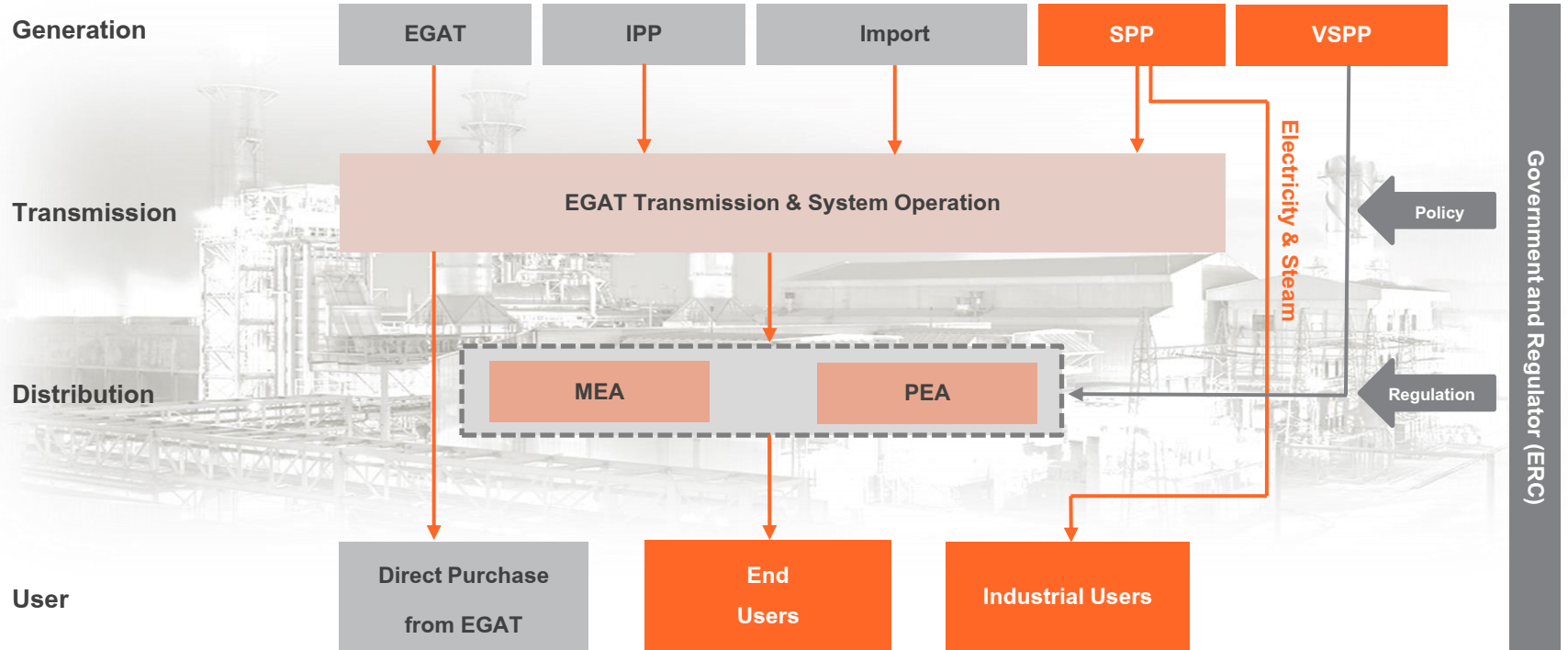
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Appendix



Thailand power industry



Small Power Producer (SPP) scheme

SPP

- 1) Located in strategic industrial estates, near users
- 2) IU tariff is linked to market price while EGAT tariff is based on a cost-plus model
- 3) Provide both electricity and stream to IUs

