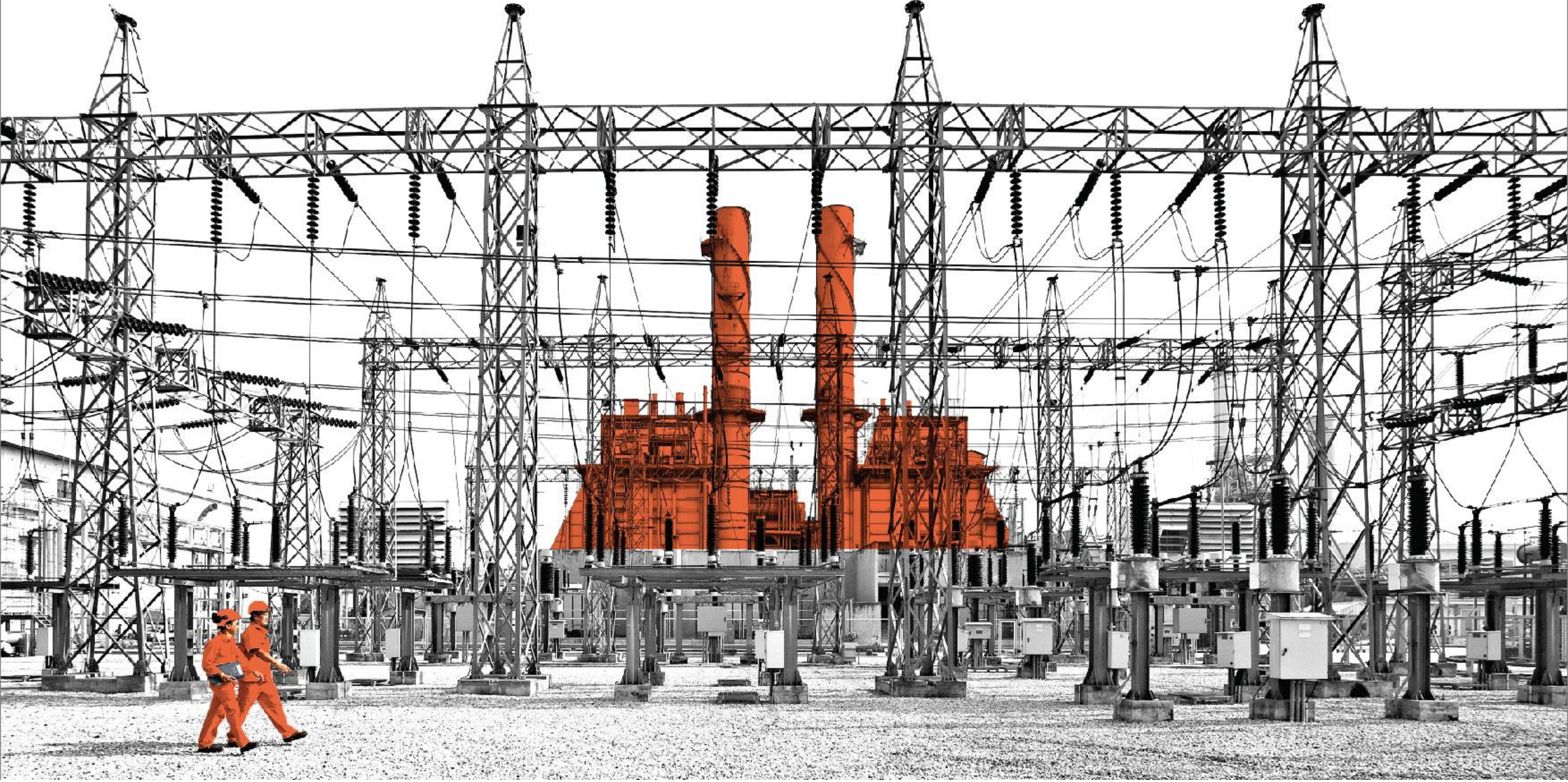
B.GRIMM SINCE 1878

B.GRIMM POWER
EMPOWERING THE WORLD COMPASSIONATELY



BGRIM: 2020 Opportunity Day

March 2021

Empowering the World Compassionately

- 143 years of *"Doing Business with Compassion"*
- 25 years in power
- Long-term commitment

- Reliability
- Decentralization
- In-house team with expertise in project development and O&M
- Transmission and distribution
- Smart solutions and digital transformation
- Target of 7,200 MW by 2025

- Synergy under B.Grimm umbrella with utilities, building, industrial business system, healthcare etc.
- Strong partnership both local and overseas

- **Net Zero Carbon Emissions by 2050** – by renewable energy and new technologies
- Conserve natural resources
- Support community, education, culture, environment and wildlife

2021 Outlook*

- To secure new projects with more than 1 GW total capacity (both greenfield and M&A)
- Industrial User volume to grow by 10-15% from demand recovery and new clients with total PPA of 40-60 MW
- Gas price to decline by 6-8%

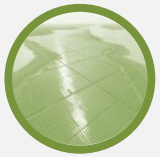
- New private PPAs
- The collaboration with B.Grimm companies to lunch new service as the Total Solution Provider
- New partner announcement both local and overseas

- Scheduled commercial operation of 16 MW wind projects in 1H’2021
- Study new technologies, alternative fuels to support our commitment to net-zero carbon emission by 2050

*This page contains "forward-looking statements", which involve uncertainties and other important factors beyond the control of the Company. You are cautioned not to rely on such forward-looking statements.

143 Years of Pioneering Spirits

Professionalism



Compassion

Partnership

Financial Performance

B.Grimm: More than 143 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 South East 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

Opened Siam Dispensary

1878

Built Rangsit canal together with Snidvongse family

1890

Installed the first telephone line between Germany and Thailand

1931

Supplied turnkey systems and services with Siemens for BTS sky train

1994

Awarded 1st Small Power Producer (SPP) contract for Amata B.Grimm Power 1

1996

Consortium leader for Airport Rail Link

2010

B.Grimm Power reached 3,058 MW installed capacity

2020

B.Grimm Strength in Numbers

1st

One of the largest SPP in Thailand

A leader in gas-fired SPP with the highest number of projects and equity MW

125

Years of energy experiences in Thailand

Experienced management team with good track record in power development

3.7

GW of total generating capacity

3.1 GW* in operation with diversified portfolio

30%

EBITDA margin in 2020

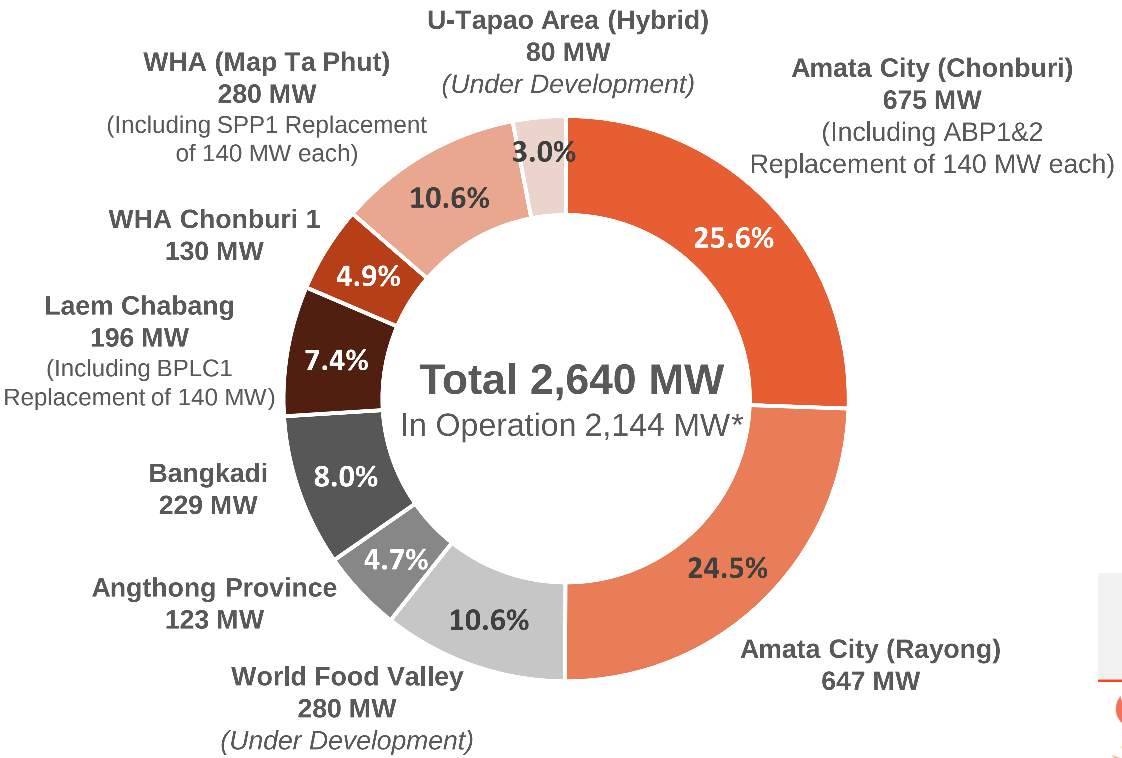
Strong operating result from highly efficient power plants

*As of December 2020

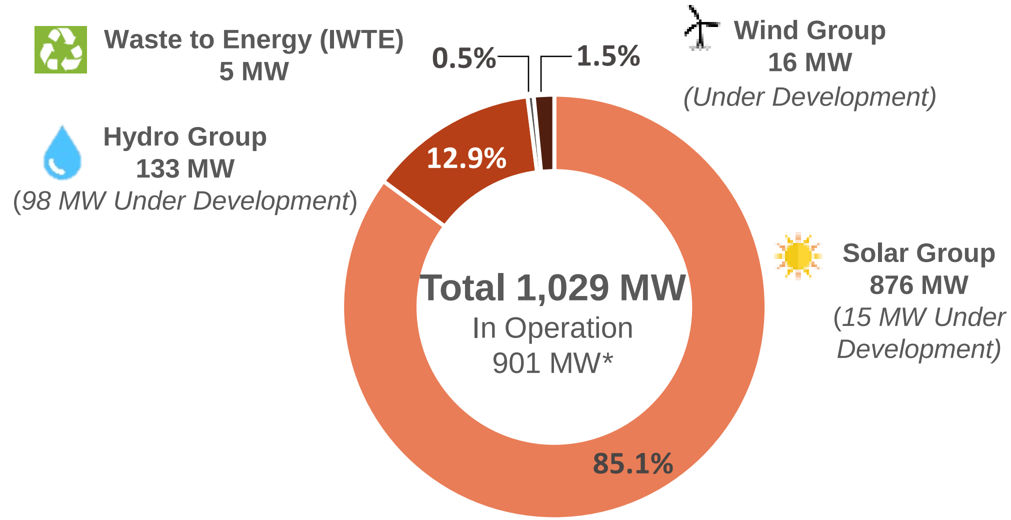
Well-Diversified Portfolio with Expertise in Green-Field Development

B.GRIMM SINCE 1878

GAS – FIRED POWER PLANT (INDUSTRIAL ESTATE) 71.0%



RENEWABLE GROUP 28.5%



TRANSMISSION & DISTRIBUTION 0.4%

Bien Hoa 90 MW
(with 13 MW back up for power trading)

Poi Pet PPSEZ 14 MW**

SOLAR ROOFTOP

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

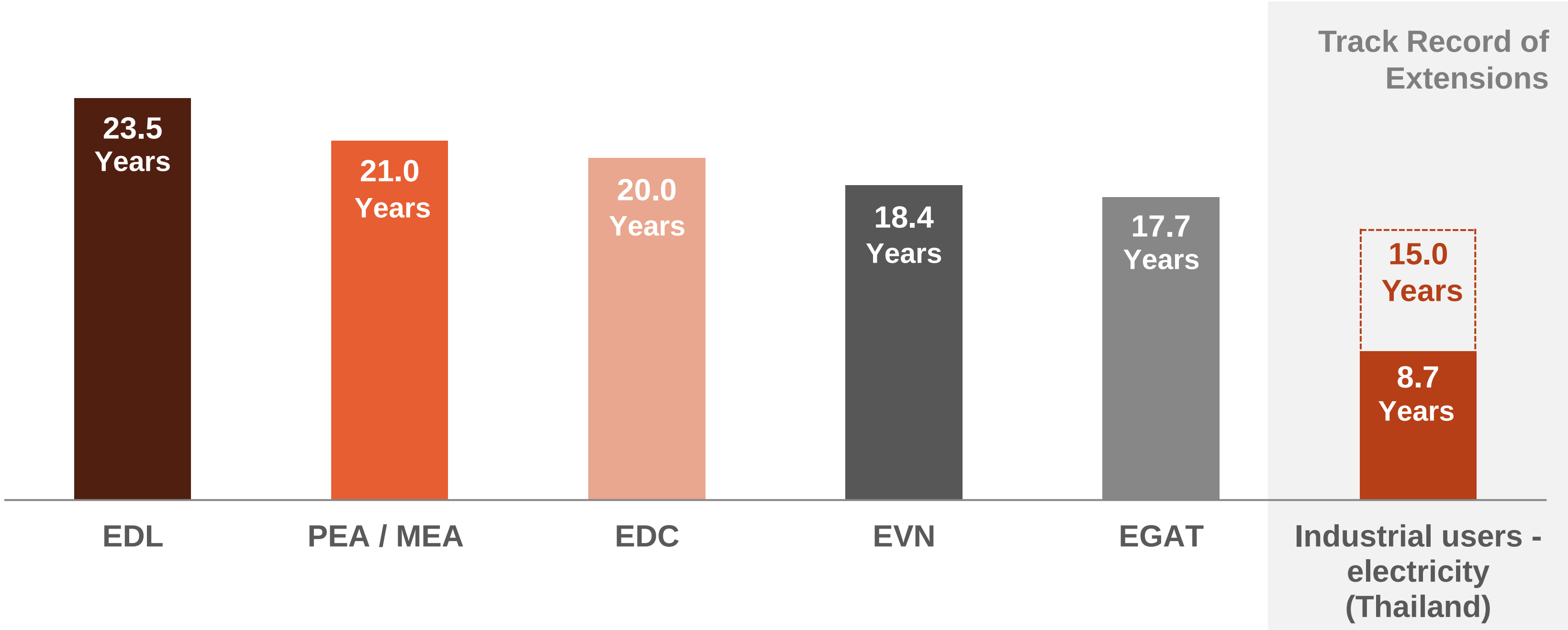
Type of Energy	Installed MW			Equity MW		
	Total Capacity	%	*In Operation*	Total Capacity	%	*In Operation*
Gas fired	2,560 MW	69.5	*2,144 MW*	1,769 MW	68.7	*1,311 MW*
Solar	861 MW	23.4	*861 MW*	596 MW	23.1	*596 MW*
Hydro	133 MW	3.6	*35 MW*	95 MW	3.6	*25 MW*
Hybrid	95 MW	2.6		95 MW	3.7	
Wind	16 MW	0.4		15 MW	0.6	
IWTE	5 MW	0.1	*5 MW*	2 MW	0.1	*2 MW*
Backup for power trading	13 MW	0.4	*13 MW*	4 MW	0.2	*4 MW*
Total	3,682 MW	100	*3,058 MW**	2,576 MW	100	*1,938 MW**

