



# Thailand's Experiences on RE Feed-in Tariff Scheme

By

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กระทรวงพลังงาน  
MINISTRY OF ENERGY



**SPP**  
 1992  
 • Start 300 MW  
 • Expand 1,720 MW@1995  
 • 3,200 MW (1996-2000)

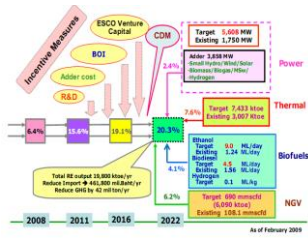
**VSP ( $<1$  MW)**  
 2002

**RPS 5%**  
 2003

Policy obligating each retail seller of electricity to include certain amount of electricity from RE in its total electricity supplied to its retail load

- Policy start 2003 → Framework start 2004
- Program end after adder cost

1<sup>st</sup> Long term RE Plan of the country



**REDP 15 years**

2008

**Biofuel promotion**

**Ethanol**

**Biodiesel**

2006

**Adder Cost**

**SPP (10-90 MW)**  
**VSP ( $<10$  MW)**

ประเภท	จำนวนโครงการ	จำนวน MW	มูลค่าการลงทุน (ล้านบาท)	มูลค่าการผลิต (ล้านบาท/ปี)	มูลค่าการคืน (ล้านบาท/ปี)
1. Biomass	10	1,000	1,000	1,000	1,000
2. Wind	10	1,000	1,000	1,000	1,000
3. Solar	10	1,000	1,000	1,000	1,000
4. Hydro	10	1,000	1,000	1,000	1,000
5. Other	10	1,000	1,000	1,000	1,000

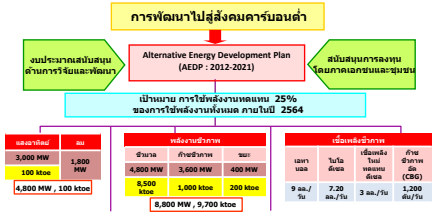
- As premium price FIT or feed in adder into each kWh of power gen from RE
- Most effective for all five RE technologies
- Fix rate but differ in some specific area & adjusted due to cheaper RE tech

**2010**

**Solar heat program (water and dryer)**

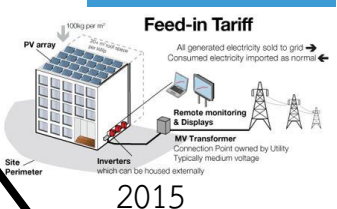
**AEDP 25% 2012-2021**

แผนพัฒนาพลังงานทดแทนและพลังงานทางเลือก 25% ใน 10 ปี (พ.ศ. 2555-2564) ทดษ. 16 กรกฎาคม 2556

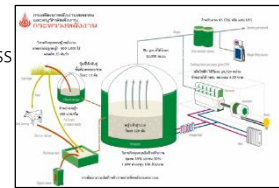


**Mitigate 76 M-tCO2 by 2021**

**2013-14 Feed in tariff**



- From adder+electricity price to fixed price FIT
- Start with solar PV and rooftop with limited MW bought (July 2013)
- Biogas from Napier grass also considered



2015

**AEDP 2015-2036**

Alternative Energy Development Plan (AEDP: 2015-2036)

ประเภท	จำนวนโครงการ	จำนวน MW	มูลค่าการลงทุน (ล้านบาท)	มูลค่าการผลิต (ล้านบาท/ปี)	มูลค่าการคืน (ล้านบาท/ปี)
1. Biomass	10	1,000	1,000	1,000	1,000
2. Wind	10	1,000	1,000	1,000	1,000
3. Solar	10	1,000	1,000	1,000	1,000
4. Hydro	10	1,000	1,000	1,000	1,000
5. Other	10	1,000	1,000	1,000	1,000

**AEDP 2018**

**Under revising**

- Other instruments**
- Direct subsidy
  - Biogas (20 yr)
  - Solar
  - Biodiesel
  - ESCO
  - BOI
  - Soft loan
  - Etc.



