



Opportunity Day

Q1'2024

27 May 2024



EMPOWERING SUSTAINABILITY

AGENDA



COMPANY OVERVIEW



Financial Performance



Industry Update



Strategy and Future Outlook

HIGHLIGHTS



TGE DISPLAY STRONG NET PROFIT GROWTH OF 2.0% YoY AND 37.5% QoQ

- **Q1'2024 Net profit** of Baht 64.3 million, **increased by 2.0%** from Q1'2023 and 37.5% from Q4'2023 due to revenue from biogas power plant management, growth of electricity selling price, reduce in supplies prices, and higher cost management efficiency.



CONSTRUCTION OF MSW POWER PLANT

- **Progressing on permits & licenses. Expected piling in Q2 2024.**
- Construction is expected to be completed and revenue recognition commenced in 2025 and Q1'2026.
- Performed the study on environment and community intensively to ensure that the MSW power plant has positive impact, in line with the TGE's strategy to be the leader of renewable power plant.



STARTED A BIOGAS POWER PLANT MANAGEMENT SERVICE WITH TBG

- **TGE started a biogas power plant management on 1 January 2024.** TGE can generate revenue according to the plan for initial phase of management of Baht 18.6 million with a strong gross profit margin of 73.6%. According to the plan, the management efficiency is expected to be improve in the near future, which will positively impact the Group's revenue.



TGE-W1 HAS BEEN ISSUED TO THE SHAREHOLDERS AND TRADED IN SET

- **TGE's warrants (TGE-W1)**, with the total quantity of 314,285,715 units has been distributed to shareholders according to their shareholding ratio in the ratio of 7 ordinary shares per 1 unit of warrant with the exercise price of 1 Baht and traded in the Stock Exchange of Thailand on 15 March 2024.






TGE WON TENDER FOR 9.9 MW WTE PLANT IN UBON RATCHATHANI

- In Jan-24, TGE was announced as the winner of Tender for the **9.9 MW WTE Power Plant with 25-year BOO Concession in Ubon Ratchathani.**
- **8.0 MW PPA expected to sign in Q3 2024.**

Biomass Power Plant



Project Description

	TGE Biomass Power Plant	TPG Biomass Power Plant	TBP Biomass Power Plant
			
Fuel type	Biomass	Biomass	Biomass
Location	Surat Thani, Thailand	Surat Thani, Thailand	Surat Thani, Thailand
COD	8 May 2014	7 November 2019	25 May 2021
Installed Capacity	9.9 MW	9.9 MW	9.9 MW
PPA Capacity	7.2 MW	9.7 MW	3.4 MW + 2.0 MW
PPA Tenor	15 Years 8 Months	15 Years 4 Months	20 Years
PPA End	7 Jan 2030	6 March 2035	24 May 2041
PEA Purchase Price (THB/Unit)	4.6552 (2.39 FiT Fix + 1.9652 FiT Variable * + 0.30 FiT Premium ⁽¹⁾)		

* FiT variable increases from 1.9406 to 1.9652 with 1.27% increased according to Thailand core inflation

Power Plant Management

Project Description

	TBG1 plant management	TBG2 plant management
		
Fuel type	Biogas	Biogas
Location	Surat Thani, Thailand	Surat Thani, Thailand
PPA Capacity	2.8 MW	4.2 MW
Contract period	5 Years	5 Years
Average revenue/year	69.98 MB	

Power Plant Management

TBG1



TBG2



4 WTE Projects Signed PPAs

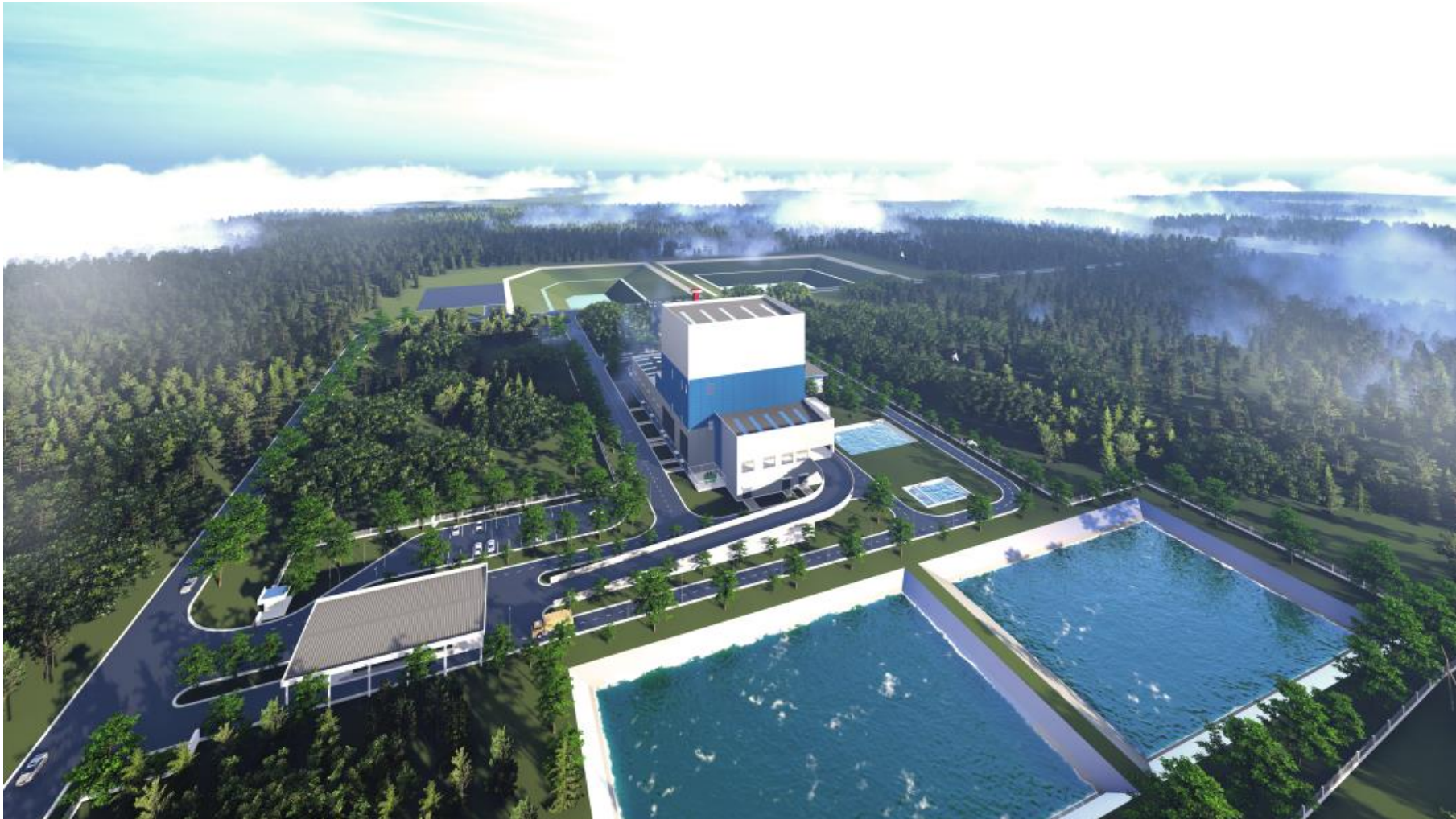
Project Description



Location	Sa-kaeo	Chumphon	Ratchaburi	Chai Nat
Installed Capacity	8.0 MW	6.0 MW	8.0 MW	8.0 MW
PPA Capacity	6.0 MW	4.0 MW	6.0 MW	6.0 MW
PPA Tenor	20 years	20 years	20 years	20 years
Expected COD	Q4 2025	Q4 2025	Q1 2026	Q1 2026
Contract Date with PEA	10 May 2023	24 April 2023	10 May 2023	25 Dec 2023
TGE Ownership	BOOT	BOOT	BOO	BOO
Est. Total Investment Cost	1,300 Million Baht	950 Million Baht	1,300 Million Baht	1,300 Million Baht
Contract Date with LAOs	Aug-19	Dec-20	Oct-21	Sep-23
Estimated revenue per year (MB)	350 – 400	200 – 250	300 – 350	300 - 350