*As of December 2020

**Transmission & distribution and solar rooftop are not included in total installed capacity

Long-Term PPA with and Benefit from Well-Establishment of PPA

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)
- **EDL** : 25 years tenor (hydro)
- **EVN** : 20 years tenor (solar)
- **Industrial Users** : up to 15-year tenor with track record of extensions

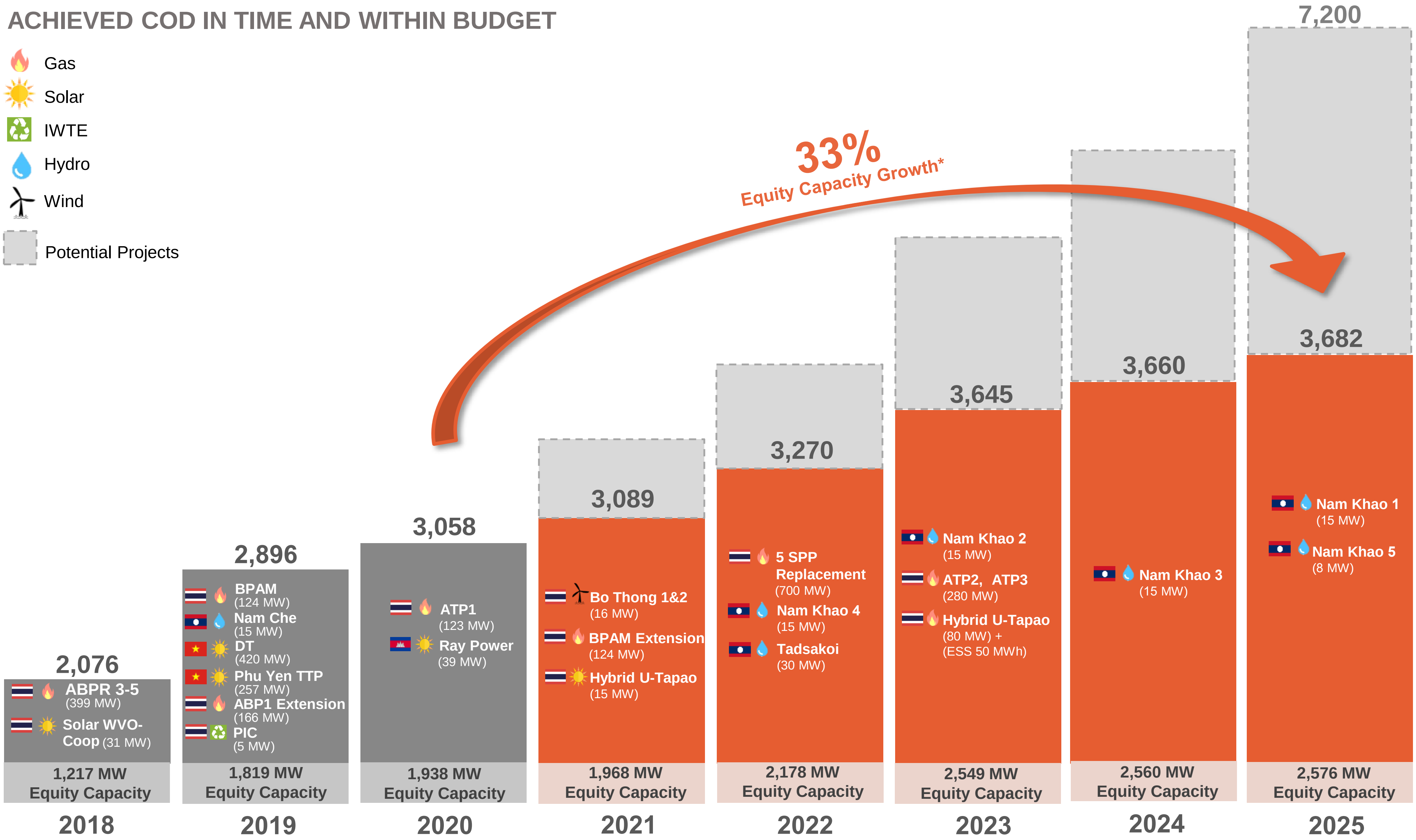
Secured Gas Supply with PTT covering respective PPA tenors

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

Note: Weighted Average Remaining PPA life is calculated as the average remaining contractual term remaining from 31 December 2020 to expiry weighted by the aggregate contracted capacity under the relevant agreement

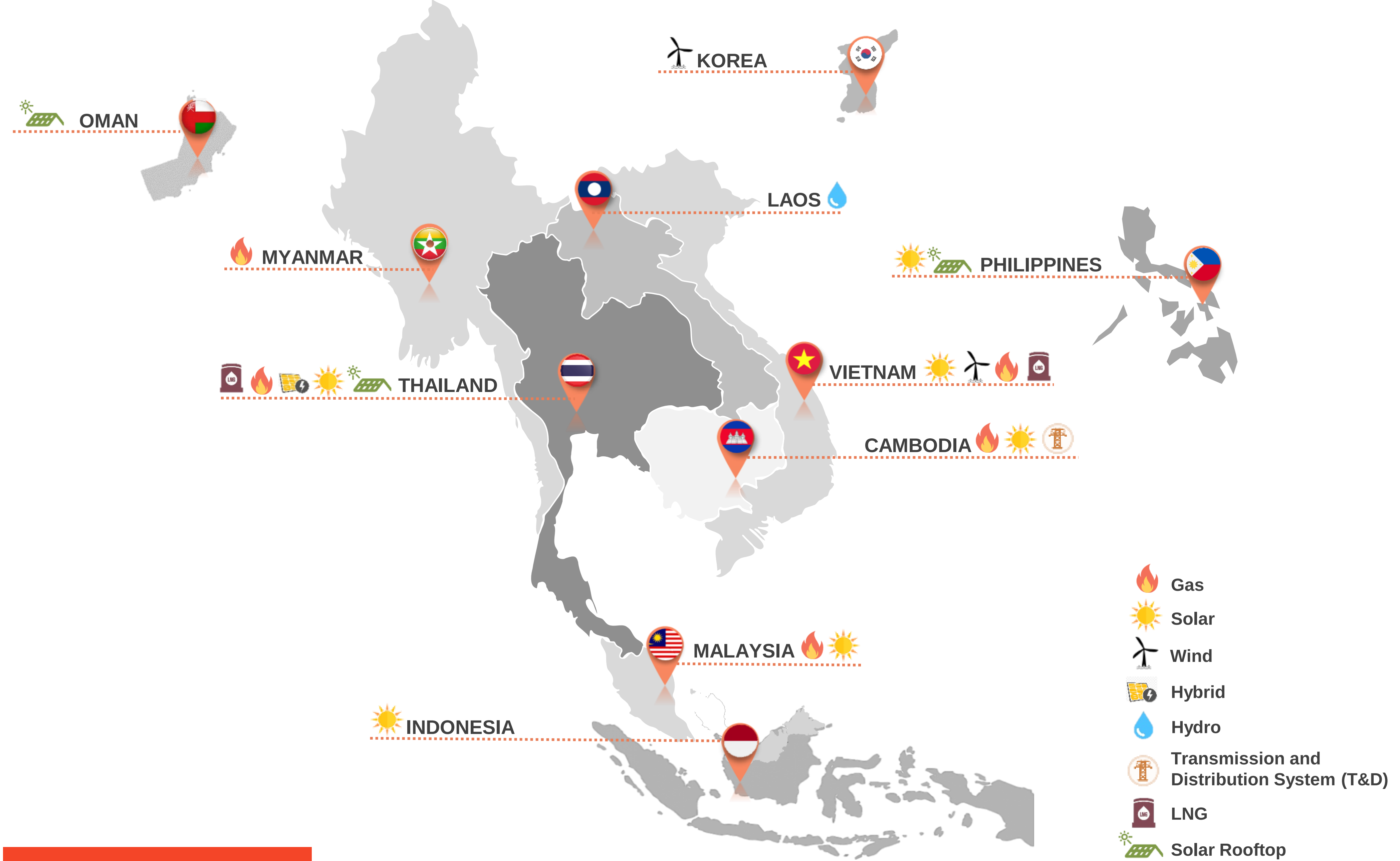
Robust Growth Pipeline from Committed Projects with a Number of Potential Projects

ACHIEVED COD IN TIME AND WITHIN BUDGET



*Based on committed projects

Diligently Invest in Suitable Opportunities via Strong Networks



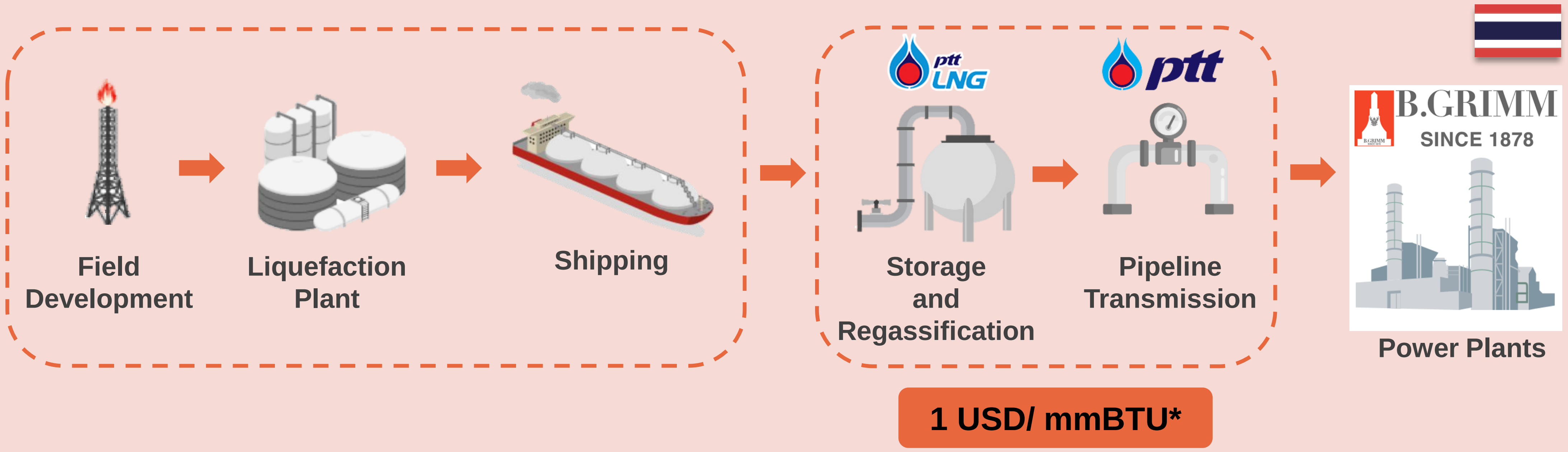
LNG to Power and LNG Value Chain

November 2, 2019:
MOU signing with PetroVietnam Power for jointly study and develop the LNG-to-power business

May 27, 2020:
LNG Shipper license approval from the Energy Regulatory Commission (ERC) for 650,000 ton/year

October 27, 2020:
LNG Approval from ERC to be used for existing SPPs from 2020 onwards

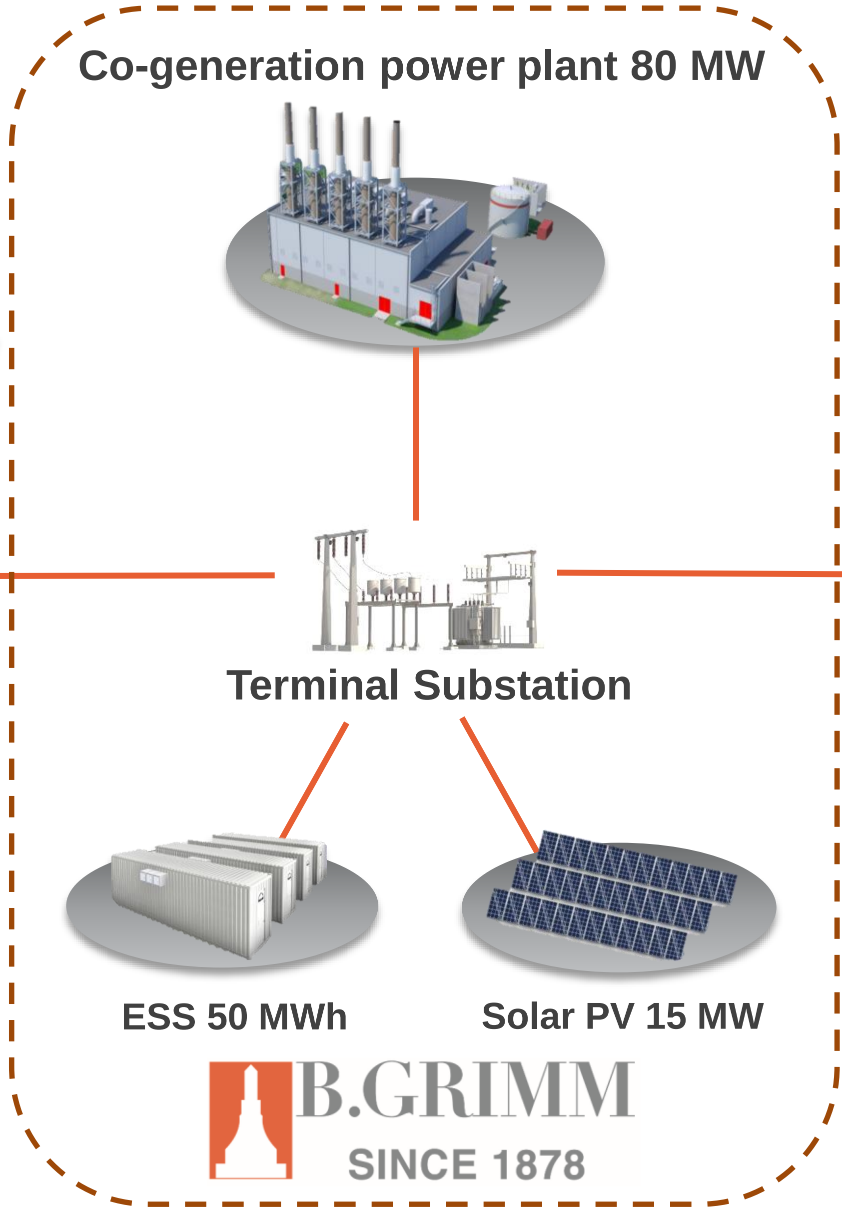
November 11, 2020:
Committee on Energy Policy Administration (CEPA) acknowledged Gas Liberalization-Phase II with the process to establish special team



