



20TH ERRA ANNUAL CONFERENCE

EN ROUTE TO SUSTAINABLE REGULATION
UNDER NEW MARKET PARADIGMS

09-10 October, 2023
BUDAPEST, HUNGARY



Country Highlights : Thailand's Energy Market Outlook

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- **World Energy Outlook and Crisis ► Thailand**
- **Thailand's Economy and Energy Market Outlook**
- **Regulatory Response during the energy price crisis**
- **Regulatory Development and Next Steps**
- **Regulatory Consideration**

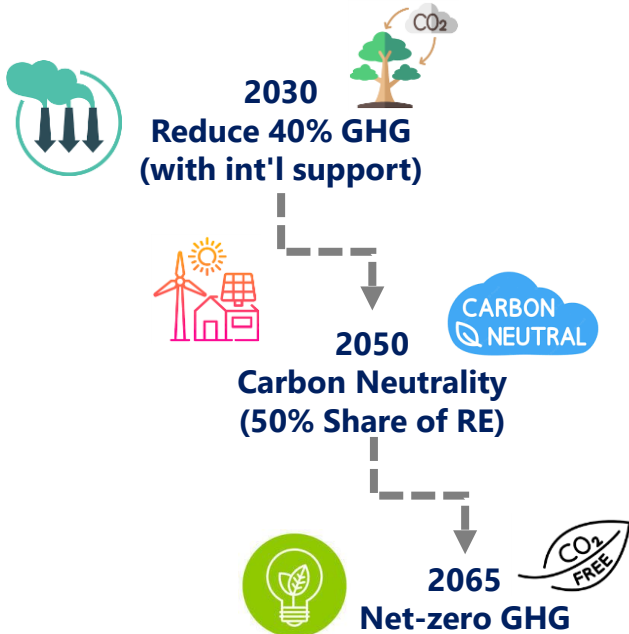
World Energy Outlook and Crisis ► Thailand

NOV 2021

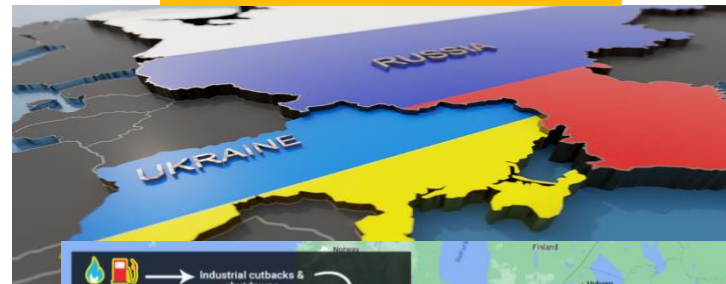


**COP26
Glasgow, Scotland
November 2021**

Thailand's long-term strategy for low-emissions development



FEB 2022



(Russo-Ukrainian War)



2022-2023



Thailand at Risk of Fuel Crunch With Imported LNG

Thailand's Economy and Energy Market Outlook



Consumption
Increased 6.3% ▲
(5.1% in 2021)

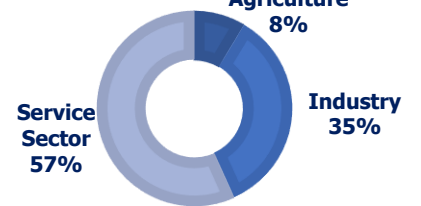


GDP (2022)
2.6% ▲
17.367 trillion baht
(US\$536 billion)
(GDP in 2021 = 1.5%)

GDP (2022) Per capita
247,828 baht
(US\$7,651)



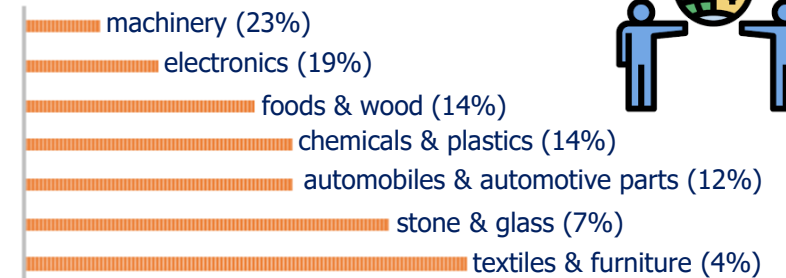
GDP by sector (2021)



Ease-of-doing-business rank
21st (very easy, 2020)

Exports

US\$287.07 billion (2022)



Currency
(Average rate in 2022)
35.0316 THB

Political System
Constitutional Monarchy



Population
71,697,030
(2022)

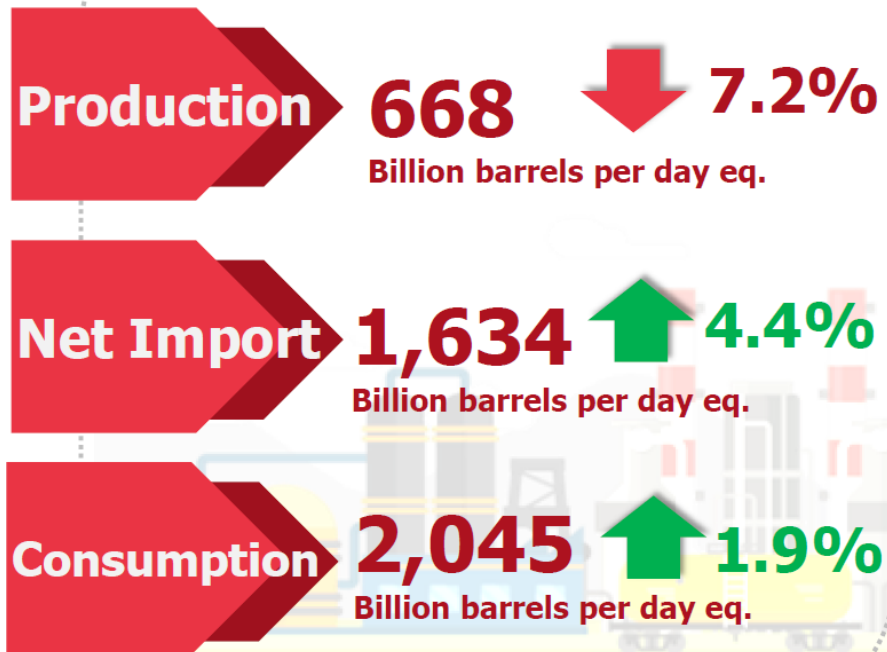


Median Age
39.7

Thailand's Economy and Energy Market Outlook

Thailand's Energy Situation in 2023 (Jan – May 2023)