Round 1:	1992
Round 2:	2007
Round 3:	2010
Replacement:	2018

SPP



IPP

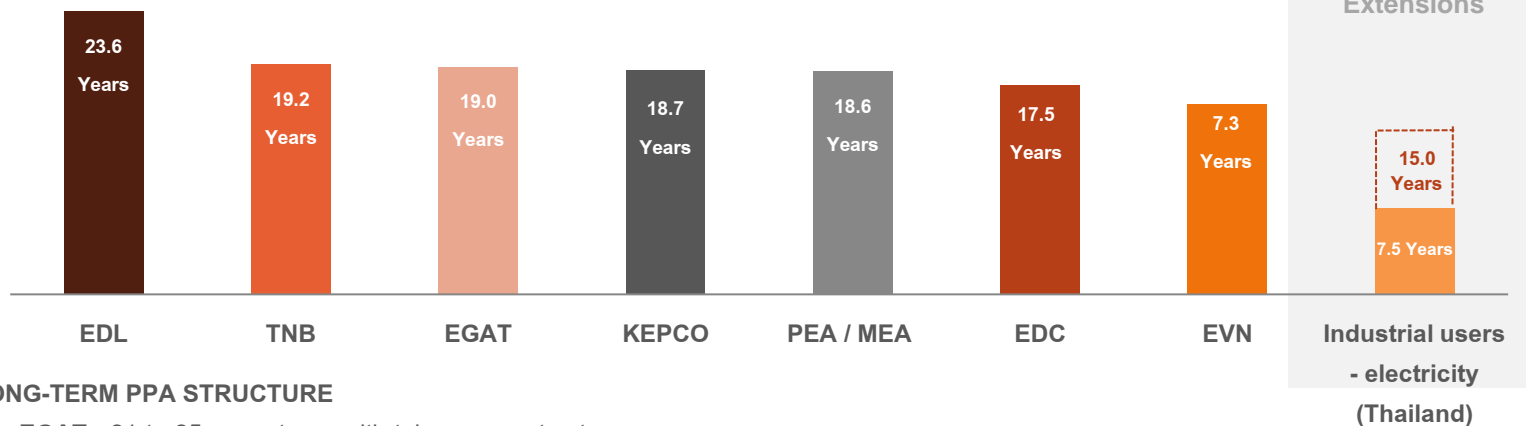


	SPP	Industrial Users	IPP
Contracted Capacity	30-90 MW	The rest	All (> 90 MW)
Off-taker	EGAT	Industrial Users	EGAT
Tenors	20-25	10-15	20-25
Product and Service	Electricity	Electricity, Stream, Demin Water	Electricity
Tariff Structure	CP+EP+FS	Base Tariff + Ft	AP+EP
Minimum	CP	Base Tariff	AP
Fuel cost pass-through mechanism	EP	Ft	EP
Incentive from the government	FS*	-	None

CP = Capacity Payment
 EP = Energy Payment
 FS = Fuel Saving
 AP = Availability Payment

Long-term PPA and well-established contracts

WEIGHTED AVERAGE REMAINING PPA LIFE



LONG-TERM PPA STRUCTURE

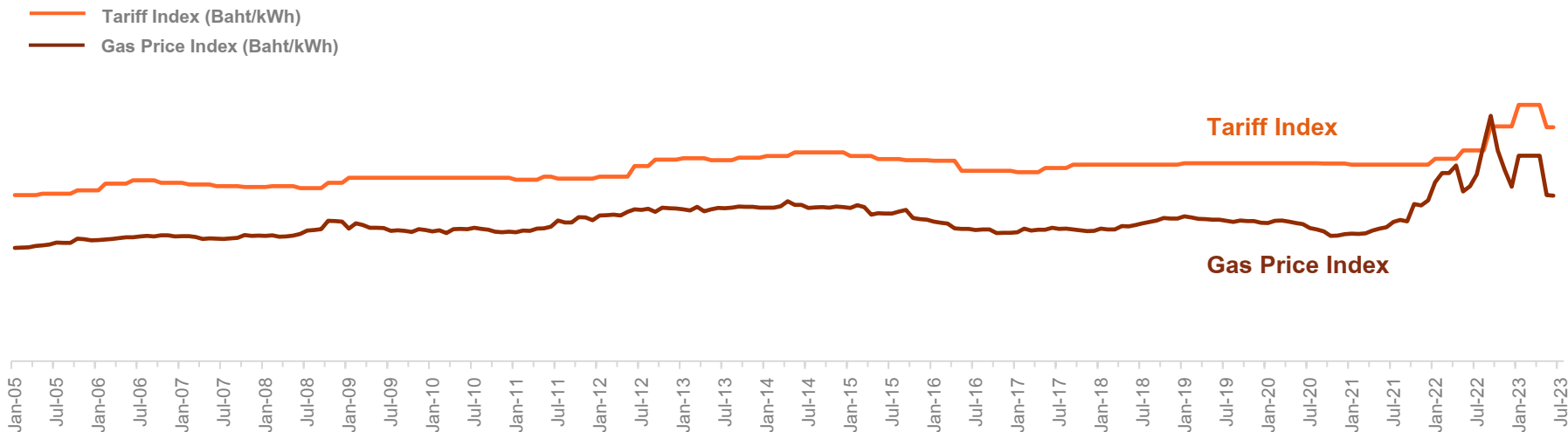
- **EGAT** : 21 to 25 years tenor with take-or-pay structure
- **PEA / MEA** : up to 25 years tenor (VSPP of solar, wind, waste to energy)
- **EDC** : 20 years tenor (solar)
- **TNB** : 21 years tenor (solar)
- **EDL** : 25 years tenor (hydro)
- **EVN** : 20 years tenor (solar)
- **KEPCO** : 20 years tenor (solar)
- **Industrial Users** : up to 15-year tenor with track record of extensions

Secured Gas Supply with PTT covering respective PPA tenors

Gas price pass-through at contracted heat rate under EGAT PPA

Correlation between gas price and tariff

Change in Tariff vs Gas Price in 2005-2023



Ft (Fuel Adjustment Charge) is a component of electricity market tariff, announced by Energy Regulatory Commission (ERC) **every 4 months** to reflect EGAT's overall cost electricity which includes EGAT's power generations, its purchase from private sector and the import from neighboring countries

➤ In general, **natural gas** contributes approximately **70% of total fuel** used to produce electricity in Thailand. Thus, change in gas price has **high correlation** with change in Ft.

BGRIM's electricity tariff for IU is normally benchmarked with PEA (base tariff+Ft) which generally moves in the same direction with gas price.

Sustainability Strategy 2023-2030

...for our 3 sustainability strategic directions...

Driving cleaner & sustainable growth

For greener economies

...which focus on **sustainable economic, societal, and environmental value creation**...



