

Overview of Thailand's Renewable Energy Policies and Development Plans

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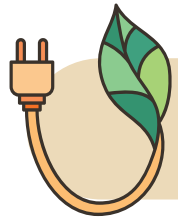
Division of Energy Research
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Ministry of Energy



APERC Workshop: RE Policies, Are we on the right track? Key Trends, Reflection, Directions and Lesson Learned

31 March 2026

Status on Renewable Energy in Thailand







Electricity

	Status 2025 (MW)	Target 2037 (MW)
Solar PV 	7,095	12,139
Floating PV 	69	2,725
Biomass 	3,749	5,790
Wind 	1,544	2,989
Biogas 	557	1,565
MSW 	396	900
Industrial Waste 	34	75
Small Hydro 	214	308
Large Hydro 	2,918	2,920
Geothermal 	0.3	-
	<u>16,577</u>	<u>29,411</u>






Heat

	Status 2025 (ktoe)	Target 2037 (ktoe)
Solar 	9	100
Biomass 	6,354	23,000
Biogas 	669	1,283
Waste 	208	494
	<u>7,240</u>	<u>24,877</u>



Transport

	Status 2024 (ML/d)	Target 2037 (ML/d)
Ethanol 	3.44	7.50
Biodiesel 	3.35	8.00
Pyrolysis oil 	-	0.53
	<u>6.79</u>	<u>16.03</u>



In 2025

Electricity generation from RE accounts for **20.2%** of total electricity generation.

Heat use from RE accounts for **23.3%** of total heat use.

Biofuels account for **4.9%** of total transportation fuels

The picture shows the RE production in 2025 comparing to its targets

Energy Plan toward Net-Zero Emissions

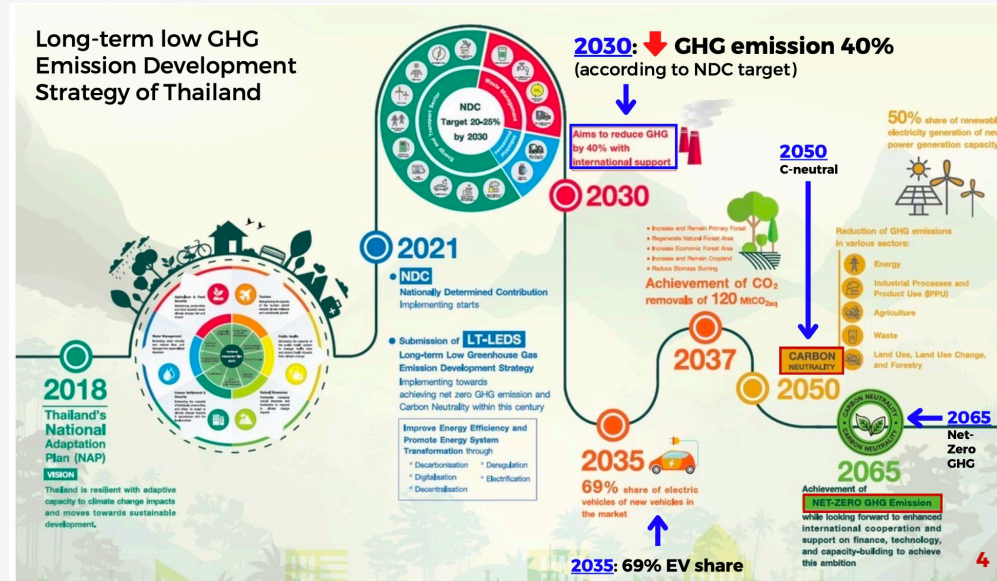


Thailand's Commitment for GHG mitigation

2030: reduce 30% GHG compared with BAU (40% with international support)

2050: Carbon neutrality

2065: Net-Zero GHG emissions



Source: Global Compact Network Thailand.