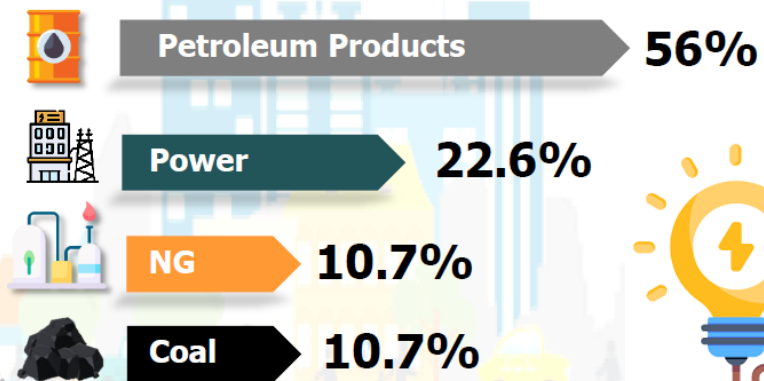
Primary Energy Supply



Final Energy Consumption

1,500 ↑ 0.4%
Billion barrels per day eq.

Classified by Types



Thailand's Economy and Energy Market Outlook

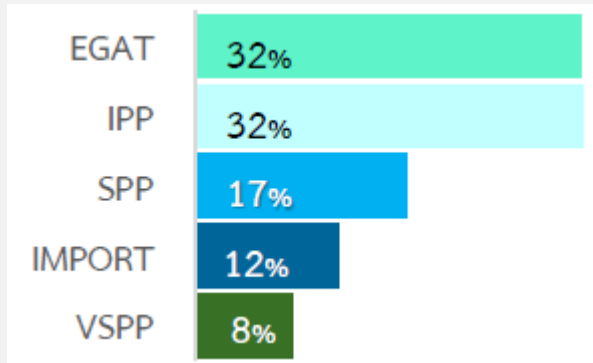


Electricity procurement and usage in Thailand

Contractual capacity

53,692 MW*
(as at April 2023)

Producers by types



0.3% ↑

Electricity generation
71,409 GWh*
Export : 720 GWh

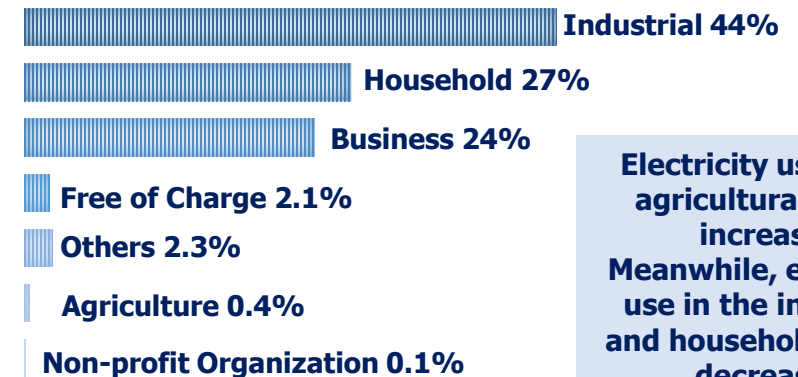
Electricity production from renewable energy and natural gas increased while producing electricity from coal/lignite Hydropower imports decreased

Peak Capacity Demand in the Power System (System peak) in 2023

34,863 MW

As at 6 May 2023 at 21.41 hrs.
(Remark: exclude system peak of IPS)

Electricity Consumption (Classified by Consumer)



Electricity use in the agricultural sector increased
Meanwhile, electricity use in the industrial and household sectors decreased