Note: *Based on regulation

U-Tapao Hybrid Co-generation Power Plant

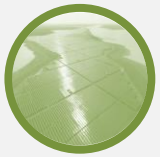
Hybrid Co-generation Power Plant



Sattahip Electricity Authority
The Royal Thai Navy Welfare Concession

143 Years of Pioneering Spirits

Professionalism



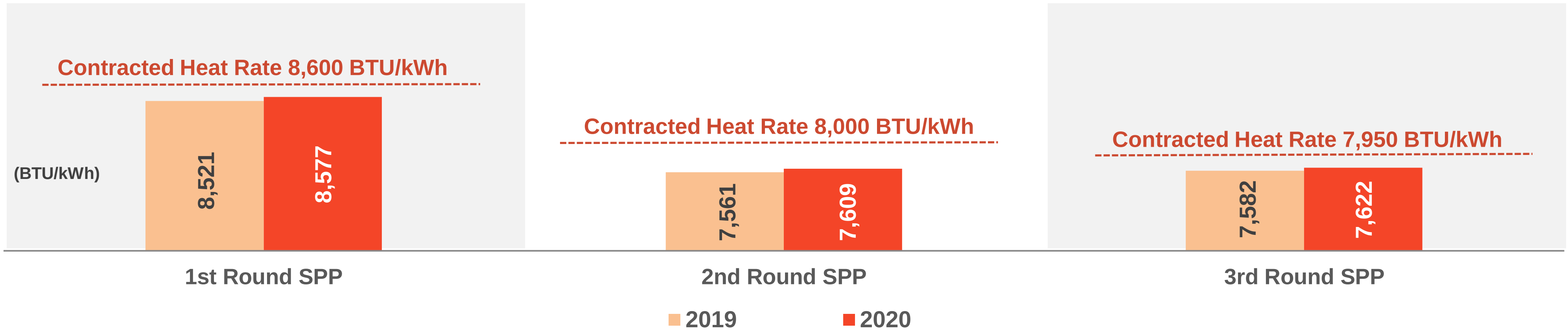
Compassion

Partnership

Financial Performance

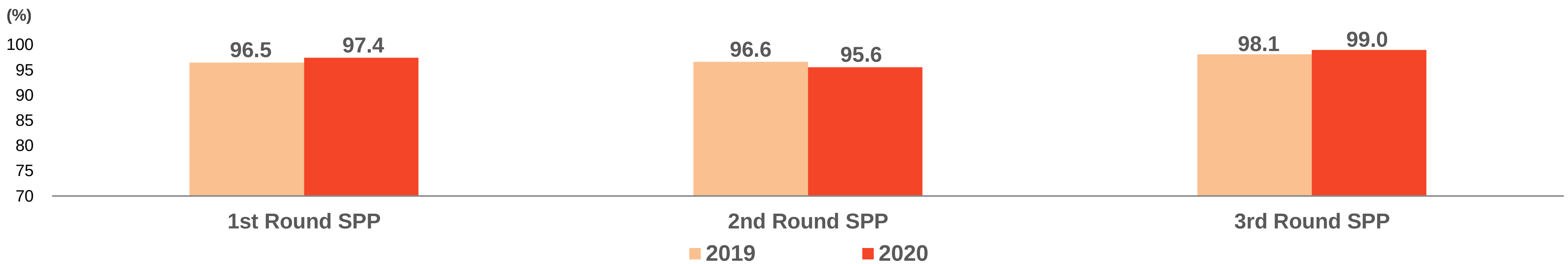
High Standard Technology Leads to High Efficiency & Availability

HIGH EFFICIENCY (HEAT RATE)



Our SPP power plants have lower heat rates than contracted heat rates.

HIGH AVAILABILITY (AVAILABILITY FACTOR)



Most of our gas-fired cogeneration power plants have availability factors of <u>above 90%</u> since COD

Note: (a) Electricity equivalent generations of steam dispatched are calculated according to efficiency calculation of EGAT PPA (BPAM generation 1)
1st Round SPP consist of ABP1, ABP2, BPLC1 and BPAM
2nd Round SPP consist of ABP3, ABPR1, ABPR2, BIP1
3rd Round SPP consist of ABP4, ABP5, ABPR3, ABPR4 ABPR5, BIP2, BPWHA and ATP1

SPP Portfolio and Efficiency Improvement programs

5 Replacement

ABP1, ABP2, BPLC1, BPAM1, BPAM2 (SCOD in 2022)

- New Technology
- MW increase by 135 MW
- ↑ IUs portion
- ↓ Gas consumption by 10-15%
- ↑ Wastewater treatment capacity
- LNG import for fuel-cost flexibility

13 In Operation

ABP3, ABP4, ABP5, BPWHA, ABPR1, ABPR2, ABPR3, ABPR4, ABPR5, BIP1, BIP2, BPLC2, ATP1

Upgrading gas turbined of 6 projects under LTSA with Siemens during 2019-2023

- ↓ Maintenance period
- ↓ Gas consumption by 1%
- ↑ 7 MW/plant available for IU

2 Under Construction

ATP2, ATP3 (SCOD in 2023)

- New Technology
- MW increase by 280 MW
- ↑ Food and beverage customer's base

Entering the LTSA for Enhancing Performance of Operating Project

Benefits from the LTSA with Siemens

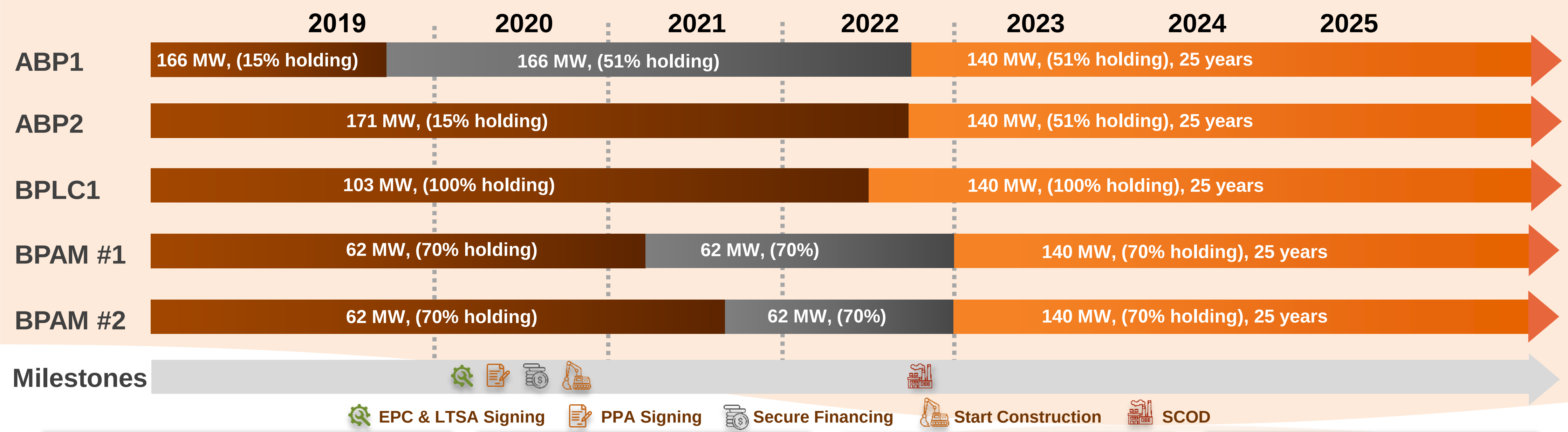
Benefit	Description	Result
Enhance Availability	To increase availability or reduce a number of maintenance days from <u>*18-20 days to 10-15 days*</u>	More operating days
Enhance Efficiency	To enhance heat rate of gas turbine after performing major overhaul and doing design improvement	Lower gas consumption by 1%
Moving towards Digitalization	To predict the degradation of a machine more accurate	More MW for IUs

LTSA Upgrade Schedule

Asian Power Award 2020: “Power Plant Upgrade of the Year-Thailand” by Asian Power Magazine

Plants	2018	2019	2020	2021	2022	2023
1 ABP3	Nov	Jan				
2 ABP5		Jul				Jan
3 BPWHA			Feb		Nov	
4 ABPR2			Jun-Jul			
5 ABPR1			Aug-Oct			
6 ABP4	2 Gas Turbines		1 Gas Turbine		Feb	

SPP Extension and Replacement Scheme

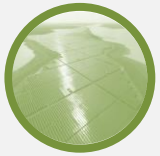


Key consideration	Existing	Extension*	Replacement
EGAT PPA period (years)	21-25	1-3	25
EGAT contract capacity (MW)	Up to 90	Up to 60	Up to 30
EGAT Tariff	Capacity Payment + Energy Payment	Energy Payment	Capacity Payment + Energy Payment
IU Tariff	Benchmark with PEA	Benchmark with PEA	Benchmark with PEA
Contracted heat rate with EGAT (BTU/KWh)	8,600	8,282	7,409
BGRIM's power plants applied with this scheme	ABP1, ABP2, BPLC1, BPAM (2 plants)	ABP1, BPAM (2 plants)	ABP1, ABP2, BPLC1, BPAM (2 plants)

*For PPAs expired in 2019 - 2021

143 Years of Pioneering Spirits

Professionalism



Compassion

Partnership

Financial Performance

B.Grimm Group

B.GRIMM
SINCE 1878

Energy

B.Grimm Power PCL

- Industrial Power Plant
- Solar
- Hydro
- Wind
- Waste to Energy
- Hybrid
- Distribution Systems

Industrial

Energy Equipment

B.Grimm Trading Corporation
Hamon – B.Grimm
B.Grimm Babcock Power

Cooling

B.Grimm. Airconditioning
B.Grimm Carrier (Thailand)
Carrier (Thailand)
Beijer B.Grimm (Thailand)

Transport

PCM Transport and
Panrail (Thailand)
B.Grimm Maritime

Building Materials

B. Grimm Trading Corporation
KSB Pumps
Chubb (Thailand)
MBM Metalworks

Healthcare

Merck Thailand
Getinge Group Thailand
Zeiss Thailand
Biomonde (Thailand)
Primo Care Clinic

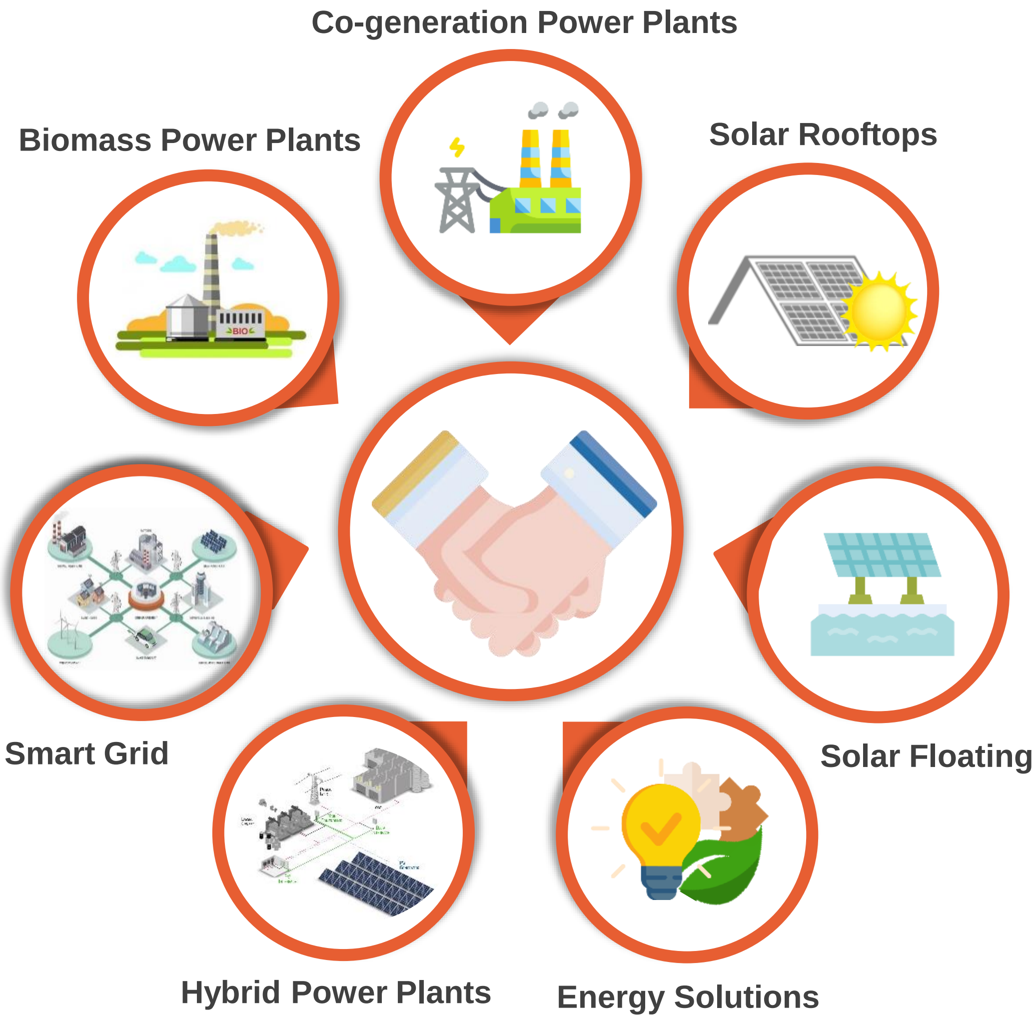
Lifestyle & Real Estate

B.Grimm Real Estate
B.Grimm Country Club
The MET Store Thailand
Nymphenburg Porcelain
Paris Spa
Provence Restaurant

Joint Venture with Univentures

UNIVENTURES

- **Thailand's leading property developer and investment company**
- **Various investments in real estate, related real estate business and others**
  - Commercial buildings
  - Office Buildings
  - Condominium
  - Etc.



