



TPI POLENE POWER
PUBLIC COMPANY LIMITED

บริษัท ทีพีโอ โพลีน พาวเวอร์ จำกัด (มหาชน)
TPI POLENE POWER PUBLIC COMPANY LIMITED





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Company & Business Overview



TPIPP 'S Vision and Mission





สถาบันไทยพัฒน์ ได้ประเมินข้อมูลด้านสิ่งแวดล้อม สังคม และธรรมาภิบาล (Environmental Social and Governance: ESG) จากภาพรวมผลการดำเนินงานด้าน ESG ปี 2563 โดยใช้ตัววัด WFE ESG Metrics จำนวน 30 ตัวชี้วัด ของสมาพันธ์ตลาดหลักทรัพย์โลก (World Federation of Exchanges) สรุปคะแนนได้ โดยในภาพรวม ผลการประเมินด้าน ESG ของ TPIPP ปี 2563 อยู่ในระดับ



รับรางวัล Asia's Most Influential Companies

หรือ

บริษัทที่มีอิทธิพลสูงสุดในเอเชีย ประจำปี 2021

จากองค์กร

Asia Corporate Excellence & Sustainability Awards (ACES)

จัดโดย MORS Group ซึ่งเป็นองค์กรด้านสื่อจากประเทศมาเลเซีย





Thailand Stance on COP

Total CO₂ Emission in 2030 = 555m tons

Paris Agreement 2015

NDC by 2030 = 115m tons
(20.8% of total emission)

- Industry = 43m tons
- Transport = 41m tons
- Energy = 24m tons
- Others = 7m tons

COP26 (Glasgow)

NDC by 2030 = 46m tons
(40% of 115m tons)

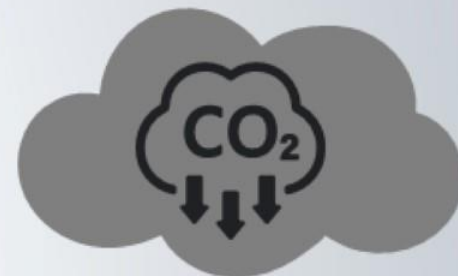
NDC by 2050 = 115m tons
(total NDC)

NDC by 2065 = 555m tons
(net zero)



TPIPP Greenhouse Gas Reduction

Green Power Plant



Coal Power Plant Capacity Per Total Power Plant Capacity

TPIPP Greenhouse Gas Reduction

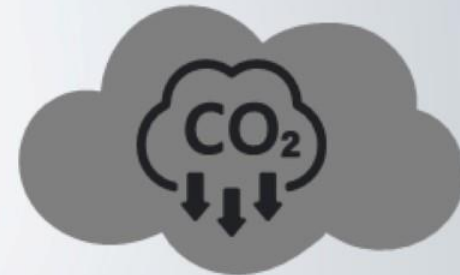
WTE



1 Ton MSW



2.32 Ton



Reduce MSW to Land fill in Year 2023

17,000 Ton / Day

5.2 mil Ton / Year

12.0 mil Ton-CO₂

Reduce MSW to land fill in Year 2025

29,000 Ton / Day

8.6 mil Ton / Year

20.0 mil Ton-CO₂



Value of Carbon Market Update 2022

EU Carbon Permits



13:55



CARBON CREDITS .com



Voluntary Carbon Market: Voluntary Carbon Markets enable carbon emitters to offset their unavoidable emissions by acquiring carbon credits generated by initiatives aimed at removing or decreasing GHG emissions from the environment. Companies can engage in the voluntary carbon market on their own or as part of an industry-wide program. Data below could be delayed by as much as 24hrs.

Aviation Industry Carbon Offset





TPIPP Certification and Awards 2021





TIPL as TIPL'S Flagship for Power Business

Unit : THBmm

	TIPL (Q4 2021)	TIPL (12M 2021)
Main Business	Electricity generation from waste heat and refused derived fuel (RDF) power plants and operation in petrol and gas stations.	
Total Revenue	2,709	11,358
Operating EBITDA *	1,256	5,397
Net Profit	999	4,191
Total Assets	48,485	48,485
Total Liabilities	17,634	17,634
Registered and Paid-up Capital	8,400	8,400
Total Equity	30,852	30,852
Market Cap as of 30 Dec 2021	34,944	34,944

Remark :

1. Operating EBITDA of Q4 2021 excluded net foreign exchange gain 4.52 THBmm and compensation from insurance claims of 0.03 THBmm
2. Operating EBITDA of 12M 2021 excluded net foreign exchange loss 15.03 THBmm and compensation from insurance claims of 0.03 THBmm



Cement Business



Concrete Business



LDPE Business



EVA Business



Public

70.24%

29.76%



Power Plant Business



Summary of TPIPP's Power Plant Operations

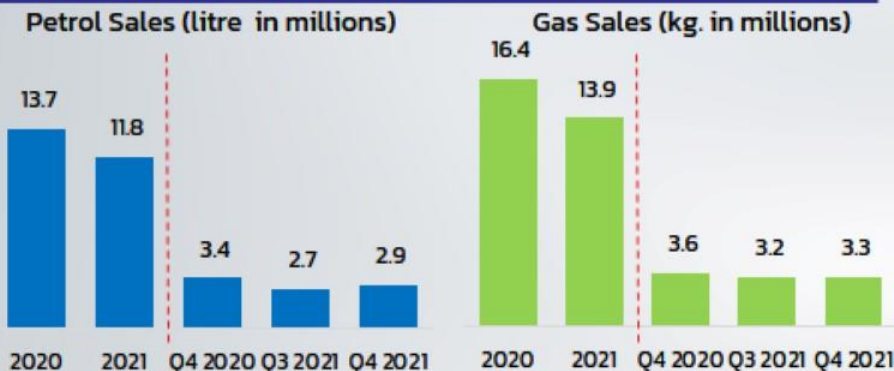
Operates the Alternatives fuels and Electricity Energy

- Alternative Fuels RDF Plant
- Renewable Energy Power Producer SPP VSPP
- Power plant IPS (Independent Power Supply)

Operates petrol stations and gas stations

- Currently owns and operates 8 petrol stations, 1 gas station and 3 petrol and gas stations