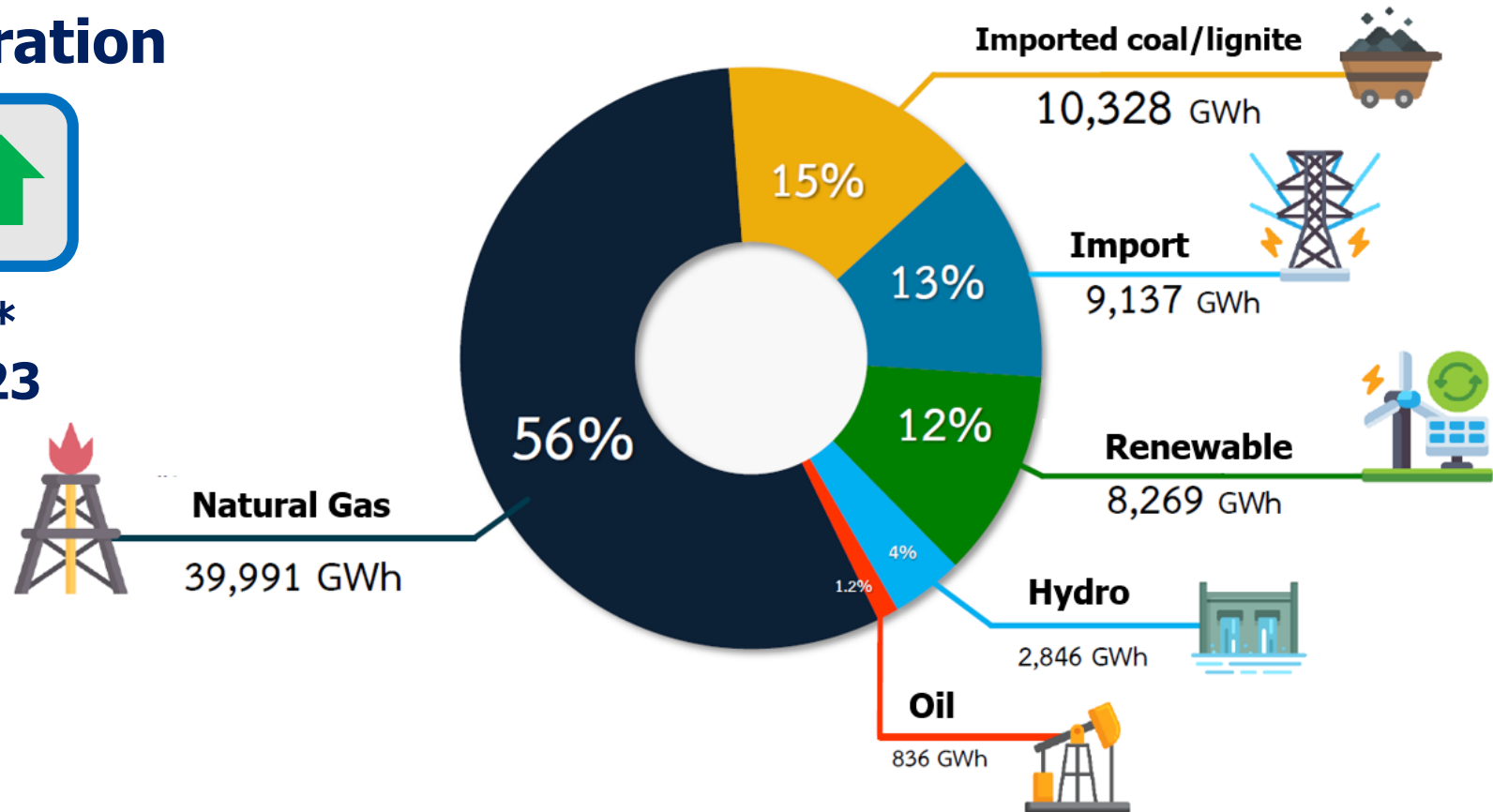
*Note: Compared to the same period last year.
(Does not include data of IPS)

Electricity production from various types of fuel

Electricity generation

0.3%

71,409 GWh*
Jan – Mar 2023



Regulatory Response during the energy price crisis

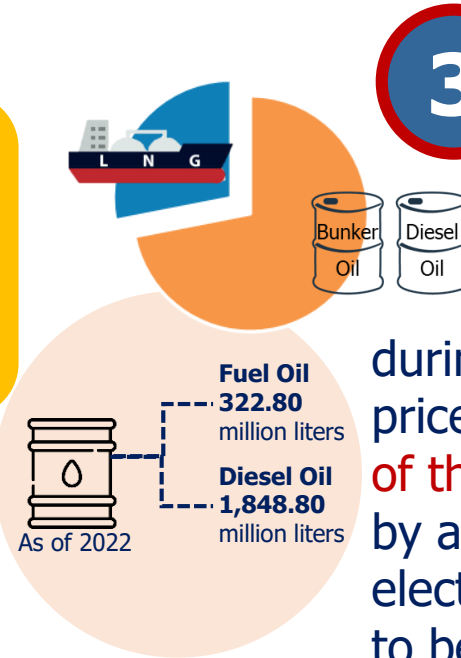
“ERC together with the Ministry of Energy managed fuel costs as low as possible according to the guidelines set by NEPC, while maintaining energy security and stability of the country.”

POSTPONED



1

Postponed the plan to decommission Mae Moh Power Plant Unit 8 until December 31, 2022



3

Increase the proportion of electricity produced from fuel oil & diesel to reduce LNG imports

during periods of volatility and high LNG prices, together with the implementation of the "**Energy Pool Price**" measure, by averaging the production costs of the electricity sector and the industrial sector to be the same.

2

Increased purchase of RE Generation from SPPs & VSPPs



(with existing contracts & without contracts with Power utilities, using Biomass, biogas, waste, solar & wind energy as fuel)

Regulatory Response during the energy price crisis

4 Continuously regulate and reduce electricity costs for people



- **Adjusted Natural gas transportation tariffs rates (Demand Charge : Td)** which could reduce the transportation costs by about 6,231 million baht/year (equivalent to the F_t reduction by about 3 satangs per unit)
- **Regulated the delivery of income from LNG exports after deducting PTT expenses** at 580 million baht, to reduce gas prices for all users, as per NEPC resolution
- **Regulated gas allocation from the Gulf of Thailand to produce electricity for residential customers first**, to lower F_t rate according to the NEPC resolution (F_t rate during Jan - Apr 2023)
- **Temporarily refrain from collecting and sending remittance to the Power Development Fund**, reducing the electricity bill for households by 0.0063 baht/unit, effective as from Jan 2023 onwards
- **Reduced monthly service charges** to be appropriate and fair to consumers, effective as from the billing of Jan 2023 onwards

5



Promote appropriate and fair competition in the natural gas industries (Phase 2)