4 WTE Projects Signed PPAs

TES-SKW



4 WTE Projects Signed PPAs

TES-CPN



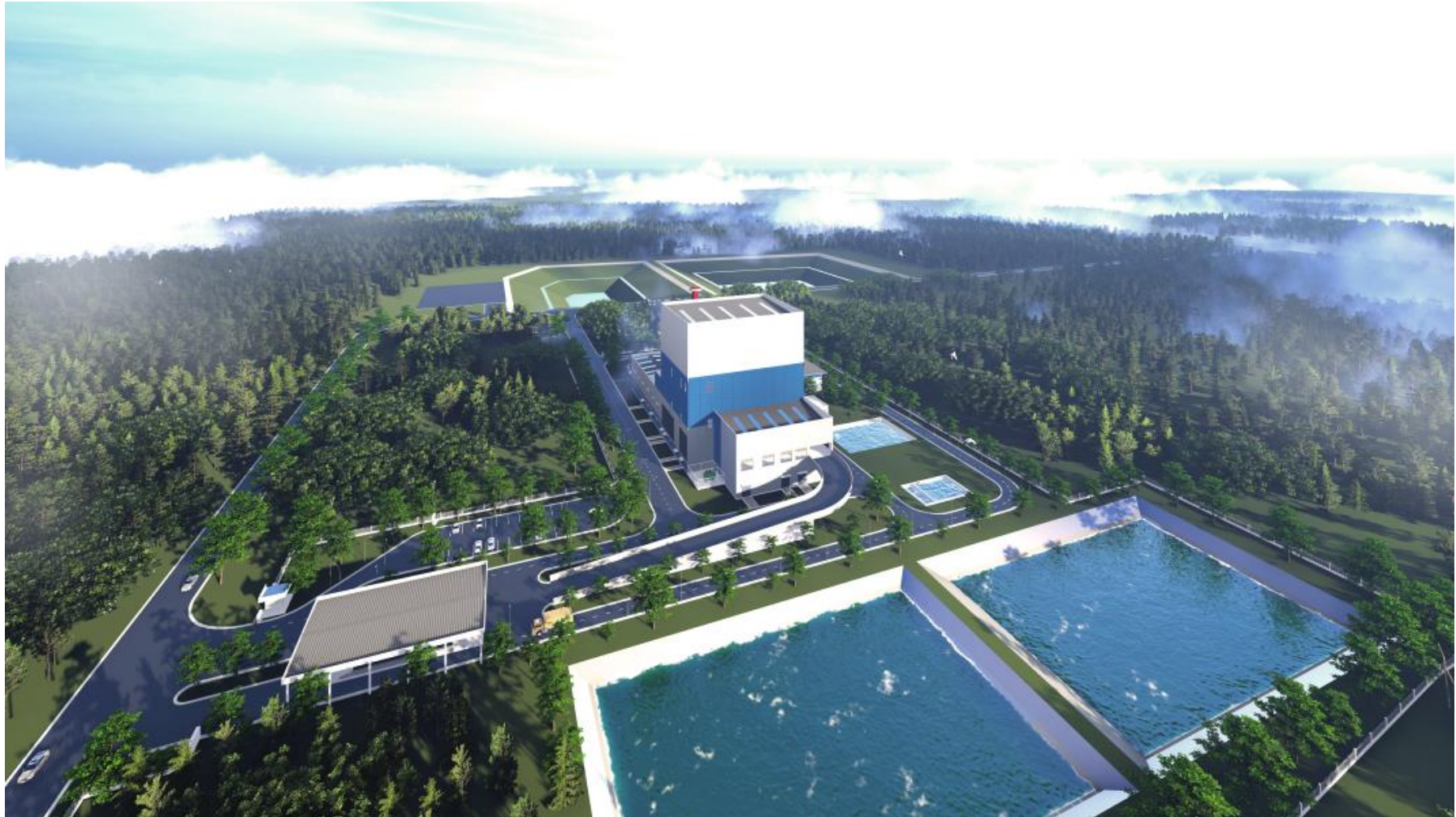
4 WTE Projects Signed PPAs

TES-RBR



4 WTE Projects Signed PPAs

TES-CNT



Phase I WTE Projects Progress

TES CPN



4 WTE Projects – BOI Privileges



	TES-SKW	TES-CPN	TES-RBR	TES-CNT
Study Information	✓	✓	✓	✓
Submit Application	✓	✓	✓	✓
Project Clarification	✓	✓	✓	✓
Project Analysis	✓	✓	✓	✓
Notification of Consideration Results	✓	✓	✓	Q2 2024
Acceptance of Investment Promotion Resolution	✓	✓	✓	Q2 2024
Apply for Promotion Certificate	Q2 2024	Q2 2024	Q2 2024	Q2 2024
Promotion Certificate Issuance	Q3 2024	Q3 2024	Q3 2024	Q4 2024

AGENDA



Company Overview



FINANCIAL PERFORMANCE

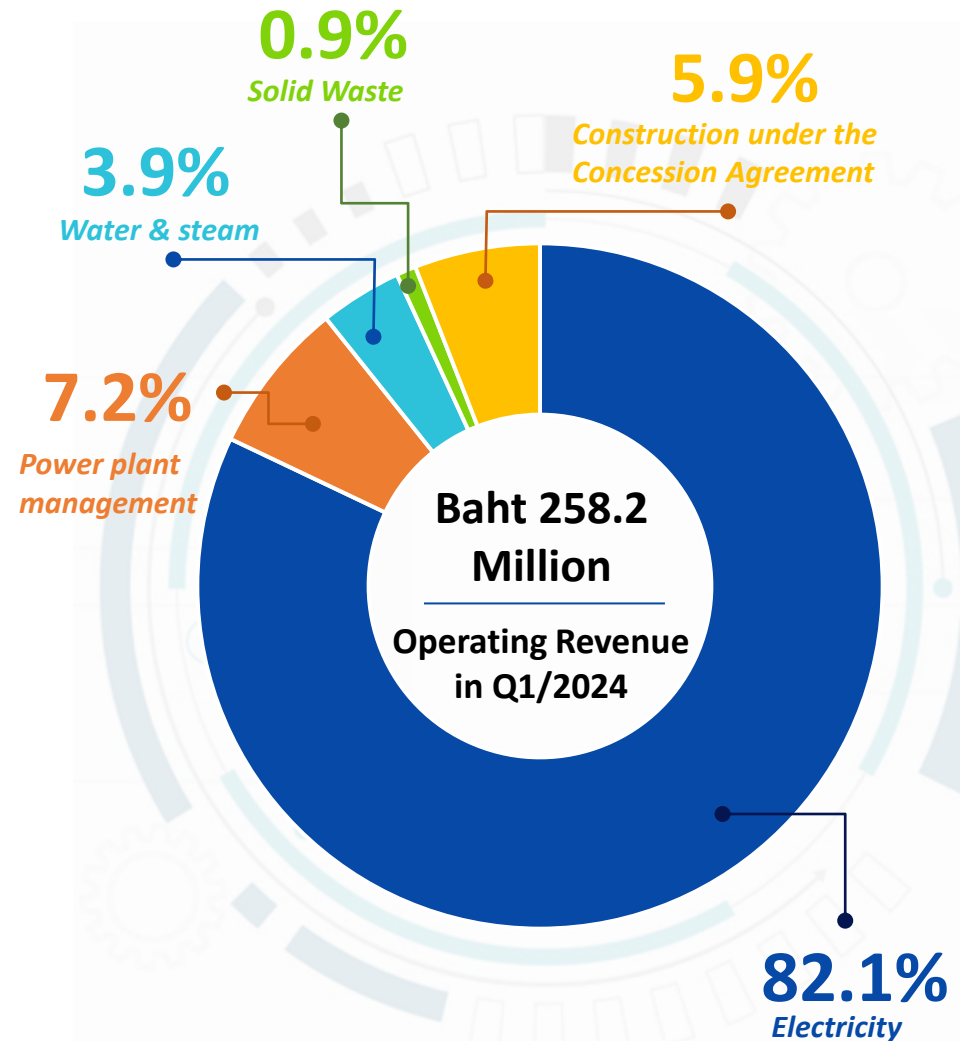


Industry Update & Strategy



Strategy and Future Outlook

Q1'2024 Revenue Structure



1. REVENUE FROM ELECTRICITY



- **Energy from Biomass** consists of 3 projects: TGE, TPG, and TBP. It has a total capacity of 29.7 MW, dispatch to the PEA and other private companies.
- **Community Waste Power Plant** is in the process of PPA signing for the selling of electricity and is expected to COD within 2025.

2. REVENUE FROM POWER PLANT MANAGEMENT



- Revenue from power plant management service provided by TGE to Thachang Biogas Co., Ltd., and the compensation is based on operation's efficiency.

3. REVENUE FROM WATER AND STEAM



- Revenue from the sale of reverse osmosis (RO) water and steam to companies not a part of the TGE group.

4. REVENUE FROM SOLID WASTE MANAGEMENT

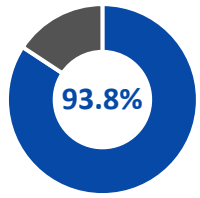


- Revenue from solid waste management is the revenue generated from waste disposal services for local authorities and related municipalities in the province.

5. REVENUE FROM CONSTRUCTION UNDER CONCESSION AGREEMENT



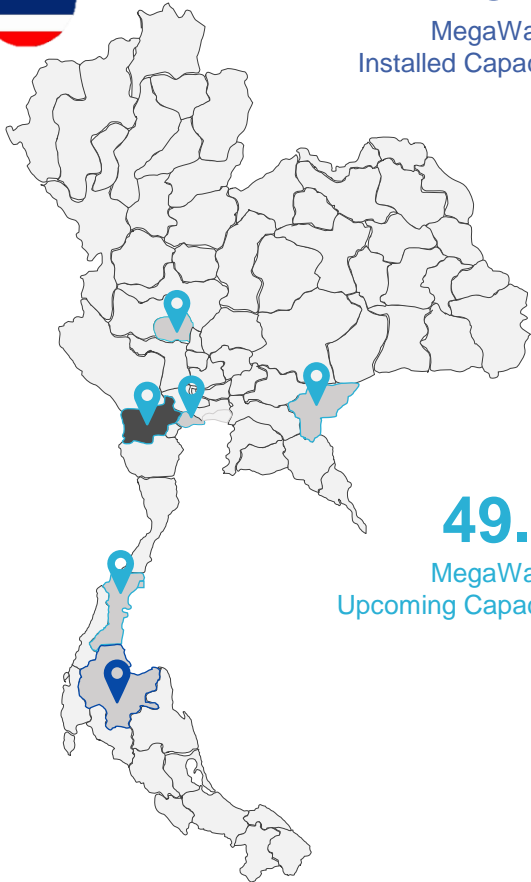
- There is a condition that assets will be transferred to local government agencies upon the expiration of the agreement, where income is recorded equal to cost. (no impact to net profit)



Revenue from Electricity

9 projects in strategic locations across the country

TGE Portfolio



29.7

MegaWatts
Installed Capacity

3 biomass power plant projects located on the same area in Surat Thani province

Power Plant	Capacity	COD
TGE	9.9 MW	8 May 2014
TPG	9.9 MW	7 Nov 2019
TBP	9.9 MW	25 May 2021

Total Capacity 29.7 MW



79.5 MW Installed Capacity

WTE projects have already been selected with local administrative organizations

49.8

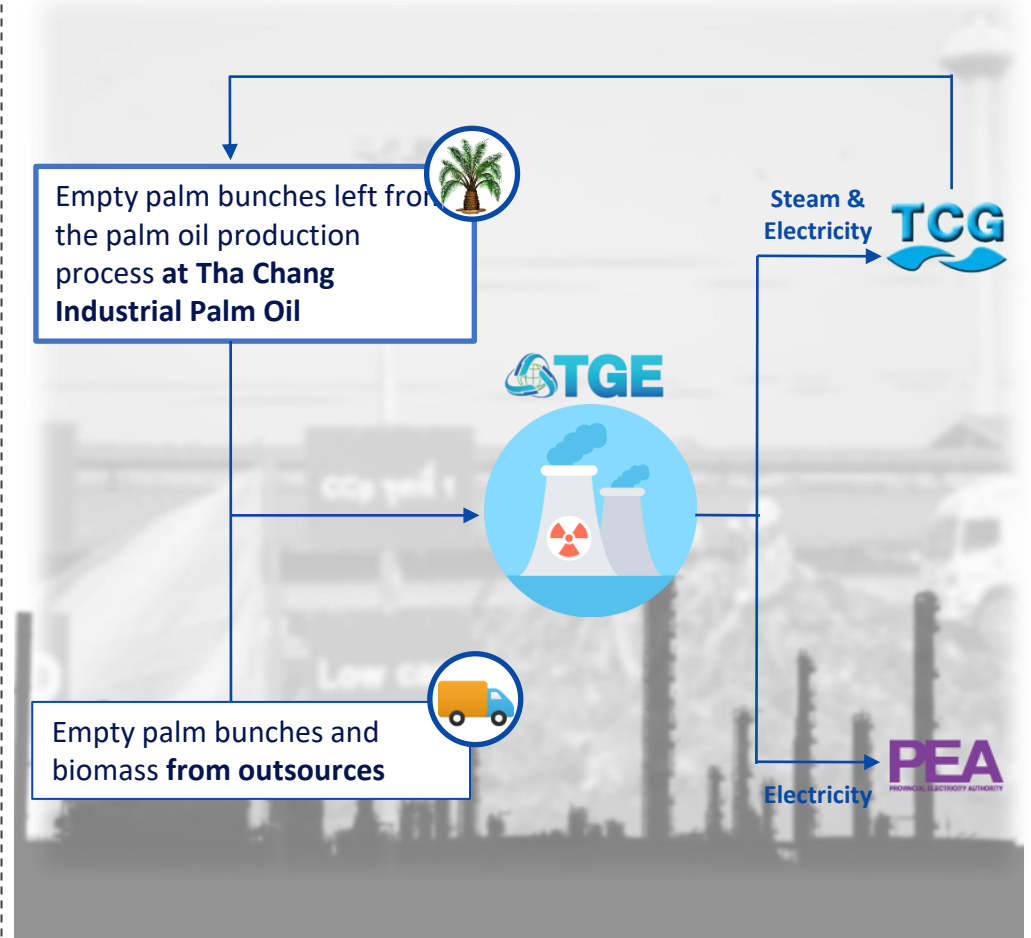
MegaWatts
Upcoming Capacity

WTE Project	Capacity	Expected COD
Ratchaburi	8.0 MW	2026FY
Sa Kaew	8.0 MW	2025FY
Chumphon	6.0 MW	2025FY
Samut Sakhon	9.9 MW	2026FY
Chai Nat	8.0 MW	2026FY
Ubon Ratchathani	9.9 MW	2027FY