Low GHG portfolio management

Innovation & digitalization

Operational efficiency and customer satisfaction

...built on robust **sustainability-focused foundations**...

Stakeholder engagement

Governance

Cybersecurity & data privacy

Respect to human rights

Sustainable supply chain

...towards realizing long-term **sustainability targets**...

- Increase RE output share substantially by 2030 in line with 2.0°C pathway
- Increase RE to > 50% of installed capacity by 2030
- Achieve Scope 1 and 2 net emissions intensity of less than 0.28 tCO₂e/MWh by 2030
- Foster internal and external innovation for energy transition
- Maintain energy efficiency rate of > 50% annually
- 27% wind power capacity factor and 15% solar power capacity factor by 2030
- Achieve over 95% of satisfied customers annually

- Support Thailand's sports, health, and arts practitioners towards world-class performance
- 400,000 STEM student beneficiaries by 2030
- 100% of employees equipped with key relevant skills by 2030
- Enhance employee engagement score to 85% by 2030
- Zero Lost Time Injuries and Zero Fatalities

- Commit to increase recycled waste to 88% by 2030
- Contribute to solar panel waste circularity by 2040
- 100% compliance to wastewater discharge regulations
- 100% compliance to air emission regulations
- Net Positive Impact on Biodiversity
- No Net Deforestation

...in line with **strategically prioritized UN SDGs**...



...while also contributing to other SDGs along our value chain



Our corporate vision is the north star...

Empowering The World Compassionately

Keeping society at the heart

For better living



Corporate citizenship

People development

Occupational health & safety

In harmony with nature

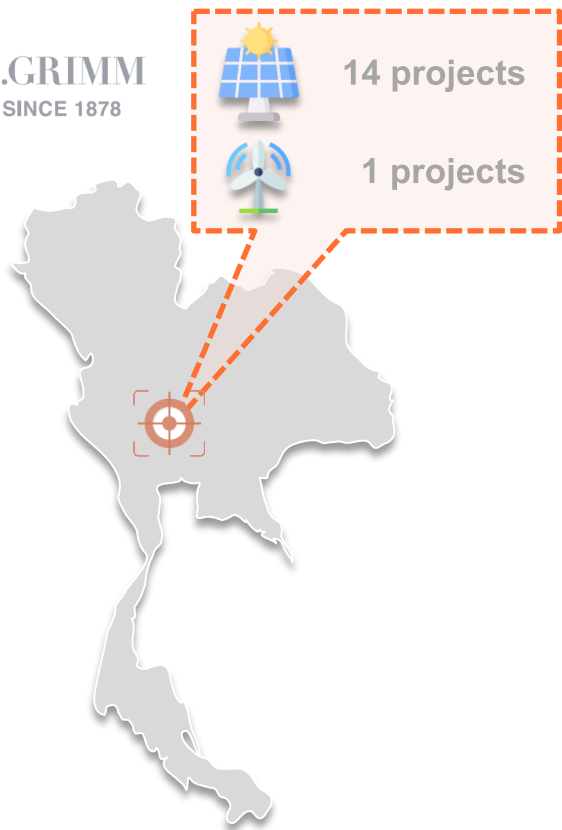
For a greener future



Environmental management

Biodiversity

Thailand's 5 GW renewable scheme 2022-2030



“ Awarded **339.3 MW** total capacity as renewable energy power producers & suppliers to Thai Government ”

Renewable 2022-2030	Contract	2026	2027	2028	2029	2030	Total (MW)
Wind	Non-firm	-	-	-	-	16	16
Solar farm	Non-firm	10.0	169.0	134.3	-	10.0	323.3
Total				339.3 MW			












FIT rate is assigned by NEPC so bidders will be evaluated based on other criteria; qualification, track record, readiness of development etc.

Improve efficiency continually

SPP Portfolio

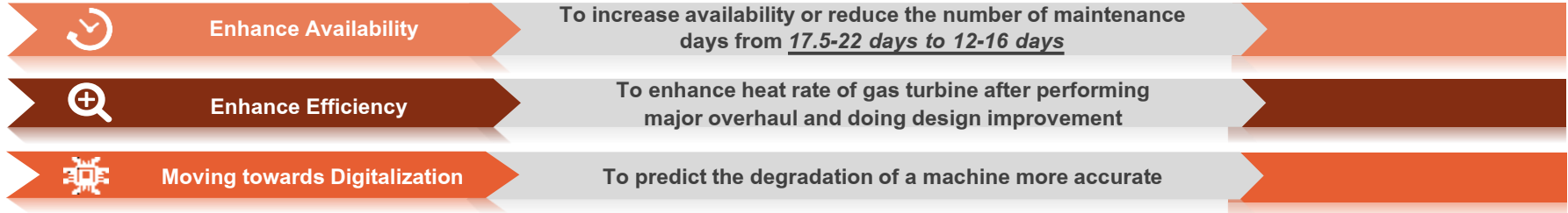
21 In Operation

2 Under Construction

11 with Gas-Turbine Upgrades (2019-2024)	5 Replacement (SCOD in 2022-2023)	BGPAT2, BGPAT3 (SCOD in 2023)
 Maintenance period	 New Technology	 New Technology
 Gas consumption by 1%	 MW increase by 135 MW	 MW increase by 280 MW
 7 MW / plant available for IU	 Gas consumption by ~15%	 Food and beverage customer's base
	 Wastewater treatment capacity to reduce freshwater consumption	
 Preparations for LNG importation to effectively manage fuel costs		