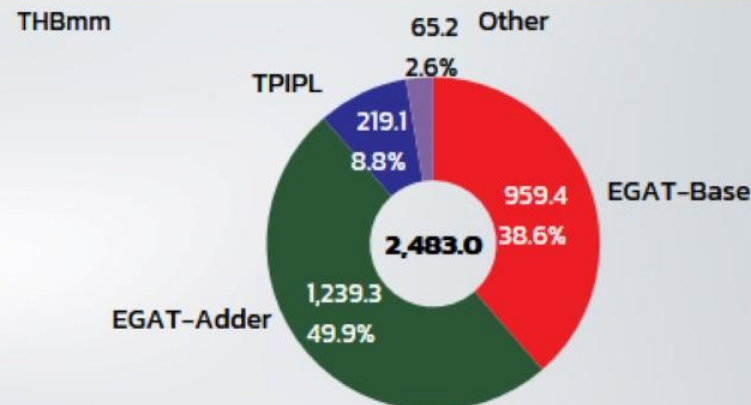
Historical Sales Volume



TPIPP's Installed Capacity Breakdown by Fuel



TPIPP's Q4 2021 Energy & Utilities Revenue Breakdown



2



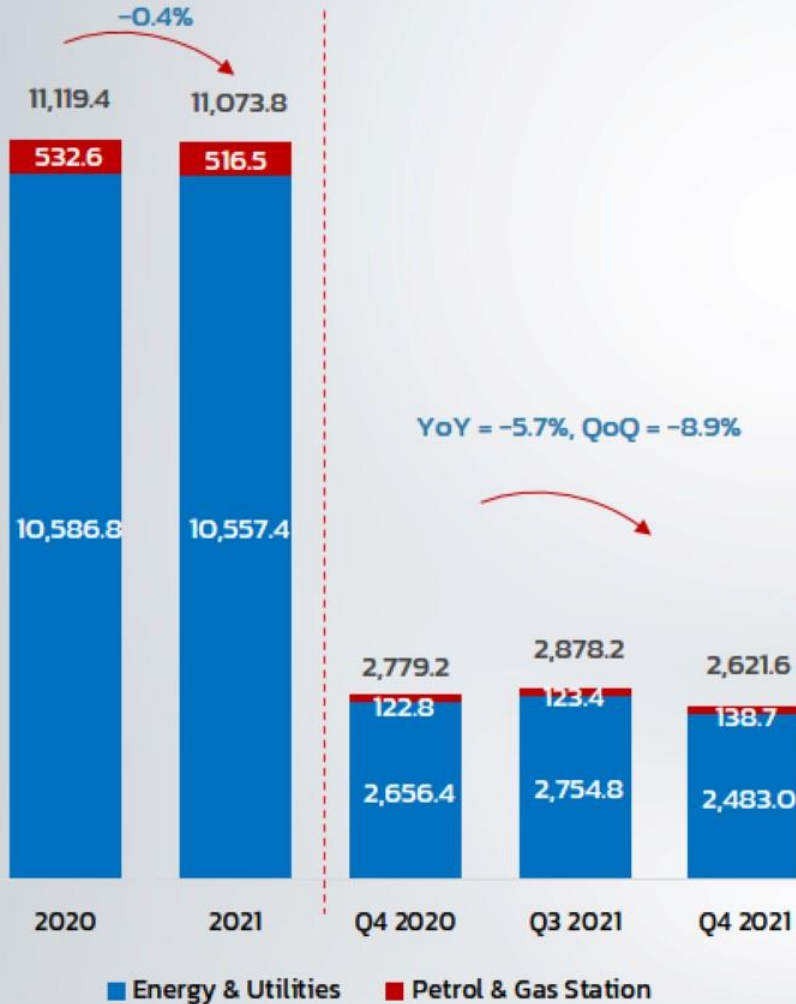
Financial Highlights



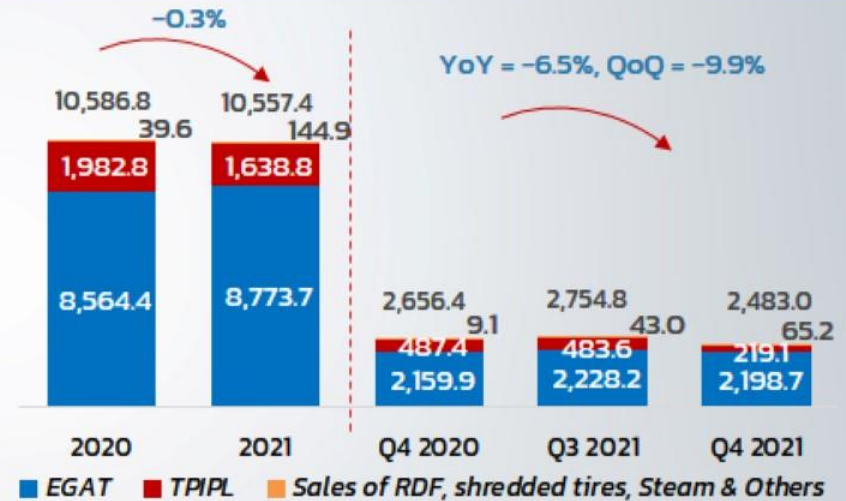
Revenue

Diversified Revenue Streams Led by Growing Revenues from Energy & Utilities Division

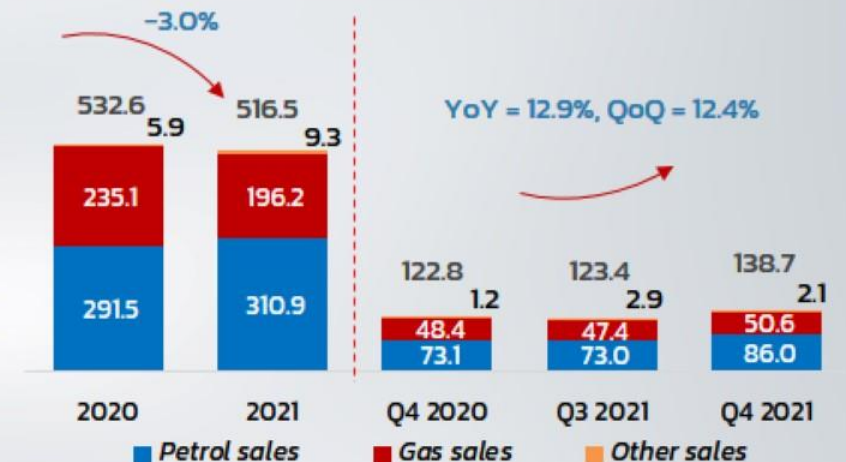
Total Revenue from Sales of Goods (THBmm)



Revenue from Energy & Utilities (THBmm)



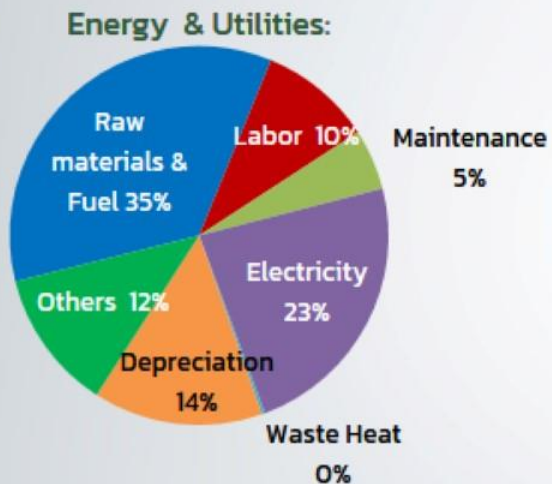
Revenue from Petrol & Gas Station (THBmm)





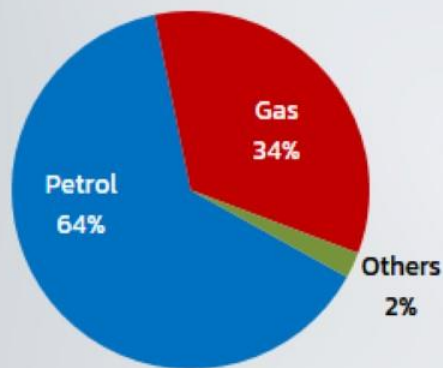
Cost of Sales & Gross Profit

Q4 Y2021 Cost of Sales Breakdown (THBmm)



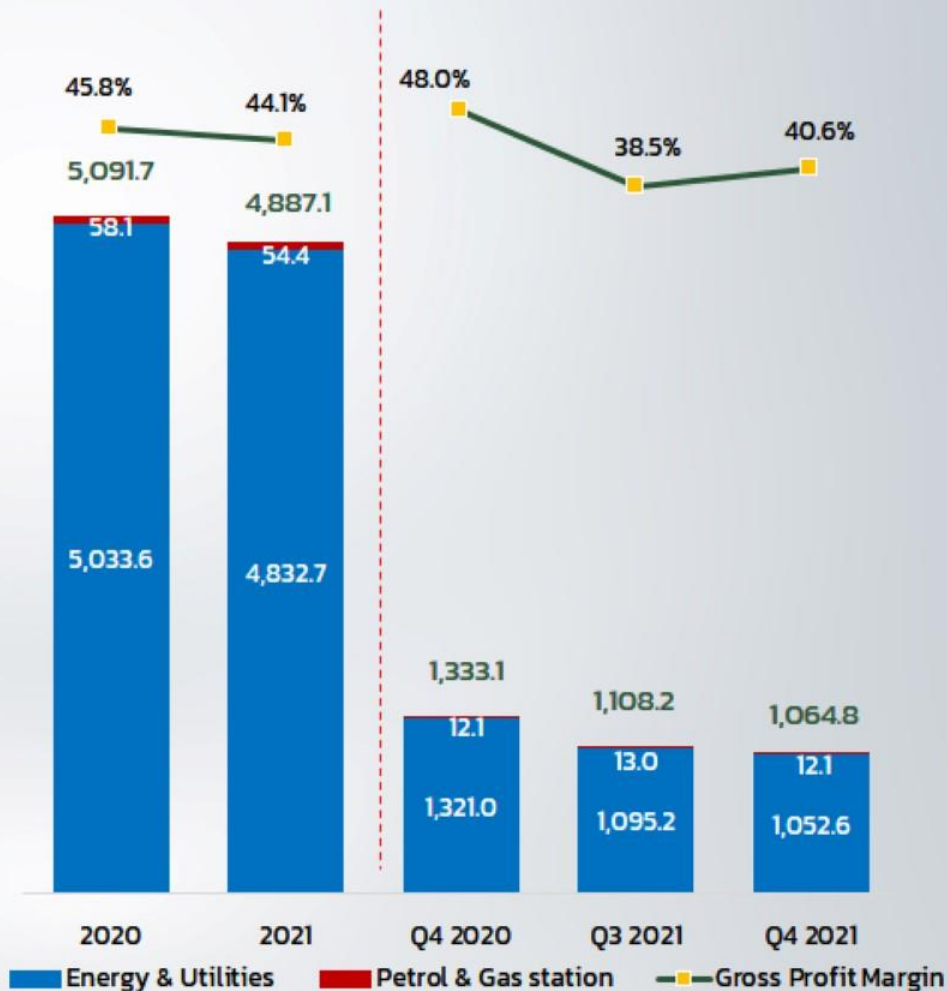
Total: THB 1,430.4 mm

Petrol & Gas Station:



Total: THB 126.5 mm

Gross Profit (THBmm) and Gross Profit Margin⁽¹⁾ (%)