Independent Power Supply (IPS)
for real estates and other industries

B.GRIMM SINCE 1878
B.GRIMM POWER

- **Leading power producer in Thailand and Southeast Asia**
- **In-house teams with expertise in project development, and operations and maintenance**
- **Well-diversified portfolio**
  - in Thailand, Vietnam, Lao PDR, Cambodia, the Philippines and Oman
  - 25 years of experience in co-generation power plants with currently 18 operating projects
  - Approximately 300 industrial clients
  - Solar farm and Solar rooftops
  - Wind farm and hybrid power plant under development

Partner with PEA and PEA ENCOM

- Exploring business opportunities with PEA and PEA ENCOM
  - Independent Power Supply (IPS)
  - Service coverage expansion
  - Microgrid and Smart Microgrid System
  - Renewable project expansion
- Saving investment cost of transmission lines and other facilities no less than THB 1,000 million

Long Term Relationship with Industrial Estates and Customers

FOOTHOLD IN TOP INDUSTRIAL ESTATES WITH MULTIPLE OF GENERATING UNITS IN EACH LOCATION

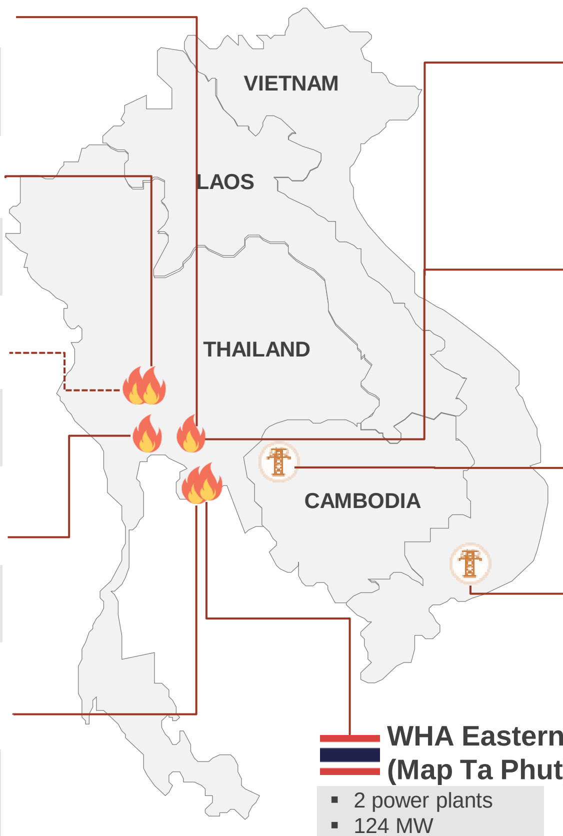
WHA Chonburi 1
- 1 power plant
- 130 MW
- 3 generating units

Anghong Province
- 1 power plant
- 123 MW
- 3 generating units

ATP2&2
- 2 power plants
- 280 MW
- 6 generating units

Bangkadi
- 2 power plants
- 229 MW
- 6 generating units

Amata City Rayong
- 5 power plants
- 647 MW
- 15 generating units



Laem Chabung
- 2 power plants
- 159 MW
- 5 generating units

Amata City Chonburi
- 5 power plants
- 732 MW
- 17 generating units

Poi Pet PP SEZ

Amata City Bien Hoa

WHA Eastern (Map Ta Phut)
- 2 power plants
- 124 MW
- 4 generating units

Gas-fired cogeneration power plants

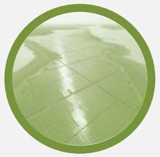
Transmission and Distribution

SELECTED TOP IU FOR ELECTRICITY AND STEAM

SUMITOMO RUBBER INDUSTRIES, LTD.
BIG
BRIDGESTONE Your Journey, Our Passion
NOK
TOYOTA STM SIAM TOYOTA MANUFACTURING
MITSUBISHI MOTORS
MITSUBISHI ELECTRIC Changes for the Better
SIAM COMPRESSOR INDUSTRY MITSUBISHI ELECTRIC GROUP
DENSO Global
MICHELIN A better way forward
Vandapac
COLGATE-PALMOLIVE
AJ Plastics Manufacturing
Cerebos

143 Years of Pioneering Spirits

Professionalism

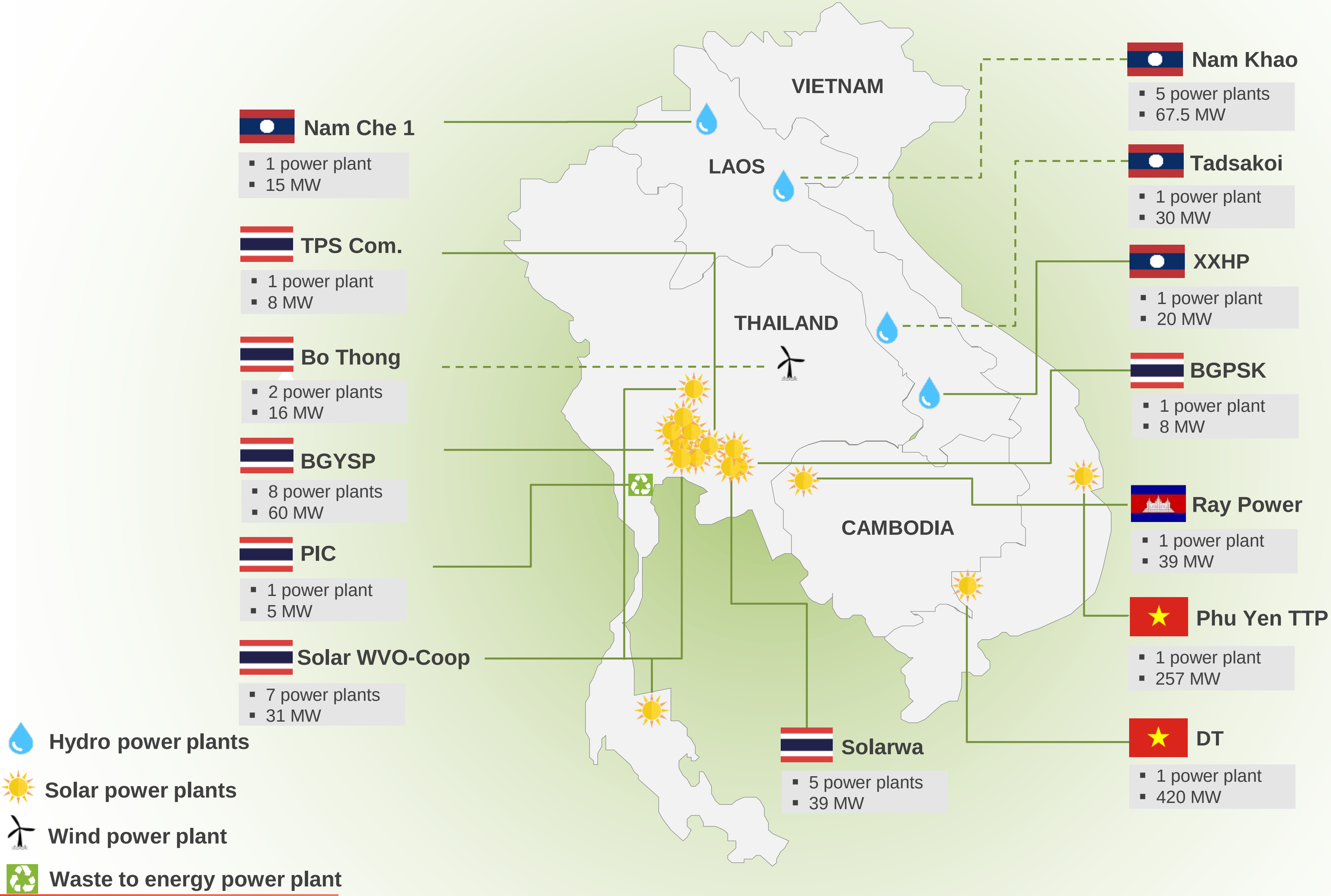


Compassion

Partnership

Financial Performance

Expanding Renewable Power Rapidly



Sustainability Highlights

Gas turbine upgrades to reduce gas consumption by 1%, increase availability period by 5-10 days

Reduce gas consumption by 10-15% for 5 SPP replacement

212,557 m^3 reduction in water consumption in 2020 (VS 2019)

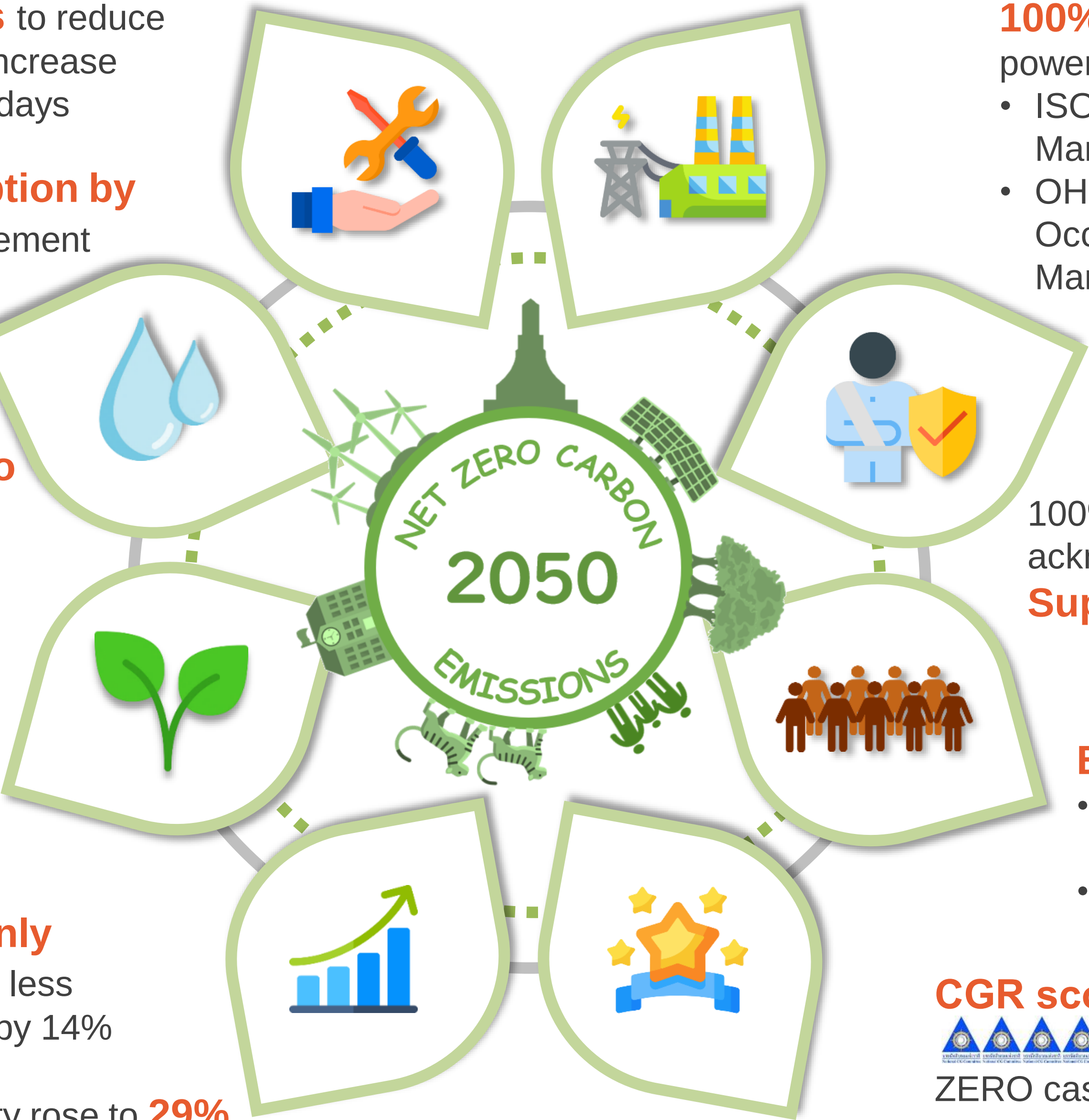
Increase **water cycle up to 11** cycles from cogeneration power plant

More than 60% of total water consumption was treated wastewater

100% risk area assessment and impacts on diversity of domestic power plants

Carbon emission only 0.43kgCO2eq/kWh* less than Thailand Grid Mix by 14%

Renewable capacity rose to **29%** in 2020 from 8% in 2018



100% of all cogeneration power plants implemented

- ISO 14001 Environmental Management Systems
- OHSAS 18001 / ISO 45001 Occupational Health and Safety Management System

0% Fatality

100% of active supplier signed acknowledgement in **Supplier Code of Conduct**

Board Diversity

- Independent directors 66.67%
- Female directors 66.67%

CGR score of "Excellent"

ZERO case of corruption and non-compliance

* Based on power plants in Thailand which were operated under B.Grimm for more than 2 years.

ESG Roadmap

B.GRIMM SINCE 1878

Target to enter DJSI index by 2022

Sustainability Disclosure Award 2020
by Thaipat Institute

“Excellent”
CGR Score
by Thai Institute of Directors Association (IOD) (2020)

Thailand Sustainability Investment (THSI) List 2020
by Stock Exchange of Thailand

ESG100 Company of 2020
by Thaipat Institute

Phu Yen Green Loan
by Climate Bonds Initiative

FTSE4Good Index Series: Emerging Markets Index & ASEAN 5 Index
by FTSE Russell

2020

MSCI ESG Rating of BBB, 2020
by MSCI

Platinum Award Excellence in ESG & Best Initiative in Environment Responsibility
by The Asset

Thailand Sustainability Investment (THSI) List 2019
by Stock Exchange of Thailand

Sustainability Disclosure Awards 2019
by Thaipat Institute

ESG100 Company of 2019
by Thaipat Institute

Green Financing of the Year
by The Asset

2019

The Green Financial Leader
Green Bond Awards 2019
by Climate Bonds Initiative

ESG100 Company of 2018
by Thaipat Institute

The first THB 5 billions green bond of Thailand
Certified by Climate Bonds Initiative

Thailand Sustainability Investment (THSI) List 2018
by Stock Exchange of Thailand

Sustainability Report Awards
by SEC, CSR Club & Thaipat Institute

Thai CAC
by Thailand’s Private Sector Collective Action Coalition Against Corruption

2018

“Very Good”
CGR Score
by Thai Institute of Directors Association (IOD) (2018-2019)

143 Years of Pioneering Spirits

Professionalism

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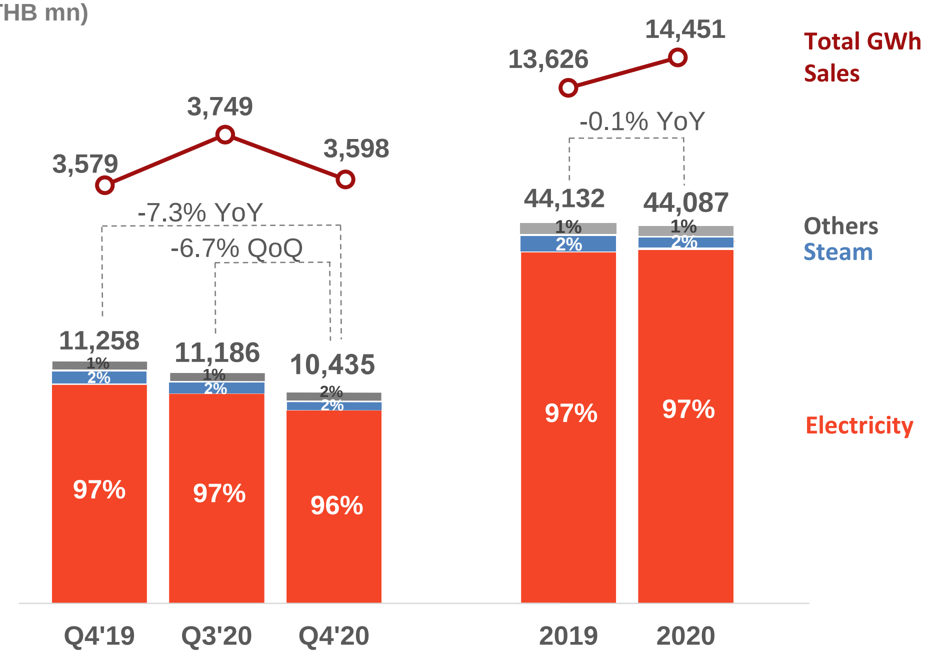
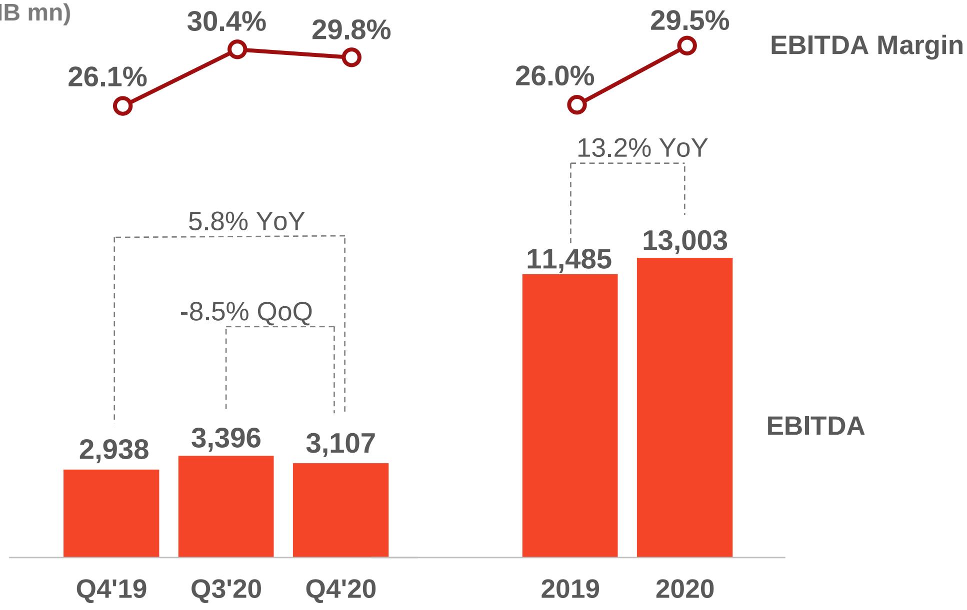
Financial Performance

