



Department of Alternative
Energy Development and Efficiency

MINISTRY OF ENERGY

Thailand's Alternative Energy Development Plan and the Key Role of Renewables

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Department of Alternative
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Alternative Energy Development Plan (AEDP) 2015-2036



Thailand Integrated Energy Blueprint



TIEB

THAILAND INTEGRATED
ENERGY BLUEPRINT



Power Development Plan



Energy efficient Plan



Alternative Energy Development plan



Gas plan



Oil plan



TIEB

THAILAND INTEGRATED
ENERGY BLUEPRINT

Energy Security

- Supply energy in response to the energy demand
- Diversify energy to the appropriate resources

Economy

- Reasonable energy cost, not an obstacle to economic and social development
- Reforms in fuel prices structure

Ecology

- Increase renewable energy usage
- Reduce negative impacts to the environment



Overall targets: **30%** Renewable Energy
in total energy consumption by 2036

Power (4.27%)

19,684.4 MW

1. Municipal Solid Waste	500
2. Industrial waste	50
3. Biomass	5,570
4. Biogas (Waste water/sewage)	600
5. Small hydro	376
6. Biogas (Energy crop)	680
7. Wind	3,002
8. Solar	6,000
9. Large hydro	2,906.40

Heating (19.15%)

25,088 ktoe

1. Municipal Solid Waste	495
2. Biomass	22,100
3. Biogas	1,283
4. Solar	1,200
5. Alternatives Heat Source*	10

* Geothermal, pyrolysis oil, etc.

Transport (6.65%)

8,712.43 ktoe

1. Biodiesel (million l/d)	14.0
2. Ethanol (million l/d)	11.3
3. Pyrolysis oil (million l/d)	0.53
4. CBG (ton/d)	4,800
4. Alternative fuels* (ktoe)	10

* Bio-oil, Hydrogen and others

RE share 14% in 2016



- 20%RE in power generation in 2036
- Supporting measure: Feed-in Tariff for VSPP and SPP
- Define RE Zoning, supply-demand matching principle
- Electricity trade by competitive bidding
- Improve transmission system to accommodate electricity from RE
- Promote RE electricity for Self-consumption
- Develop hybrid electricity system
- Support R&D in energy storage



FiT for VSPP project

FiT for VSPP project						
Capacity (MW)	FiT (Baht/kWh)			Period (year)	FiT Premium (Baht/kWh)	
	FiT _F	FiT _{V,2560}	FiT		For bio-energy (year 1-8)	For 3 provinces in the south (Whole period)
1) Municipal Solid Waste						
≤ 1 MW	3.13	3.21	6.34	20	0.70	0.50
> 1-3 MW	2.61	3.21	5.82	20	0.70	0.50
> 3-10 MW	2.39	2.69	5.08	20	0.70	0.50
2) Landfill Gas to Energy	5.60	-	5.60	20	-	0.50
3) Biomass						
≤ 1 MW	3.13	2.21	5.34	20	0.50	0.50
> 1-3 MW	2.61	2.21	4.82	20	0.40	0.50
> 3-10 MW	2.39	1.85	4.24	20	0.30	0.50
4) Biogas						
Wastewater/sewage	3.76	-	3.76	20	0.50	0.50
Energy crop	2.79	2.55	5.34	20	0.50	0.50
5) Micro hydro (≤ 200 kW)	4.90	-	4.90	20	-	0.50
6) Wind	6.06	-	6.06	20	-	0.50



- Promote the use of other materials as fuel sources
- Develop supply chain management
- Define standard of renewable fuel for commercial
- Encourage more utilization of energy from waste and solar
- Set measure to promote the RE heat production



- R&D Non-food crop as an alternate feedstock
- Study and develop automobile technology to use more proportion of biofuel
- Develop high quality biofuel such as H-FAME and BHD
- Develop the CBG production system
- Increase biofuel station



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The Key Role of Renewables



- Solar PV in remote area
- Micro and mini hydro projects for rural communities
- Micro grid pilot project in Mae Hong Sorn province
- Biogas from animal waste and organic waste for cooking





- Less dependency on imported fossil fuel
- Increase the competitiveness of the market with more players of power producer
- Benefit to farmer by using feedstock from agricultural sector
- Job creation, contribution to local economies



- Clean energy, less impact on the environment
- Convert waste to energy
- GHGs mitigation

COP 21 “Thailand intends to reduce its greenhouse gas emissions by 20-25 percent from the projected business-as-usual (BAU) level by 2030.”



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