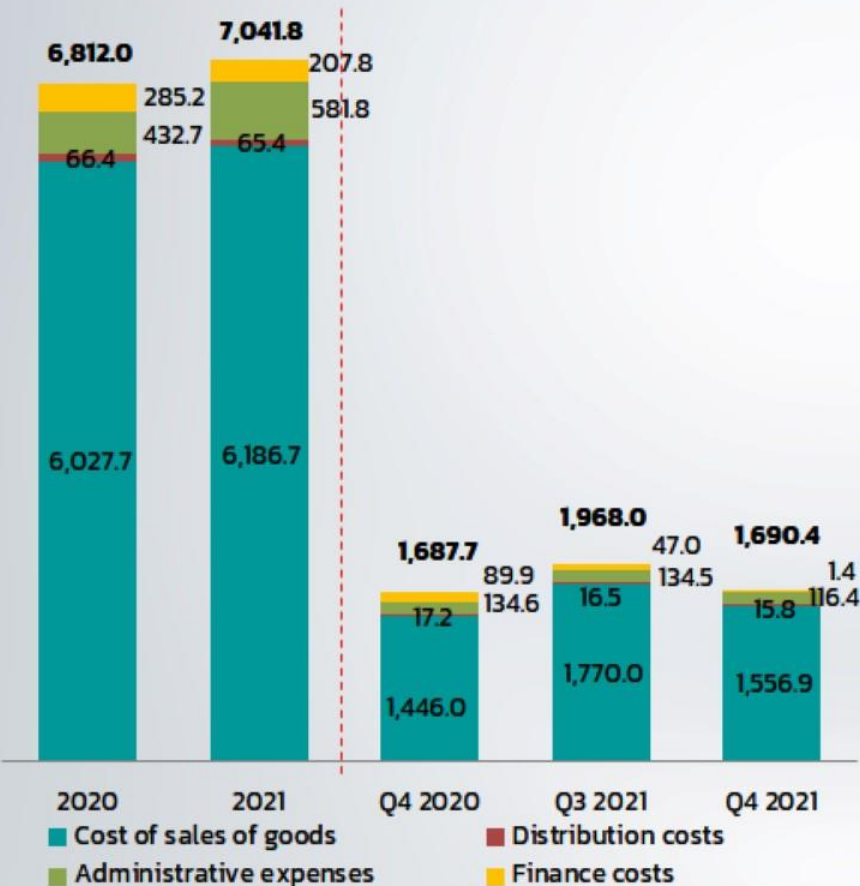
Note:

(1) $Gross\ profit\ margin = \frac{Gross\ profit\ (loss)}{Revenue\ from\ sales\ of\ goods} \times 100$

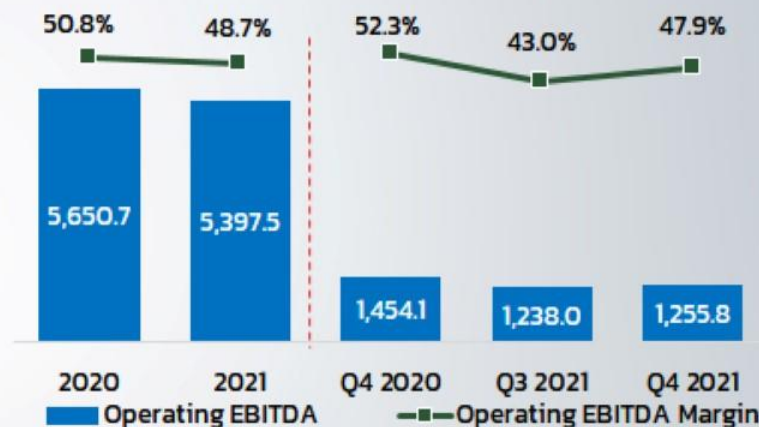


Cost & Expenses vs. EBITDA & NPAT

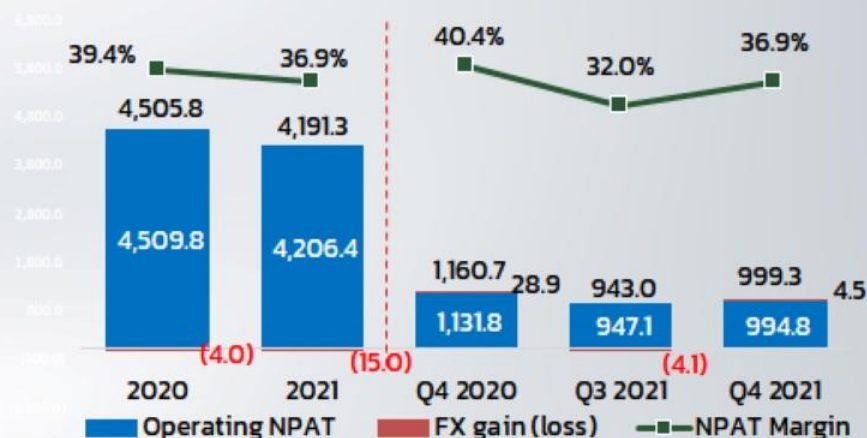
Cost & Expenses Items (THBmm)



Operating EBITDA⁽¹⁾ (THBmm) and Operating EBITDA margin⁽²⁾ (%)



Operating NPAT (THBmm) and NPAT margin⁽³⁾ (%)



Notes:

- (1) Operating EBITDA exclude net foreign exchange gain(loss) and compensation from insurance claims. The Company considers EBITDA to be an important performance measure and the Company believes that EBITDA is used by many industries and investors as one measure of cash flow from operations. EBITDA should not be considered by an investor as an alternative to actual cash flow from operations as determined in accordance with TFRS, and is not a standard measure under TFRS. The Company's calculation of EBITDA may differ from similarly titled computations of other companies.
- (2) Operating EBITDA margin = operating EBITDA / Revenue from sales of goods and services x 100
- (3) Net profit margin = Profit (loss) for the year / Total Revenues x 100



Comparing Profit and Loss Statement – YoY and QoQ

Unit : THBmm

	2020	2021	2020	2021	2021	Compare (%)		
	12M	12M	Q4	Q3	Q4	YoY (12M)	YoY (Q)	QoQ
Income								
Revenue from base tariff	5,761.0	5,443.3	1,421.9	1,453.9	1,178.5	-5.5%	-17.1%	-18.9%
Revenue from power adder	4,786.1	4,969.1	1,225.4	1,257.9	1,239.3	3.8%	1.1%	-1.5%
Other Sales Revenue	572.2	661.4	131.9	166.3	203.9	15.6%	54.6%	22.6%
Other income	182.2	240.6	50.9	52.5	73.0	32.0%	43.4%	39.1%
Operating Revenues	11,301.6	11,314.4	2,830.1	2,930.7	2,694.7	0.1%	-4.8%	-8.1%
Expenses								
Cost of sales of goods	6,027.7	6,186.7	1,446.0	1,770.0	1,556.9	2.6%	7.7%	-12.0%
Distribution & administrative expenses	499.2	647.3	151.8	151.0	132.1	29.7%	-12.9%	-12.5%
Operating expenses	6,526.8	6,834.0	1,597.8	1,921.0	1,689.0	4.7%	5.7%	-12.1%
Operating EBIT	4,774.7	4,480.4	1,232.3	1,009.7	1,005.6	-6.2%	-18.4%	-0.4%
Plus Depreciation & Amortization	875.9	917.1	221.9	228.3	250.1	4.7%	12.7%	9.6%
Operating EBITDA	5,650.7	5,397.5	1,454.1	1,238.0	1,255.8	-4.5%	-13.6%	1.4%
Compensation from insurance claims	99.6	0.0	0.0	0.0	0.0	-100.0%	100.0%	100.0%
Net foreign exchange gain (loss)	(4.0)	(15.0)	28.9	(4.1)	4.5	-276.6%	-84.3%	210.8%
Total EBITDA	5,746.3	5,382.5	1,483.0	1,234.0	1,260.3	-6.3%	-15.0%	2.1%
Investment income	42.9	43.8	12.3	12.4	14.6	2.3%	18.5%	17.7%
Finance costs	(285.2)	(207.8)	(89.9)	(47.0)	(1.4)	-27.1%	-98.5%	-97.1%
Income tax expense	(122.2)	(110.1)	(22.9)	(28.1)	(24.2)	-9.9%	5.5%	-14.0%
Depreciation & Amortization	(875.9)	(917.1)	(221.9)	(228.3)	(250.1)	4.7%	12.7%	9.6%
Net Profit (loss) for the year	4,505.8	4,191.3	1,160.7	943.0	999.3	-7.0%	-13.9%	6.0%