Total Capacity 49.8 MW

About TGE Biomass Power Generation

Operation



Key Financial Highlights in Q1'2024

Total Revenue

258 MB

GPM

35.0%

NPM

24.9%

ROA

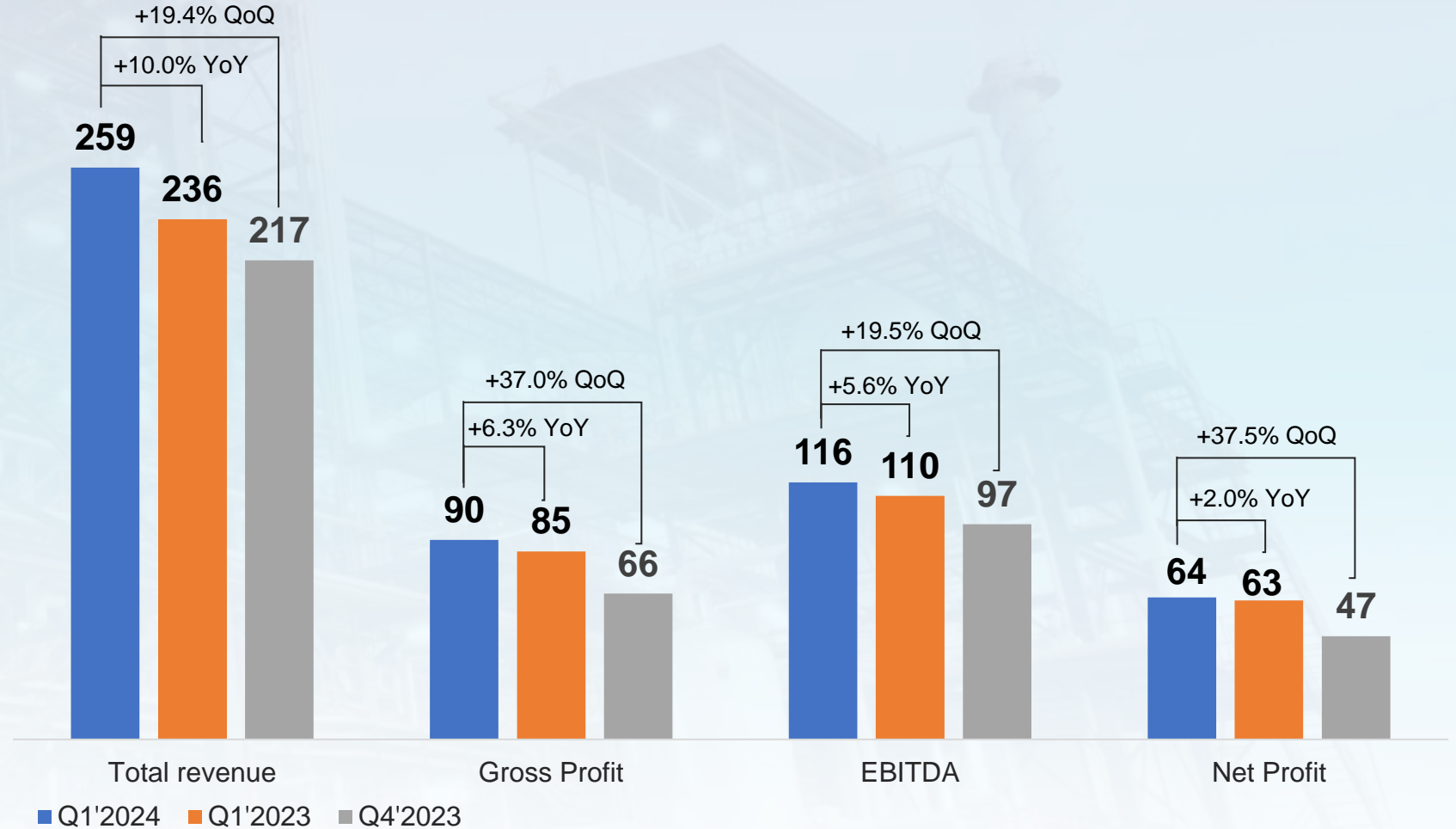
7.6%

ROE

10.9%

Financial Summary (YoY and QoQ)

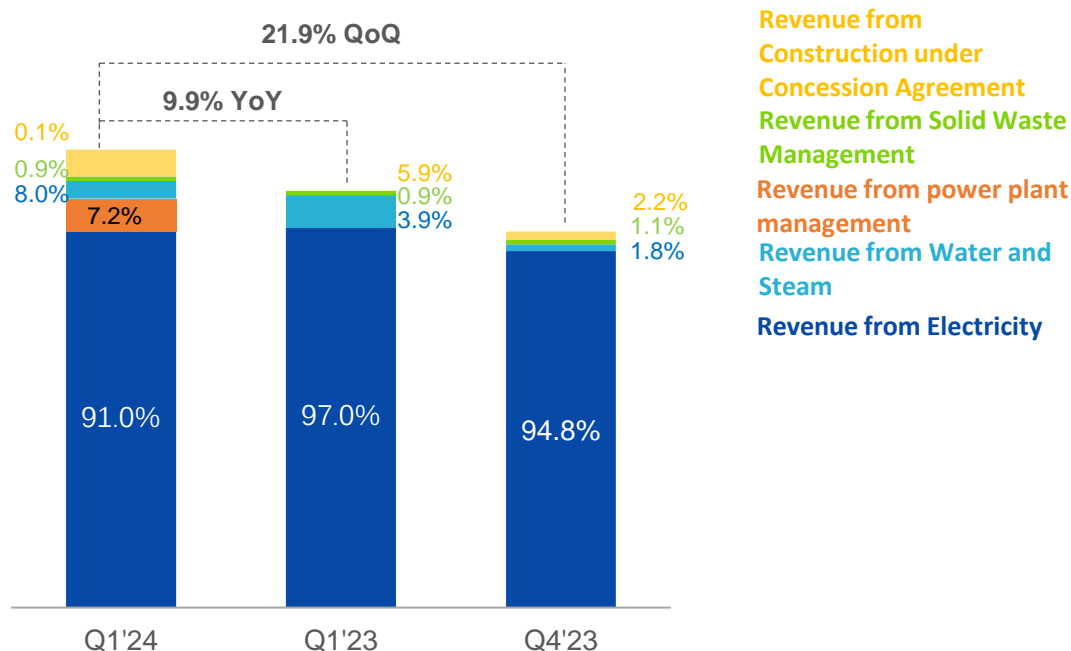
Unit: Million Baht, %



Operating Revenue

Operating Revenue Breakdown by Business

Unit: THB million, %



“New revenue from TBG management increases the Group’s operating revenue according to the plan”



YoY and QoQ

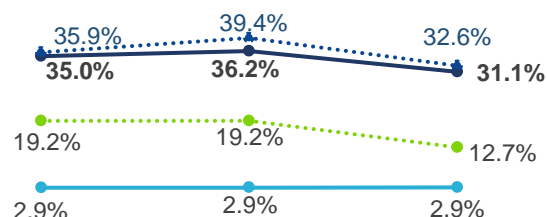
Operating revenue in Q1'2024 was Baht 258.2 million, or 9.9% increased YoY and 21.9% QoQ mainly due to:

- **Revenue from Power Plant management** of Baht 18.6 million has been recognized since 1 January 2024. The revenue is based on the TBG's operating efficiency, which is in line with the initial phase of the service.
- **Revenue from Selling Electricity** decreased 0.9% YoY, mainly due to lower ft rate compared to Q1'2023, which affected the electricity sales revenue to related party. However, it increased 5% QoQ, mainly due to the increased sales volume to PEA. The capacity factor of Biomass power plant increased both YoY and QoQ.
- **Revenue from Selling Water and Steam** decreased 46.4% YoY, but increase 162% QoQ mainly due to the decrease in steam sales of TBP power plant since the related party purchased additional volume of steam during the maintenance period of its own steam equipment in 2022.
- **Revenue from Solid Waste Management** increased slightly which displays the Group's ability to maintain revenue levels and increase in waste quantity.

Gross Profit

Gross Profit and Gross Profit Margin

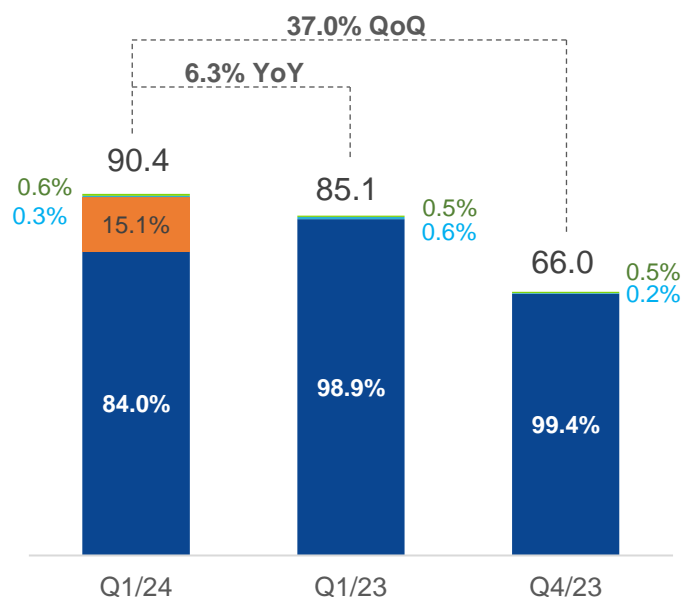
Unit: THB million, %



Gross profit margin from Electricity Sale
Gross profit margin*

Gross profit margin from Solid Waste Management

Gross profit margin from Water and Steam Sale



Total Gross profit

Gross profit margin from Solid Waste Management

Gross profit from Selling Water and Steam

Gross profit from power plant management

Gross profit from Selling Electricity

“Biogas power plant management drives higher gross profit, despite water and steam sales decline”



YoY and QoQ

Gross Profit in Q1'2024 was Baht 90.4 million, or 6.3% increased YoY and 37.0% increased QoQ mainly due to:

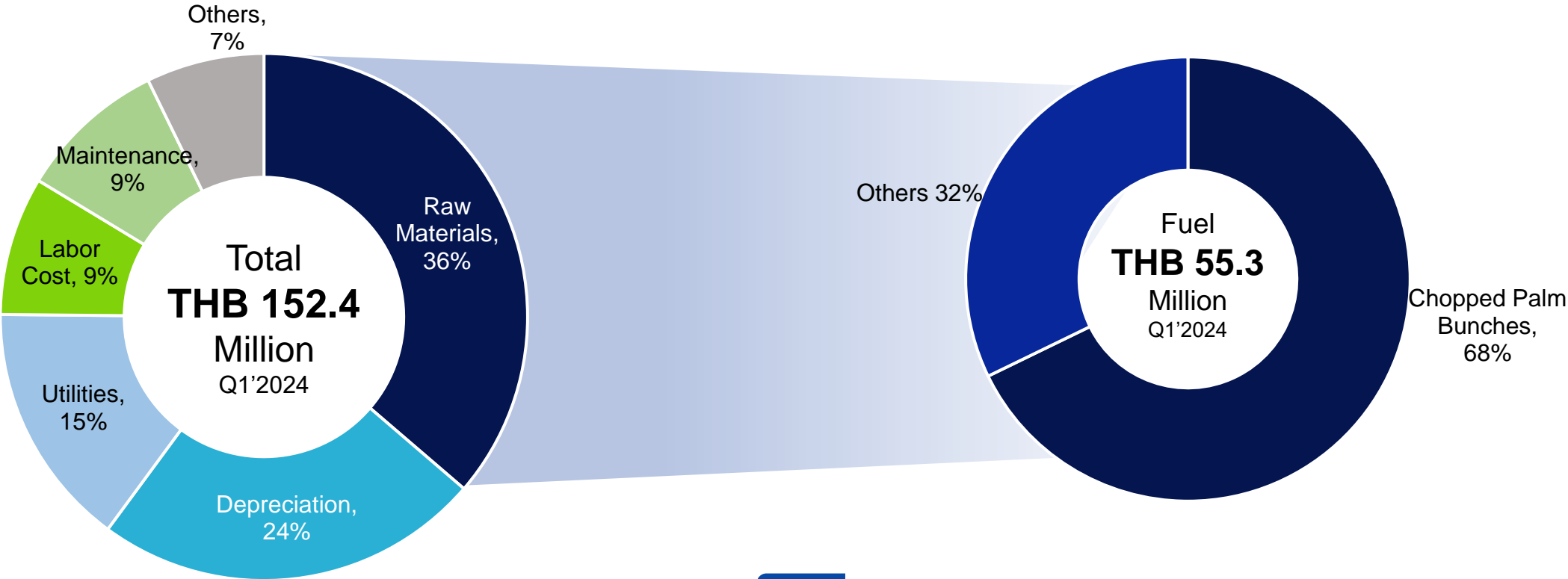
- **Gross Profit from Selling of Electricity** in Q1'2024 decreased 9.7% YoY but increased 16.0% QoQ due to increase in sales volume, additional power purchase agreement, and higher selling prices.
- **Gross Profit from power plant management** since Q1'2024 of Baht 13.7 million.
- **Gross Profit from Selling of Water and Steam** in Q1'2024 decreased 46.4% YoY but increased 162.2% QoQ in line with the decreased volume of steam sales of TBP to related parties.
- **Gross Profit from Solid Waste Management** in Q1'2024 was significantly changed.

GPM in Q1'2024 was 35.0%, -1.2% YoY, due to the decrease in electricity sales to related parties, and utilized the production capacity to sell the electricity to the PEA according to the additional PPA, which has less gross profit than selling electricity to related parties. However, it was +3.9% QoQ, mainly due to the high GPM from power plant management service of 73.6%.

Cost Structure

Cost Structure

Unit: THB million, %



Cost of Sale

- COS mainly comprises of raw materials (fuel cost) and depreciation, contributing 36% and 24%, respectively. Followed by utilities 15%, labor cost 9%, and maintenance 9%.
- Raw material portion decreased according to the cost from Biogas power plant management, which increased the labor, and maintenance portion.



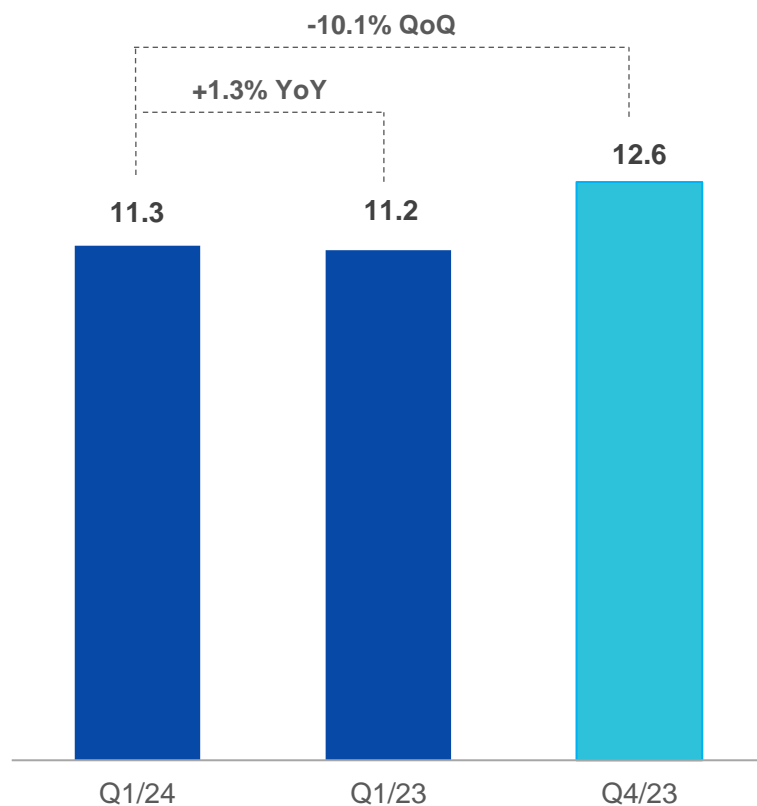
Raw Materials

- Chopped Palm Bunches are the major contribution to raw materials cost accounting for 68% of total raw material costs, whereas Palm Fibers, roots, and chopped palm trees, contributes to the rest.

Administrative Expense

Administrative Expense and Administrative Expense to Total Revenue

Unit: THB million, %



“Normal administrative expenses does not significantly changed”



YoY and QoQ

Administrative Expense in Q1'2024 was Baht 11.3 million, increased 1.3% YoY and decreased 10.1% QoQ mainly due to :

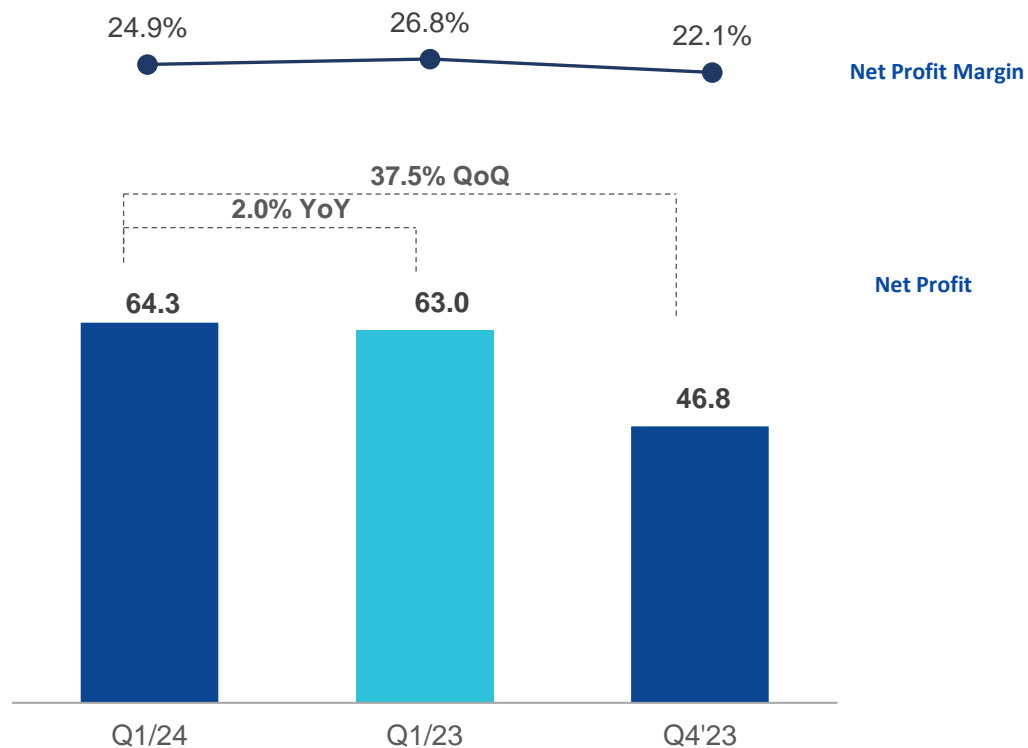
- the post-IPO expenses, and employee expenses related to business expansion.

Administrative Expense to Total Revenue in Q1'2024 was 4.37%, slightly decreased from 4.75% in Q1'2023.

Net Profit

Net Profit and Net Profit Margin

Unit: THB million, %



“Net profit increased driven by Biogas power plant management”



YoY and QoQ

Net Profit in Q1'2024 was Baht 64.3 million, increased by 2.0% YoY and 37.5% QoQ.

Net Profit Margin in Q1'2024 was 24.9%, -1.9% YoY and +2.8% QoQ.

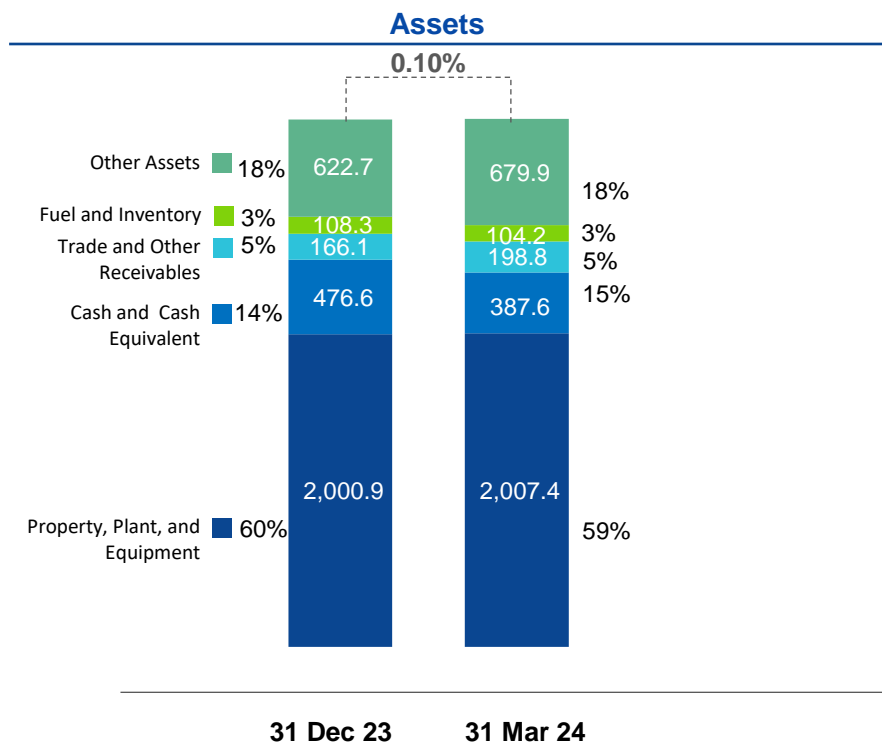
Increase in Net Profit YoY and QoQ were mainly the net result of :

- net profit from biogas power plant management
- decreases in finance costs from contractual principal repayment of loans from the financial institutions, and
- increase in income tax expense

Net Profit Margin decreased YoY as a result of lower ft rate. However, it increased QoQ as a result of high gross profit margin of Biogas power plant management.