Enhancing performance of operating projects

Benefits from the LTSA with Siemens



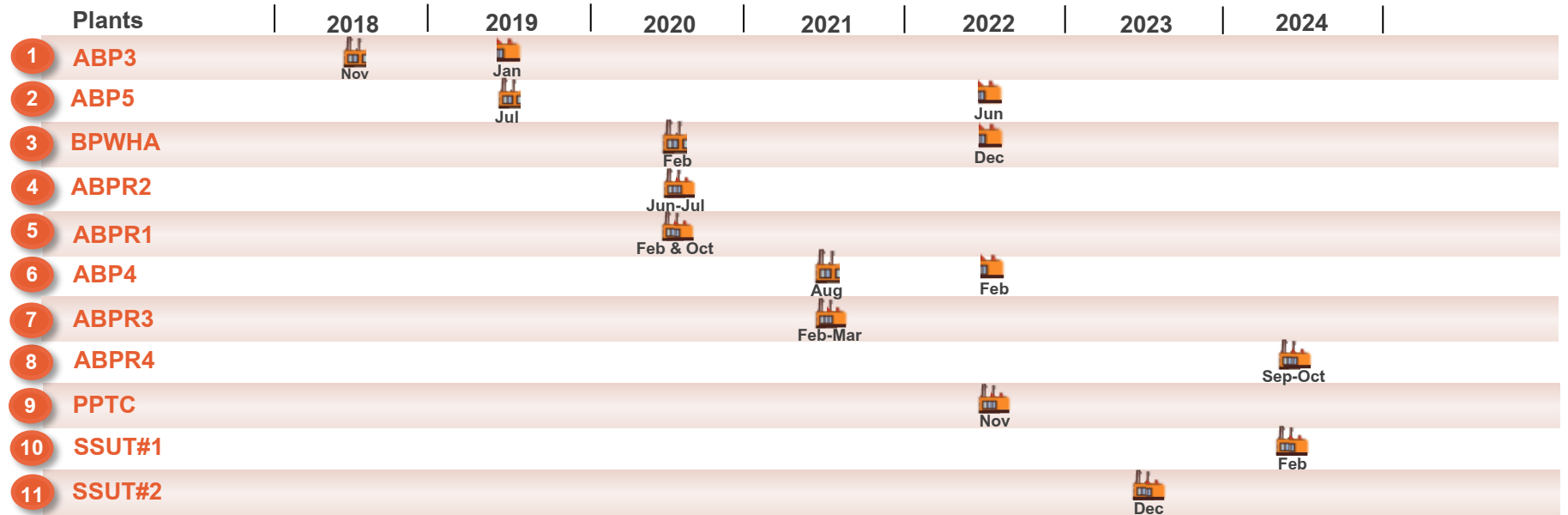
LTSA Upgrade Schedule



2 Gas Turbines

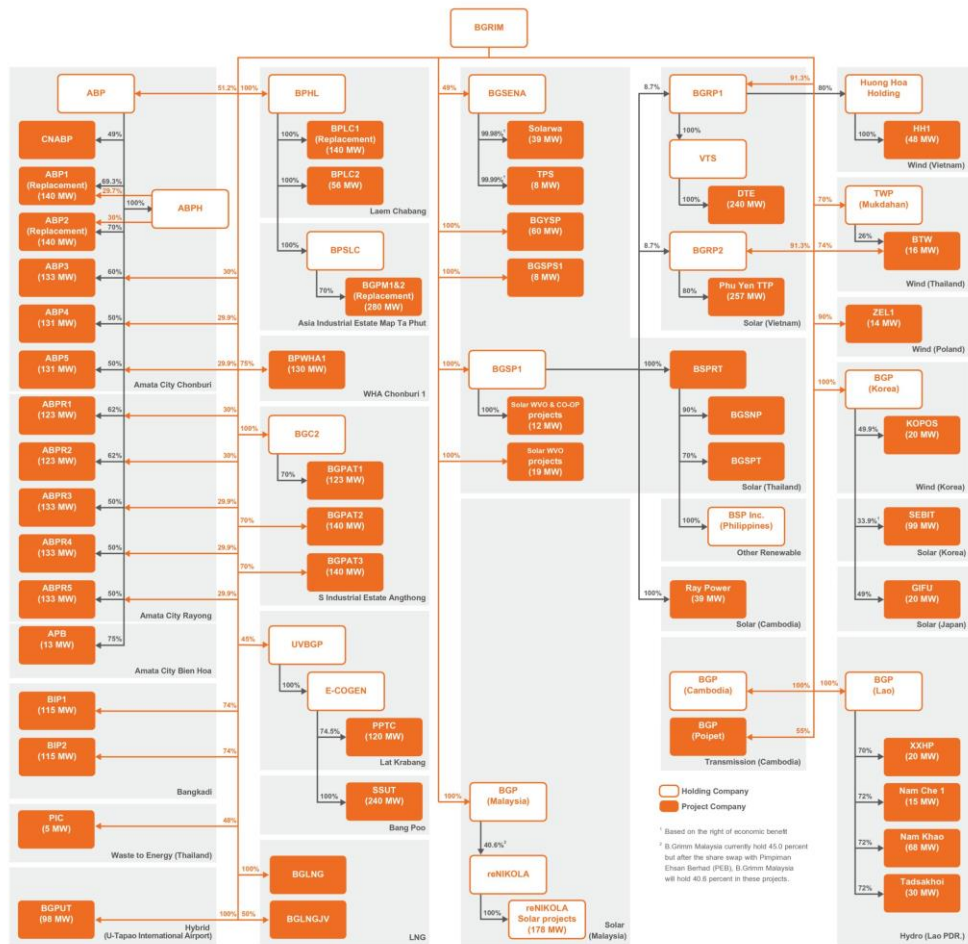


1 Gas Turbine



Corporate structure

Core subsidiaries and associates only



Operational power plants: conventional

Company	Abbreviation	Fuel Type	COD	Economic Ownership % ^(a)							
					Installed (MW)	Equity (MW)	Offtaker / Program	PPA Expiry	EGAT Contracted Capacity (MW)	IU Electricity Contracted Capacity (MW)	Steam Contracted Capacity (t/h)
Amata Nakorn Industrial Estate, Thailand											
Amata B.Grimm Power 1	ABP1R	Gas-Fired Cogen	Nov-22	50.69%	140.0	71.0	EGAT (SPP)	Nov-47	30.0	106.8	3.0
Amata B.Grimm Power 2	ABP2R	Gas-Fired Cogen	Dec-22	51.20%	140.0	71.7	EGAT (SPP)	Dec-47	30.0	100.8	14.0
Amata B.Grimm Power 3	ABP3	Gas-Fired Cogen	Oct-12	60.70%	132.5	80.4	EGAT (SPP)	Oct-37	90.0	43.1	13.0
Amata B.Grimm Power 4	ABP4	Gas-Fired Cogen	Nov-15	55.50%	131.1	72.8	EGAT (SPP)	Nov-40	90.0	33.6	-
Amata B.Grimm Power 5	ABP5	Gas-Fired Cogen	Jun-16	55.50%	131.1	72.8	EGAT (SPP)	Jun-41	90.0	35.5	13.0
Subtotal					674.7	368.7			330.0	319.8	43.0
Amata City Industrial Estate, Thailand											
Amata B.Grimm Power (Rayong) 1	ABPR1	Gas-Fired Cogen	Nov-13	61.70%	123.3	76.1	EGAT (SPP)	Nov-38	90.0	33.8	14.0
Amata B.Grimm Power (Rayong) 2	ABPR2	Gas-Fired Cogen	Jun-13	61.70%	124.4	76.8	EGAT (SPP)	Jun-38	90.0	24.0	14.0
Amata B.Grimm Power (Rayong) 3	ABPR3	Gas-Fired Cogen	Feb-18	55.50%	133.0	73.8	EGAT (SPP)	Feb-43	90.0	36.0	-
Amata B.Grimm Power (Rayong) 4	ABPR4	Gas-Fired Cogen	Jun-18	55.50%	133.0	73.8	EGAT (SPP)	Jun-43	90.0	46.0	-
