



Current New and Renewable Energy Priorities in Thailand

Dr. Twarath Sutabutr

Deputy Director-General

**Department of Alternative Energy Development and Efficiency
Thailand**

16 October 2013

**APEC New and Renewable Energy Technologies Expert Group (EGNRET) Meeting
Beijing , China**



**กระทรวงพลังงาน
MINISTRY OF ENERGY**



1.

Overview of Thailand's Energy Situation

2.

Thailand's Energy Policies and Strategy

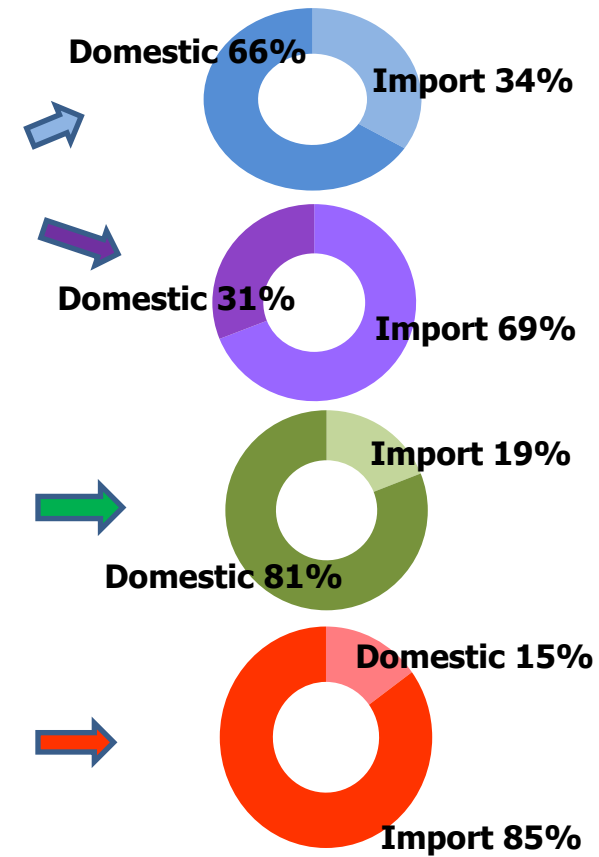
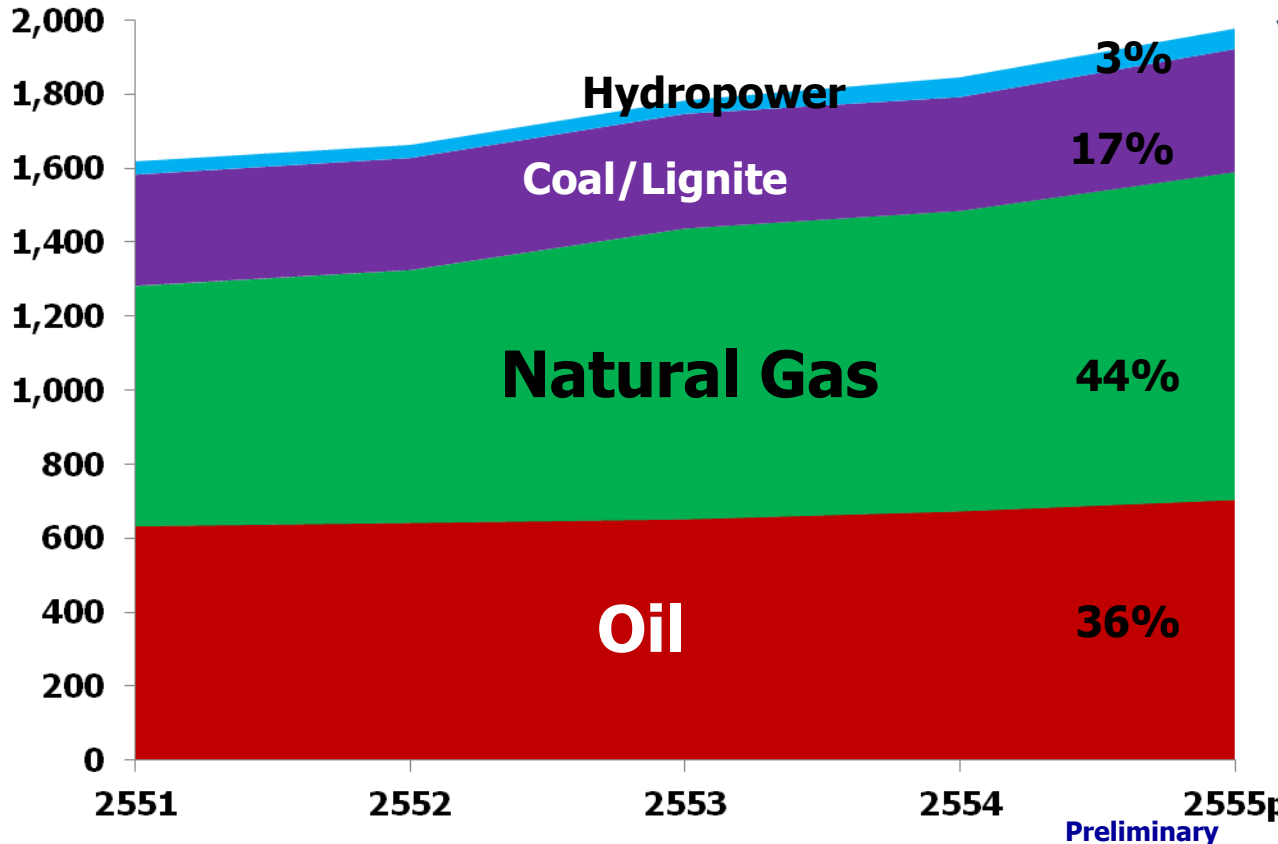
3.