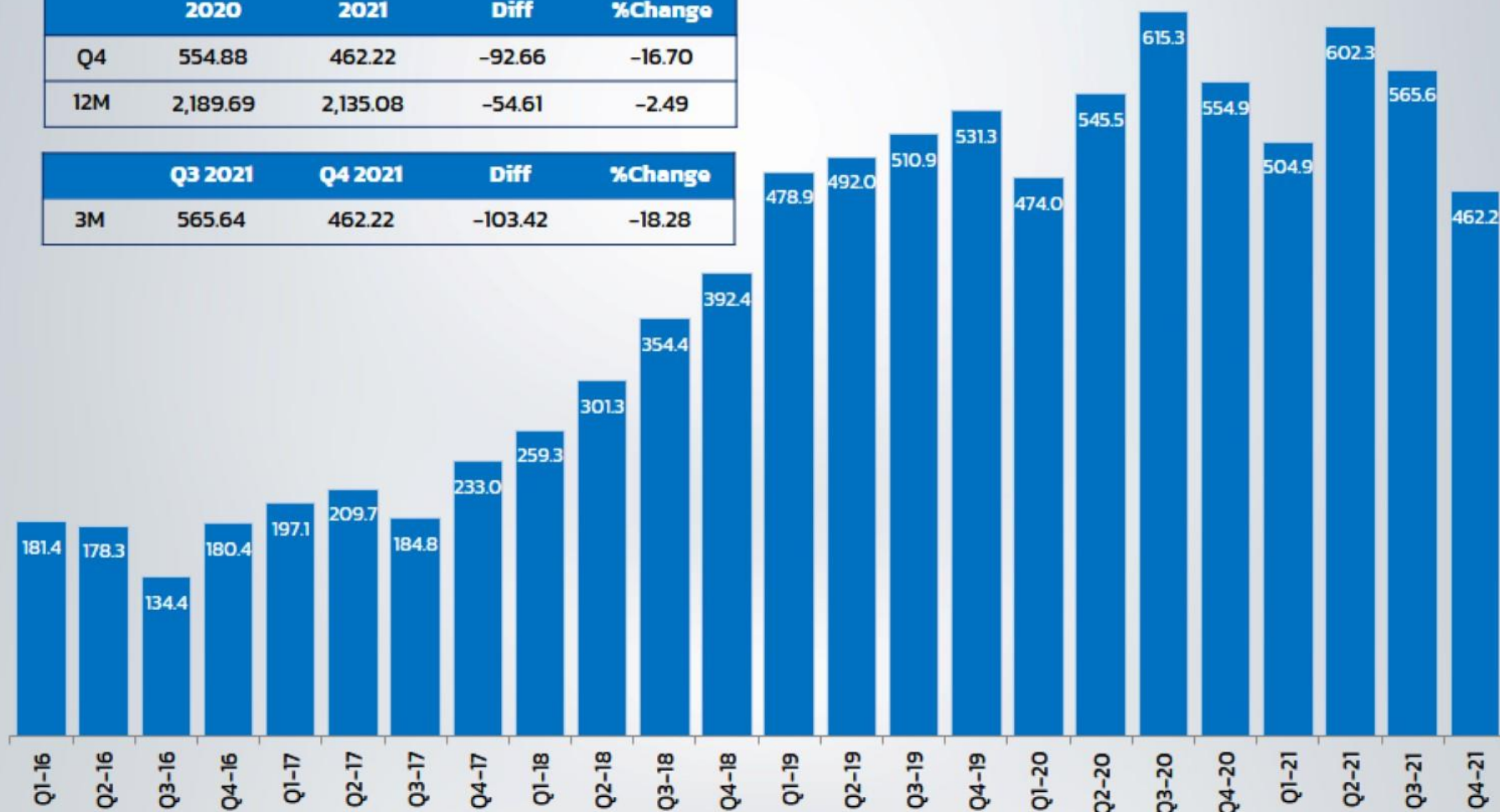


Operating Statistic

Generated Amount of Electricity (M.KWh) and Capacity (MW)

	2020	2021	Diff	%Change
Q4	554.88	462.22	-92.66	-16.70
12M	2,189.69	2,135.08	-54.61	-2.49

	Q3 2021	Q4 2021	Diff	%Change
3M	565.64	462.22	-103.42	-18.28





Debt Profile and Leverage Ratios

Interest Bearing Liabilities (THBmm)

Increase in long-term loans from financial institution and related parties



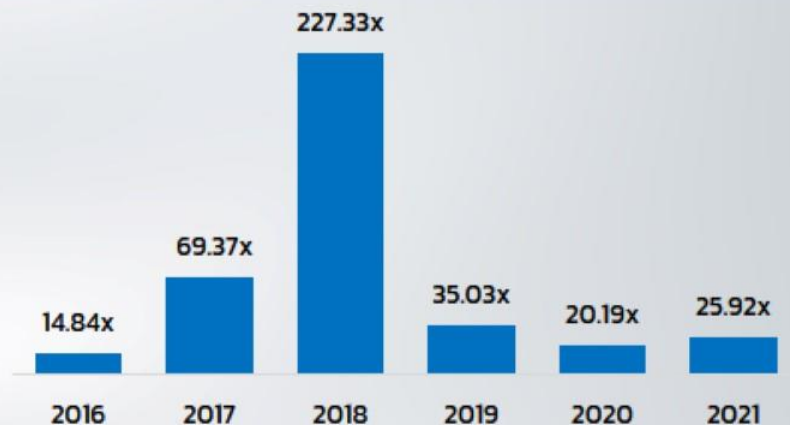
Cash / Cash Equivalents & Other current financial assets (THBmm)



Net Debt⁽¹⁾ to Equity (x)



Interest Coverage Ratio⁽²⁾ (x)



Notes:

(1) Net debt = Interest Bearing Liabilities – Cash and cash equivalents

(2) Interest coverage ratio = Cash flows from operating activities before changes in operating assets and liabilities / Finance cost



COD and ADDER Schedule for each plant

SPP	PPA	TG	COD	ADDER	Expiration of ADDER
1	18 MW	TG3	16 JAN 2015	7 Y	JAN 2022
2	55 MW	TG5	6 Aug 2015	7 Y	AUG 2022
3	90 MW	TG4+TG6	18 APR 2018	7 Y	APR 2025



Improvement Plant Availability

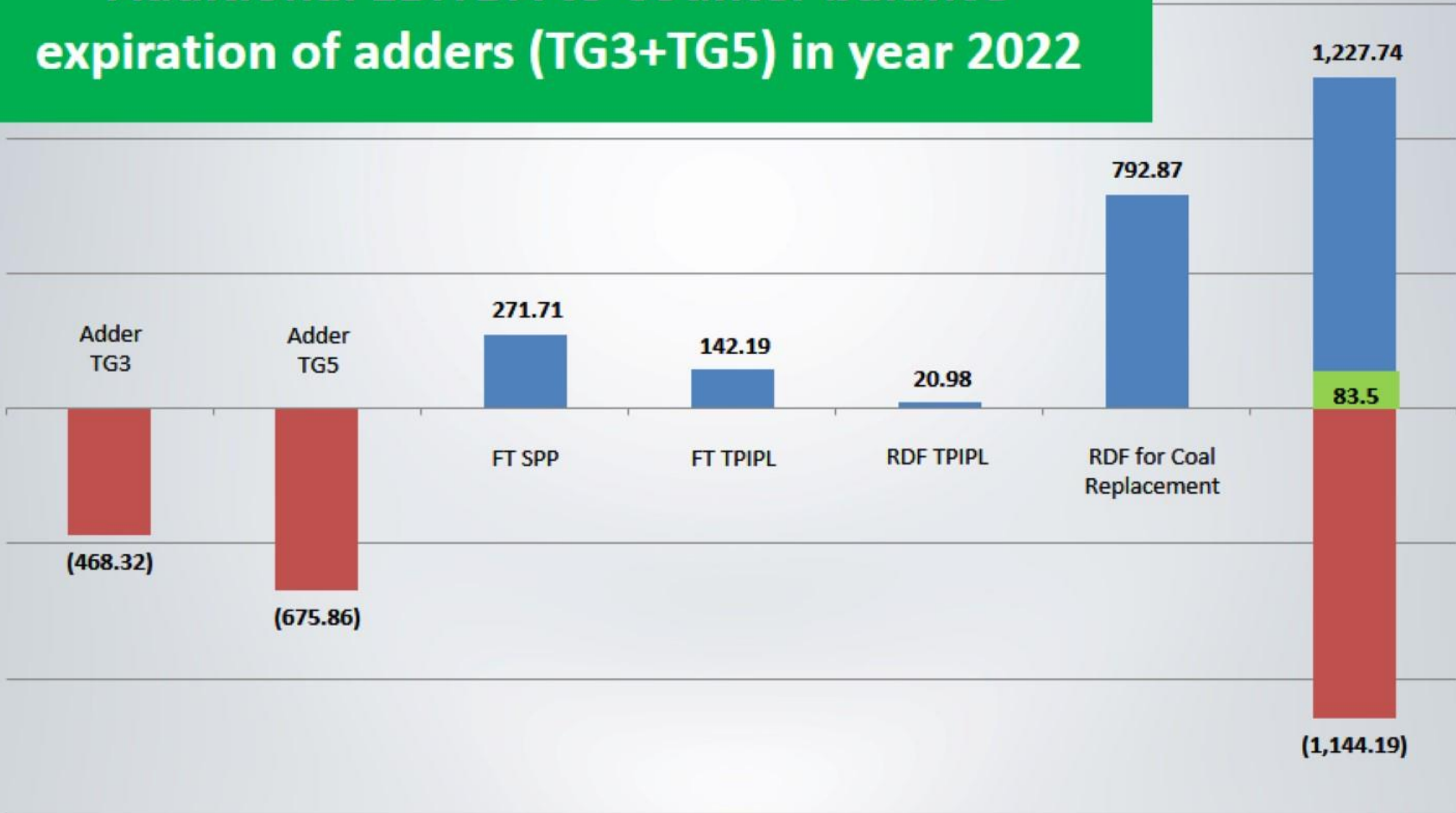
Electricity Sale Unit



Electricity Sale Revenue



Additional EBITDA to Counter balance expiration of adders (TG3+TG5) in year 2022



3



Key Operation Highlights



TPIPP' S WTE Power Plant Situation

IPS Power Plants with Electricity Sales to TPIPL			Capacity
	TG1		20 MW
	TG2		20 MW
	TG7		70 MW
	TG8		150 MW
	Total		260 MW
SPP Power Plants with Electricity Sales to EGAT		Capacity	PPA
	TG3	20 MW	18 MW
	TG5	60 MW	55 MW
	TG4	30 MW	90 MW
	TG6	70 MW	
	Total	180 MW	163 MW
Total Power Capacity		440 MW	