2035: reduce 47% GHG compared with BAU with international support

2050: Net-Zero GHG emissions

Key enablers: renewables expansion, energy storage, green mobility, CCUS, hydrogen, and potential SMR deployment

Energy Plan toward Net-Zero Emissions

The Development of National Energy Plan (NEP)



The National Energy Plan (NEP) is built on key principles:



Deliver benefits to the people



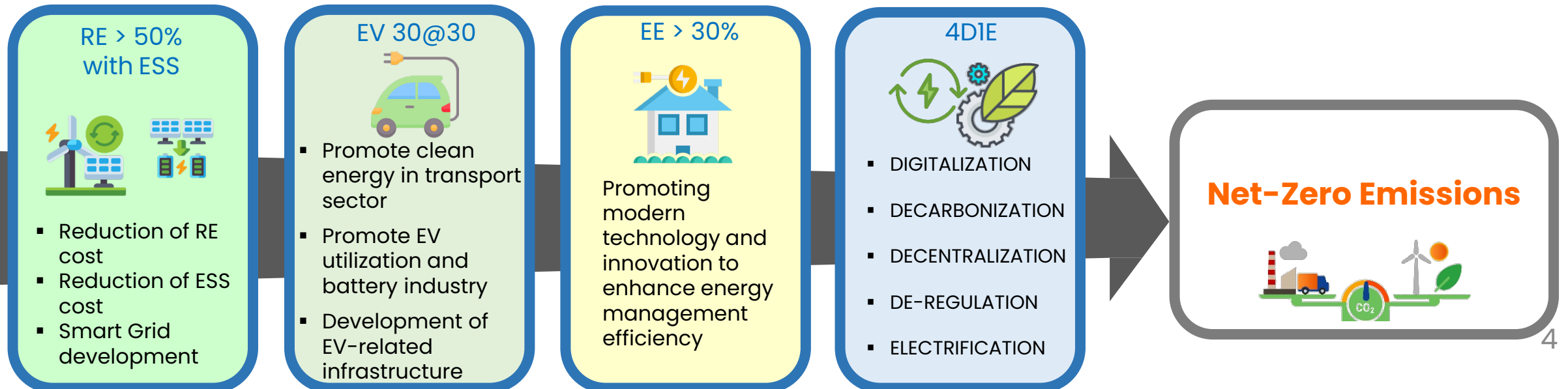
Increase the competitiveness of the economy



Drive Thai energy in line with world energy trends

NEP's Policy Direction

The National Energy Policy Council (NEPC) approved The NEP framework on the 4th Aug 2021



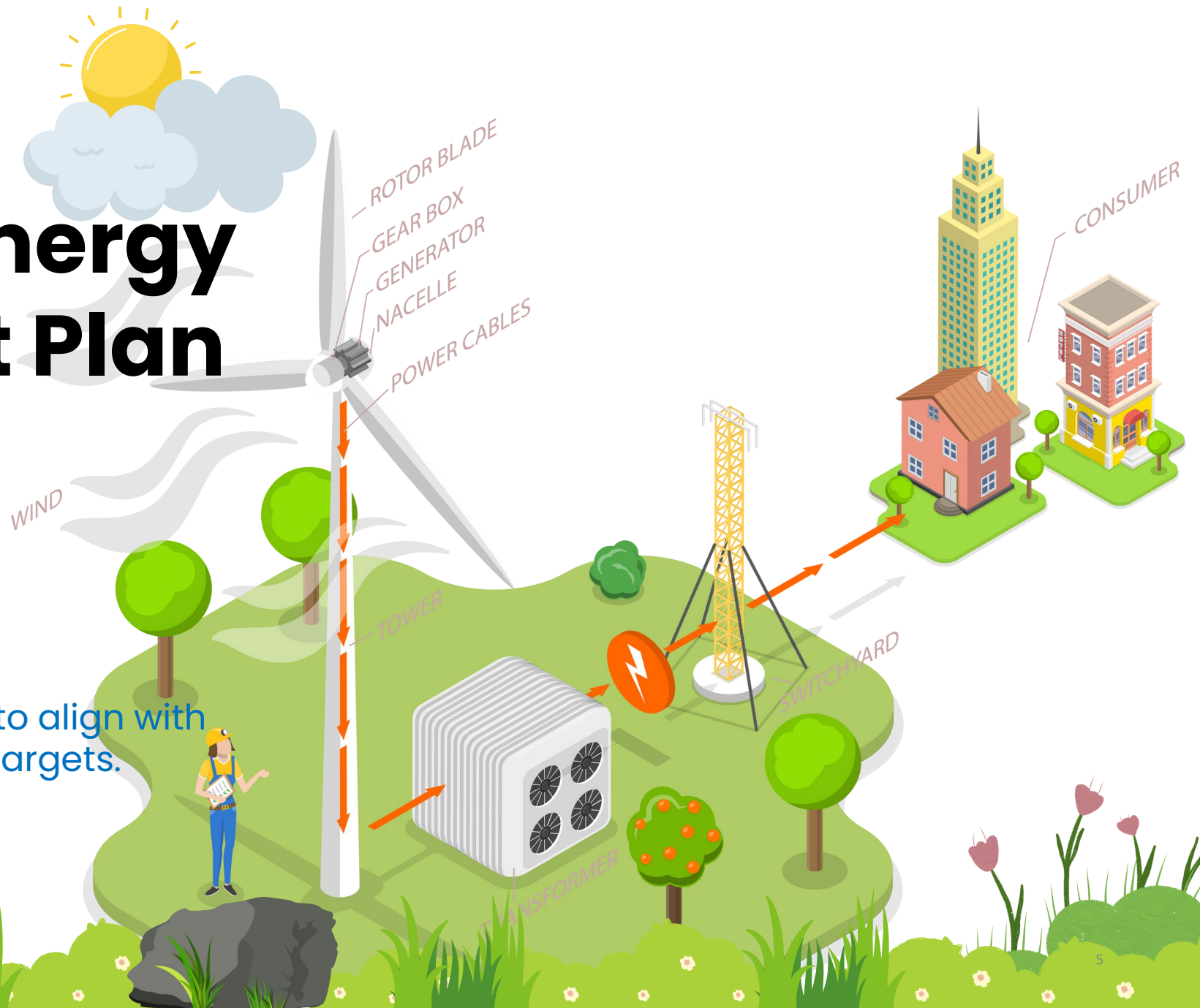
Draft of the Alternative Energy Development Plan 2024–2037 (AEDP 2024)