Improve rules and regulations ▶ TPA

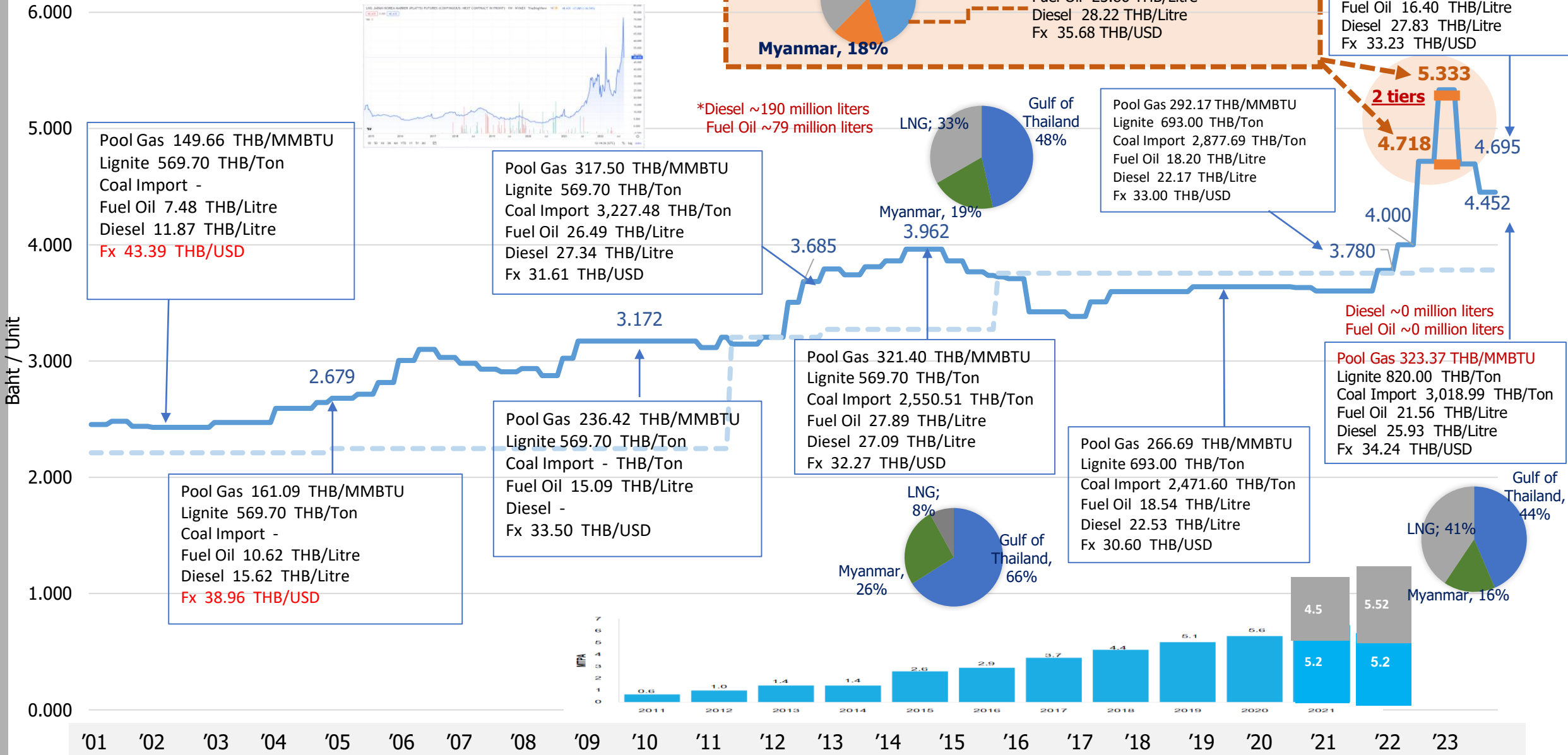
- **Enhance competition in the natural gas supply and wholesale business (Shipper)**
- **Reduce fuel costs for electricity generation** so that the power tariffs would be competitive with those in neighboring countries

Currently
8
Shippers



6 F_t rate management

Thailand Average Retail Tariff



Regulatory Development and Next Steps

1

Promote adequate, secure & extensive energy service provision

To ensure fairness to both energy consumers & licensees



2

Promote fair competition in the energy industry, with reasonable tariffs that reflect the cost of efficient energy business operation



3

Regulate energy industry operation to be efficient, safe and eco-friendly



4

Protect rights & liberty of energy consumers, local community, general public and licensees to take part in, have access to, use and manage energy matters



5

Good governance and Up to international standards



1. Promote adequate, secure & extensive energy service provision, while ensuring fairness to both energy consumers & licensees