Amata B.Grimm Power (Rayong) 5	ABPR5	Gas-Fired Cogen	Oct-18	55.50%	133.0	73.8	EGAT (SPP)	Oct-43	90.0	42.5	-
Subtotal					646.7	374.3			450.0	182.3	28.0
Laem Chabang Industrial Estate, Thailand											
B.Grimm Power (Laem Chabang) 1	BPLC1R	Gas-Fired Cogen	Jul-22	75.00%	140.0	105.0	EGAT (SPP)	Jul-47	30.0	99.3	44.0
B.Grimm Power (Laem Chabang) 2	BPLC2	Gas-Fired Cogen	Feb-09 ^(b)	100.00%	56.1	56.1	-	-	-	45.3	21.5
Subtotal					196.1	161.1			30.0	144.6	65.5
Bangkadi Industrial Park, Thailand											
B.Grimm BIP Power 1	BIP1	Gas-Fired Cogen	Apr-15	74.00%	114.6	84.8	EGAT (SPP)	Apr-40	90.0	14.0	-
B.Grimm BIP Power 2	BIP2	Gas-Fired Cogen	Jan-16	74.00%	114.6	84.8	EGAT (SPP)	Jan-41	90.0	24.3	-
Subtotal					229.2	169.6			180.0	38.3	-
WHA Chonburi1 Industrial Estate, Thailand											
B.Grimm Power (WHA) 1	BPWHA1	Gas-Fired Cogen	Nov-16	70.00%	130.2	97.7	EGAT (SPP)	Nov-41	90.0	41.2	-
Asia Industrial Estate (Map Ta Phut), Thailand											
B.Grimm Power (AIE-MTP)	BGPM1&2R	Gas-Fired Cogen	Dec-22&Mar-23	70.00%	280.0	196.0	EGAT (SPP)	Dec-47&Mar-48	60.0	14.6	100.0
B.Grimm Power (Angthong) 1	BGPAT1	Gas-Fired Cogen	May -16	70.00%	123.0	86.1	EGAT (SPP)	May-41	90.0	3.0	5.0
Lad Krabang Industrial Estate, Thailand											
PPTC	PPTC	Gas-Fired Cogen	Mar-16	33.53%	120.0	40.2	EGAT (SPP)	Mar-41	90.0	37.0	14.0
Bangpoo Industrial Estate, Thailand											
SSUT	SSUT	Gas-Fired Cogen	Dec-16	45.00%	240.0	108.0	EGAT (SPP)	Dec-41	180.0	52.5	26.6
Gas-Fired Cogen Total					2,639.9	1,601.7			1,470.0	833.3	282.1
Amata City (Bien Hoa) Industrial Estate, Vietnam											
Amata Power (Bien Hoa) ^(c)	APB	Diesel Generator	Apr-99	38.40%	13.0	5.0	-	-	-	409.7	-
Conventional Total					2,652.9	1,606.7			1,500.0	1,243.0	282.1