Statement of Financial Position

Unit: Million Baht



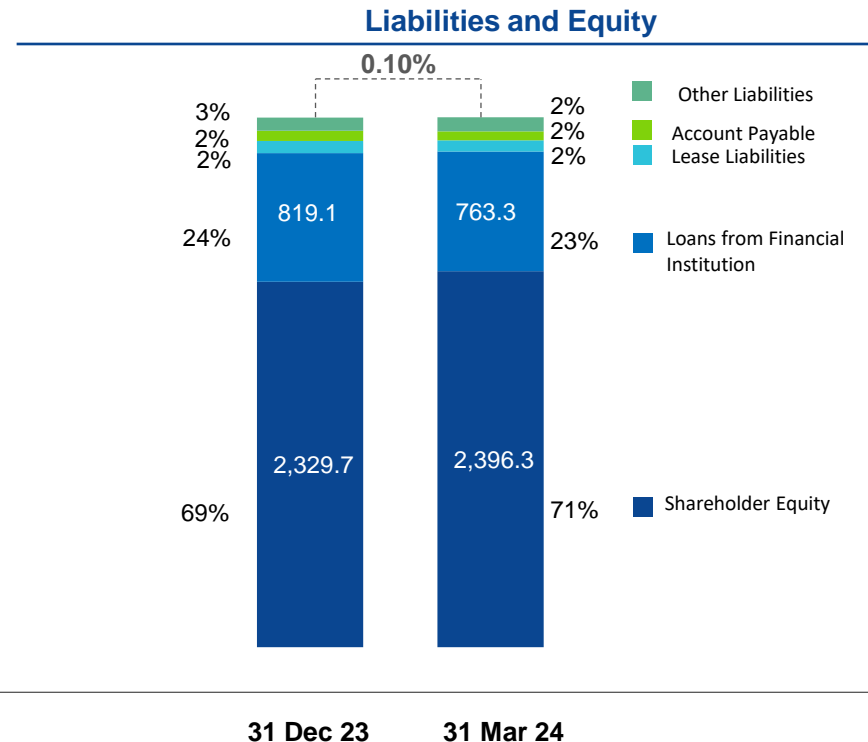
31 Dec 23

31 Mar 24

Total Assets

The total assets of the Group was Baht 3,377.9 million, increased by Baht 3.2 million or 0.10% from 31 December 2023. The major changes are as follows:

- **Trade and other receivables:** increased by Baht 32.8 million due to the related party's receivable from the biogas power plant management service.
- **Cash and cash equivalents:** decreased by Baht 89.0 million from payment of project development costs, site preparation and document preparation for construction permit of MSW power plant, together with the payment for land acquisition of TES TCN.
- **Property, Plant and Equipment:** increased by Baht 6.5 million from the lands purchase for MSW power plant in Samut Sakorn province, and site preparation cost for construction.
- **Other assets:** increased by Baht 57.2 million, mainly due to the payment of project development costs of TES UBN MSW power plant.



31 Dec 23

31 Mar 24

Total Liabilities

The total liabilities was Baht 981.6 million, decreased by Baht 63.4 million or 6.1% from 31 December 2023. The significant changes are as follows:

- **Lease Liabilities:** decreased by Baht 4.9 million due to the rent payment under the lease agreement.
- **Loans from Financial Institution:** decreased by Baht 55.8 million due to loan repayment according to the long-term loan agreements.

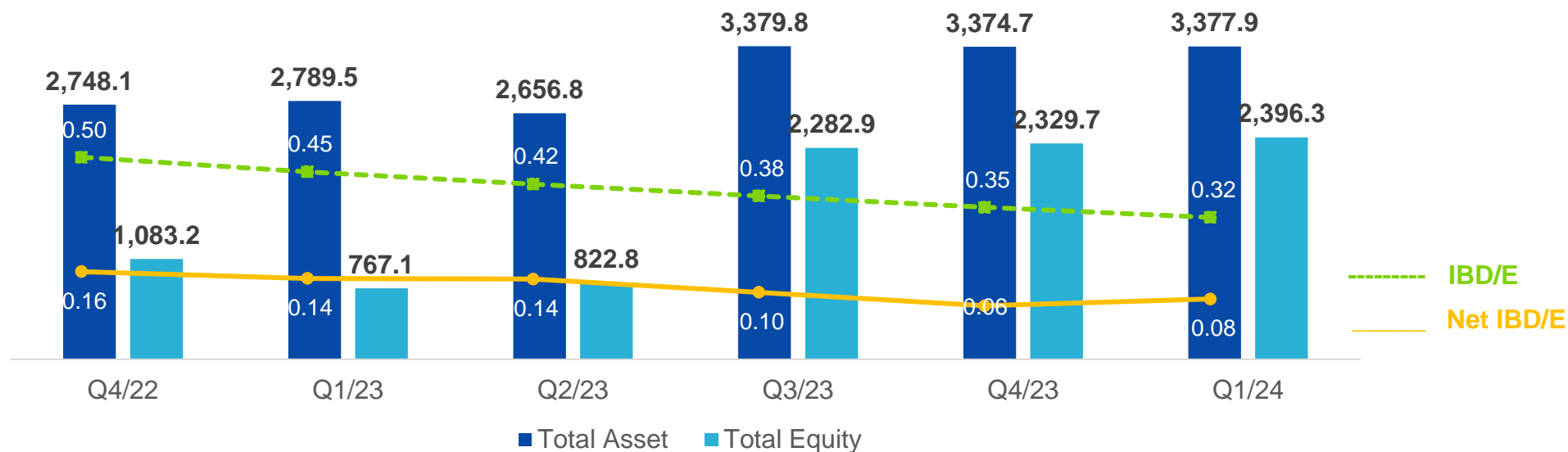
Total Shareholders' Equity

The total shareholder's equity of the Group was Baht 2,396.3 million, increased by Baht 66.6 million or 2.9% from 31 December 2023. This was mainly due to the operating profit in Q1/2024.

TGE Capital Structure and Leverage Ratio

	Q4/2022	Q1/2023	Q2/2023	Q3/2023	Q4/2023	Q1/2024
Total Asset	3,363.44	3,353.8	3,346.6	3,361.8	3,374.7	3,377.9
Current Interest-bearing debt	223.1	223.1	223.2	223.2	223.3	223.3
Non-Current Interest-bearing debt	819.2	757.1	701.3	651.7	595.9	540.0
Total interest-bearing debt	1,042.2	980.2	924.5	874.9	819.4	763.3
Cash equivalent and restricted cash	705.5	676.6	617.7	647.7	668.1	573.0
Net Interest-bearing debt	336.8	303.7	306.8	227.2	151.1	190.3
Total Equity	2,096.9	2,157.8	2,211.3	2,282.9	2,329.7	2,396.3

Unit: Million Baht, times



AGENDA



Company Overview



Financial Performance



INDUSTRY UPDATE



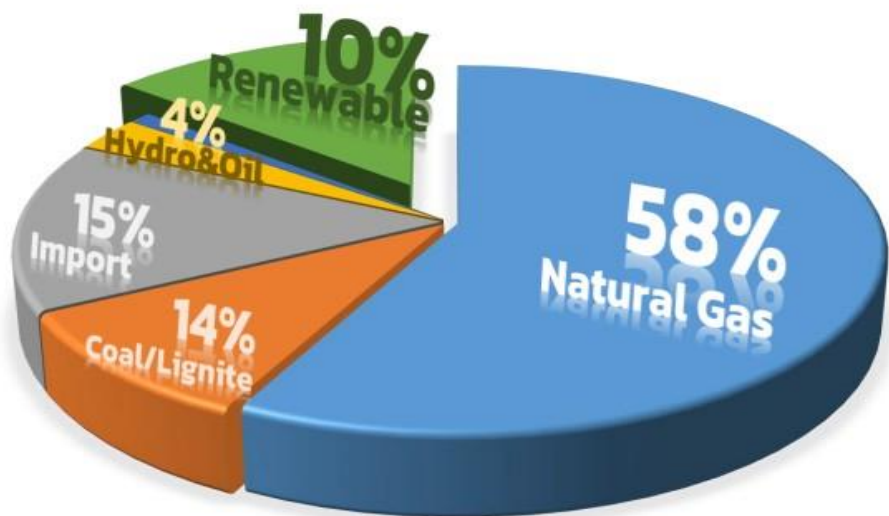
Strategy and Future Outlook

การขับเคลื่อนของกระทรวงพลังงานเพื่อลดการปล่อยก๊าซเรือนกระจก

การผลิตไฟฟ้าถือเป็นกิจกรรมที่ปล่อย GHG มากที่สุดจากภาคพลังงาน ซึ่งเป็นสิ่งที่กระทรวงพลังงานได้ให้ความสำคัญและดำเนินการเพื่อลดการปล่อย GHG อย่างต่อเนื่อง ผ่านการ**ส่งเสริมการใช้พลังงานหมุนเวียน**เป็นเชื้อเพลิงในการผลิตไฟฟ้า

การดำเนินการที่ผ่านมากระทรวงพลังงานมีการเปิดรับซื้อ RE จำนวน **8,865 MW** จากเป้าหมายตาม PDP2018 rev.1 ที่ **12,700 MW** โดยเป้าหมายของสัดส่วน RE ในการผลิตไฟฟ้าตามแผนพลังงานชาติ คือ การใช้ RE ในการผลิตไฟฟ้าควบคู่กับ ESS **อย่างน้อยร้อยละ 50 ภายในปี 2580**

(สถานะปัจจุบัน ประเทศไทยผลิตไฟฟ้าจากพลังงานหมุนเวียนที่ร้อยละ 10)



สัดส่วนการผลิตไฟฟ้าจำแนกตามชนิดเชื้อเพลิง
(มกราคม – พฤศจิกายน 2566)



แผนพลังงานชาติ (National Energy Plan: NEP)