1.1 Promote Clean Energy development

Solar Energy: 4,455 MW



Wind Energy: 1,500 MW



Biomass Energy: 485 MW



Biogas Energy: 335 MW

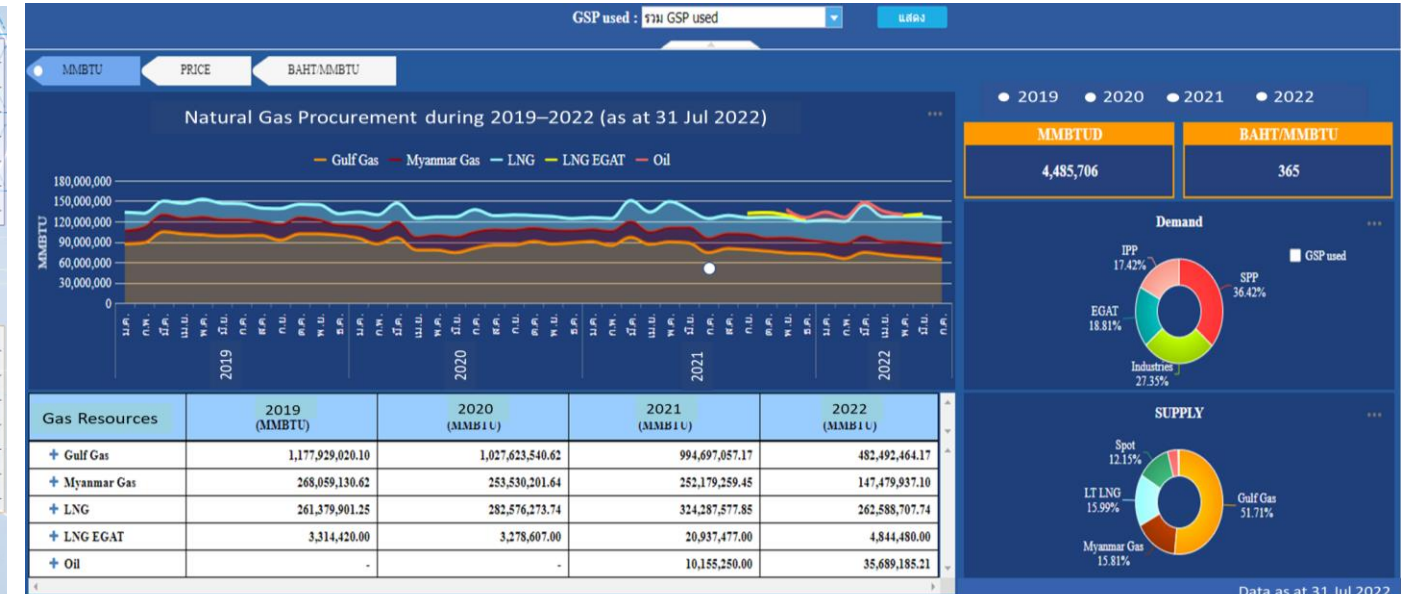
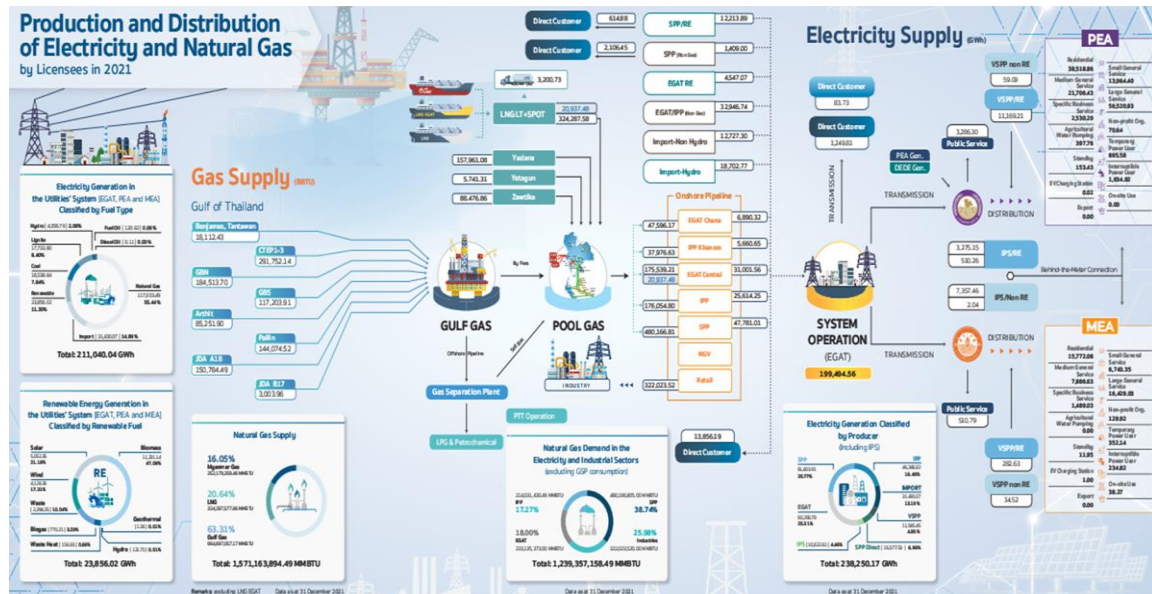


Waste-to-Energy: 600 MW



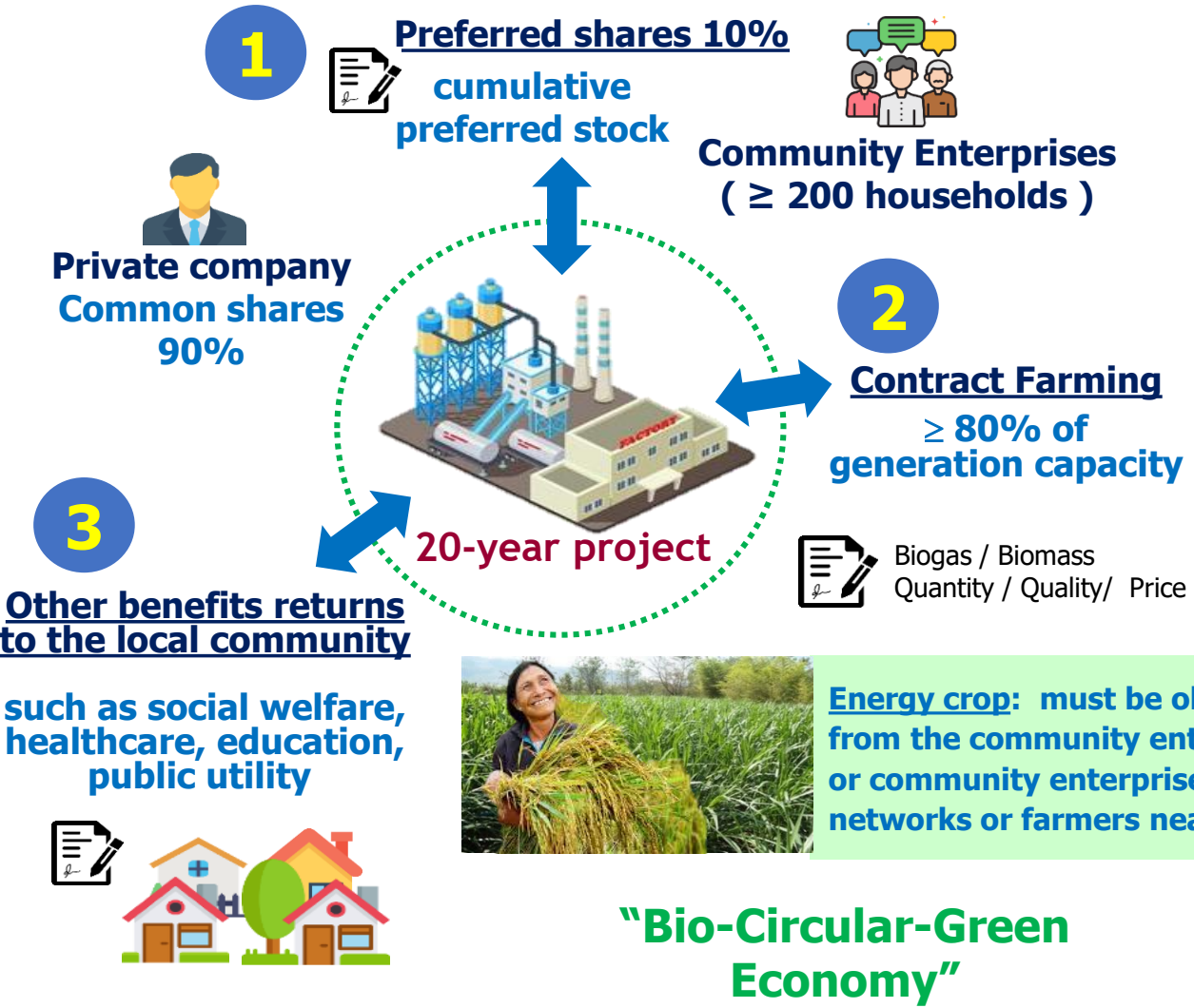
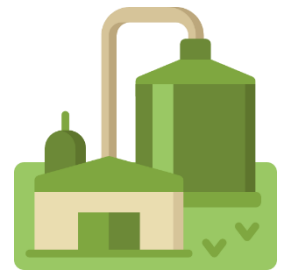
Remarks: Based on the Plan for Enhancement of Power Generation from Clean Energy under PDP2018 (Rev.1) during 2021–2030 (with 1st adjustment)