Updated RE Projects and Supporting Mechanism

1. Thailand's Energy Situation

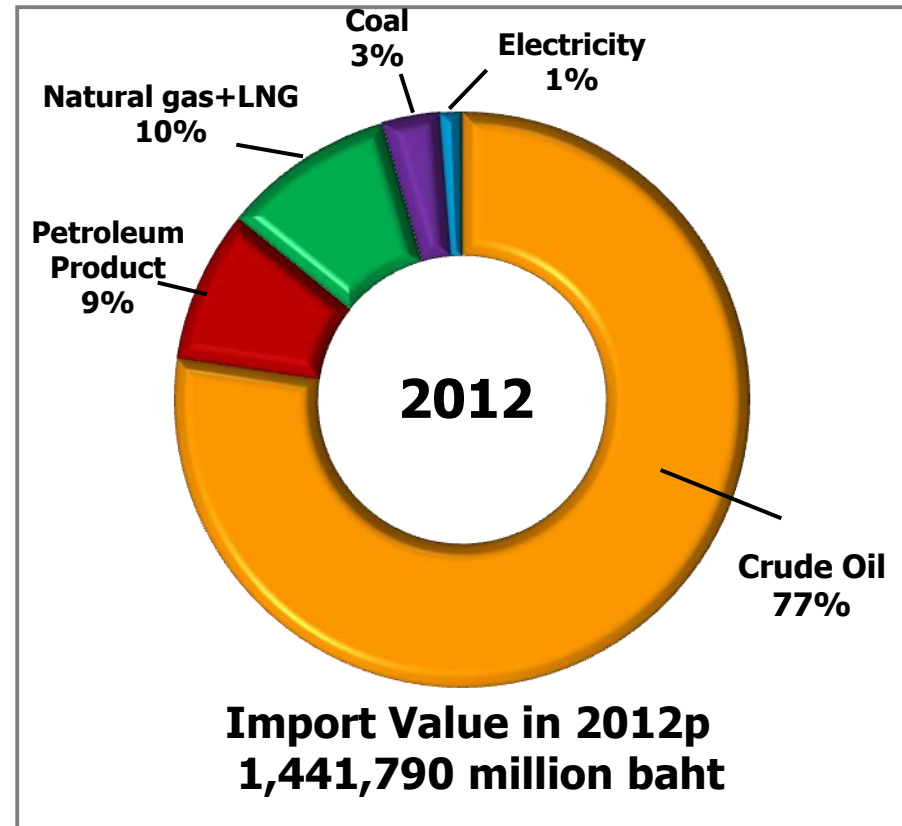
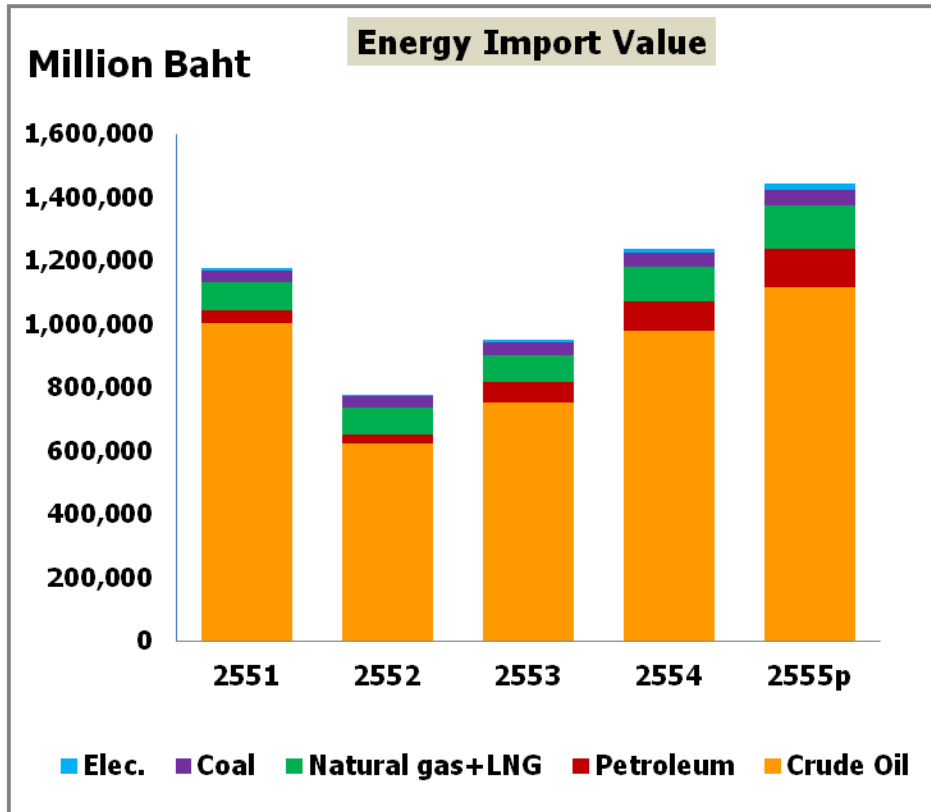
Final Energy Consumption