Top Line and EBITDA Grew Strongly

TOTAL REVENUES
(Unit: THB mn)



EBITDA AND EBITDA MARGIN
(Unit: THB mn)



Steady revenue despite the COVID-19 outbreak

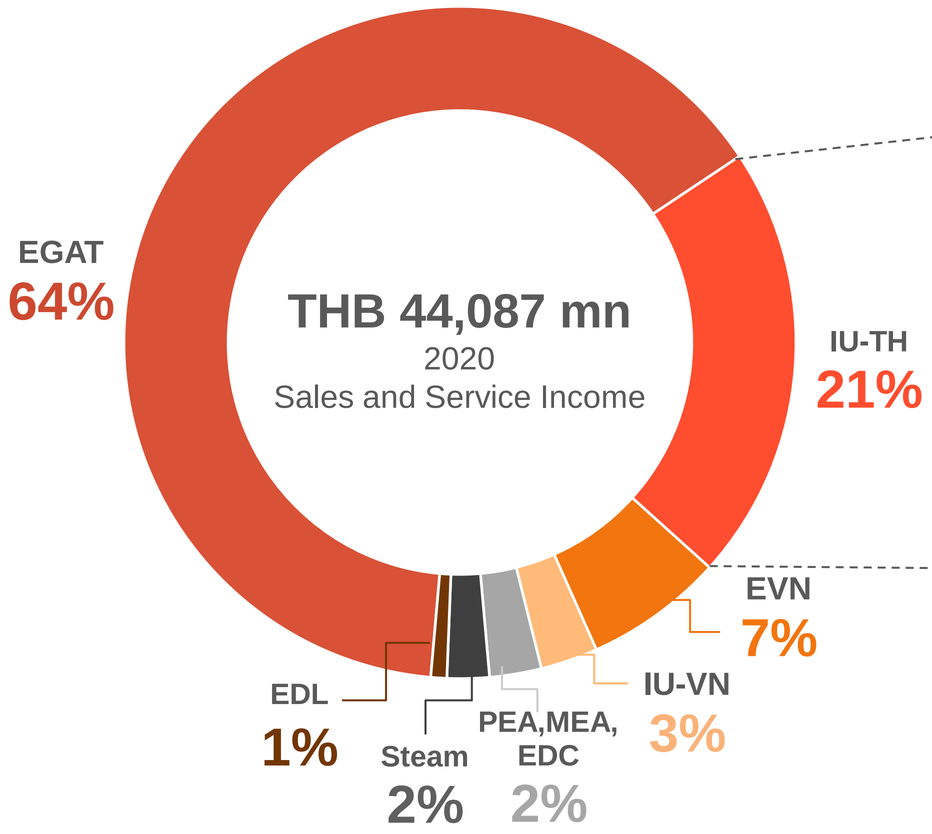
- **Total revenue was steady in 2020 even in COVID-19 outbreak** mainly from
  - Full year contribution from solar projects in Vietnam
  - Favorable water inflow for hydro projects in Laos
  - The acquisitions of 124 MW BPAM in March 2019 and 123 MW ATP1 in March 2020.
- Q4’2020 revenue decreased 7.3% y-on-y from a 19.6% y-on-y decline in gas price which lowered both revenue (energy payment) and gas cost, and softening solar revenue.

EBITDA increased continually:

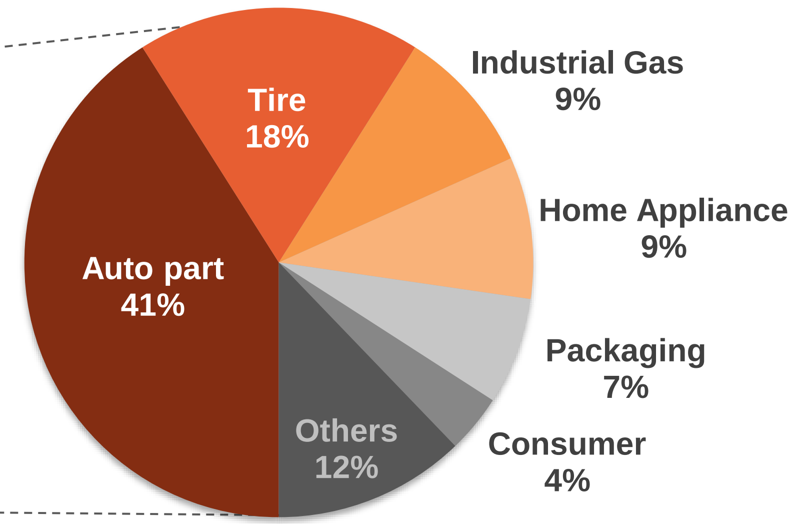
- **EBITDA grew by 13.2% in 2020** mainly from due to portfolio expansion, gas-turbine upgrades to improve efficiency and declining gas price.
- **EBITDA margin increased to 29.5% in 2020** from
  - Increasing renewable revenue which gives relatively higher EBITDA margin
  - 10.4% y-on-y declining gas cost per unit

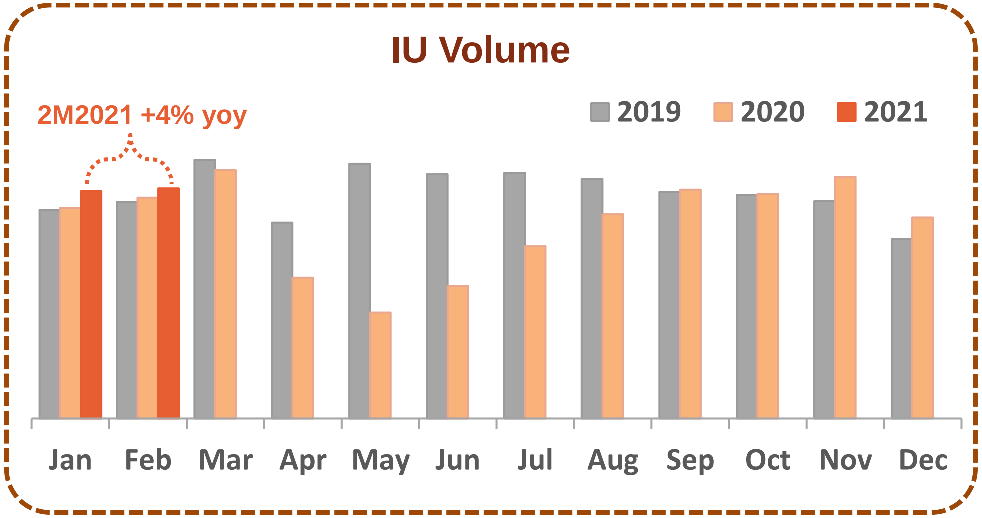
Revenue Contribution

2020 REVENUE BREAKDOWN BY CUSTOMER

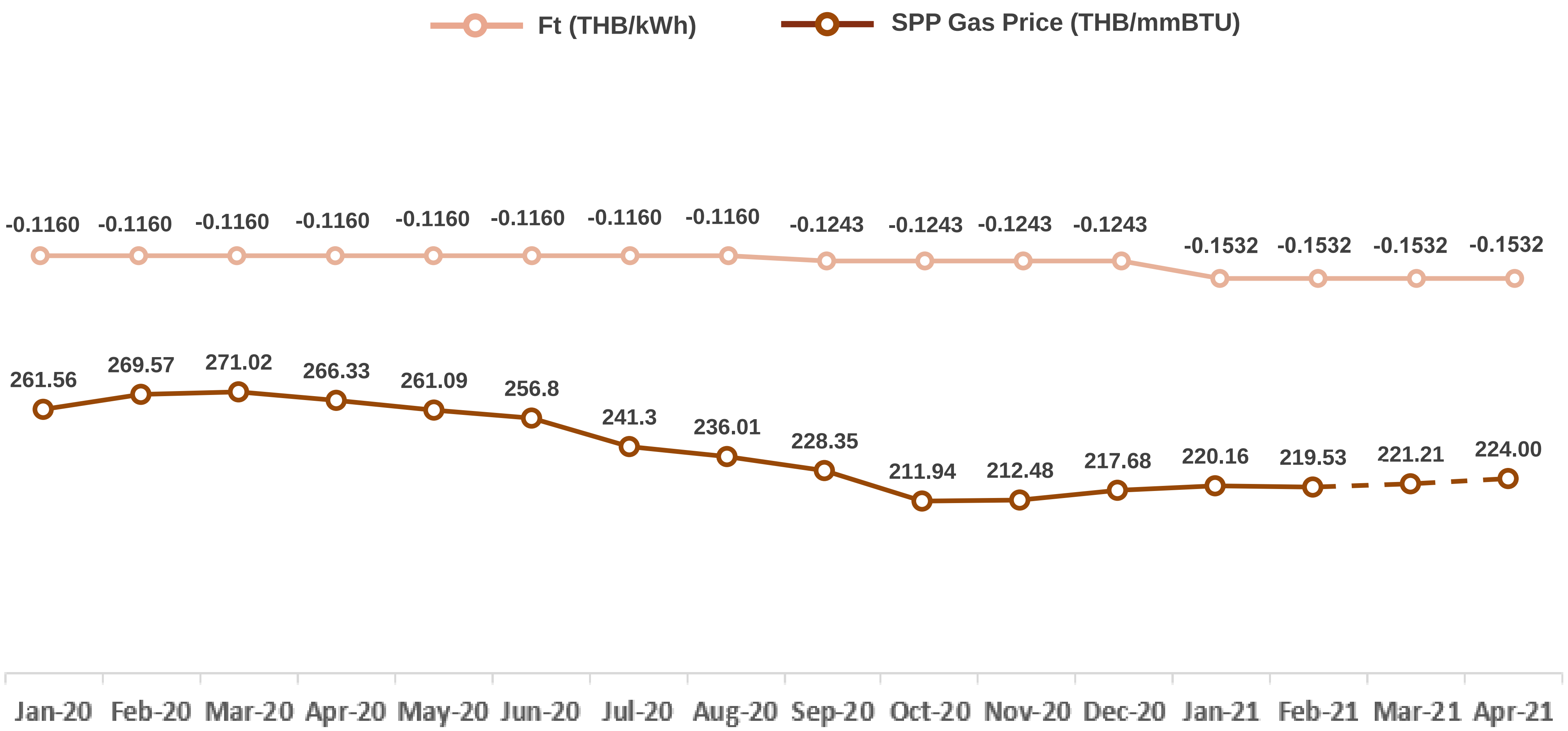


2020 IU VOLUME BREAKDOWN BY SECTOR





Ft and Gas Price Trend



Based on 2019 figures;

- THB 0.01 change in IU tariff would impact earnings by THB 18 million per annum.
- THB 1/mmBTU change in gas cost would impact earnings by THB 15 million per annum.

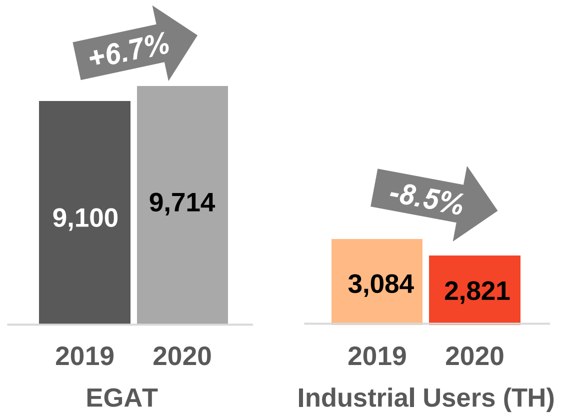
Source: ERC and PTT

Top Line and EBITDA Grew Strongly

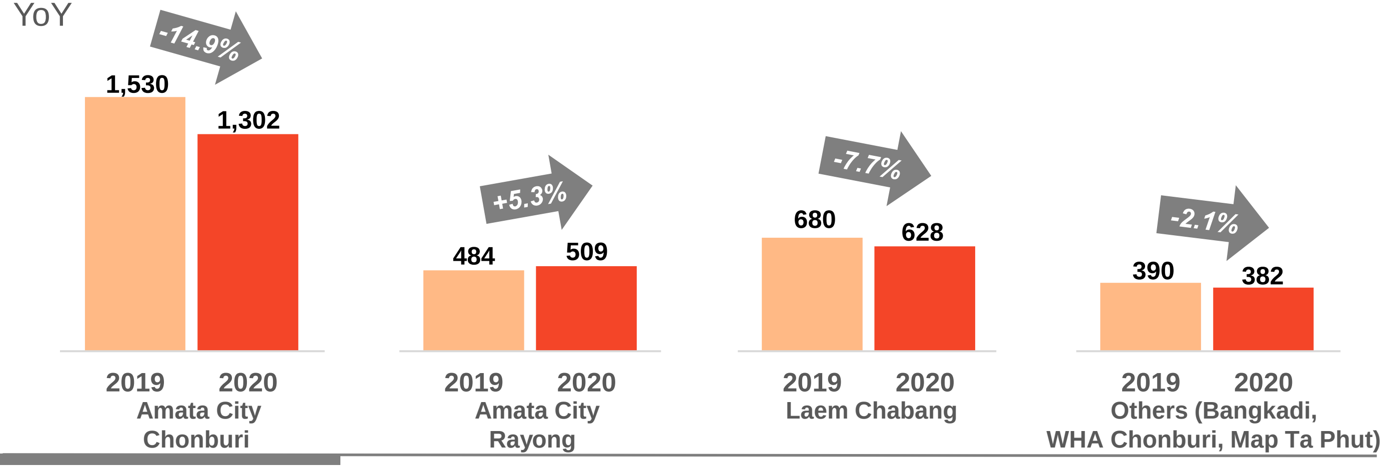
Electricity Sales Volume Increased YoY for EGAT and Decreased for IU (2019 vs 2020)