1.2 Enhance energy management efficiency via digital technology



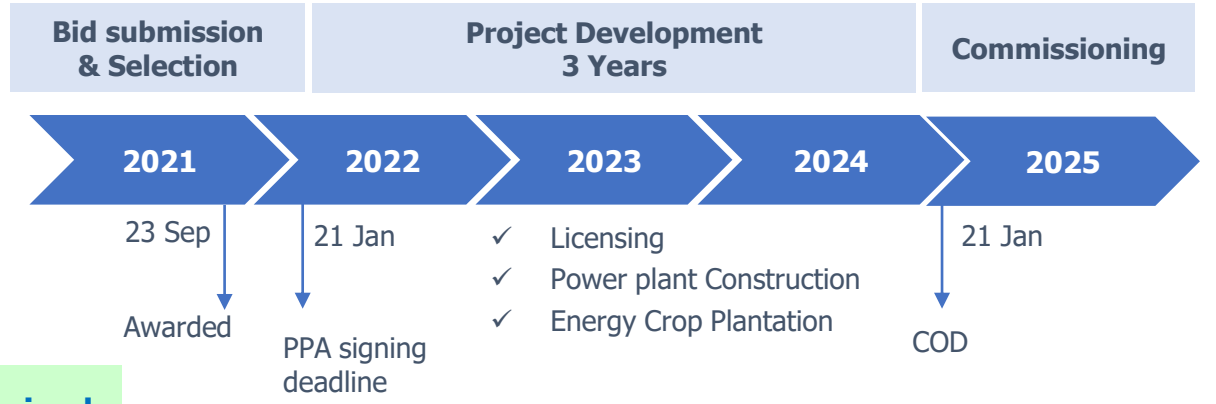
1.3 Enhance "Business Model: Community Power Plant" (Pilot Project 150 MW)

43 bidders (149.50 MW) have been selected
out of 246 bidders who submitted the proposals



Selection Criteria: Bidding Scheme

| | | | Weighted Average Price | Average %Discount to FiT _F |
|---------|------------|---------|------------------------|---------------------------------------|
| Biomass | 16 bidders | 75 MW | 2.7972 | -38% |
| Biogas | 27 bidders | 74.5 MW | 3.517 | -25% |
| | | | Baht/kWh | |



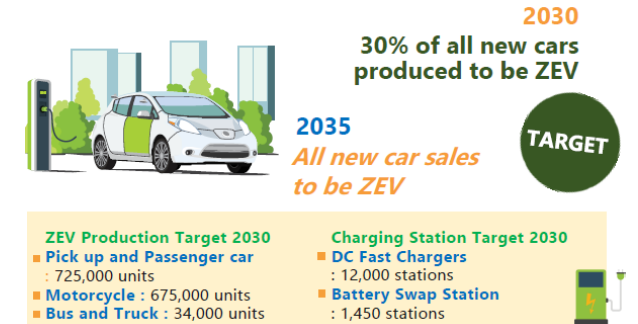
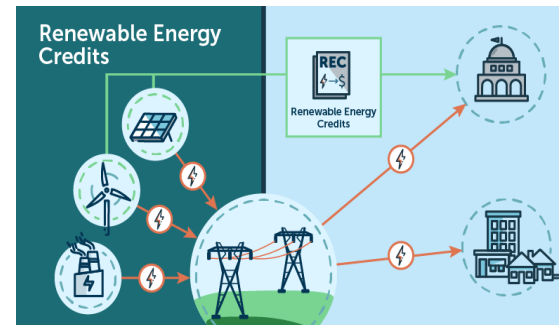
- ✓ **Promote self-sufficient Power Generation on Community Scale**
- ✓ **Increase opportunities and generate revenue for the community**

2. Promote fair competition in the energy industry, with reasonable tariffs that reflect the cost of efficient energy business operation

2.1 Reinforce natural gas industry regulation to enhance fair competition



2.2 Reinforce electricity industry regulation to pave the way for competition, infrastructure and technology so as to accommodate Energy Transition pursuant to the 4D1E approach



- ❑ Develop rules & regulations to promote competition in the electricity industry, according to the government policy on electricity industry restructuring, e.g. TPA Framework, TPA Code, TSO/DSO Framework to accommodate new energy business models.