Information as of June 2023



(a) Based on B.Grimm Power's direct and/or indirect interest in the project company owning the power plant

(b) Acquired from Sime Darby Energy on 30 June 2014

(c) We instead purchase power directly from a subsidiary of EVN which we then on-sell to industrial users in Amata City Bien Hoa Estate

Operational renewable power plants

Company / Project	Abbreviation	Location	COD	Economic Ownership % ^(a)	Capacity		Main PPA(s)	
					Installed (MW)	Equity (MW)	Offtaker / Program	PPA Expiry
Solar								
B.Grimm Yanhee Solar Power (8 projects)	BGYSP	Pathumthani and Ayutthaya province, Thailand	Dec-15	100.0%	59.7	59.7	PEA (FIT)	Dec-40
Solarwa (5 projects)	Solarwa	Nakhon Pathom and Saraburi province, Thailand	Dec-15	47.5%	38.5	18.3	PEA (FIT)	Dec-40
TPS Commercial	TPS	Saraburi province, Thailand	Dec-15	47.5%	8.0	3.8	PEA (FIT)	Dec-40
B.Grimm Solar Power (Sakaeo) 1	BGSPS1	Sakaeo province, Thailand	Apr-16	100.0%	8.0	8.0	PEA (FIT)	Apr-41
Solar WVO-Cooperatives (7 projects)	Solar WVO-Coop	Thailand	Dec-18	100.0%	30.8	30.8	PEA (FIT)/ MEA (FIT)	Dec-43
Dau Tieng Tay Ninh Energy	DTE	Tay Ninh province, Vietnam	Jun-19	100.0%	240.0	240.0	EVN (FIT)	Jun-39
Phu Yen TTP (Phu Yen)	Phu Yen TTP	Phu Yen province, Vietnam	Jun-19	80.0%	257.0	205.6	EVN (FIT)	Jun-39
Ray Power	Ray Power	Banteay Meanchey Province, Cambodia	Dec-20	100.0%	39.0	39.0	EDC (FIT)	Dec-40
reNIKOLA (5 projects)	reNIKOLA	Malaysia	2018-2023	40.6%*	178.0	72.2	TNB (FIT)	2039-2044
Saemangeum Sebit	SEBIT	Saemangeum, South Korea	Mar-2022	33.85%	98.99	33.51	KEPCO	2041
KOPOS (Solar)	KOPOS	Gangwon, South Korea	Aug-2023	49.9%	23.5	11.73	KEPCO	2043
					981.5	722.6		
Hydro								
Xenamnoy 2 and Xekatam 1 (2 projects)	XXHP	Lao PDR	Aug-17	70.0%	20.1	14.1	EDL	Aug-42
Nam Che1	Nam Che 1	Lao PDR	Jun-19	72.0%	15.0	10.8	EDL	Jun-44
					35.1	24.9		
Wind								
Bo Thong Wind Farm (2 projects)	BTW	Mukdahan, Thailand	Aug-21	92.2%	16.0	14.8	PEA	Aug-46
Industrial Waste								
Progress Interchem	PIC	Ratchaburi, Thailand	Dec-21	48.0%	4.8	2.3	PEA	Aug-41
Total					1,037.4	764.6		

Note: As of August 2023, (a) Based on B.Grimm Power's direct and/or indirect interest in the project company owning the power plant.

Developing projects

Power plants	Location	Fuel type	% Ownership	COD	Electricity Capacity		EGAT / EDL / EVN / TNB/ PPA	
					Installed MW	Equity MW	Contract MW	Tenor years
BGPAT2	World Food Valley	Gas	70.0%	2023	140.0	98.0	90.0	25
BGPAT3	World Food Valley	Gas	70.0%	2023	140.0	98.0	90.0	25
U-Tapao (Phase1)	U-Tapao International Airport (Rayong)	Hybrid (Solar+ESS)	100.0%	1H'2024	18.0 + 50.0 MWh	18.0 + 50.0 MWh	15.0 + 50.0 MWh ¹	25
GIFU	Japan	Solar	49.0%	2024	20.0	9.8	20.0 ⁴	17 Remaining
U-Tapao (Phase2)	U-Tapao International Airport (Rayong)	Hybrid (Gas)	100.0%	2024	80.0	80.0	80.0 ¹	25
KOPOS (Wind)	South Korea	Wind	49.9%	2024	20.0	10.0	20.0 ⁵	20
Huong Hoa 1	Vietnam	Wind	80.0%	2025	48.0	38.4	48.0	20
Tadsakhoi	Laos	Hydro	70.0%	2026	30.0	21.0	30.0	25
Nam Khao 1 - 5	Laos	Hydro	72.0%	2026-2030	67.5	48.6	67.5	25
ZEL1	Poland	Wind	90.0%	2030	14.1	12.7	14.1 ²	10 ³