KEY DRIVERS:
ELECTRICITY AND NATURAL GAS VOLUME AND PRICE YoY

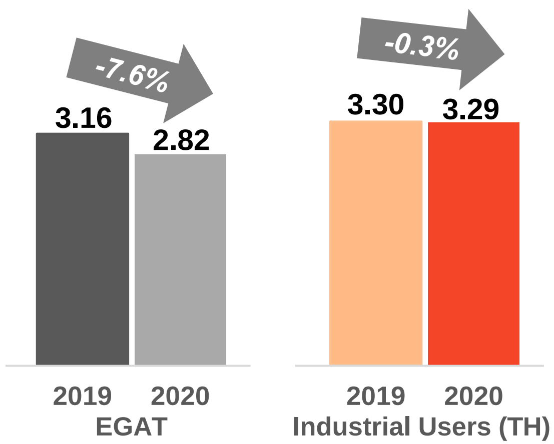
ELECTRICITY SALES VOLUME YoY (Unit: GWh)



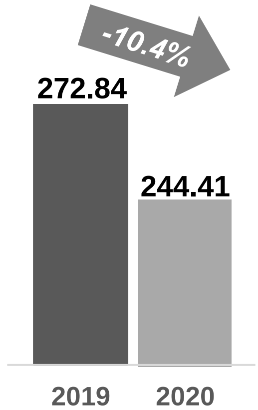
SALES VOLUME FOR EACH INDUSTRIAL USER (TH) YoY (Unit: GWh)



ELECTRICITY SELLING PRICE YoY (Unit:THB/KWh)



EFFECTIVE GAS COST (Unit:THB/mmBTU)



EGAT

- **EGAT sales volume increased % y-on-y** primarily due to the acquisitions of BPAM in March 2019 and ATP1 in March 2020.
- **Electricity price sales to EGAT decreased 7.6% y-on-y** because the energy payment is generally adjusted to reflect changes in natural gas price which decreased 10.4% during the period.

IU Thailand

- **IU Thailand sales volume decreased 8.5% y-on-y** due to the economic slowdown from COVID-19 crisis especially in Q2'2020. However, we already noticed y-on-y growth for 5 consecutive months during Sep 2020 – Jan 2021.
- **Electricity price sales to industry users Thailand decreased 0.3% y-on-y** which is in line with Ft charge announced by the ERC.

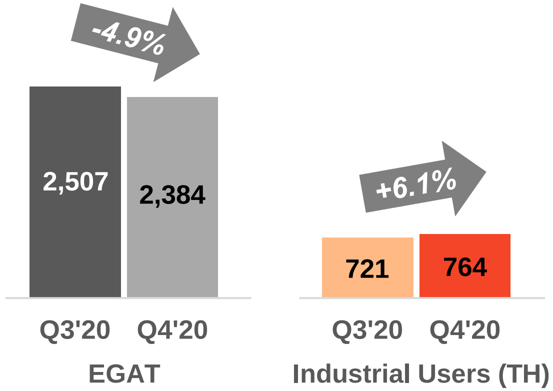
Top Line and EBITDA Grew Strongly

Electricity Sales Volume Decreased QoQ for EGAT and Increased for IU (Q3'2020 vs Q4'2020)

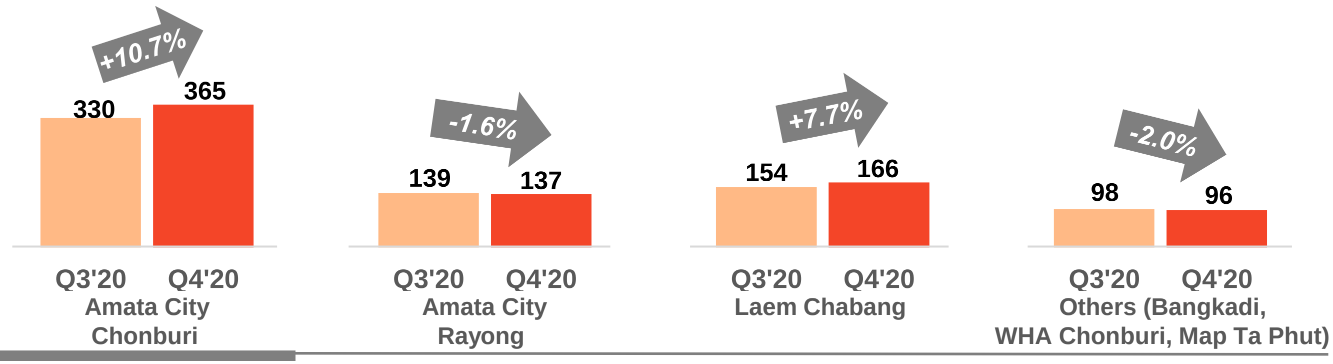
KEY DRIVERS:

ELECTRICITY AND NATURAL GAS VOLUME AND PRICE QoQ

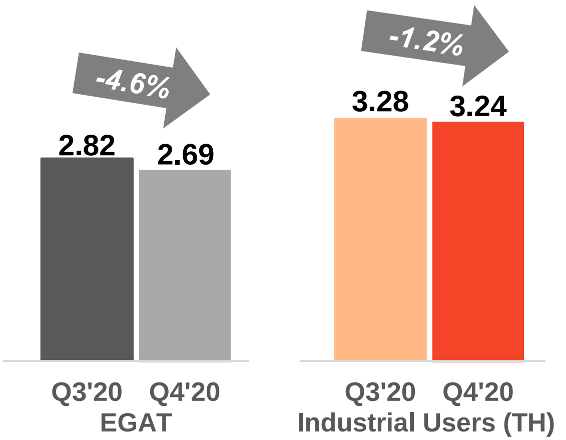
ELECTRICITY SALES VOLUME QoQ (Unit: GWh)



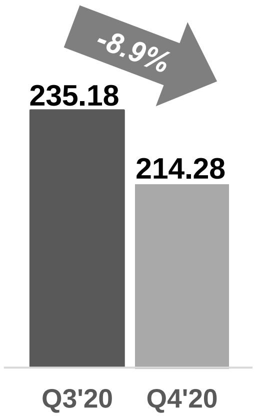
SALES VOLUME FOR EACH INDUSTRIAL USER (TH) QoQ (Unit: GWh)



ELECTRICITY SELLING PRICE QoQ (Unit:THB/KWh)



EFFECTIVE GAS COST (Unit:THB/mmBTU)



EGAT

- **EGAT sales volume decreased 4.9% q-on-q** primarily due to ABPR1 scheduled maintenance and EGAT's 5-day maintenance of 500kv transmission line.
- **Electricity price sales to EGAT decreased by 4.6% q-on-q** because the energy payment is generally adjusted to reflect changes in natural gas price which decreased in Q4'2020.

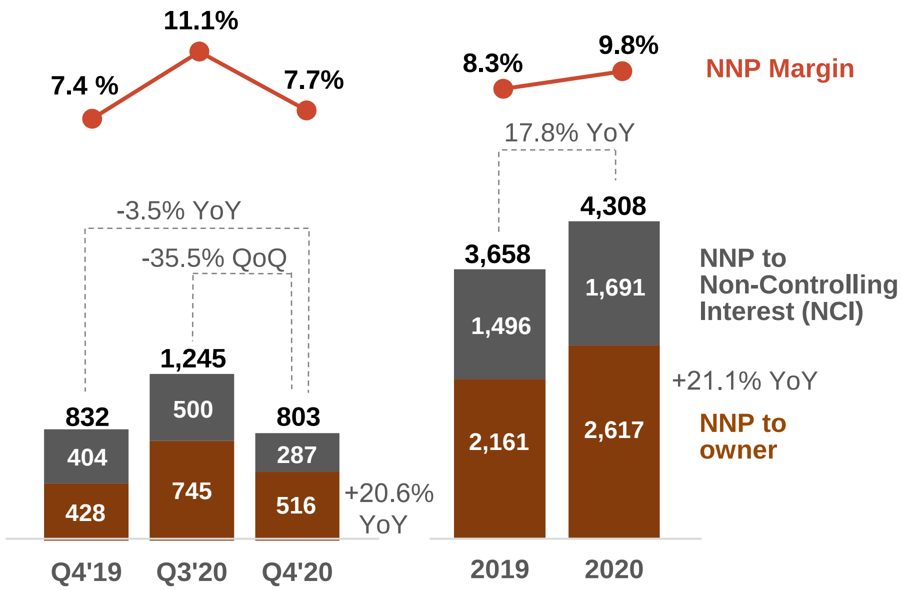
IU Thailand

- **IU Thailand sales volume increased 6.1% q-on-q** primarily due to growth from auto-parts, tires, home appliances, packaging, chemical and metal, and 15 MW of new IU clients in Amata City Rayong.
- **Electricity price sales to industry users Thailand decreased 1.2% q-on-q** which is in line with Ft charge announced by the ERC.

NNP-Owner of the Parents Grew 21.1% y-on-y in 2020

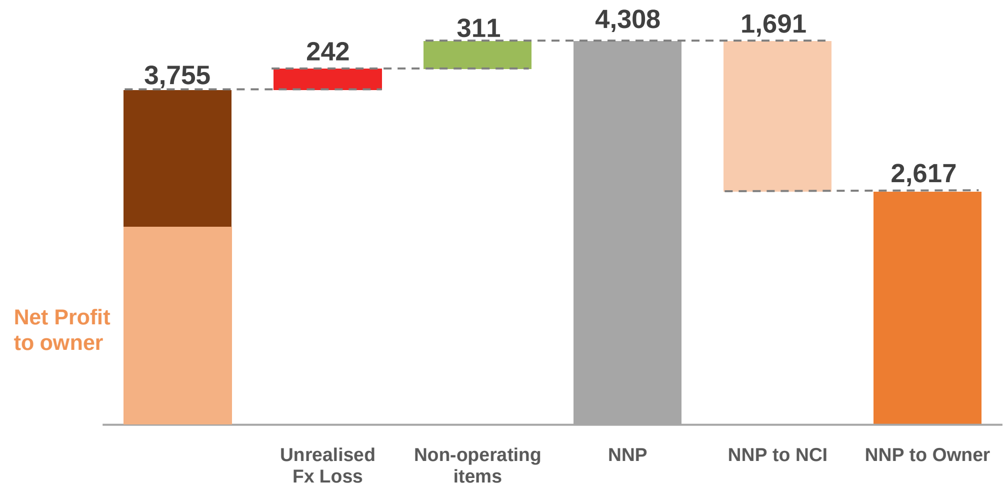
NORMALISED NET PROFIT (NNP)

(Unit: THB mn)



RECONCILE NORMALISED NET PROFIT (NNP) OF 2020

(Unit: THB mn)



NNP to owner surged impressively

- **NNP to owner increased 21.1% y-on-y to THB 2,617 million in 2020** despite the COVID-19 crisis, due to continued expansion of portfolio, power-plant efficiency improvement and declining gas cost.
- This also **increased 20.6% y-on-y in Q4'2020 to THB 516 million** due to ATP1 acquisition in March 2020, 19.6% y-on-y declining gas price and expense saving.
- **NNP margin increased to 9.8% in 2020**

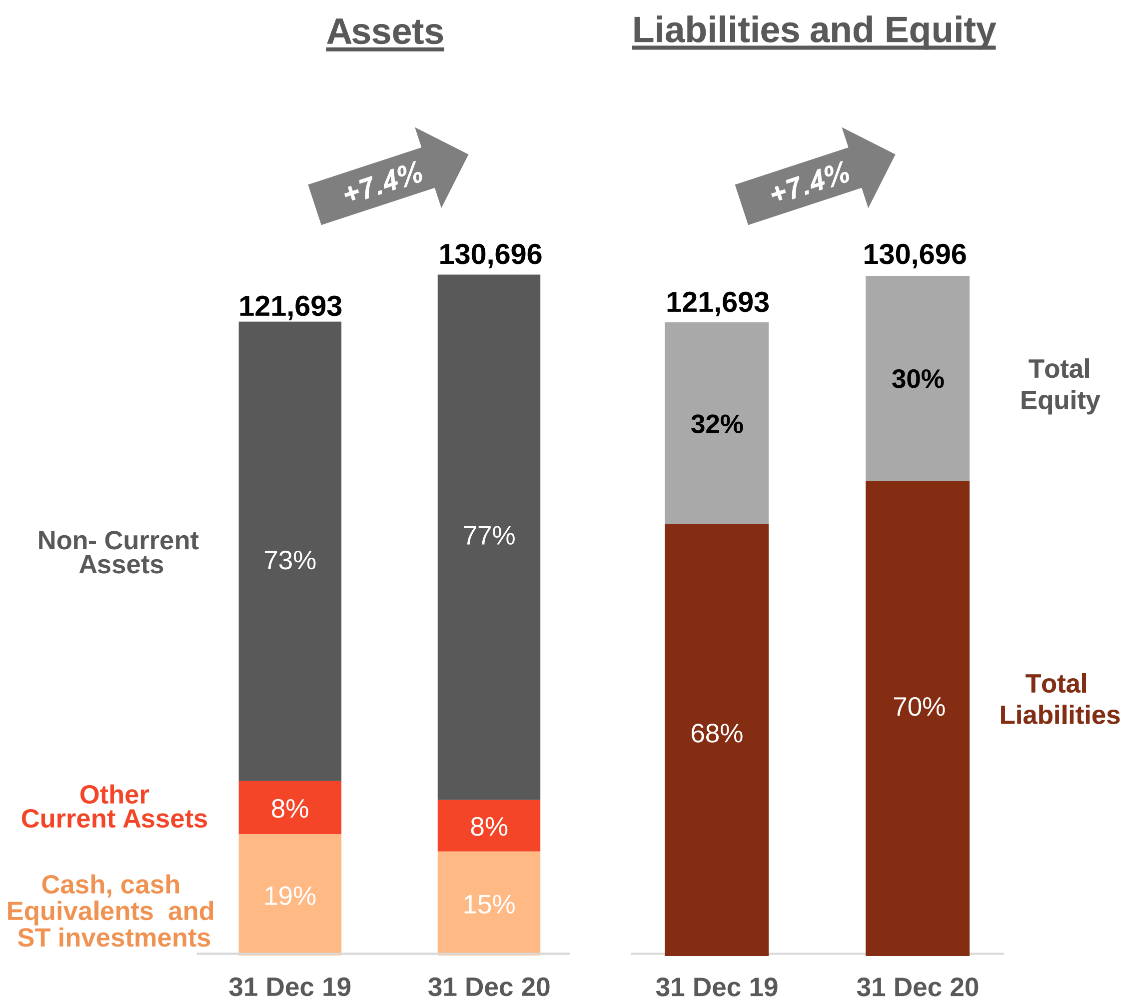
Reconciliation Items:

- **Unrealised Fx loss of THB 242 million** in 2020 was a non-cash item from the balance of US dollar debt and payables and the depreciation of local currencies (THB and VND) against US dollar in this period.
- **Non-operating items** primarily due to
  1) A non-cash item of THB 223 million in 2020 accretion cost from a discounting of long-term construction payables
  2) A remuneration program's expense of THB 62 million in 2020
  3) A non-refundable VAT of THB 26 million in 2020 from construction of BGSENA projects in 2015

Strong Financial Position Thanks to the Well-Managed Capital Structure

STATEMENT OF FINANCIAL POSITION AS OF 31 DECEMBER 2020

(Unit: THB mn)



Financial Position as of 31 December 2020

Total assets

Total assets increased by 7.4%, primarily due to the continual expansion of project portfolio both local and overseas.