2.3 Regulate energy tariffs and enhance efficiency of data analysis relating to energy service costs

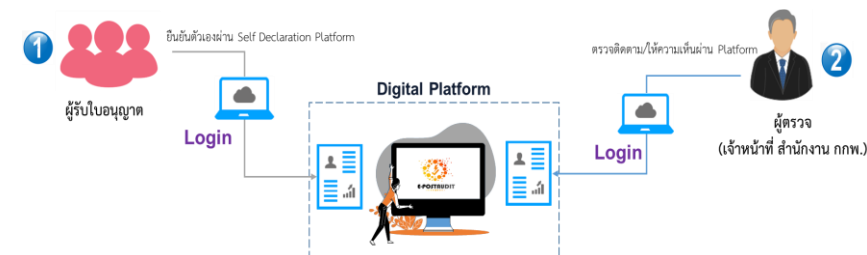
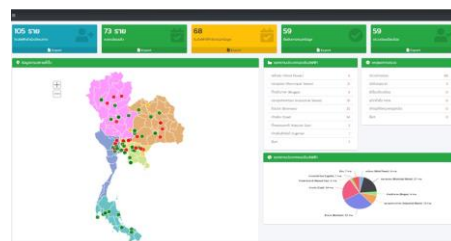
3. Regulate energy industry operation to be efficient, safe and eco-friendly

3.1 Review the standards of energy industry operation to be up-to-date and regulate the operators to ensure their compliance with safety, environmental and service quality standards

- ❑ Review safety, environmental & service quality standards
- ❑ Inspect energy industry operation facilities & enforce the laws



- ❑ Develop an audit system, using digital technology (e-Post COD Audit)



- ❑ Cooperate with other agencies (Office of Natural Resources and Environmental Policy and Planning (ONEP), Industrial Estate Authority of Thailand, Dept. of Energy Business, PTT) to develop a Digital Platform.



3.2 Promote power generation using technology to increase generation efficiency and reduce environmental impact

- ❑ Support R&D on development of technologies regarding RE generation efficiency improvement, clean fuel & management of new power system models, via the Power Development Fund activities under Section 97(4).
- ❑ Program on the framework for Sustainability Index development & the application of energy management system pursuant to the ISO 50001 to large-scale power plants so as to mobilize SDG7 with regard to efficiency improvement of energy usage.
- ❑ Organize a contest "Thailand Power Plant Awards/ Power Plant of the Year."



4. Protect rights & liberty of energy consumers, local community, general public and licensees to take part in, have access to, use and manage energy matters

4.1 Develop a systematic participation process so that energy consumers, local communities, the general public and licensees could participate in all stages

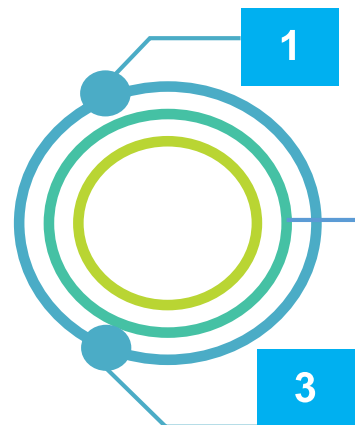
4.2 Intensify rights protection & create networks to upgrade the work pertaining to energy consumer protection



- ❑ Develop digital systems to assist with the promotion of participation in hearings and to address complaints.

- ❑ Create vigorous & sustainable alliance networks to handle energy consumer protection in order to enable extensive access to all regions and create channels for communication and filing complaints, that are convenient, rapid and efficient.

4.3 Modernize the management & promote participation in Power Development Fund activities under Section 97(3) so as to improve quality of life of the general public & local communities in a sustainable manner



1 Develop an Application for project selection so that people living in the communities surrounding a power plant could voice their opinions or take part in decision-making regarding the Fund money utilization to be fair and equitable, to meet the needs of local communities and to create transparency in the operating procedures and could be checked back.

2 Evaluate the Fund performance under Section 97(3) in relation to the improvement of quality of life of the general public & local communities.

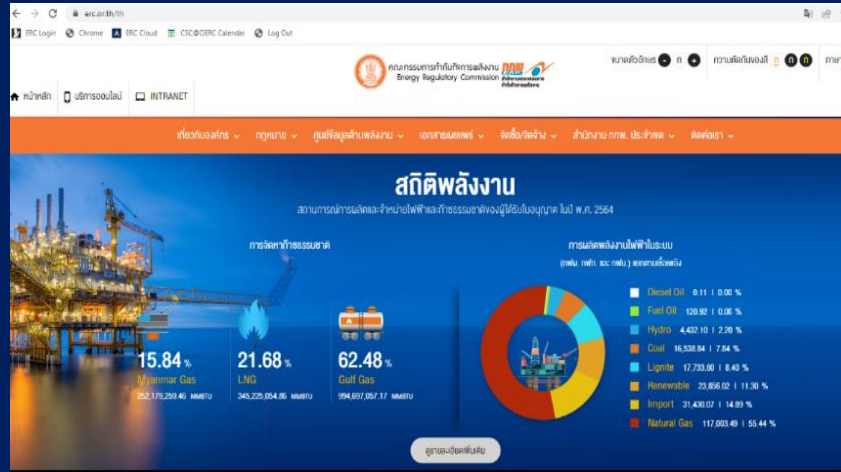
3 Develop personnel potential in managing the money of local Power Development Funds in designated areas.