Key Milestone of NEP to achieve **Carbon Neutrality**



**Increased
Share of RE in Power Gen.**

RE \Rightarrow 30%

RE \Rightarrow > 50%



**Increased
Energy Efficiency**

EE \Rightarrow 30%

EE \Rightarrow 36%



**Increased
Share of EV car**

Share new EV
50%

Share new EV
100%

Target Year

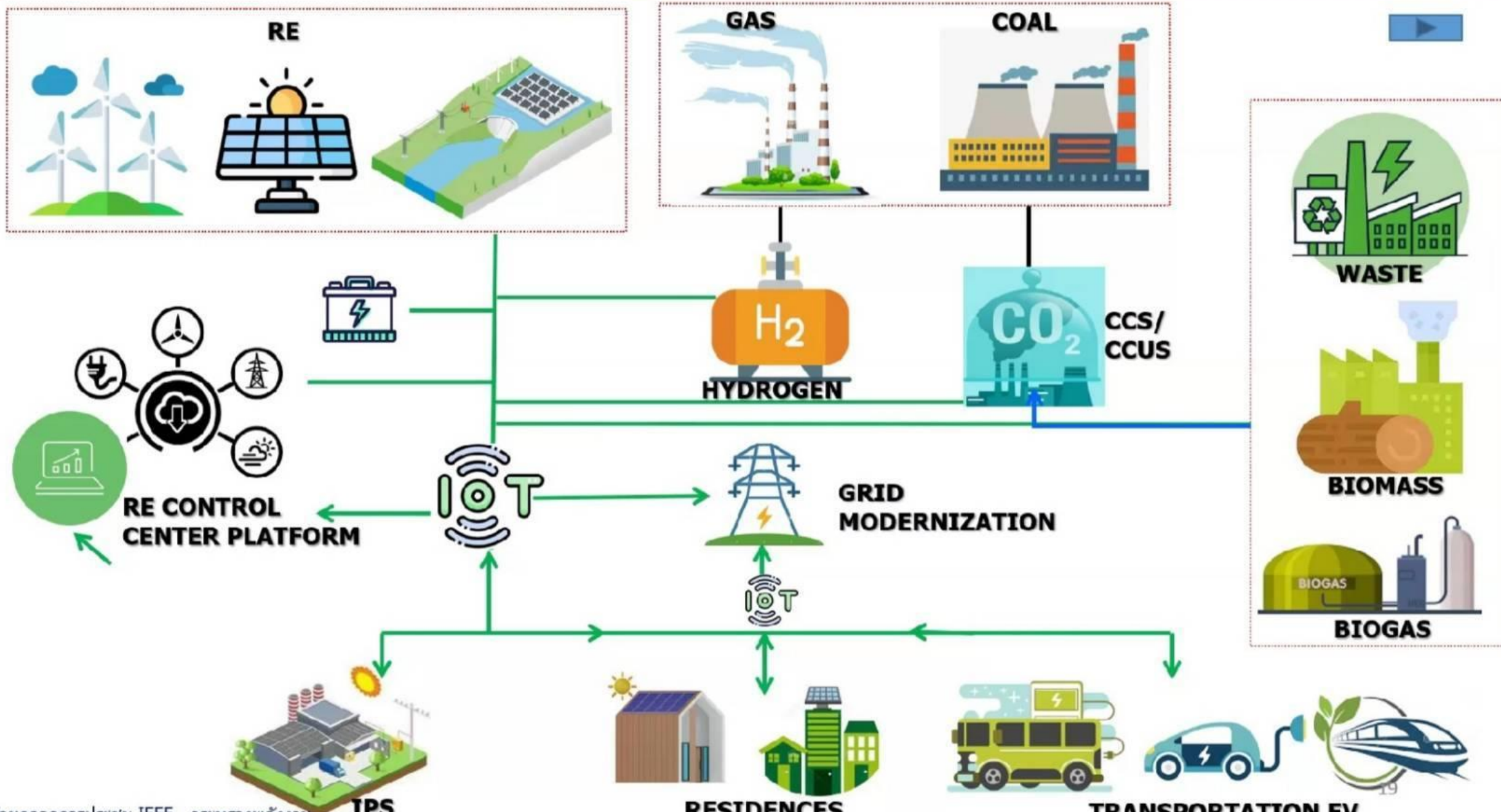
2030

2035

2037

2040

Green Energy Policy of Thailand



ความต้องการใช้ไฟฟ้าพลังงานหมุนเวียนของผู้ใช้ไฟฟ้ากลุ่ม RE100



กลุ่มผู้ใช้ไฟฟ้า RE100 มีความต้องการใช้พลังงานหมุนเวียน 100% (Carbon-Free Energy: CFE) เพื่อดำเนินธุรกิจ

- CFE โดยทั่วไปหมายถึง การผลิตพลังงานไฟฟ้าที่ไม่ปล่อย CO₂ เช่น Solar, Wind, Geothermal, Hydropower, Nuclear
- บางกรณีครอบคลุม Sustainable Biomass and Carbon Capture and Storage (CCS)

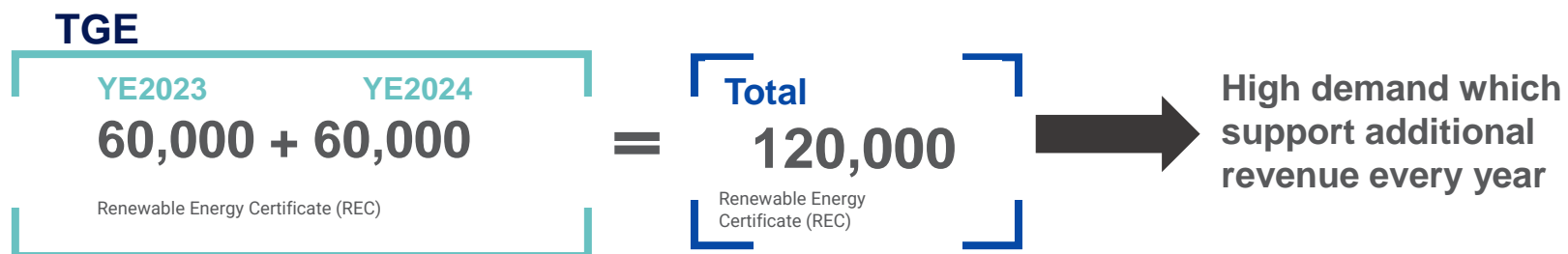
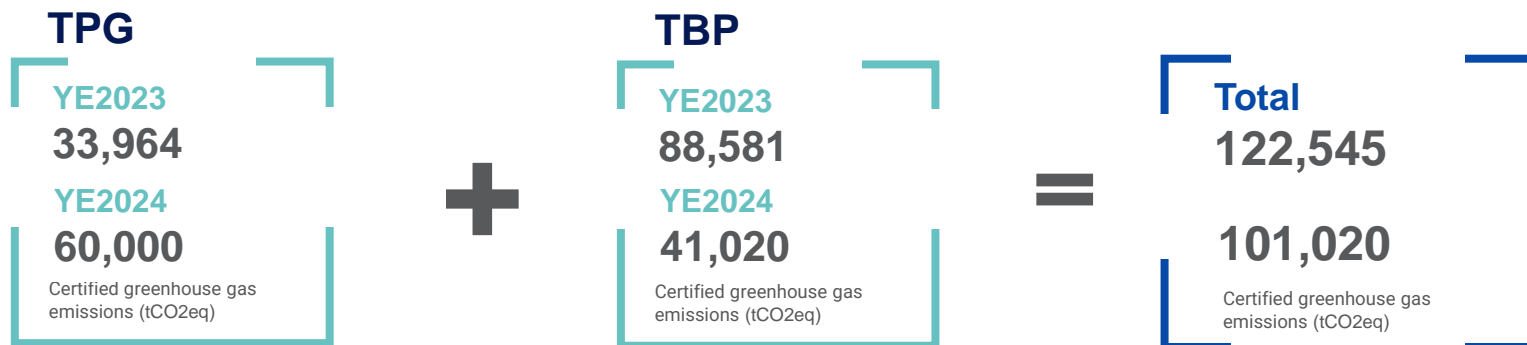


Carbon Credit and Renewable Energy Certificate

"The company recognizes the importance of cooperation to **reduce greenhouse gas emissions.**"



"Carbon credit trading can support TGE's sustainable revenue growth in the future"



TGE Benefits



Reducing global warming



Enhance income stability in the future



Promote domestic and international partnership

Sustainable Operation

To achieve sustainable business operations and moving towards net zero greenhouse gas emissions

Thailand Voluntary Emission Reduction Program



โครงการลดก๊าซเรือนกระจกภาคสมัครใจตามมาตรฐานของประเทศไทย
(Thailand Voluntary Emission Reduction Program: T-VER)

01

Green House Gas Emission Reduction to generate a total country's reduction in GHG

02

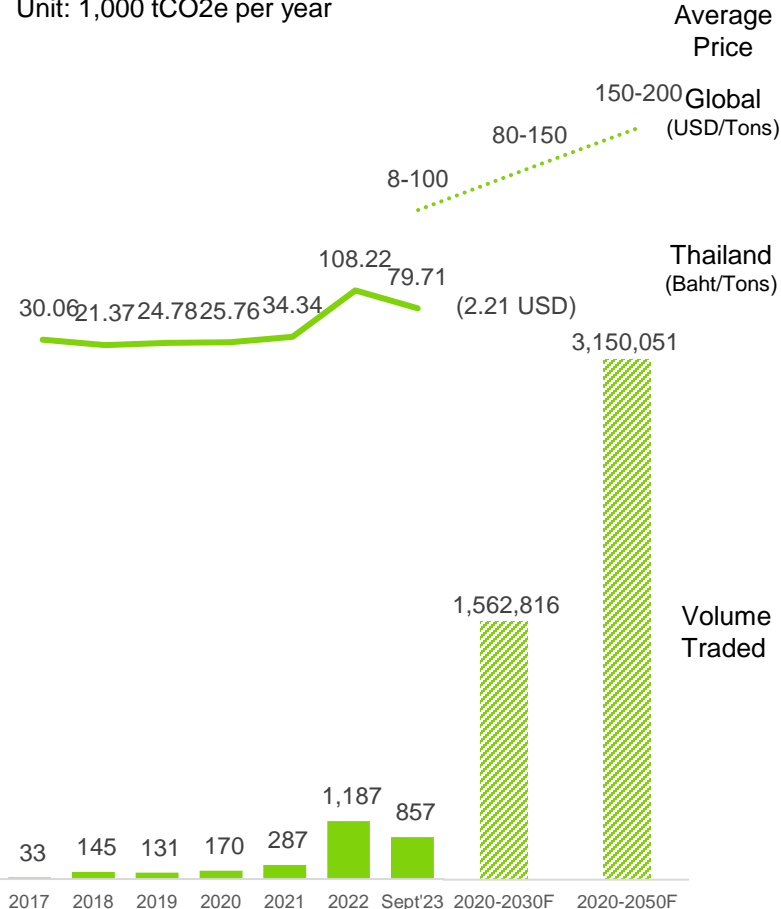
Can sell the Reduction Unit or Carbon Credit

03

Support local government organizations to reduce greenhouse gas emissions at the community level, leading to a low-carbon society.