■ WH
 ■ RDF/WH
 ■ Coal RDF supplement

BOILERS' TYPE

1 WHRB

- WHB AQC, SP1
- WHB AQC, SP2
- WHB AQC, SP3
- WHB AQC, SP4

2 RDF CFB

- B1
- B2
- B3
- B4
- B5
- B9
- B10

3 MSW GRATE

- B11
- B12
- B13
- B14
- B15

4 COAL RDF CFB

- B6
- B8



Grate Boiler B13, B14, B15



1 RDF Cost Reduction

3 Improvement Plant Availability

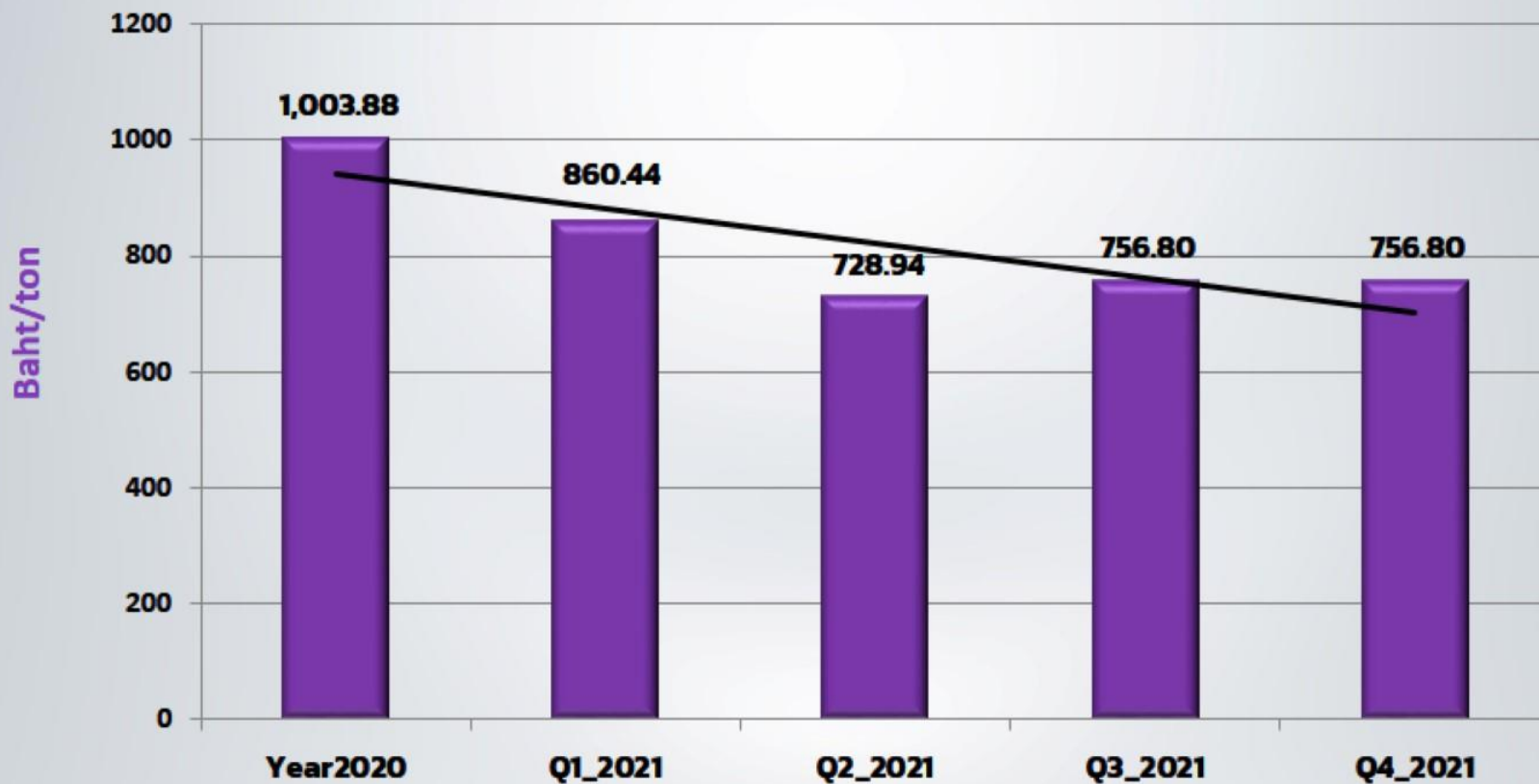
2 Improvement of Power Plant Efficiency

4 Coal Replacement