# Feed-in Tariff Scheme

Capacity (MW)	FIT (THB/kWh)			Period of Subsidy (Year)	FIT Premium (THB/kWh)	
	FIT <sub>F</sub>	FIT <sub>V,2017</sub>	FIT <sup>(1)</sup>		Biofuel Project (8 years)	Project in Southern Territory Area (Throughout Project Period)
1) MSW (Hybrid Management)						
Existing Capacity ≤ 1 MW	3.13	3.21	6.34	20	0.70	0.50
Existing Capacity > 1-3 MW	2.61	3.21	5.82	20	0.70	0.50
Existing Capacity > 3 MW	2.39	2.69	5.08	20	0.70	0.50
2) MSW (Sanitary Landfill)						
	5.60	-	5.60	10	-	0.50
3) Biomass						
Existing Capacity ≤ 1 MW	3.13	2.21	5.34	20	0.50	0.50
Existing Capacity > 1-3 MW	2.61	2.21	4.82	20	0.40	0.50
Existing Capacity > 3 MW	2.39	1.85	4.24	20	0.30	0.50
4) Biogas (Waste Water/Sewage)						
	3.76	-	3.76	20	0.50	0.50
5) Biogas (Energy Crop)						
	2.79	2.55	5.34	20	0.50	0.50
6) Hydropower						
Existing Capacity ≤ 200 kW	4.90	-	4.90	20	-	0.50
7) Wind						
	6.06	-	6.06	20	-	0.50



# Feed-in Tariff for Solar

Existing (MWp)	Adder และ Formal FiT		New FiT	
	Adder /FiT (THB/kWh)	Subsidy Period (year)	FiT Rate (THB/kWh)	Subsidy Period (year)
<b>Solar Farm</b>				
≤ 90 MWp	Adder 8.0 and decreased to be 6.50 (in 2010)	10	5.66	25
<b>Rooftop (Residence)</b>				
≤ 10 kWp	FiT 6.96	25	6.85	25
<b>Rooftop (Commercial Bldg./Factory)</b>				
> 10 – 250 kWp	FiT 6.55	25	6.40	25
> 250 – 1,000 kWp	FiT 6.16	25	6.01	25
<b>Ground System (Government office and Agricultural Cooperative)</b>				
≤5 MWp	-FiT 9.75 Year 1-3 -FiT 6.50 Year 3-10 -FiT 4.50 Year 11-25	25	5.66	25



# SPP Hybrid-Firm and VSPP Semi-Firm

	SPP Hybrid-Firm	VSPP Semi-Firm
1. General Conditions	<ul style="list-style-type: none"> <li>• Available for new RE power plant (existing capacity = 10-50 MW)</li> <li>• Used fuel can be 1 type or more</li> <li>• SCOD within 2020</li> </ul>	<ul style="list-style-type: none"> <li>• Available for RE (Biomass, Biogas from wastewater, waste, energy crop) power plant (existing capacity &lt; 10 MW)</li> <li>• SCOD within 2019-2020</li> </ul>
2. Operation Criteria	100% power operation in peak time, and lower than 65% in off-peak	6 months for FIRM contract (100% power operation in peak time, and lower than 65% in off-peak), which must cover the maximum power consumption period (Mar.-Jun.), and 6 months for NON-FIRM
3. Energy Storage System	Can be contributed	
4. Fossil Fuel	prohibited (except system start-up)	
5. Purchasing	With EGAT	With PEA or MEA
6. FiT Rate	FiT bidding at 3.66 THB/kWh (10 cent/kWh)	Biomass: 4.24-4.82 THB/kWh Biogas (wastewater): 3.76 THB/kWh Biogas (energy crop): 5.34 THB/kWh FiT Premium for Firm condition (< 6 months): 0.30-0.50 THB/kWh FiT Premium for 3 provinces in southern region: 0.50 THB/kWh