Thousand barrel oil equivalent / day



Consumption	Oil	Natural gas	Coal/Lignite	Electricity	Total
Growth (%)	4.7	9.2	5.0	3.4	6.7

Energy Import Value

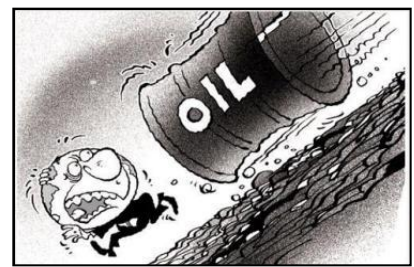


P: Preliminary

2012	Crude oil	Petroleum Product	Natural gas+LNG	Coal	Electricity	Total
Import value (million baht)	1,115,366	122,634	138,952	46,770	18,069	1,441,790
Growth (%)	14.1	30.1	23.8	10.5	30.4	16.5

Thailand's Energy Challenges

- ❑ Increased and fluctuated **world oil price**
- ❑ Limited **petroleum reserved**
 - needs to import 85 % of supply
- ❑ 70% of electricity supply depends on **Natural Gas**
- ❑ Lacking of **public agreement** on Energy projects
- ❑ **Energy Subsidies**

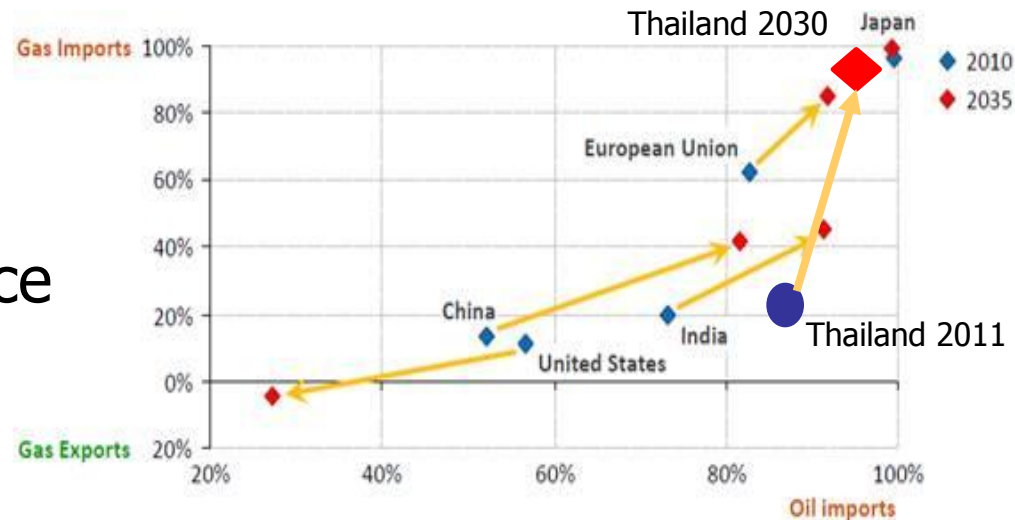
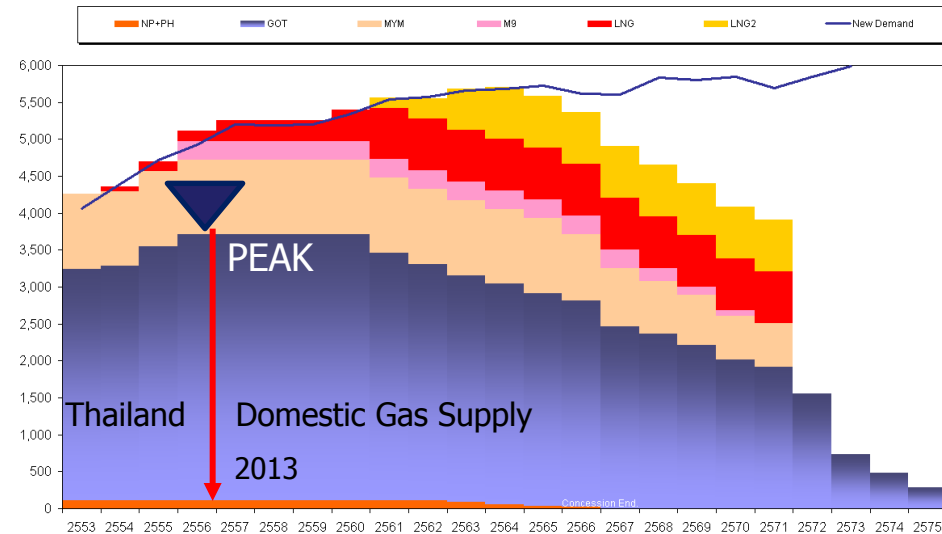