Update...



Currently under revision to align with the economy's Net Zero targets.



Draft AEDP 2024 Targets

Increase the Renewable Energy (RE) share in Total Final Energy Consumption to 37% by 2037.



Electricity
73,286 MW

- Solar
- Biomass
- Biogas
- Hydrogen
- Imported Hydro
- Wind
- Waste-to-Energy
- Small/Large Hydro
- Geothermal



Heat
17,360 ktoe

- Biomass
- Waste-to-Energy
- Hydrogen/Geothermal/Pyrolysis Oil
- Biogas
- Solar



RE Target
37%



Electricity
16%



Heat
19%



Biofuel
2%



Biofuels
1,939 ktoe

- Biodiesel (B7)
- Ethanol (E10/E20)
- Hydrogen
- Sustainable Aviation Fuel (SAF)

Expected Benefits

Economic Dimension

- ❖ Reduce fossil fuel consumption by 20,000 ktoe, equivalent to a value of at least THB 400 billion
- ❖ Generate income for farmers of no less than THB 41 billion per year
- ❖ Create investment value of at least THB 1.3 trillion

Social Dimension

- ❖ Improve quality of life through access to energy, particularly in areas with limited energy accessibility
- ❖ Strengthen energy resilience and enhance access to basic public utilities for communities
- ❖ Promote domestic knowledge development and support the creation of researchers and energy innovation

Environmental Dimension

- ❖ Reduce carbon dioxide (CO₂) emissions by at least 75 MtCO₂ by 2037, compared to 2022 levels
- ❖ Support the BCG Model (Bio-Circular-Green Economy)

Key Measures to Drive Targets



Electricity Sector

Policy, Legal, and Regulatory Measures

- Promote electricity purchasing from renewable energy sources
- Encourage renewable electricity generation through tax incentives
- Support appropriate green electricity tariff structures
- Revise and improve relevant laws and regulations

Stability and Energy Security

- Promote and develop energy storage systems
- Support decentralized renewable energy (RE) generation
- Encourage off-grid renewable power systems in remote areas
- Develop digital-based RE forecasting systems

Development of New Renewable Energy Sources

- Conduct studies on hydrogen production and utilization in the power sector
- Promote green hydrogen production and utilization



