

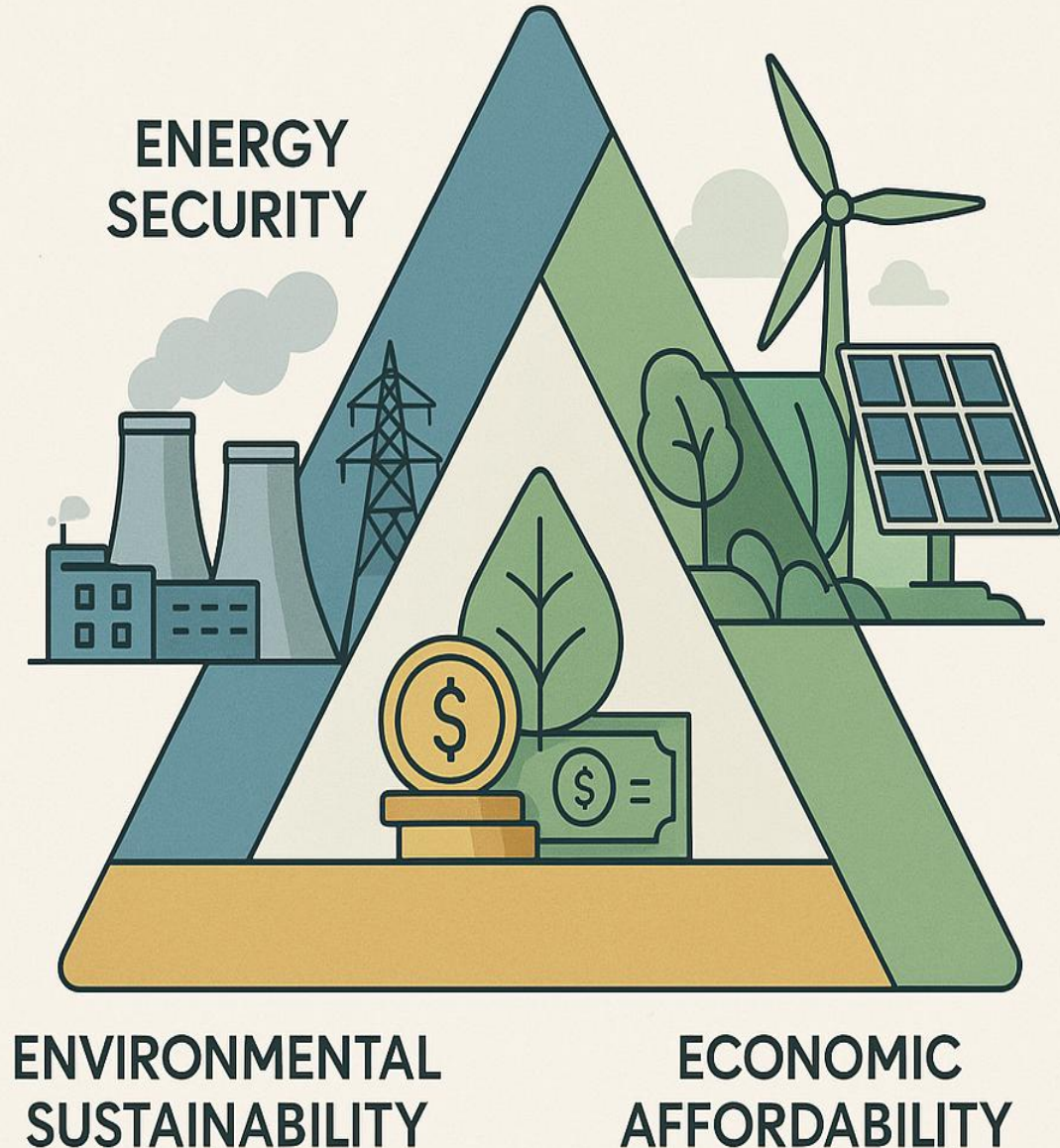


Energy Regulatory Commission (ERC) Sandbox

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21 July 2025 @ Mandarin Hotel

TRIANGLE OF ENERGY DILEMMA



Given the complexities of the Energy Dilemma, in pursuing the Energy Transition, Thailand has developed its own Carbon Neutrality and Net Zero Plans.