OIL SUPPLY
SECURITY





1. Thai Economy is growing continuously
2. Thailand's Oil & Gas production has reached its "PEAK"
3. Under "Nothing-is-done" scenario, Thailand's energy import dependence will top 95% by 2030.



2. Thailand's Energy Policies and Strategy

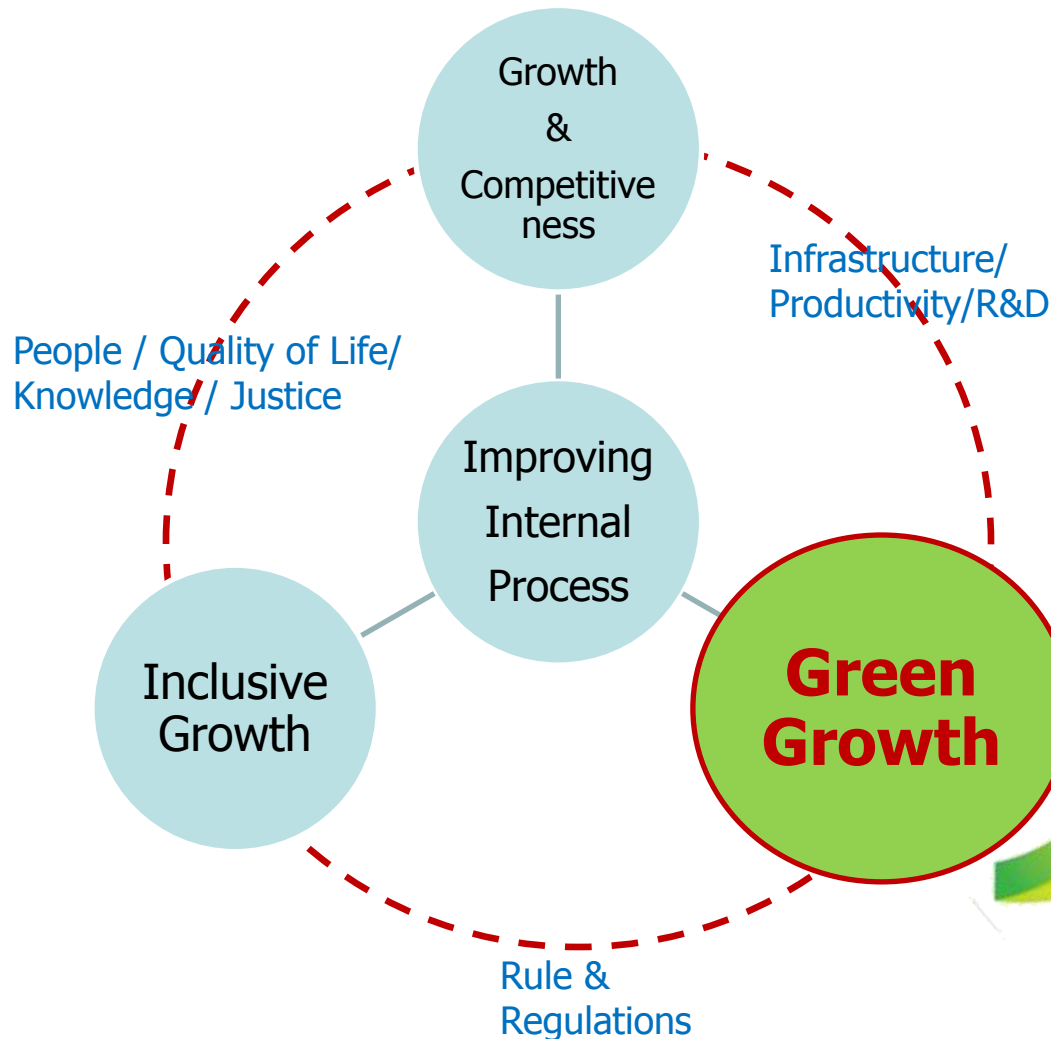


**Prime Minister
Yingluck Shinawatra**

- Enhance Energy-related Industries & Business to be next generation value creator
- Secure Thailand Energy supply
- Energy Pricing
- Target Energy Intensity reduction by 25% within 20 years (based on 2010 level)
- Up-scaling RE mix to 25% in 10 years



Thailand's Country Strategy



What is Thailand doing ?