Carbon Credit Market Trend

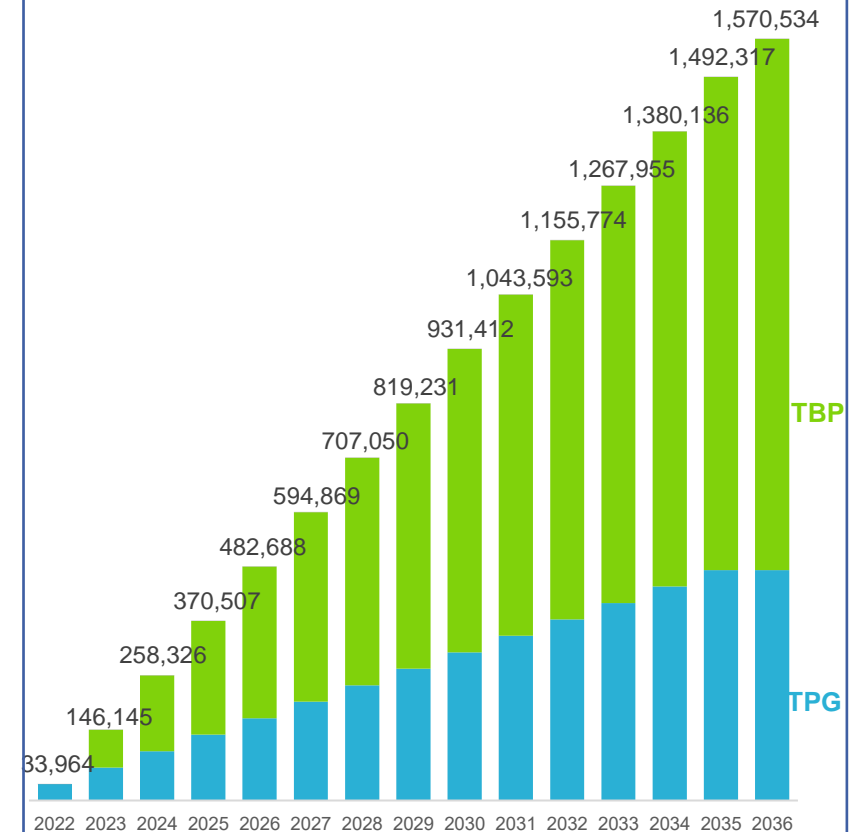
Unit: 1,000 tCO₂e per year



Carbon Credit Estimation

Unit: CO₂e per plant per year

✓ Projection



Sustainable Operation

To achieve sustainable business operations and moving towards net zero greenhouse gas emissions

Renewable Energy Certificate



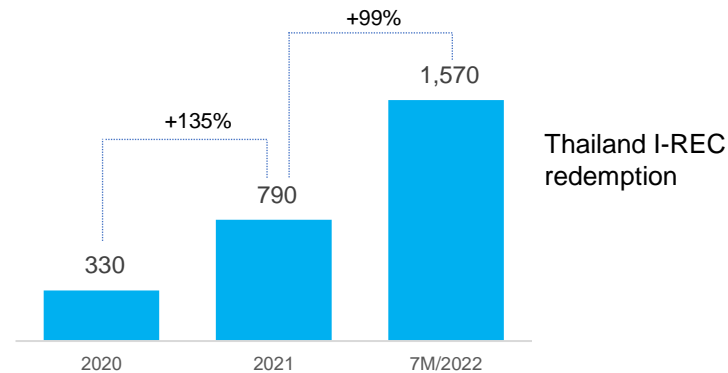
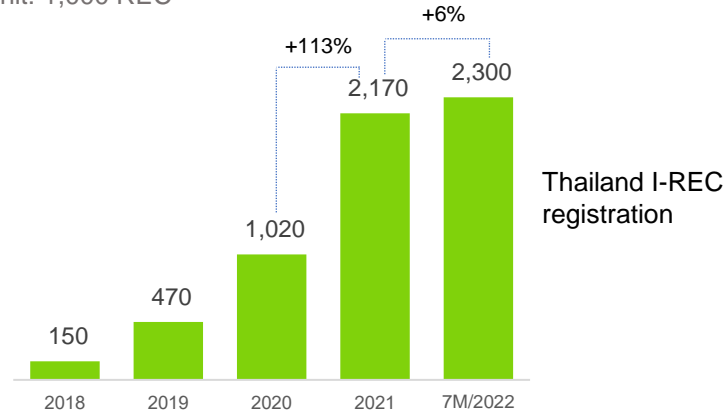
01 To assure that electricity is generated from renewable energy

02 Can sell to the users who want to claim the right to use renewable energy

03 Support the government's goal to replace the fossil material with renewable energy in order to reduce the CO2 emission of energy sector

Thailand I-REC Trend

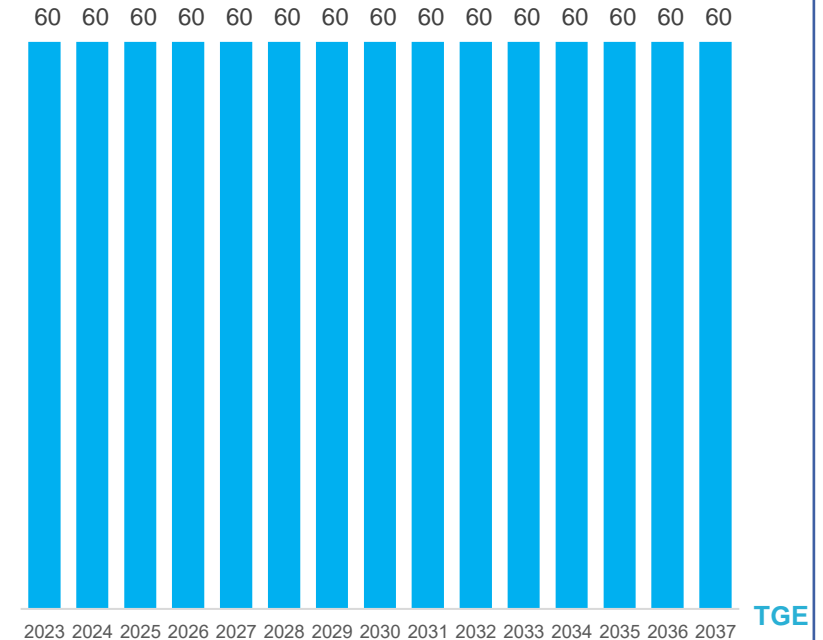
Unit: 1,000 REC



REC Estimation

Unit: 1,000 REC per year

✓ Projection



AGENDA



Company Overview



Financial Performance



Industry Update



STRATEGY AND FUTURE OUTLOOK

TGE Strategic Direction

To be a leader in the environmentally and community-friendly renewable energy industry



Municipal Waste Power Plant

Portfolio Overview



Projects under construction					Win the bidding	
	TES-SKW	TES-CPN	TES-RBR	TES-CNT	TES-TCN	TES-UBN
Raw material	Municipal Solid Waste - MSW					
Location	Sa Kaew	Chum Phon	Ratchaburi	Chai Nat	Tha Chin	Ubon Ratchathani
Installed capacity	8.0 MW	6.0 MW	8.0 MW	8.0 MW	9.9 MW	9.9 MW
Sales to PEA	6.0 MW	4.0 MW	6.0 MW	6.0 MW	8.0 MW	8.0 MW
Tenor	20 years	20 years	20 years	20 years	20 years	20 years
Contract types	BOOT	BOOT	BOO	BOO	BOO	BOO
Technology	Stoker Type Incinerator					
Waste Quantity (Ton/day)	400	250	450	400	500	500
Average revenue (M/Y)	350 - 400	200 - 250	300 - 350	300 - 350	450 - 500	400 - 450
Average NPM (%)	30-35	25 - 30	30 - 35	30 - 35	35 - 40	35 - 40
Selling price (THB/kW/hr)	5.95 (2.39 FiT Fix + 2.86 FiT Variable + 0.70 FiT Premium)					

Project in the bidding process	
	TES-PRI
Location	Prachainburi
Raw material	Municipal Solid Waste – MSW
Installed capacity	9.9 MW
Sales to PEA	8.0 MW
Waste Quantity (Ton/day)	500
Average revenue (M/Y)	400 – 450
Average NPM (%)	35 - 40

(1) LAOs refers to Local Administrative Organizations

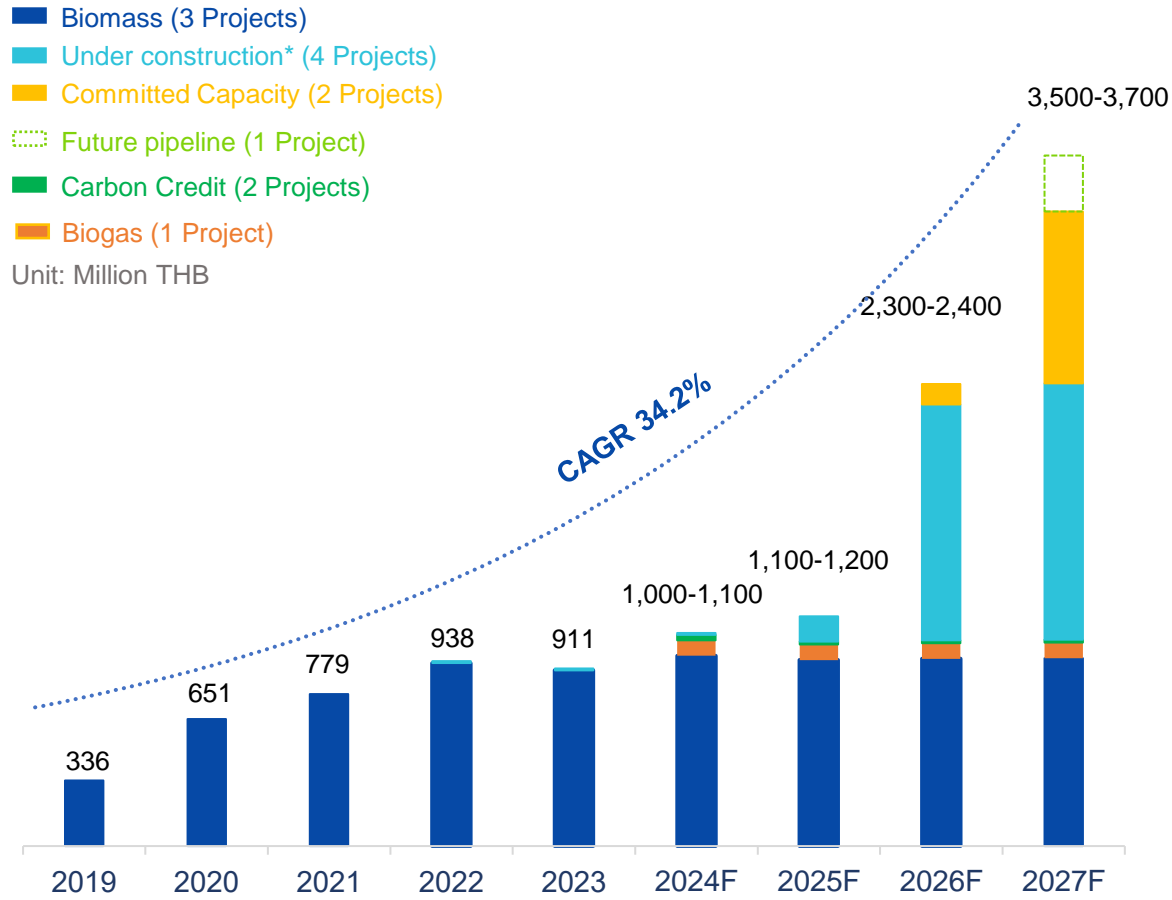
Project Timeline & Progress

	PHASE 1			
	TES SKW	TES CPN	TES RBR	TES CNT
Concession Agreement	21 August 2019	17 December 2020	8 October 2021	15 September 2023
PPA with Provincial Electricity Authority	10 May 2023	24 April 2023	10 May 2023	25 Dec 2023
SCOD required by PPA	31 December 2026	31 December 2026	6 October 2026	30 December 2026
Plan Construction commencement	Q1-2024	Q1-2024	Q1-2024	Q2-2024
Plan COD	Q4-2025	Q4-2025	Q1-2026	Q1-2026
Prospective EPC Contractor and O&M operator	Chinese EPC Contractor			