Carbon Neutrality 2050



Net Zero in 2065

To achieve Carbon Neutrality and Net Zero goals, the energy market structure has to be improved or reformed to encourage the use of renewable energy and new technologies.

Regulations must be prepared to achieve these goals.



Energy Regulatory Commission (ERC) Sandbox

is the sandbox program that will allow for limited-scale testing of new technologies and innovations under the actual operating environment regulated by ERC

If the projects under this program are successful, they may be adopted for wider implementation in the energy sector nationwide.

Private Sector and Utilities

Aim to pilot-test innovations that can not be launched under the current regulated energy program.

Policy Maker

Coordinate with policy maker to allow for the pilot tests to be performed in the designated area and quantity.

Regulator

Relax some rules under the Energy Industry Act of 2007 for innovative projects in the ERC Sandbox

4 Testing Areas



Technical Test



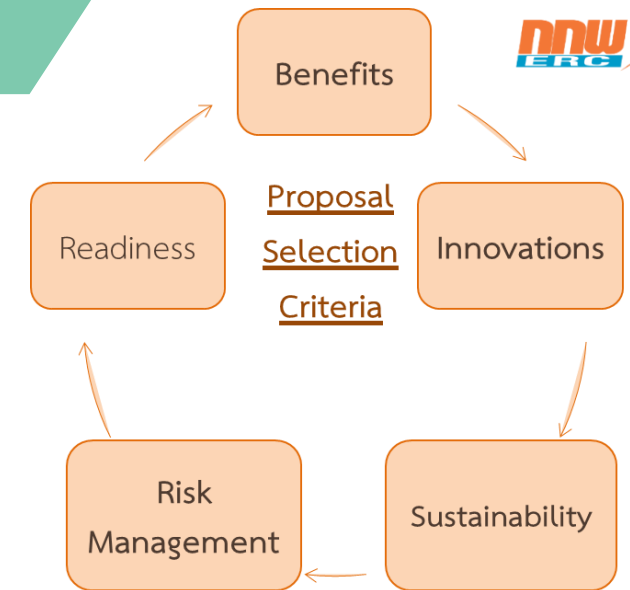
Regulatory Test



Commercial Test



System Test



Innovation

Certain regulatory exemption allows private firms and investors who are interested in new businesses to have opportunities to try their new methodologies and innovations.



Adaptation

The ERC sandbox raises utilities' and the private sector's awareness of the need to adapt to the current trend of energy businesses to avoid disruption.



Collaboration

Energy regulator, utilities, and private firms have opportunities to share knowledge and take part in collaborative activities, such as the integration of the P2P platform.