5. Administrate an organization, having good governance and being up to international standards



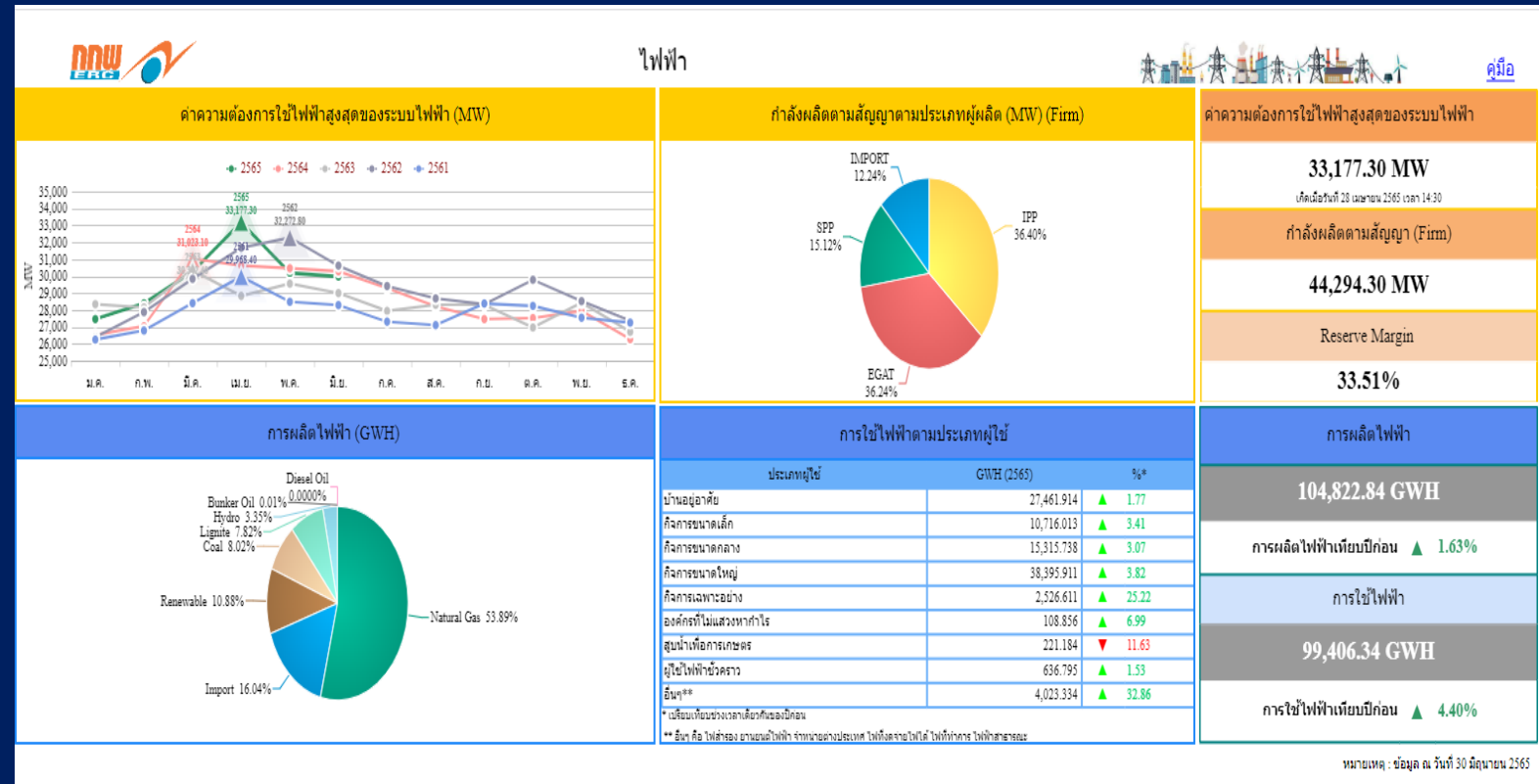
Enhance the corporate capacity via digital transformation

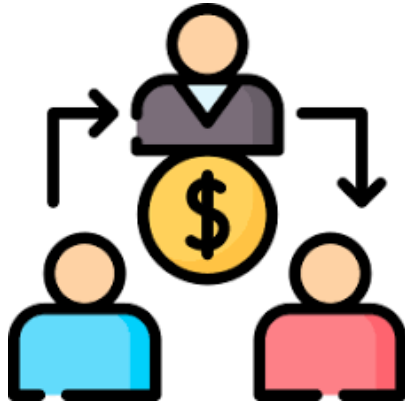
ERC Data Sharing Platform



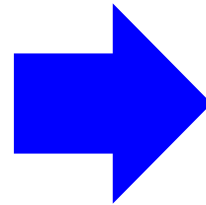
ERC Smart Operation

- คลังความรู้ด้านพลังงานสะอาด
- ค้นหาข้อมูลโรงไฟฟ้า
- ร่วมแสดงความคิดเห็นเรื่องโรงไฟฟ้าในชุมชน
- จำลองติดตั้งโซลาร์เซลล์
- บริการแจ้งการผลิตไฟฟ้าที่รับการยกเว้น
- ร้องเรียนปัญหาและข้อเสนอแนะ

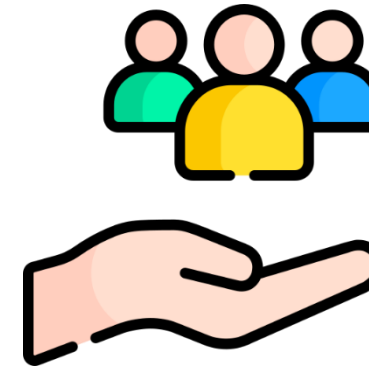




Politicization of power tariffs



"ENERGY IS HIGH ON THE AGENDA"



To mitigate the impact of power tariffs on the people's cost of living, taking into account the energy service capability of the service providers



Leads to the Power Utility's Debt Burden

**Approximately THB 83,010.000 Million
(or USD 2,272.006 Million)**



THANK YOU FOR YOUR ATTENTION!

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