1. RDF Cost Reduction

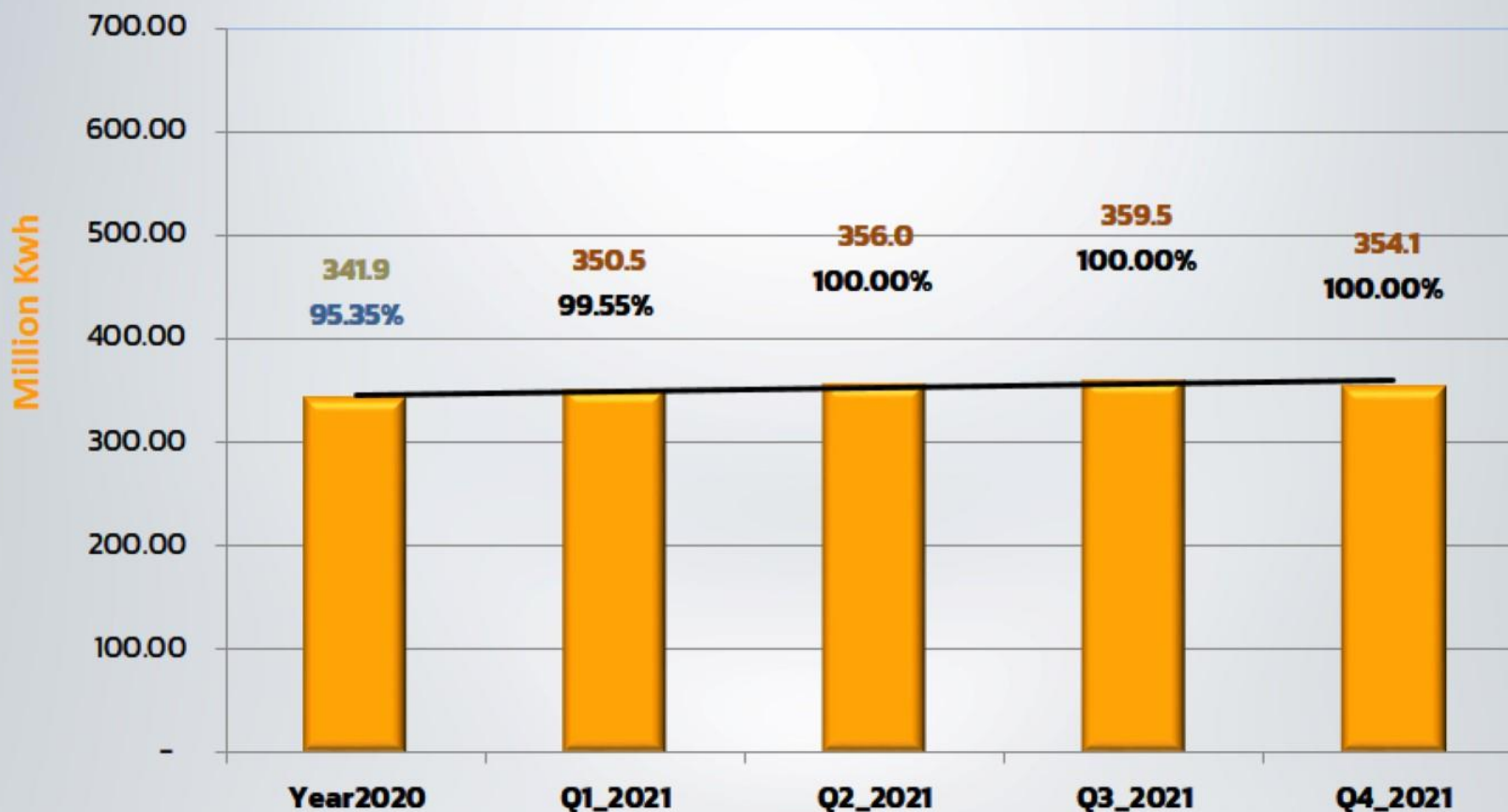
RDF



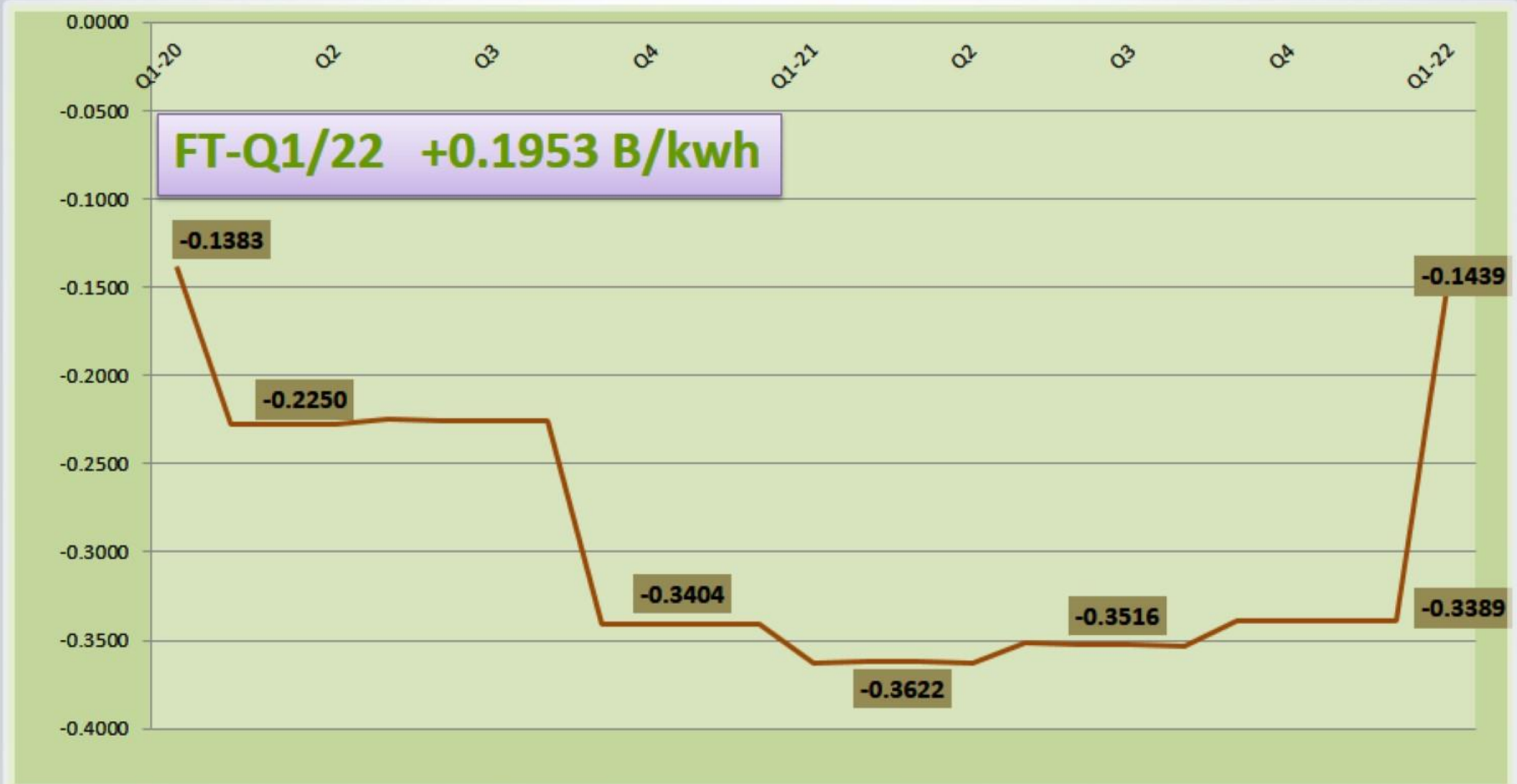


2. Improvement Plant Availability

SPP

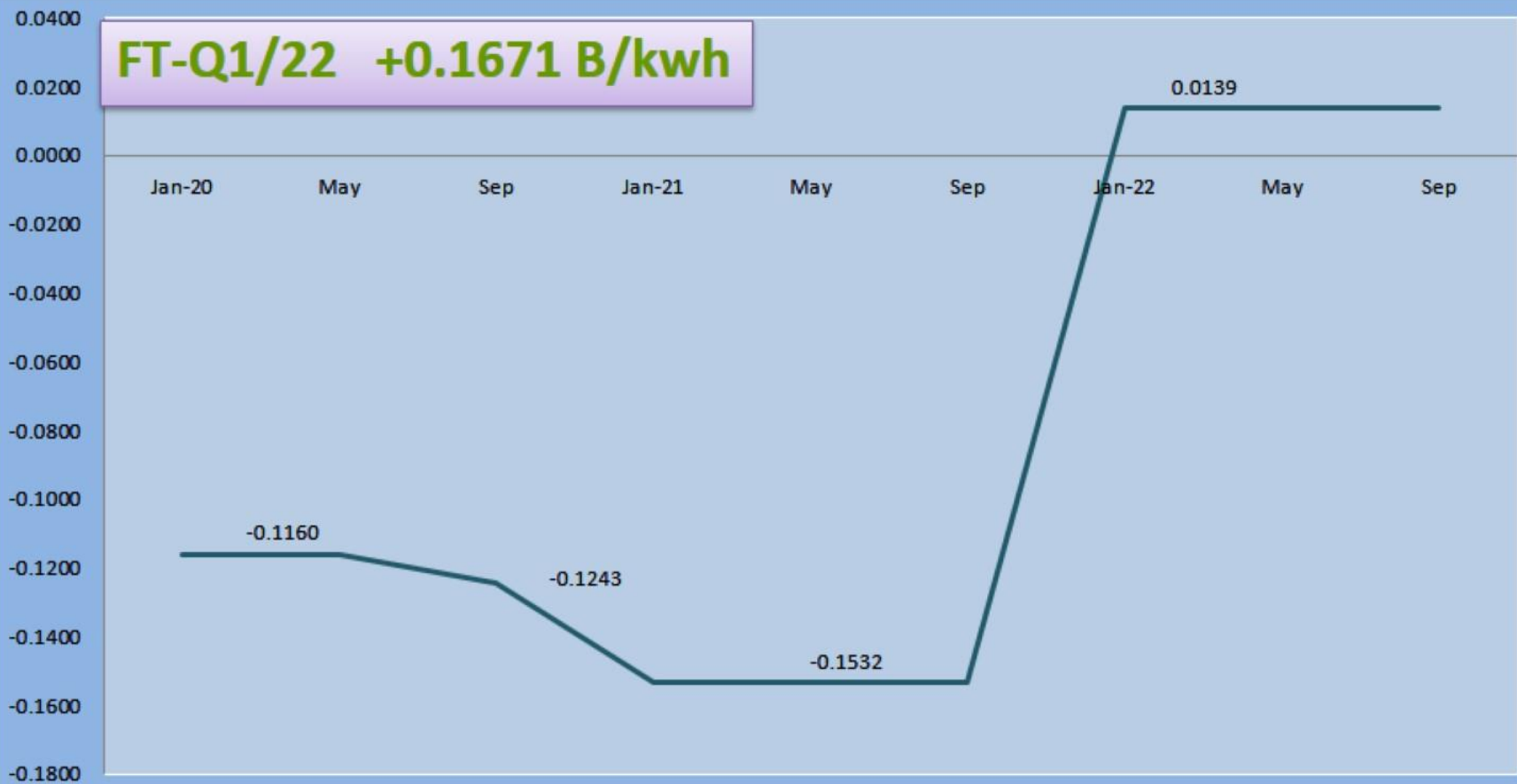


Trend of FT Adjustment Sell for SPP





Trend of FT Adjustment Sell for TPIPL



Coal replacement by High Heating Value RDF

RDF Plant 3 Project

- 5 Lines production with 4,500 ton per day Capacity
- Investment 1,000 Mil Baht
- Jan – Oct 2023