ERC Sandbox – Phased Implementation

ERC Sandbox Phase 1

ERC Sandbox Phase 2

2019

2020

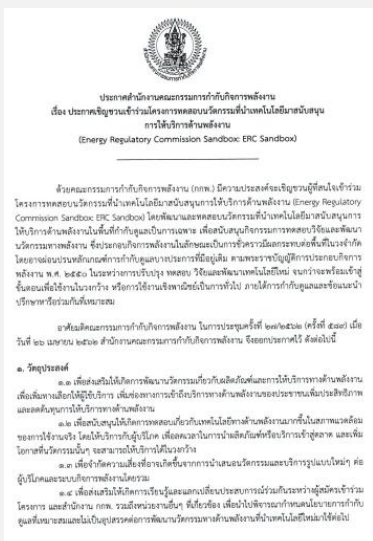
2022

2023

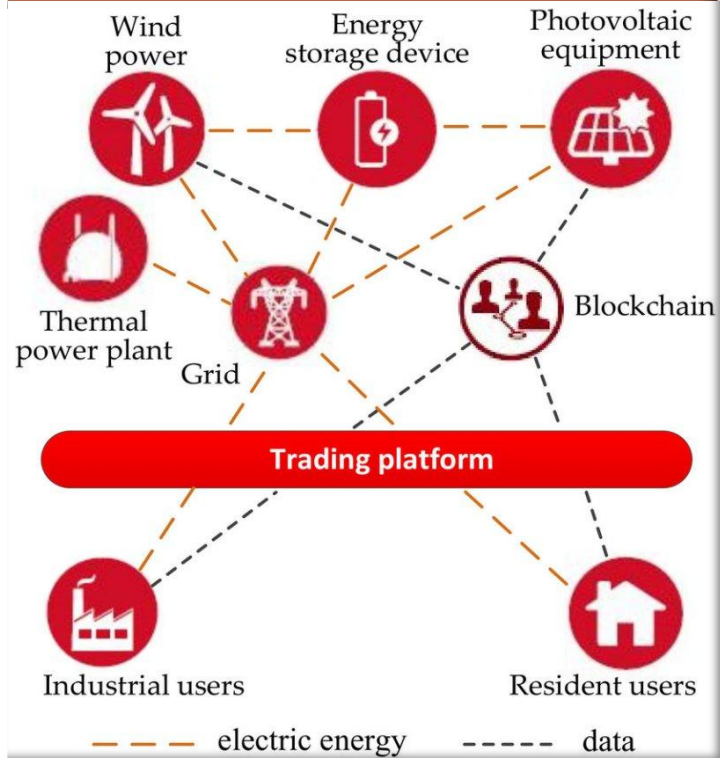
NEPC

Approval of 50 MW
for testing projects via utilities' grids
under ERC Sandbox

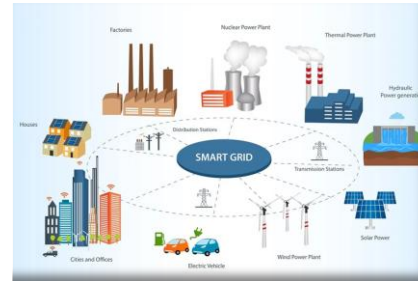
ERC Sandbox (Addition)



1. RE Trading Platforms



2. Grid Flexibility & TPA for RE



- Smart grids
- smart meters
- V2G



- Micro grids
- NUoS ratemakings

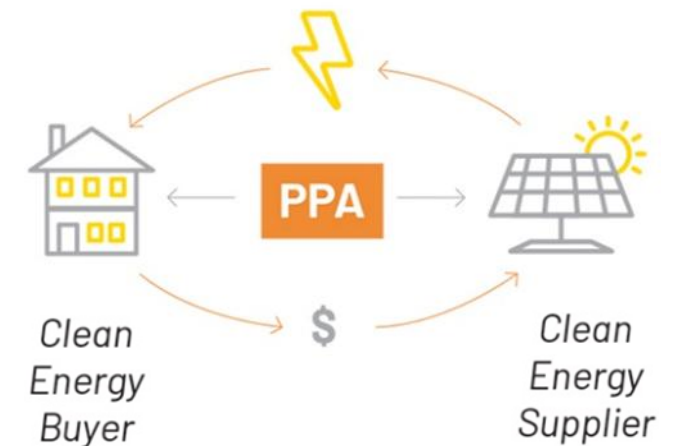


- ESS
- Virtual Battery
- Virtual Power Plants

*NUoS = Network Use of System (Wheeling Charge)

3. Corporate PPAs

- Virtual PPA
- Sleeved PPA
- Direct PPA



Wheeling Charge (WC) under ERC Sandbox

**Wheeling Charge
= 1.0694 THB/kWh**



(1)

**Ancillary Services
0.0707 THB/kWh**



(2)

**Transmission Charge
0.2418 THB/kWh**



(3)

**Distribution Charge
0.5162 THB/kWh**



(4)

**Policy Expense
0.2407 THB/kWh**



**As per ERC resolution on 29th May 2024
(only applicable to projects on energy trading via utilities' grids)**

Data Collection under ERC Sandbox

- ☐ Planned and actual power generation and demand of P2P (Peer-to-Peer) trading
- ☐ Planned and actual charging and discharging power of Battery
- ☐ Planned and actual feeding power from V2G (Vehicle-to-Grid)/VPP (Virtual Power Plant)
- ☐ Planned and actual deposited and withdrawn power from Virtual Battery

On a month- and day-ahead basis at 15-min intervals during the testing period



What are lessons learned from ERC Sandbox?



Data

will be collected, managed and integrated for evaluating project results.



Regulation

will be developed to facilitate innovations and future technologies in energy sector.



Collaboration

will be the key to create positive impacts and changes to all parties.



Policy

will be recommended from project evaluation.





Thank You!