Total liabilities

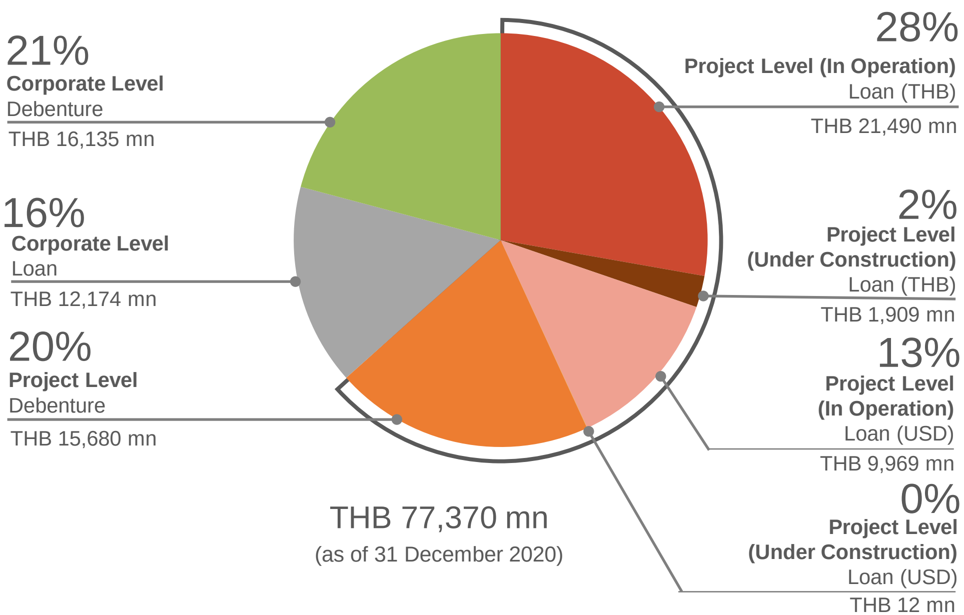
Total liabilities increased by 10.1%, primarily due to debt consolidated after ATP1 acquisition, borrowing for project development, the record of Derivative liabilities and liabilities under long-term lease agreement according to new financial reporting standards-TFRS16 and TFRS9.

Total Equities

Total equity increased by 1.6%, primarily due to an increase in retained earnings during the period.

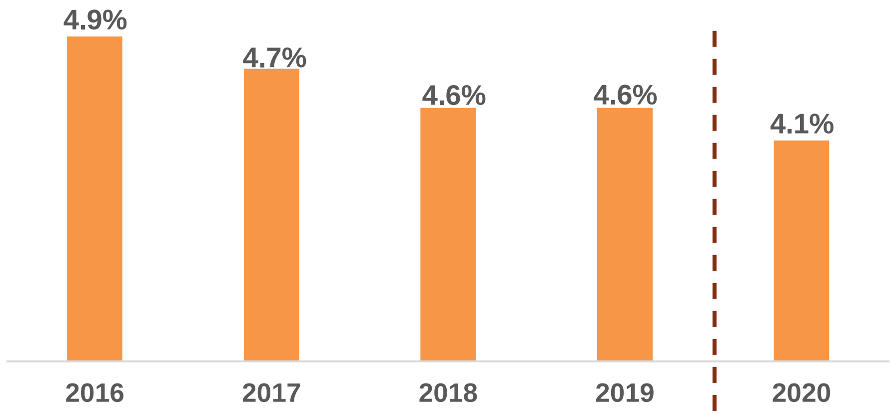
BGRIM optimizes Capital Structure through Well Managed Debt Profile

DEBT PROFILE



- Only 37% loan represents loan at the corporate level. **The remaining 63% contributes to debts at power plant level** with limited recourse to sponsor
- Interest obligations **of almost all power plant level debts** are swapped to fixed rate
- **Only 13% of total loan as of 31 December 2020 is denominated in USD** which is matched with a proportion of EGAT tariff indexation to USD at project level, so called "Natural Hedge" strategy

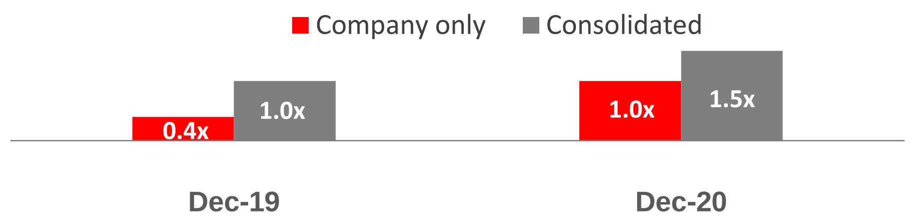
FINANCING COSTS



- **Financing costs at 4.1%** in 2020 due to altering of financial structure according to debt refinancing.

Capital Structure and Dividend Policy

NET INTEREST-BEARING DEBT TO EQUITY RATIO

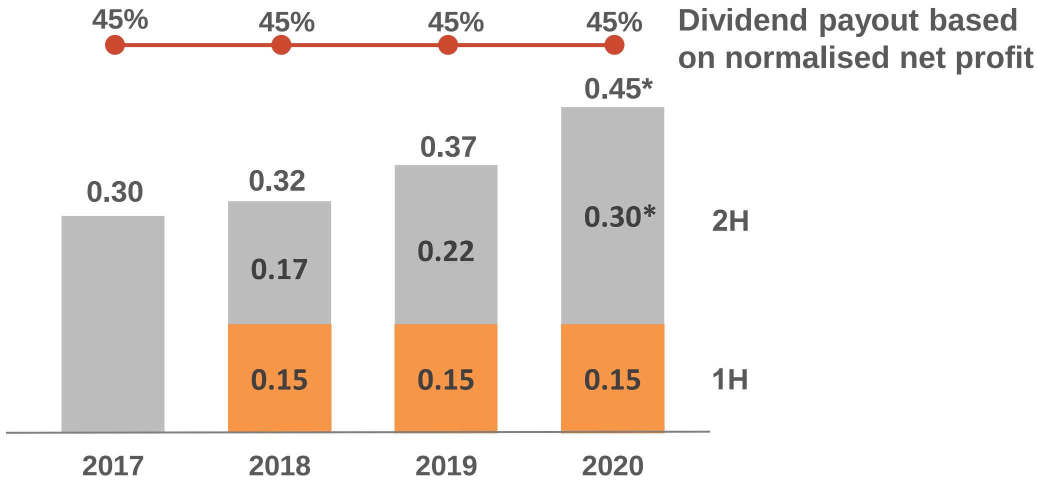


Gearing Ratios

The consolidated net interest-bearing debt to equity ratio increased to **1.5x** and **1.0x** for B.Grimm Power only as a result of the consolidation of ATP1 and short-term and long-term borrowing for development of our projects under construction.

DIVIDEND PER SHARE

(Unit: THB)



*** Subject to shareholder approval**

CAPITAL STRUCTURE

- Manage debt and equity funding to optimize 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 POLICY

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

Note: Net Interest-bearing debt is Interest-bearing debt less cash, cash equivalents and short-term investments.

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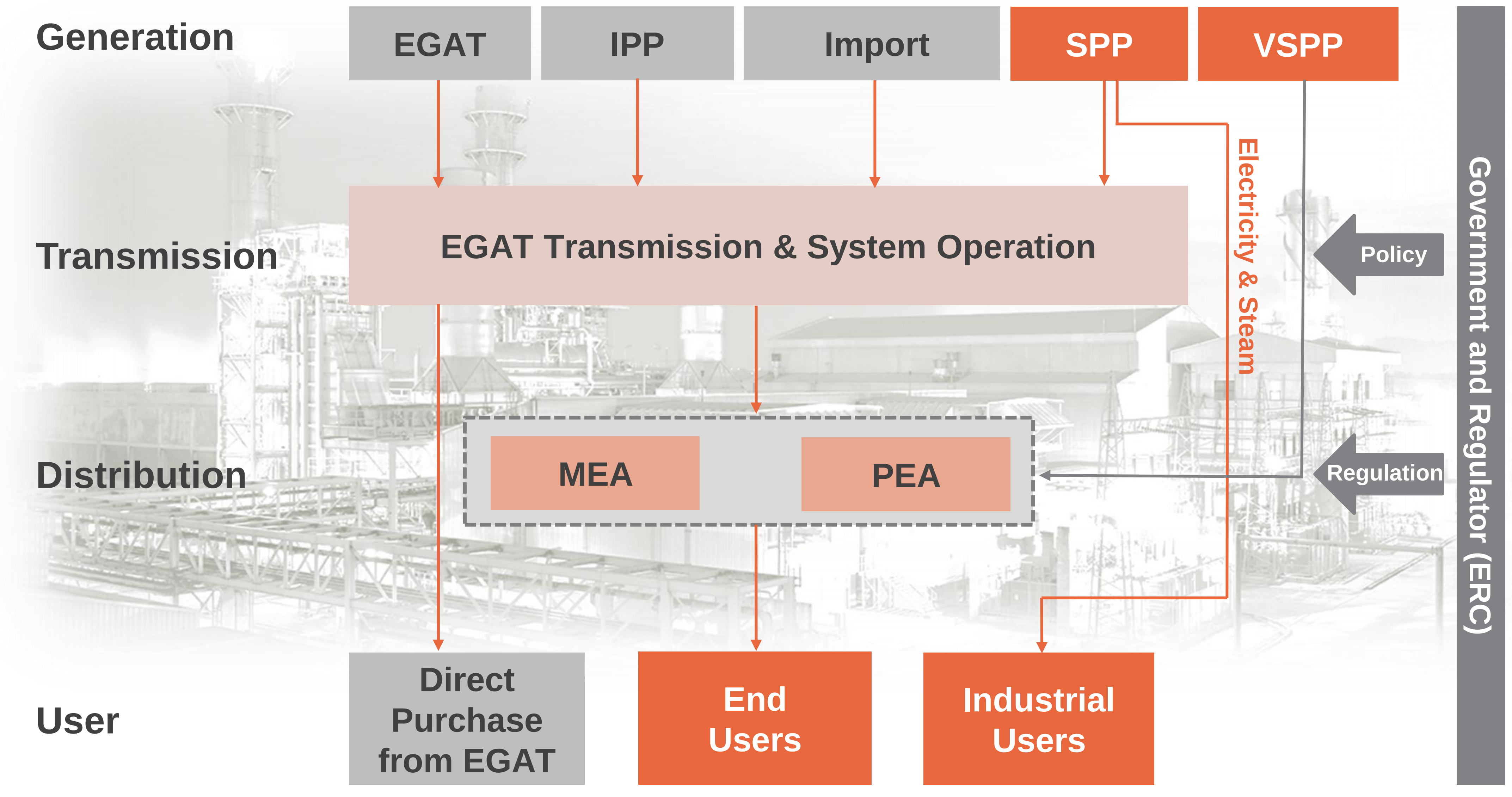
Appendix

Thailand Power Industry



Source: EGAT

Small Power Producer (SPP) Scheme

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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

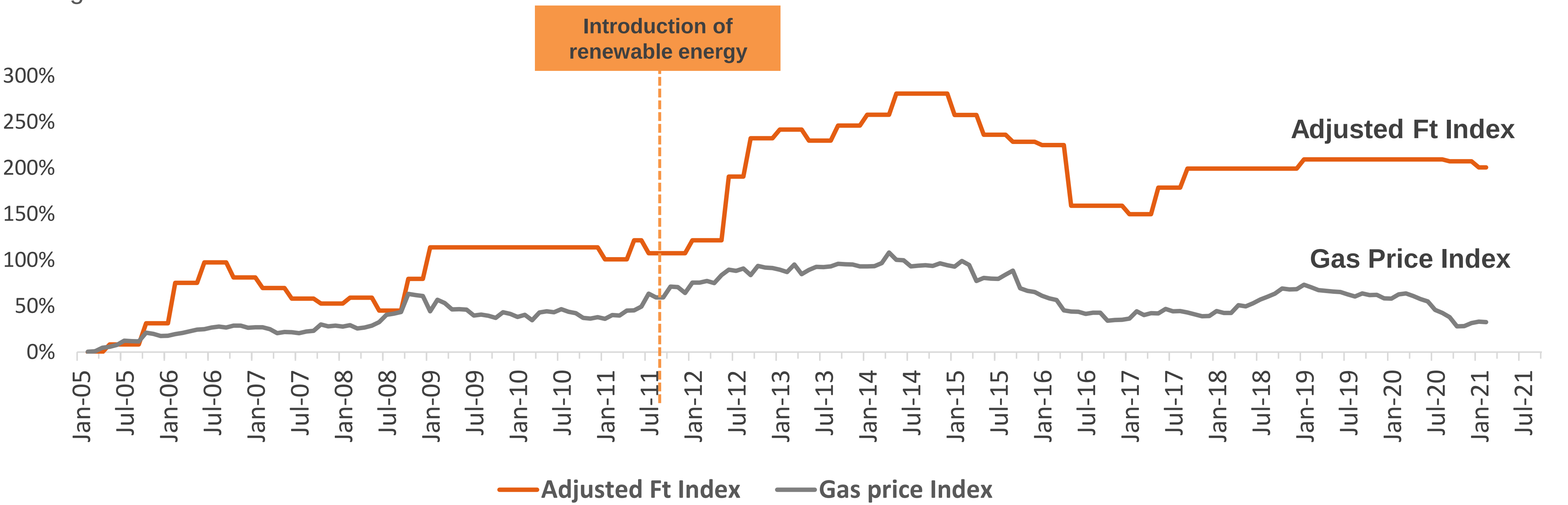
	SPP		IPP
Contracted Capacity	30-90 MW	The rest	All (> 90 MW)
Off-taker	EGAT	Industrial Users	EGAT
Tenors	20-25	10-15	20-25
Product and Service	Electricity	Electricity, Stream, Demin Water	Electricity
Tariff Structure	CP+EP+FS	Base Tariff + Ft	AP+EP
Minimum	CP	Base Tariff	AP
Fuel cost pass-through mechanism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