1. **Phasing out subsidies on Cooking Gas (LPG) – the only petrol product that still subsidized.**
2. **Providing comprehensive incentives package for RE investment (FiT + Tax Holiday)**
3. **Mega-Investing in “Rail & Mass Transit System”**
4. **Tightening Energy Conservation regulations.**

Goals :

1. **Increase RE portion to 25% by 2021**
2. **Reduce EI by 25% by 2030**



Alternative Energy Development Plan (AEDP) Rev # 1

Committed to the development of low-carbon society

Government Funding On R & D & D Activities

Alternative Energy Development Plan (AEDP : 2012-2021)

Private-Led Investment

Target 25 % of RE in Total Energy Consumption By 2021

Solar	Wind
3,000 MW	1,800 MW
100 ktoe	
4,800 MW , 100 ktoe	

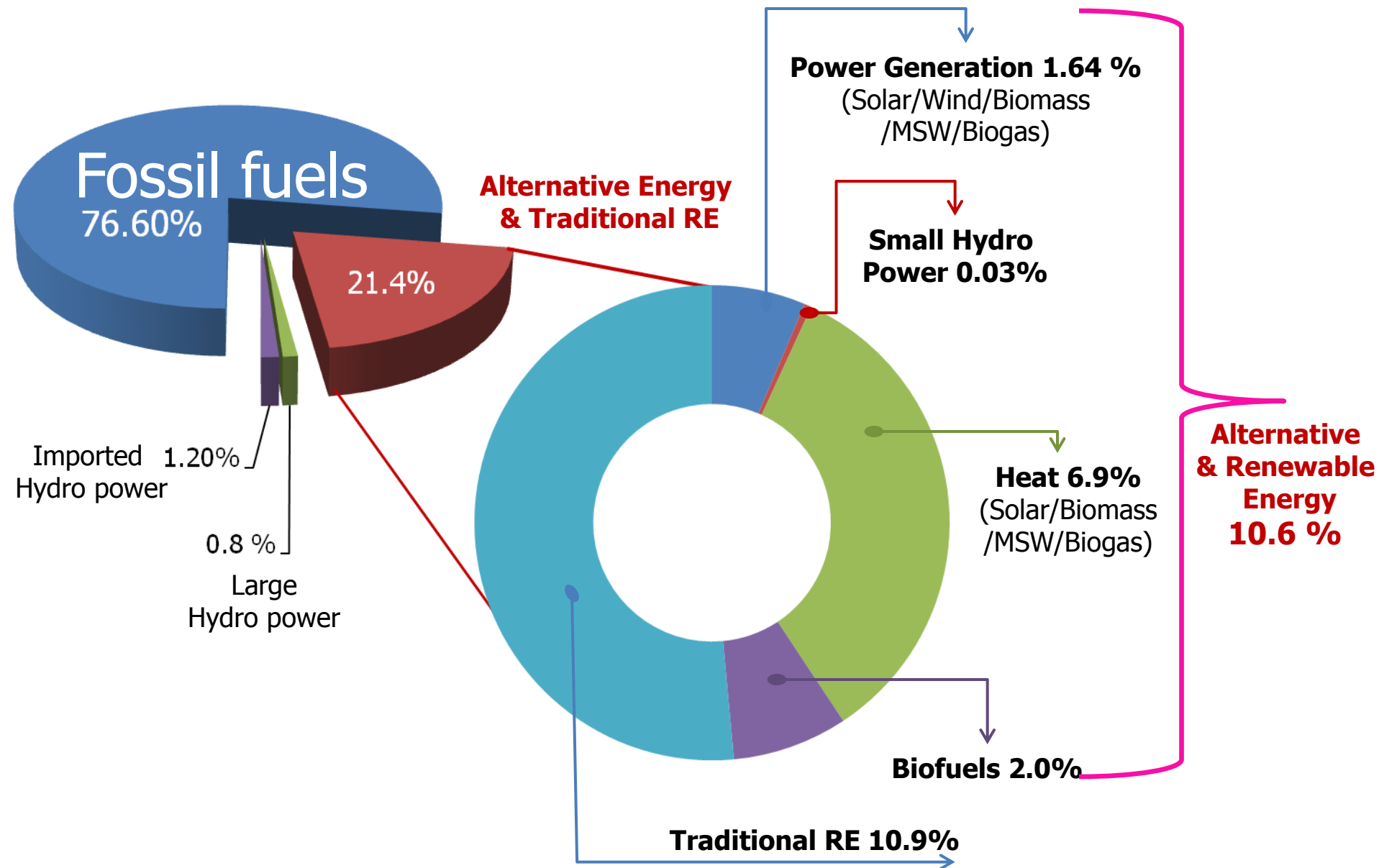
Bio-Energy		
Biomass	Biogas	MSW
4,800 MW	3,600 MW	400 MW
8,500 ktoe	1,000 ktoe	200 ktoe
8,800 MW , 9,700 ktoe		