Heat Sector

Promote green hydrogen production and utilization

- Promote systematic storage and aggregation of renewable fuels
- Support upgrading renewable fuels into primary or co-firing fuels (e.g., wood pellets, RDF)
- Encourage the use of alternative fuels from industrial waste streams
- Support business matchmaking initiatives

Entrepreneurial Mindset

- Publicize successful project outcomes
- Promote pilot projects in industries with low RE adoption

Investment

- Promote investment through tax incentives and low-interest financing
- Support fuel switching from fossil fuels to renewable or alternative energy
- Facilitate access to green finance under environmental conditions



Biofuels Sector

Promotion of Sustainable Aviation Fuel (SAF)

Domestic Implementation

- Assess national potential and impacts of SAF utilization
- Develop carbon credit trading mechanisms to support SAF
- Establish domestic certification bodies

International Engagement

- Review Default Life Cycle Emissions values
- Negotiate SAF utilization criteria from feedstocks such as CSPO, molasses, sugarcane, and palm oil
- Engage in SAF carbon trading negotiations

Promotion of Hydrogen Utilization Preparation Phase (2024–2027)

- Study and develop regulatory frameworks for production, transport, and utilization
- Define investment promotion measures across the value chain, including infrastructure and FCEVs

Pilot Phase (2028–2034)

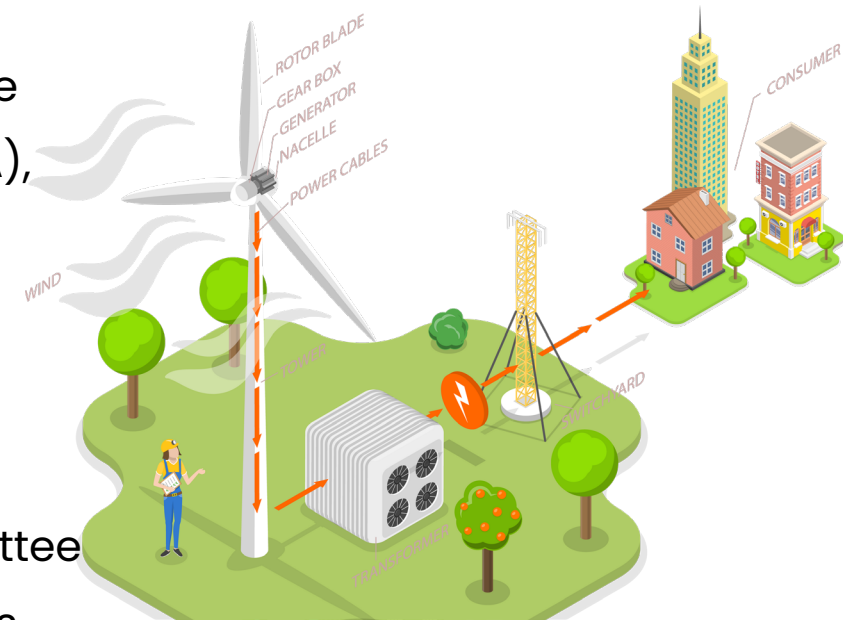
- Initiate pilot projects in various sectors

Commercialization Phase (2035–2037)


Key Policy

Direct PPA through **Third-Party Access Mechanism**

- ❑ Resolution of the National Energy Policy Council (NEPC) on 25 June 2024 approving the implementation framework for a pilot project on renewable electricity trading through Direct Power Purchase Agreements (Direct PPA), utilizing Third-Party Access (TPA) to the transmission system
- ❑ Pilot capacity target: 2,000 MW
- ❑ Aimed at attracting large-scale foreign investment, particularly in high-demand sectors such as data centers
- ❑ Under preparation for submission to Energy Policy Administration Committee EPAC and NEPC: Direct PPA framework, TPA tariff structure, and grid access assurance mechanisms.



Target: 2,000 MW of renewable energy (RE)



TPA
(3rd party access)

- Wheeling charge
- Connection charge
- Ancillary charge
- Imbalance charge
- Policy expenses



Large-scale investments, such as data centers



No sale of electricity back to the grid

Key Policy



Promote biomass-based power generation to address open-field burning of agricultural residues, thereby reducing PM_{2.5} emissions.