¹ PPA contract with Sattahip Electricity Authority The Royal Thai Navy Welfare Concession (SEA)

² PPA contract with visa Vento who then sell to Industrial Users with long-term contracts matched with the PPA

³ With an option for another 10 Years

⁴ PPA contract with Kansai Transmission and Distribution Co.

⁵ PPA contract with Korea Midland Power Limited

Contractual overview: commercial features

	SPP Gas-fired Cogeneration			Solar PV	Solar (Vietnam)	Solar (Cambodia)	Solar (Malaysia)	Wind	Hydro (Loas)	iWTE	Wind (Poland)	Solar (Japan)	Wind (Korea)	Solar (Korea)
	EGAT	Industrial Users		PEA/MEA (FIT)	EVN	EDC	TNB	PEA (Adder)	EDL	PEA	visaVento	Kansai TD	KOMIPO	KEPCO
		Electricity	Steam											
Term (years)	21 – 25 years	5 – 15 years ^(a)	5 – 15 years ^(a)	25 years	20 years	20 years	21 years	5 years	25 years	20 years	10 years	17 years remaining	20 years	20 years
Extension option	✓	✓	✓	-	-	-	-	5 years auto extension	Up to 10 years	-	Up to 10 years	Opportunity to sell in merchant market	-	-
Contracted capacity	30-90 MW	Depends on each contract		2.25-8 MW	497 MW	30 MW	88 MW	8 MW (each)	6.7 – 15 MW ^(b)	4 MW	14.1 MW	20 MW	20 MW	122.49 MW
Secured fuel supply	✓	✓	✓	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Natural gas cost pass-through	✓ (at contracted heat rate)	Partially through Ft	Depends on contract	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
FX pass-through	✓	Partially through Ft	-	-	-	-	-	-	-	-	-	-	-	-
	-	-	✓	-	-	-	-	-	-	-	-	-	-	-
Tariff	See next page			5.66 THB/kWh 4.12 THB/kWh	9.35 Cents/kWh	7.60 Cents/kWh	8.00-10.00 Cents/kWh	PEA wholesale + 10-year adder at 3.50 THB/kWh	6.50 Cents/kWh	FIT _e + FIT _v + 8-year adder at 0.7 THB/kWh	-	21 JPY/kWh	180 KRW/kWh	144-164 KRW/kWh
Applicable power plants	ABP1-5, ABPR1-5, BPLC1, BIP1-2, BPWHA1, BGPAT1-3, BGPM (2 PPAs), PPTC, SSUT			BGYSP (8 projects), Solarwa (5 projects), TPS, BGPSK, Solar WVO-Coop (7 projects)	DTE, Phu Yen TTP	Ray Power	reNIKOLA (5 projects)	Bo Thong (2 projects)	XXHP (2 projects), Nam Che, Nam Khao 1-5 (5 projects), Tadsakhoi	PIC	ZEL1	GIFU	KOPOS	SEBIT, KOPOS (Solar)

Source: 56-1, EGAT, PEA

Small Power Producer (SPP) scheme

SPP

- 1) Located in strategic industrial estates, near users
- 2) IU tariff is linked to market price while EGAT tariff is based on a cost-plus model
- 3) Provide both electricity and stream to IUs

Round 1:	1992
Round 2:	2007
Round 3:	2010
Replacement:	2018

SPP



IPP



	SPP	Industrial Users	IPP
Contracted Capacity	30-90 MW	The rest	All (> 90 MW)
Off-taker	EGAT	Industrial Users	EGAT
Tenors	20-25	10-15	20-25
Product and Service	Electricity	Electricity, Stream, Demin Water	Electricity
Tariff Structure	CP+EP+FS	Base Tariff + Ft	AP+EP
Minimum	CP	Base Tariff	AP
Fuel cost pass-through mechanism	EP	Ft	EP
Incentive from the government	FS*	-	None

CP = Capacity Payment
 EP = Energy Payment
 FS = Fuel Saving
 AP = Availability Payment

Contractual overview: EGAT PPA under SPP program

TARIFF STRUCTURE

Electricity Tariff = Capacity Payment + Energy Payment + Fuel Saving Payment + VAT

$$\text{Capacity Payment Rate (THB/kW/month)} = CP_0 \times \left[(x \times \frac{FX_t}{FX_0}) + (1-x) \right]$$

$$\text{Energy Payment Rate (THB/kWh)} = EP_0 + \left[\left(\frac{P_t - P_0}{10^6} \right) \times \text{contracted Heat Rate} \right]$$

$$\text{Fuel Saving Payment Rate (THB/kWh)} = FS_0 \times \frac{PES_t}{10\%}$$

FX_t = THB/ US\$ Exchange Rate

P_t = Price for natural gas PTT sells to SPPs in a month (THB/MMBTU)