Bio-Fuel		
Ethanol	Biodiesel	2 nd gen
9 ML/Day	7.20 ML/Day	3 ML/Day

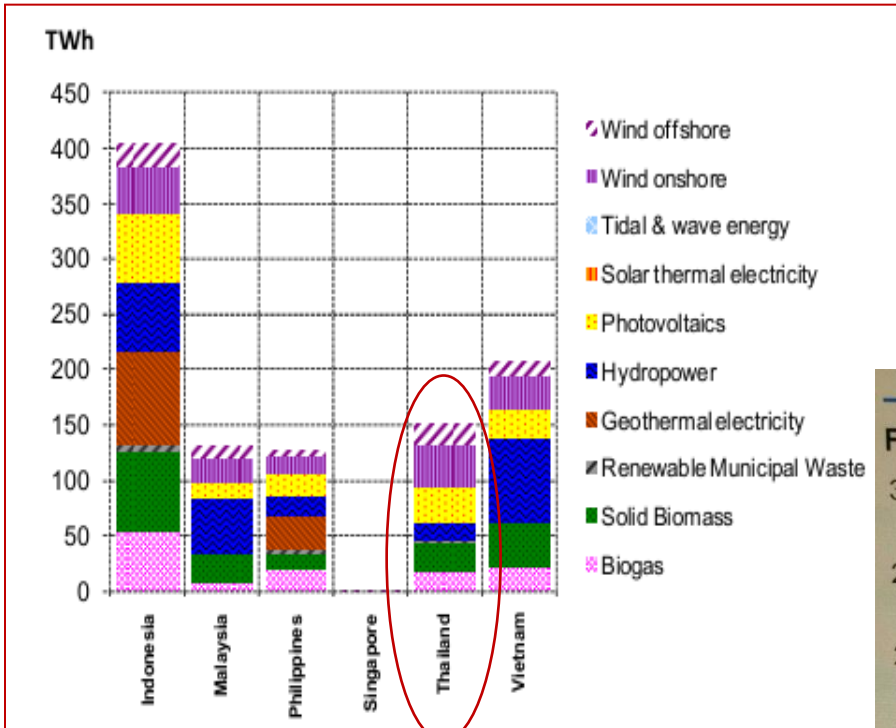
Hydro	
Mini	Micro
324 MW	

New-Energy	
Tidal wave	Geothermal
2 MW	1 MW
3 MW	

Now RE = 10.6 %



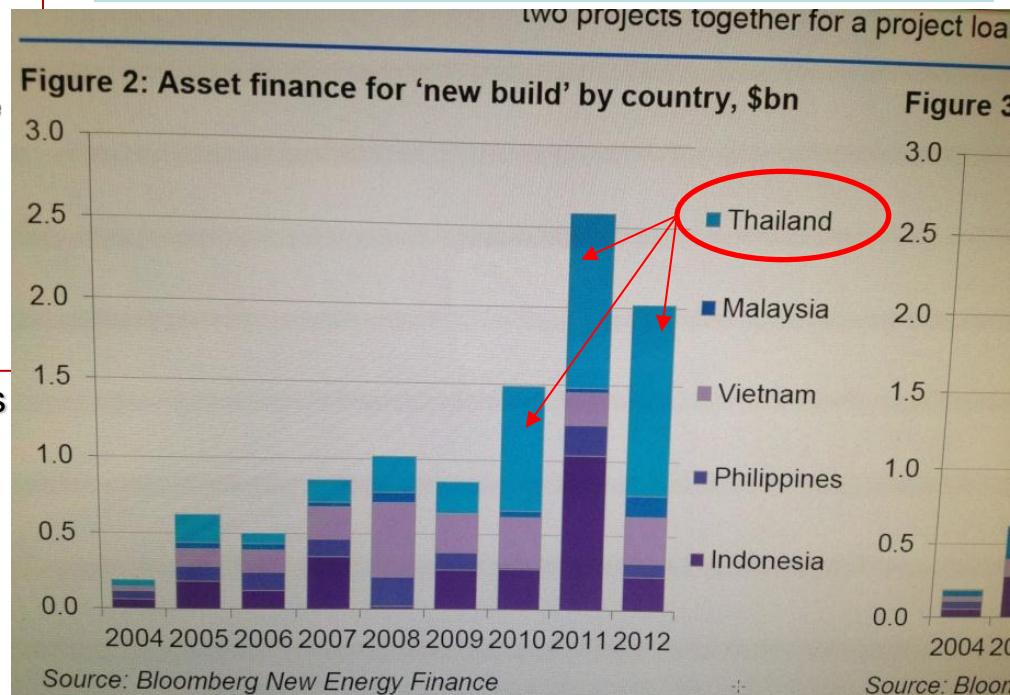
Thailand is No.3 in ASEAN in Technical Potential for Renewable Energies.