B6 Coal Replacement Project

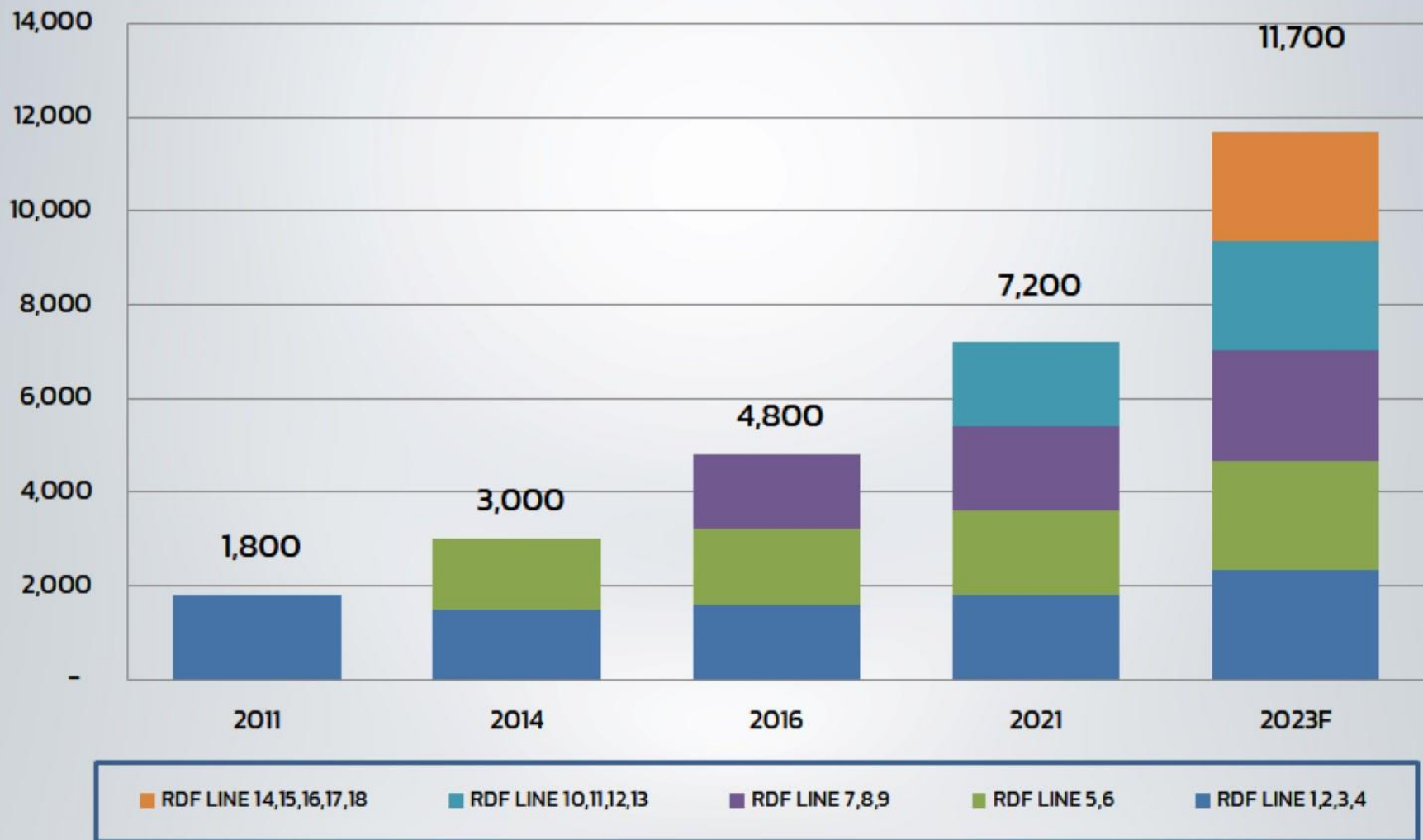
- Phase 1 B6 Modification
- Phase 2 New RDF Boiler
- Phase 1 Jan- AUG 2022
- Phase 2 APR 2022 – May 2023
- Investment 800 mil Baht

B8 Coal Replacement Project

- B8 Modification and New Boilers for 100 % RDF replacement
- AUG 2024
- Investment 3,000 mil Baht

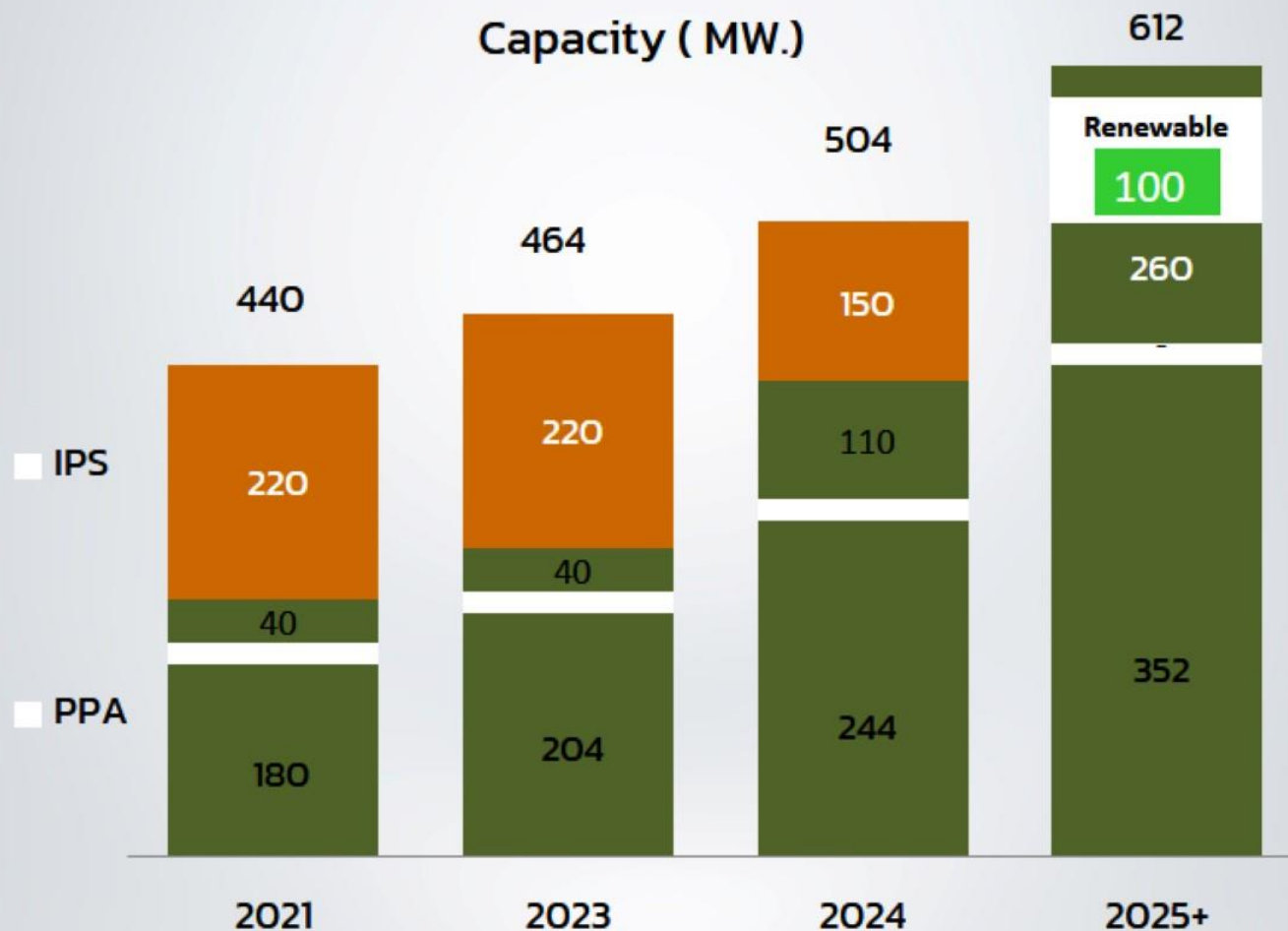


RDF PRODUCTION PLAN





Prospect Power Plant Capacity





RDF Supply for Cement Kiln Plants

Covid – 19 Waste

Carbon Credit Verification



RDF Supply for Cement Kiln Plants

- RDF requirement for coal replacement in 4 Kiln Plants is 2,200 ton per day
- Production and Selling RDF to TPIPL is approx. 500,000 Ton per year
- Investment of RDF plant 1,200 Mil Baht, BOI Tax Incentive 8/5 year
- Estimate RDF revenue 350-450 Mil baht per year
- Cement KILN 3 and KILN 2 have been using RDF to partly replace coal since Q4 2020 and Q2 2021, respectively.
- Cement KILN 4 has used RDF to partly replace coal since Q4 2021.
- Cement KILN 1 will use RDF to partly replace coal in Q2 2022.