✓ Consider promoting mechanisms through the establishment of appropriate feed-in tariff rates for electricity generated from **sugarcane leaves and tops.**

✓ Enhance integration and coordination among relevant agencies, such as the Ministry of Energy and the Ministry of Industry.



Key Policy

UGT in Thailand is divided into UGT1 and UGT2

UGT1 (non-source-specific)

Supply

EGAT hydro ~ 2,000 GWh/year



Hydro power

Demand

In 2025 services will be provided to tariff type 3, 4, and 5*
From 2026 onwards, services will be provided to all tariff types



Electricity tariff

UGT1

Retail electricity price by tariff types, including F_t

+

Premium
1. Market price of REC
2. Service charges

(annual contract)

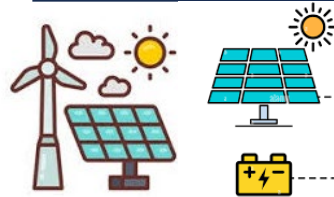
The pricing is calculated based on the standard electricity tariff plus a fixed green premium

UGT2 (source-specific)

Supply

Solar/Solar + BESS
Wind ~ 8,000 GWh/year

Big Lot 1: ~4,850 MW



Demand

tariff type 4 and 5*



Electricity tariff

UGT2

Wheeling Charge

Transmission (T)

Distribution (D)

Energy Purchase

Dependable Capacity

Policy expenses (PE) and service charge or other expenses

(annual contract)

The pricing is based on the actual cost of electricity from the chosen source, plus additional operational charges.

* Electricity tariff type 3: medium general services, Electricity tariff type 4: large general services and Electricity tariff type 5: specific business

Key Policy

Solar Energy Promotion Policies Across Sectors

1: RESIDENTIAL SOLAR ROOFTOP TAX MEASURE



DETAILS: INCENTIVE & ELIGIBILITY



200,000 THB Incentive
Tax deduction for actual cost of solar equipment and installation, up to this maximum.



Target: 90,000 Households
New on-grid systems up to 10 kWp.

BENEFITS: ECONOMIC & ENVIRONMENTAL IMPACT



10.8 Billion THB Economic Stimulus
Projected significant investment, saving households avg. 585 electricity units/year.



Reduced CO₂ Emissions
Approximately 0.26 Million Tons Per Year.

2: COMMUNITY SOLAR FARM



DETAILS: "1 SUB-DISTRICT 1 POWER PLANT" MODEL



Scaling to 1,500 MW Capacity
Individual ground-mounted sites capped at 10 MW each.



100% Private investment + 10% Mandatory Co-investment from PEA Affiliate
Power sold at a fixed rate of FIT: 2.1679 THB/unit for 25 Years.

BENEFITS: JOB CREATION & COMMUNITY SAVINGS



Over 30 Billion THB Investment & 1,785+ New Jobs Expected.



Direct Electricity Discount
Participating community households receive 40-80 Satang Per Unit discount.

3: GOVERNMENT SOLAR ROOFTOP (PRIVATE PARTNERSHIP)



DETAILS: PRIVATE-PUBLIC PARTNERSHIP MODEL



Private Entities Government

Private entities invest in & manage solar installations on government buildings; currently pending final regulatory frameworks.

BENEFITS: FISCAL RESPONSIBILITY & NATIONAL GOALS



Reduced Government Budget Burden
Lowers direct budget for electricity bills and long-term maintenance.



Strategic Leadership & National Goals
Agencies act as renewable energy leaders, encouraging others; critical for Carbon Neutrality and AEDP objectives.

Summary: Driving Thailand's Clean Energy Future

Accelerated Climate Ambitions

- Committing to Net-Zero GHG emissions by 2050 (Post-COP30) and driving the energy transition through the 4DIE framework.

Aggressive AEDP 2024 Targets

- Aiming for a 37% Renewable Energy share by 2037, delivering substantial economic, social, and environmental benefits.

Innovative Market Mechanisms

- Unlocking massive green investments via Direct PPA (TPA) and offering clear choices through the Utility Green Tariff (UGT).

Comprehensive Sectoral Actions

- Scaling Solar across all levels, utilizing Biomass to solve PM_{2.5}, and advancing future fuels like SAF and Hydrogen.



Thank You



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