Total realisable potentials for RE in ASEAN-6 countries, by technology to 2030 ; IEA 2010



But... Thailand is No.1 in term of Money invested in Renewable Energy Projects.



Source: Bloomberg New Energy Finance

3. Updated RE Projects and Supporting Mechanism

Solar PV Rooftop

- ✓ National Energy Policy committee resolution on July 16th, 2013
 - => Feed-in Tariff (FIT) for Solar PV Rooftop
 - => Objectives - Encourage private & community investment in solar power
 - Minimize Peak Load
 - Energy security



Solar Rooftop Target
200 MWp

100 MWp

100 MWp



Household



SME & Factory

FIT Rate

1. Household (0-10 kWp)
= **6.96** baht/unit
2. Small Enterprise
(10 - 250 kWp)
= **6.55** baht/unit
3. Medium & Large Enterprise
/Factory (250 – 1,000 kWp)
= **6.16** baht/unit

- supported period 25 years
and COD in December 2013

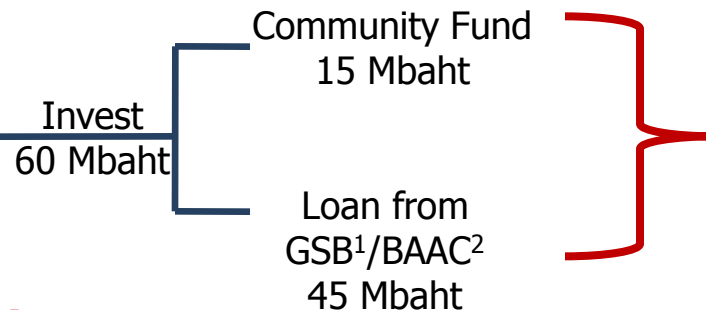
Solar Community

- ✓ National Energy Policy committee resolution on July 16th, 2013
 - => Joint project : MOEN + National Village & Urban Community Fund Office
 - => Objectives - Encourage community participation
 - Job creation & generate incomes for community
 - Promote distributed RE power or Distributed Green Generation)