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

*Fuel saving payment is made to cogeneration when the plant achieves a certain degree of cogeneration efficiency = 0.36 Baht /kWh

High Correlation between Gas Price and Ft

Change in Ft vs Gas Price in 2005-2021



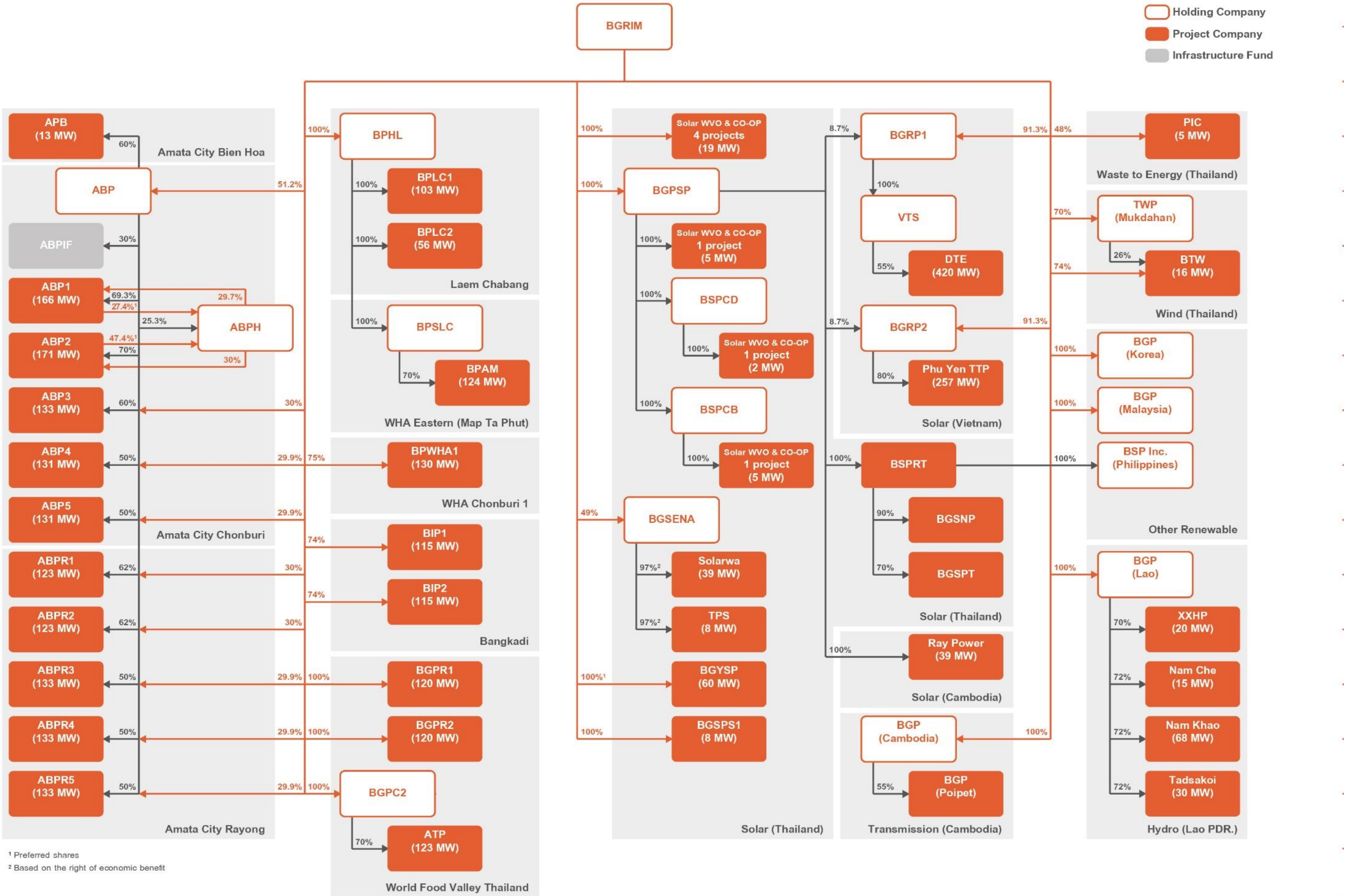
Ft (Fuel Adjustment Charge) is a component of electricity market tariff, announced by Energy Regulatory Commission (ERC) **every 4 months** to reflect EGAT's overall cost electricity which includes EGAT's power generations, its purchase from private sector and the import from neighboring countries

- 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.
- In addition, the gap between these two indexes is widen **since 2011** – when renewable business started commencement in Thailand.

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

Corporate Structure

Core subsidiaries and associates only



[1] Preferred shares
[2] Based on the right of economic benefit

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	ABP1	Gas-Fired Cogen	Sep-98	50.69%	166.4	84.3	EGAT (SPP)	Sep-22[c]	60.0	102.2	6.0
Amata B.Grimm Power 2	ABP2	Gas-Fired Cogen	Sep-01	15.3%[b]	171.2	26.2	EGAT (SPP)	Sep-22[c]	90.0	96.8	16.0
Amata B.Grimm Power 3	ABP3	Gas-Fired Cogen	Oct-12	60.70%	132.5	80.4	EGAT (SPP)	Oct-37	90.0	45.1	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	32.5	-
Amata B.Grimm Power 5	ABP5	Gas-Fired Cogen	Jun-16	55.50%	131.1	72.8	EGAT (SPP)	Jun-41	90.0	33.4	13.0
Subtotal					**732.3**	**336.5**			**420.0**	**310.0**	**48.0**
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	17.0	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	18.0	-
Amata B.Grimm Power (Rayong) 4	ABPR4	Gas-Fired Cogen	Jun-18	55.50%	133.0	73.8	EGAT (SPP)	Jun-43	90.0	20.0	-
Amata B.Grimm Power (Rayong) 5	ABPR5	Gas-Fired Cogen	Oct-18	55.50%	133.0	73.8	EGAT (SPP)	Oct-43	90.0	40.0	-
Subtotal					**646.7**	**374.3**			**450.0**	**119.0**	**28.0**
Laem Chabang Industrial Estate, Thailand											
B.Grimm Power (Laem Chabang) 1	BPLC1	Gas-Fired Cogen	Jul-01[d]	100.00%	103.0	103.0	EGAT (SPP)	Jul-22[c]	60.0	50.1	46.2
B.Grimm Power (Laem Chabang) 2	BPLC2	Gas-Fired Cogen	Feb-09[d]	100.00%	56.1	56.1	–	–	–	61.3	18.5
Subtotal					**159.1**	**159.1**			**60.0**	**111.4**	**64.7**
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	18.5	–
Subtotal					**229.2**	**169.6**			**180**	**32.5**	–
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	31.0	–
WHA Eastern (Map Ta Phut) Industrial Estate, Thailand											
B.Grimm Power (AIE-MTP)	BPAM	Gas-Fired Cogen	Feb & Dec-98	70.00%	124.0	86.8	EGAT (SPP)	Feb & Dec-21[c]	110.0	4.6	48.0
Angthong Power	ATP1	Gas-Fired Cogen	May -16	70.00%	123.0	86.1	EGAT (SPP)	May-41	90.0	3.0	5.0
Gas-Fired Cogen Total					**2,144.5**	**1,310.1**			**1,400.0**	**611.4**	**193.7**
Amata City (Bien Hoa) Industrial Estate, Vietnam											
Amata Power (Bien Hoa)[e]	APB	Diesel Generator	Apr-99	30.70%	13.0	4.0	–	–	–	429.7	–
Conventional Total					**2,157.5**	**1,314.1**			**1,400.0**	**1,041.1**	**193.7**

Note: As of December 2020

(a) Based on B.Grimm Power's direct and/or indirect interest in the project company owning the power plant
(b) Amata B.Grimm Power owned 30.0% of ABPIF's units and consequently, our economic ownership of Amata B.Grimm Power 2 Limited was 15.3%
(c) ABP1, ABP2, BPCL1 and BPAM got the approval to build new replacement projects under the 25-year PPA with the scheduled commercial operation in 2022
(d) Acquired from Sime Darby Energy on 30 June 2014
(e) 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 Power Plants: Solar

Company / Project	Abbreviation	Location	COD	Economic Ownership %[(a)]	Capacity Installed (MW)	Capacity Equity (MW)	Main PPA(s) Offtaker / Program	Main PPA(s) PPA Expiry
B.Grimm Yanhee Solar Power	**BGYSP**			**100.0%**	**59.7**	**59.7**		
Sai Luang 2		Pathumthani province, Thailand	Dec-15		8.0	8.0	PEA (FiT)	Dec-40
Sai Luang 3					8.0	8.0		
Sai Luang 9					7.2	7.2		
Sai Luang 10					7.5	7.5		
Sai Yai Nha					8.0	8.0		
Sai Manow					8.0	8.0		
Sai Putsa					8.0	8.0		
Sai Sena 2		Ayutthaya province, Thailand			5.0	5.0		
Solarwa	**Solarwa**			**47.5%**	**38.5**	**18.3**		
Sai Lui Rim Num		Nakhon Pathom province, Thailand	Dec-15		8.0	3.8	PEA (FiT)	Dec-40
Sai Chalouw 1					8.0	3.8		
Sai Sab					8.0	3.8		
BGTTRE2		Saraburi province, Thailand			8.0	3.8		
BGTTRE3					6.5	3.1		
TPS Commercial	**TPS**	**Saraburi province, Thailand**	**Dec-15**	**47.5%**	**8.0**	**3.8**	**PEA (FiT)**	**Dec-40**
B.Grimm Solar Power (Sakaeo) 1	**BGPSK**	**Sakaeo province, Thailand**	**Apr-16**	**100.0%**	**8.0**	**8.0**	**PEA (FiT)**	**Apr-41**
Solar WVO-Cooperatives	**Solar WVO-Coop**		**Dec-18**	**100.0%**	**30.8**	**30.8**		
BSPCD		Sakaeo province, Thailand			**2.3**	**2.3**	PEA (FiT)	Dec-43
BGPCCS		Chachoengsao province, Thailand			**3.6**	**3.6**		
BSPCB		Surat Thani province, Thailand			**5.0**	**5.0**		
BGSP1WN		Bangkok province, Thailand			**5.0**	**5.0**	MEA (FiT)	
BGPLKB		Bangkok province, Thailand			**5.0**	**5.0**		
BGPBBO		Samut Prakan province, Thailand			**5.0**	**5.0**		
BGPSAI		Nonthaburi province, Thailand			**5.0**	**5.0**		
Dau Tieng Tay Ninh Energy	**DT**	**Tay Ninh province, Vietnam**	**Jun-19**	**55.0%**	**420.0**	**231.0**	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
Total					**861.0**	**596.2**		

Note: As of December 2020

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

Contractual Overview: Commercial Features

	SPP Gas-fired Cogeneration			Solar PV	Solar (Vietnam)	Wind	Hydro	iWTE	Solar (Cambodia)
	EGAT	Industrial Users		PEA/MEA (FiT)	EVN	PEA (Adder)	EDL	PEA	EDC
		Electricity	Steam						
Term (years)	21 – 25 years	5 – 15 years[a]	5 – 15 years[a]	25 years	20 years	5 years	25 years	20 years	20 years
Extension option	✓	✓	✓	–	–	5 years auto extension	Up to 10 years	–	–
Contracted capacity	90 MW (except for BPLC1 which is 60MW)	Depends on each contract		2.25-8 MW	677 MW dc 564 MW ac	8 MW	6.7 – 15 MW[b]	4 MW	30 MW
Secured fuel supply	✓	✓	✓	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
FX pass-through	✓	Partially through Ft	–	–	–	–	–	–	–
Inflation indexation	–	–	✓	–	–	–	–	–	–
Tariff	*See next page*			5.66 THB/kWh 4.12 THB/kWh	9.35 Cents/kWh	PEA wholesale + 10-year adder at 3.50 THB/kWh	6.50 Cents/kWh	$FiT_F + FiT_V +$ 8-year adder at 0.7 THB/kWh	7.60 Cents/kWh
Applicable power plants	ABP1-5, ABPR1-5, BPLC1, BIP1-2, BPWHA1, ATP2-2, BPAM			BGYSP (8 projects), Solarwa (5 projects), TPS, BGPSK, Solar WVO-Coop	DT1&2, Phu Yen TTP	Bo Thong (2 projects)	XXHP (2 projects), Nam Che, Nam Khao 1-5 (5 projects)	PIC	Ray Power

Source: 56-1, EGAT, PEA
Some contract terms are year-on-year basis
According to concession agreements

Contractual Overview: EGAT PPA under SPP Program

TARIFF STRUCTURE

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

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

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

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	1992, 2005	2007	2010
Applicable power plants	**ABP1-2, BPLC1, BPAM**	**ABP3, ABPR1-2, BIP1**	**ABP4-5, ABPR3-5, BIP2, BPWHA, ATP1**
Base Capacity Payment Rate (CP_0) (THB/kW)	302.00	383.66	420.00
Base Exchange Rate (FX_0) (THB/US$)	27	37	34
US$THB FX indexation ($x$)	0.8	0.5	0.5
Base Energy Payment Rate (EP_0) (THB/kWh)	0.85	1.70	1.85
Base Price for Natural Gas PTT sells to SPPs (P_0) (THB/mmBTU)	77.0812	209.4531	232.6116
Contracted Heat Rate (BTU/kWh)	8,600	8,000	7,950
Fuel Saving Payment	-	✓	✓
Base Fuel Saving Payment (FS_0) (THB/kWh)	-	0.36	0.36

Source: Company filing and data, EGAT

Major Maintenance Schedule in 2020 to 2021

Projects	Installed Capacity (MW)	Steam Capacity (ton/hr)	Type of maintenance	Duration (days)	2020			
					Q1	Q2	Q3	Q4
Amata City (Rayong)								
ABPR1	123.3	30.0	Major Overhaul	40				
ABPR2	124.4	30.0	Major Overhaul	40				
WHA Chonburi 1								
BPWHA	130.0	30.0	Major Inspection	15				

Projects	Installed Capacity (MW)	Steam Capacity (ton/hr)	Type of maintenance	Duration (days)	2021			
					Q1	Q2	Q3	Q4
Amata City (Chonburi)								
ABP4	131.1	30.0	Major Overhaul	27				
ABP5	131.1	30.0	Major Overhaul	15				
Amata City (Rayong)								
ABPR3	133.0	30.0	Major Inspection	24				
ABPR4	133.0	30.0	Major Inspection	24				
ABPR5	133.0	30.0	Major Inspection	24				
Bangkadi								
BIP1	114.6	20.0	Major Overhaul	10				
WHA Eastern (Map Ta Phut)								
BPAM	124.0	90.0	Major Overhaul	22				

Abbreviation & Our Projects

B.GRIMM SINCE 1878

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
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
ATP1	Angthong Power
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
BPAM	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
DT	Dau Tieng Tay Ninh Energy Solar Project
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 Xekatam 1 Hydro Power Project

Abbreviation & Our Projects

OUR PROJECTS

BSPCD	The Chon Daen agricultural cooperatives project
BGPCCS	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

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