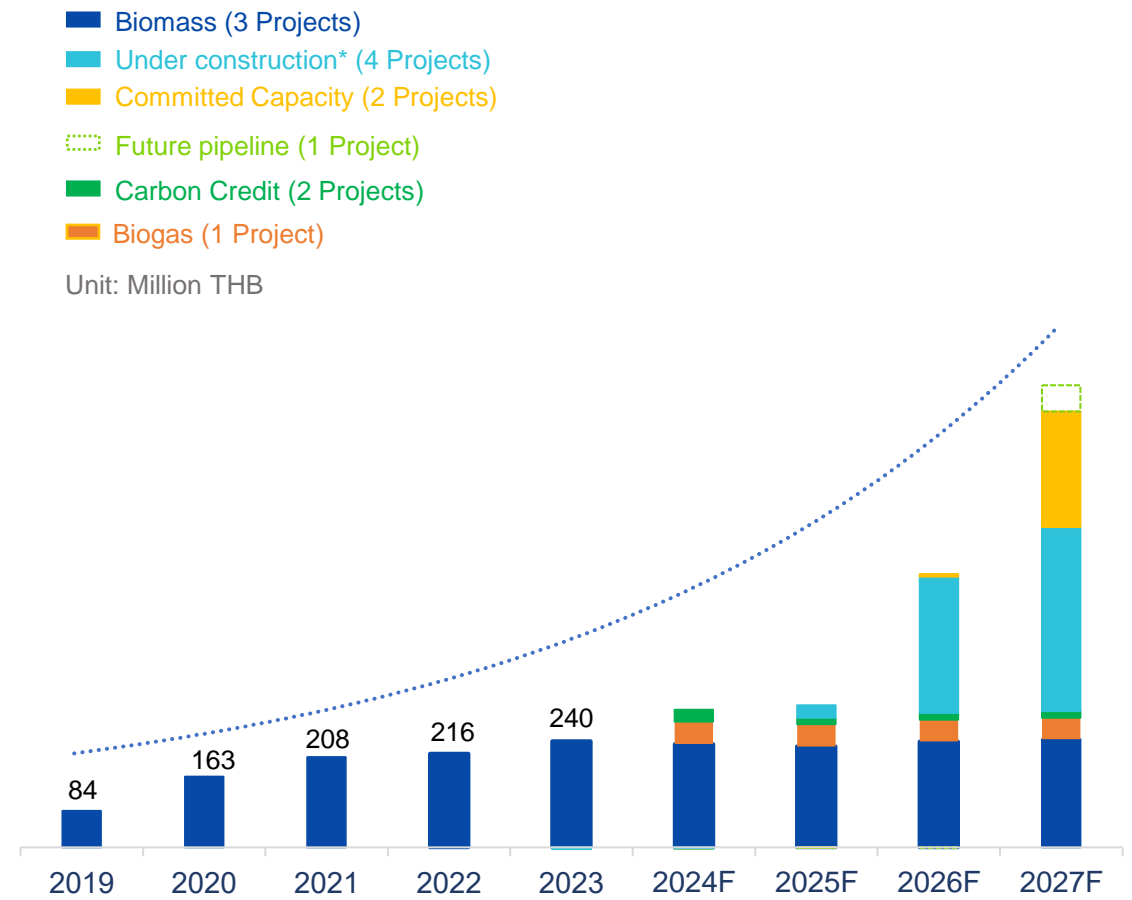
	PHASE 2		
	TES TCN	TES UBN	TES PRI
Concession Agreement	In process	In process	Expected TOR in Q3-2024
PPA with Provincial Electricity Authority	Expected Q2-2024	Expected Q3-2024	Expected Q1-2025
Plan Construction commencement	Q1-2025	Q3-2025	Q4-2025
Plan COD	Q4-2026	Q1-2027	Q2-2027

TGE Future Growth

Revenue



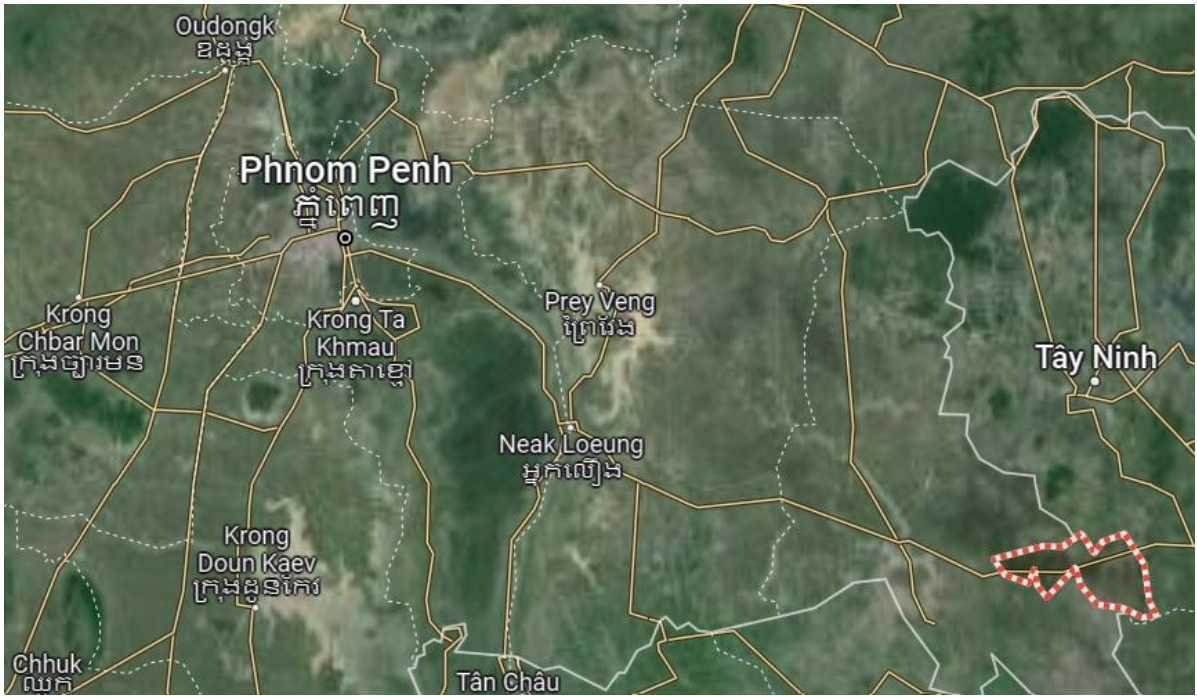
Net Profits



Business Opportunity

Solar Farm in Cambodia

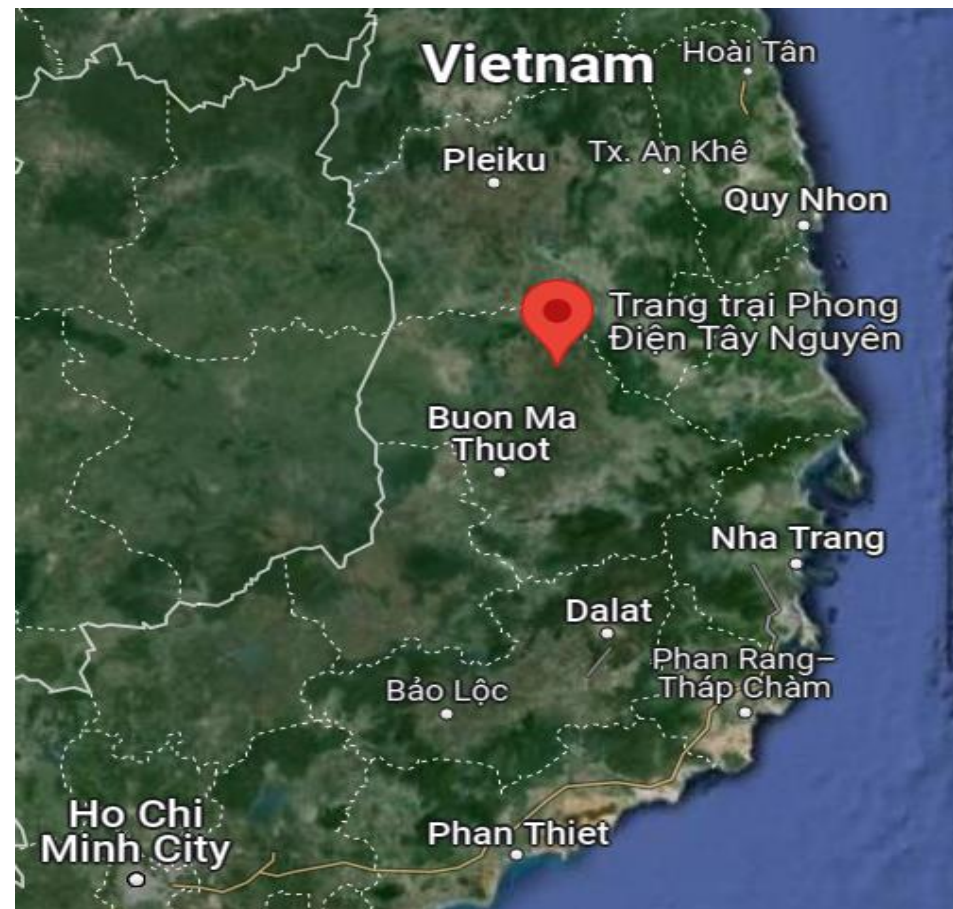
Location	South-East of Cambodia
PPA Capacity	20.0 MW AC
COD	2023
Remaining PPA Tenor	18 years



Business Opportunity

Wind Farm in Vietnam

Location	North-East of Ho Chi Minh City, Vietnam
PPA Capacity	28.8 MW
COD	2019
Remaining PPA Tenor	16 years



Pride Awards and Certificates

The TGE Group operates the business under the operating standards with care for friendliness to the environment and creates sustainable stability in energy, participation in strengthening communities, society, and all groups of stakeholders with international accreditation standards and various awards of achievements as follows:

Awards



Certificates



Carbon Credit certified by T-VER

Carbon Credit certified by Standard T-VER for 2 biomass power plants (TBP and TPG) in the total amount of 122,545 tCO₂eq.

Please kindly give us your feedback for future improvements



Thank You

Thachang Green Energy Plc.

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