Target for Community Scale Solar
800 MWp



Village/Community



1 MW

Supported period 25 yrs
COD in December 2014

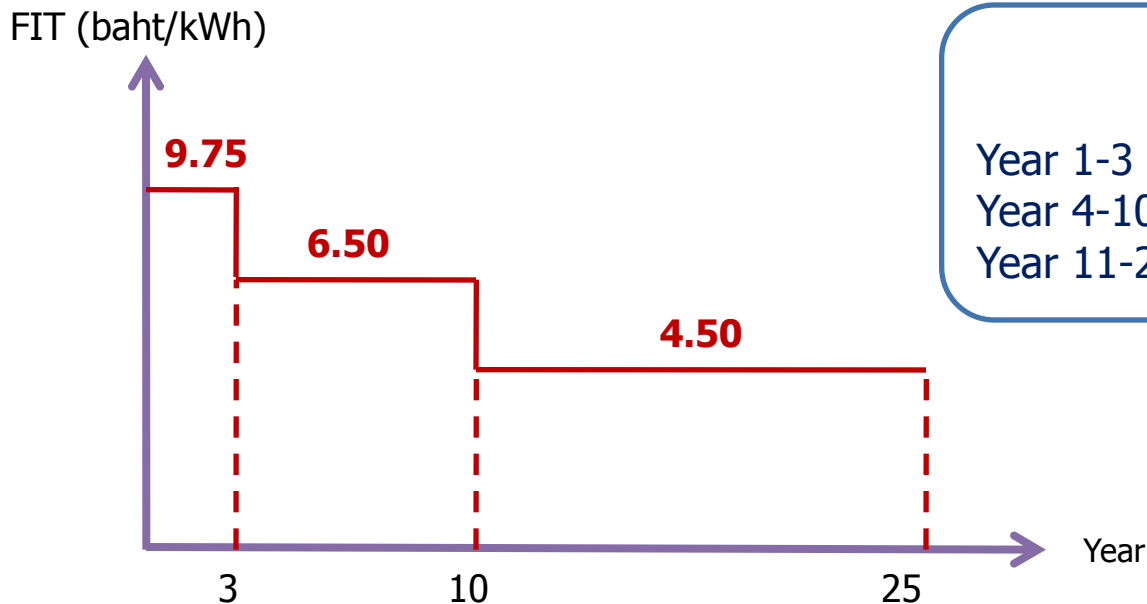
¹ Government Savings Bank

² Bank for Agriculture and Agricultural Cooperatives



Solar Community

FIT Rate for Community Scale Solar



Project IRR : 13.6%
Pay back period 6 yrs
Year 1-3 => Loan payment ability
Year 4-10 => Avg. income 2 MBaht/yr
Year 11-25 => Avg. income 4 MBaht/yr

- * Supported period 25 yrs
- * COD in December 2014

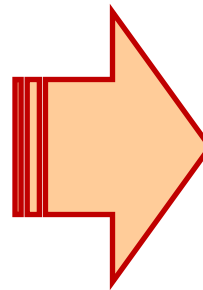


Napeir grass

- ✓ National Energy Policy committee resolution on July 16th, 2013
=> Joint project among 9 ministries

(1) Energy (2) Society (3) Agriculture (4) Education
(5) Sci & Tech (6) Industry (7) Interior (8) Natural resource and Envir (9) Commerce

=> Pilot project by MOEN

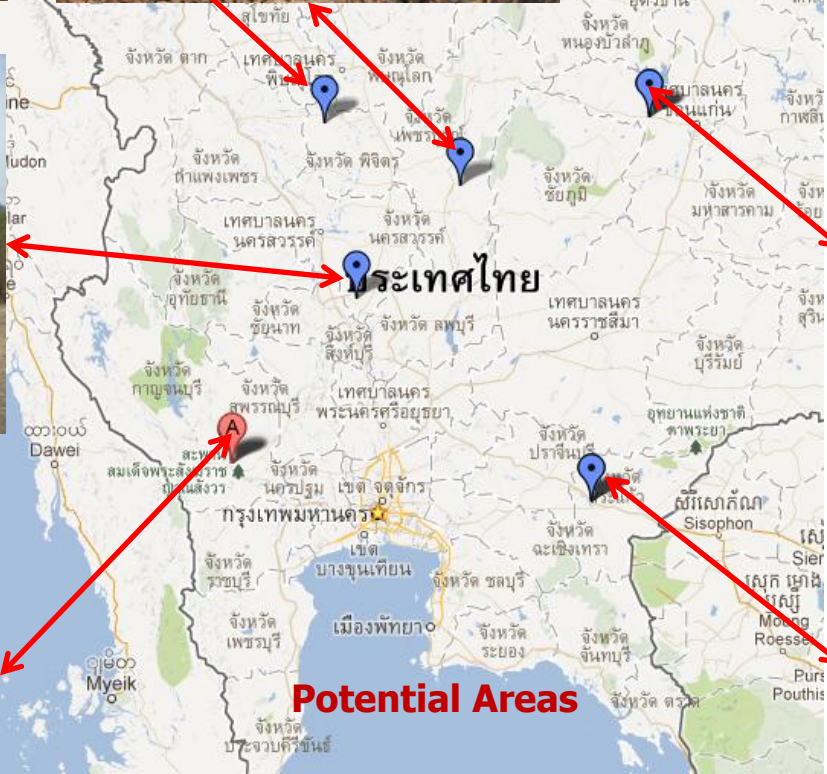
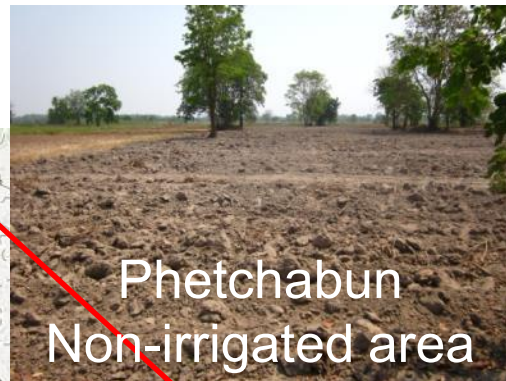


Napeir grass => Biogas

Objective

- 1. Power generation
3,000 MW**
- 2. CBG for transportation**
- 3. Replace LPG**

Pilot project on Napier grass



Napeir grass

- ✓ **February 15th ,2013 Prime minister Yingluck Shinawatra opened 1st CBG project in Thailand for transportation at Amphoe Mae Taeng, Chiangmai**



- ✓ **Joint project : DEDE + Maejo university + PTT + UAC**
- ✓ **CBG generation from waste water from swine farm + Napeir grass**



Thank you for Your attention!