PES_t = primary energy saving ("PES") statistic measuring the efficiency rate of our gas-fired cogeneration power plant in consuming natural gas in the generation of electricity and thermal energy

SPP Regulation	2007	2010	Replacement
Applicable power plants	ABP3, ABPR1-2, BIP1	ABP4-5, ABPR3-5, BIP2, BPWHA, BGPAT1	ABP1R, ABP2R BPLC1R, BGPM1&2R
Base Capacity Payment Rate (CP_0) (THB/kW)	383.66	420.00	497.94
Base Exchange Rate (FX_0) (THB/US\$)	37	34	34
US\$THB FX indexation (X)	0.5	0.5	0.5
Base Energy Payment Rate (EP_0) (THB/kWh)	1.70	1.85	2.01
Base Price for Natural Gas PTT sells to SPPs (P_0) (THB/MMBTU)	209.4531	232.6116	263.0000
Contracted Heat Rate (BTU/kWh)	8,000	7,950	7,409
Fuel Saving Payment	✓	✓	-
Base Fuel Saving Payment (FS_0) (THB/kWh)	0.36	0.36	-

Major maintenance schedule in 2023

Projects	Installed Capacity (MW)	Steam Capacity (ton/hr)	Type of maintenance	Duration (days)	2023			
					Q1	Q2	Q3	Q4
WHA Chonburi 1								
BPWHA	130.0	30.0	Major Overhaul	16				

Abbreviation & our projects

ABBREVIATION

ADB	Asian Development Bank
COD	Commercial Operation Date
EBITDA	Earnings before Interest, Taxes, Depreciation and Amortization
EDC	Electricite Du Cambodge
EDL	Electricite Du Laos
EGAT	Electricity Generating Authority of Thailand
ERC	Energy Regulatory Commission
EPC	Engineering, Procurement and Construction
EVN	Electricity of Vietnam
FIT	Feed-in Tariff

FX	Foreign exchange
IPO	Initial public offering
IU	Industrial user
IWTE	Industrial Waste to Energy
JV	Joint venture
kWh / GWh	Kilowatt / Gigawatt-hour
MEA	Metropolitan Electricity Authority
MMBTU	Million Btu (unit of gas consumption)
NNP	Normalised net profit
O&M	Operations and maintenance

P.A.	Per annum
PEA	Provincial Electricity Authority (Thailand)
PPA	Power purchase agreement
PTT	PTT public Company Limited
ROA	Return on assets
ROE	Return on equity
SG&A	Selling, general & administrative expense
TNB	Tenaga Nasional Berhad
YE	Year End
YoY	Year-on-Year

OUR PROJECTS

ABPIF	Amata B.Grimm Power Plant Infrastructure Fund
ABP1	Amata B.Grimm Power 1
ABP2	Amata B.Grimm Power 2
ABP3	Amata B.Grimm Power 3
ABP4	Amata B.Grimm Power 4
ABP5	Amata B.Grimm Power 5
ABPR1	Amata B.Grimm Power (Rayong) 1
ABPR2	Amata B.Grimm Power (Rayong) 2
ABPR3	Amata B.Grimm Power (Rayong) 3
ABPR4	Amata B.Grimm Power (Rayong) 4
ABPR5	Amata B.Grimm Power (Rayong) 5
BGPAT1	B.Grimm Power (Angthong) 1

BGPAT2	B.Grimm Power (Angthong) 2
BGPAT3	B.Grimm Power (Angthong) 3
BGPSK	B.Grimm Solar Power (Sakaeo) 1
BGSENA	B.Grimm Sena Solar Power Limited
BGYSP	B.Grimm Yanhee Solar Power
BIP1	B.Grimm BIP Power 1
BIP2	B.Grimm BIP Power 2
BGPM	B.Grimm Power (AIE-MTP) (SPP1)
BPLC1	B.Grimm Power (Laem Chabang) 1
BPLC2	B.Grimm Power (Laem Chabang) 2
BPWHA1	B.Grimm Power (WHA) 1
DTE	Dau Tieng Tay Ninh Energy Joint Stock Company
Nam Che 1	Nam Che 1 Hydro Power Project

PIC	Progress Interchem
Phu Yen TTP	Phu Yen TTP Solar Project (Phu Yen)
Solar WVO	Solar WVO-Cooperatives Projects
Ray Power	Ray Power Supply Company Limited
XXHP	Xenamnoy 2 and Xekatom 1 Hydro Power Project
BSPCD	The Chon Daen agricultural cooperatives project
BGPPCS	The WVO project, namely the Veteran Support Office of Chonburi
BSPCB	The Ban Na Doem agricultural cooperatives project
BGSP1WN	The WVO project, namely Office of Agriculture, Industry and Services Affairs
BGPLKB	The WVO project, namely the Veterans General Hospital
BGPBBO	The WVO project, namely the WVO Office of Terminal Production Workshop
BGPSAI	The WVO project, namely the WVO Office of Security Services
reNIKOLA	reNIKOLA Holdings Sdn. Bhd.