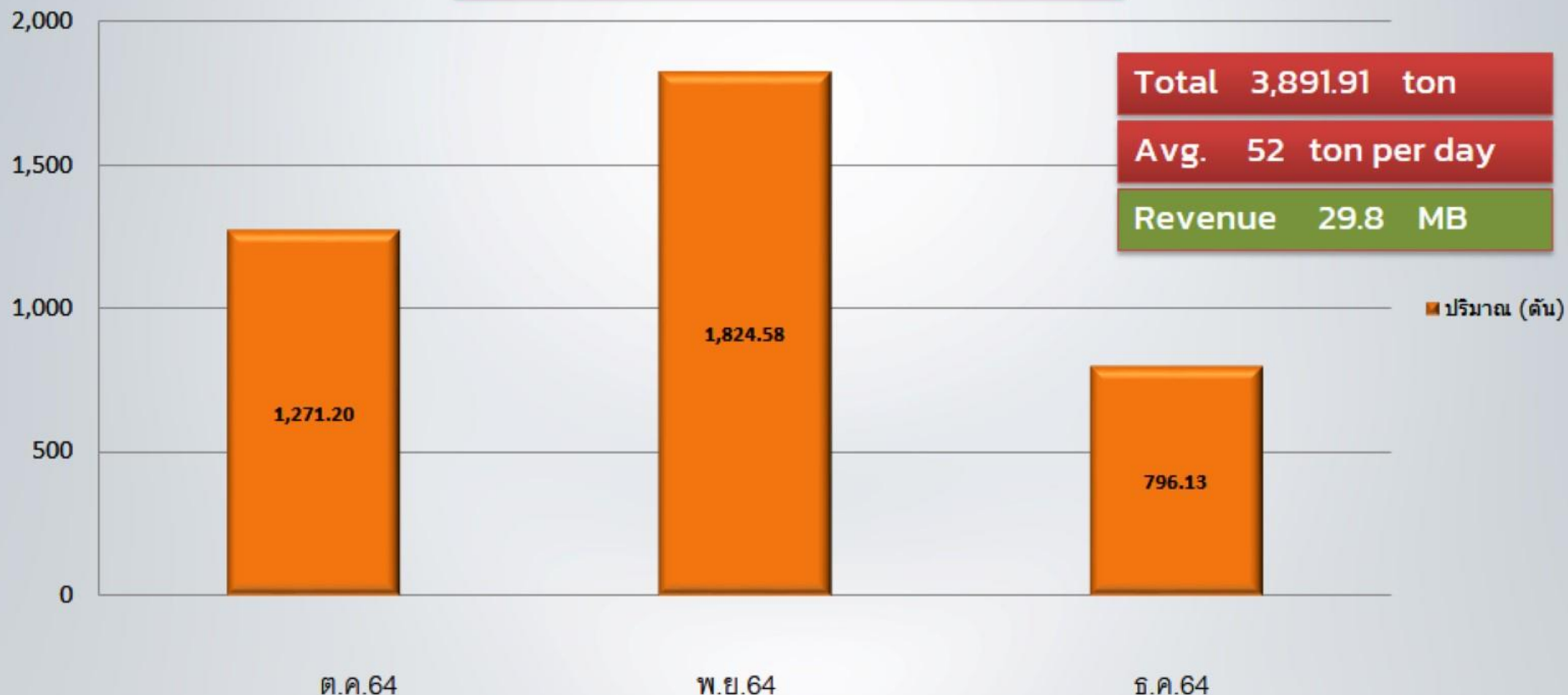
Special Activity- Covid-19 waste





Special Activity- Covid-19 waste

ปริมาณขยะ COVID-19 ไตรมาส 4/2021





Carbon Credit Verification

Carbon Credit T-VERs Registered by TGO

RDF Production From MSW

1. July 2015 - May 2016	13,483 tCO ₂ eq
2. May2016 – Apr 2017	<u>68,573</u> tCO ₂ eq
	82,056 tCO ₂ eq
3. Sold out to Zukunft des Konlentooffmarktes	- 39,197 tCO ₂ eq
4. Remain	42,859 tCO ₂ eq
5. Under Verification May 2018-Dec2021	<u>900,000</u> tCO ₂ eq
6. Estimated Carbon Credit – Dec 2021	<u>942,859</u> tCO ₂ eq

**Not include Waste to Power Plant

The RE100 logo consists of the letters 'RE' in a bold, black, sans-serif font, followed by the number '100' in a white, sans-serif font inside a solid green rectangular box.

RE100 is the global corporate renewable energy initiative bringing together hundreds of large and ambitious businesses committed to 100% renewable electricity.



ใบรับรองเครดิตการผลิตพลังงานหมุนเวียน (Renewable Energy Certificate : REC)

Renewable Energy Certificate (REC) หรือ ใบรับรองการผลิตพลังงานหมุนเวียน เป็นกลไกที่ช่วยให้ผู้ผลิตและผู้ใช้ไฟฟ้าสามารถอ้างสิทธิ์การผลิตและการใช้ไฟฟ้าจากพลังงานหมุนเวียน ด้วยการรับรองจากหน่วยงานที่ได้รับมอบหมายจากเจ้าของกลไก ช่วยสนับสนุนให้เกิดการผลิตไฟฟ้าจากพลังงานหมุนเวียนผ่านการซื้อและขายใบรับรองการผลิตพลังงานหมุนเวียน ทำให้ผู้ลงทุนพัฒนาโครงการพลังงานหมุนเวียนสามารถสร้างรายได้เพิ่มจากการขายใบรับรองการผลิตพลังงานหมุนเวียน โดยมีหน่วยการซื้อขายคือ **REC** ซึ่งคำนวณจากการผลิตไฟฟ้าพลังงานหมุนเวียนจริง (ไฟฟ้า 1 **MWh** มีค่าเท่ากับ 1 **REC**)

Year 2021 1,420,104,160 Kwh = 1,420,104 REC

1

New Power Plant MSW Incinerator
PDP2018



2

Solar Farm Power Plant



3

EV Charging Central Station



1

New Power Plant MSW Incinerator PDP2018



- Q 1 - The Energy Regulator Commission (ERC) will announcing 200 MW. MSW Power plant in approved list. (23 Projects)
- Q 3 - The Energy Regulator Commission (ERC) will announcing the other 200 MW.
- Industrial waste Power Plant will be 200 MW. Additional to New PDP.
- EEC - The Plan of EEC MWS Power Plant 6 Projects 95 MW.

แนวทาง บริหารจัดการขยะ ในพื้นที่ EEC

เป้าหมาย
กำจัดขยะใหม่
ถูกกำจัดทุกวัน
ขยะ-สะสม
5.57
ล้านตัน
ถูกกำจัดหมด

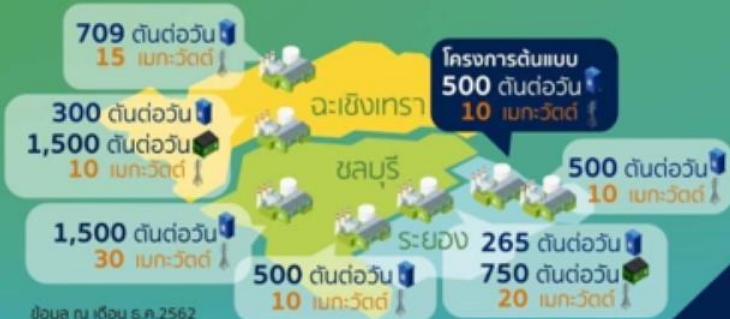


**ประสิทธิภาพการ
กำจัดขยะแบบสมบูรณ์**

กำจัดขยะในพื้นที่ EEC	6,524 ตันต่อวัน
ขยะรายวัน	4,274 ตันต่อวัน
ขยะ-สะสม	2,250 ตันต่อวัน
ผลิตไฟฟ้าจากขยะใช้ในพื้นที่ EEC ได้ถึง	130 เมกะวัตต์ต่อปี
ลดพื้นที่ฝังกลบขยะได้	317 ไร่ต่อปี
ลดก๊าซเรือนกระจกได้ราว	186 ล้านตันต่อปี

สถานการณ์ปริมาณขยะมูลฝอยในพื้นที่ EEC
ปี 2561 มีอยู่ราว 4.2 พันตันต่อวัน
คาดว่า ปี 2580 จะเพิ่มขึ้นเป็น 6.8 พันตันต่อวัน

โรงงานกำจัดขยะและโรงไฟฟ้าขยะ 6 แห่ง และ
ศูนย์กำจัดขยะแปลงเป็นไฟฟ้าต้นแบบ 1 แห่ง



กำจัดขยะ-มูลฝอย
 กำจัดขยะ-สะสม
 ผลิตพลังงานไฟฟ้าจากขยะ

2

Solar Farm Power Plant



- The Energy Regulator Commission (ERC) will announcing Solar and Wind Power plant in Q1 1,000 MW. (Plan PDP2018 rev1. 2,000-3,000 MW.)
- Independent Power Supply (IPS) to TPIPL Cement Plant
- Future Demand for EV Truck charging Station (25 - 50 MW.)
- RE100 Thailand use 100 % Renewable Energy for Carbon Neutrally
- Land available more than 3,000 rai (300 MW.)
- Phase 1 30 MW. (48 mil Kwh/ year)
- Project Plan Year 2023

3

EV Charging Central Station



- The TRUCK EV Charging Station in Mittraphap Road Saraburi
- The traffic volume for trucks more than 60,000 pass per day
- Main road for Northeast – Bangkok route
- The center distance of charging location 120 km for Bangkok
- Land available for > 400 truck charging units
- Advantage for TPIPP Power selling
- Phase 1 100 charging units (30 MW.- 164 mil Kwh/year)
- Project Plan 2024-2025

