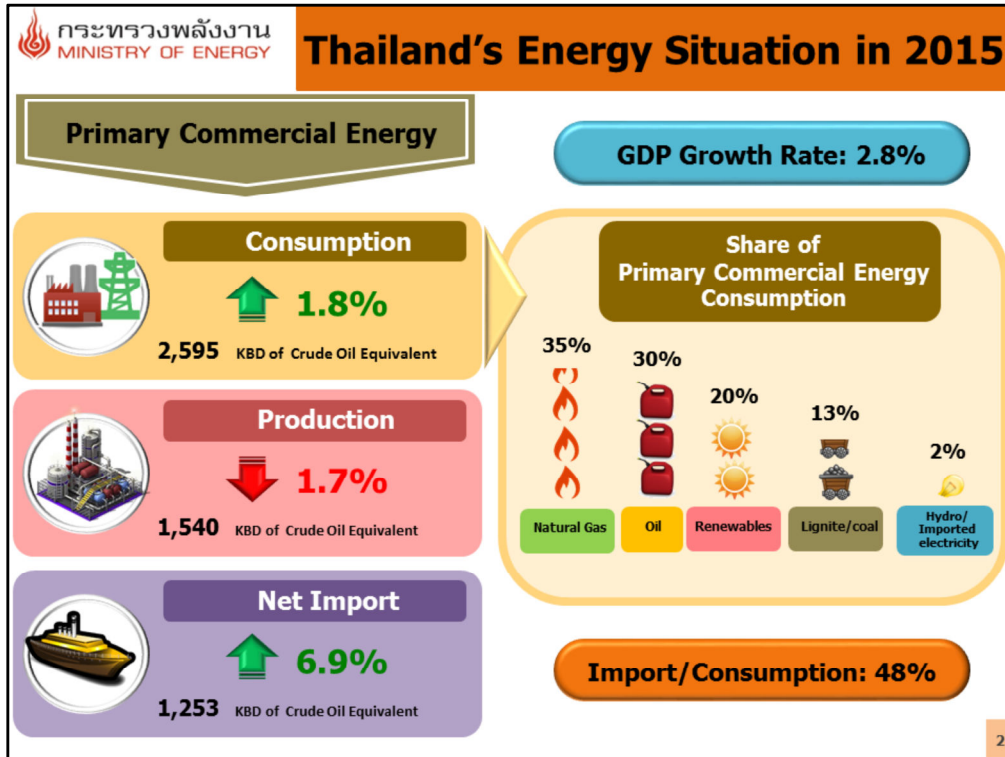


Good Morning and Welcome to Bangkok,

It is my great pleasure to be here today to preside over the opening ceremony of **“ASEAN Sustainable Energy Week 2016.”** On behalf of the Ministry of Energy of Thailand, I would like to extend a very warm welcome to all the delegates attending this event and express how honored we are to be a part of the largest renewable energy, energy efficiency and environmental technology exhibition in ASEAN.

As many ASEAN countries develop economically in the 21st century so does their need for energy. This comes at a cost and Thailand is a good example. The country is becoming one of the engines driving ASEAN economic growth but its demand for energy has unfortunately kept pace. The question is how can Thailand move forward with our growing economy being sustained while our energy security is strengthened and energy issues are handled in an environmentally-friendly manner and publicly accepted.



First of all, let me give you an overview of the country's energy situation. In 2015, Thailand's economy recovered from a decline in 2014 with GDP growth rate at 2.8%. For this reason, the total primary energy consumption reached a level of 2.595 million barrels per day of crude oil equivalent, which increased from 2014 by 1.8%. Natural gas accounted for the largest share of the consumption, which was 35%, followed by oil at 30%. As for our energy supply, the total primary energy production decreased by 1.7% while energy net import increased 6.9% from the previous year.

As you can see from our energy situation, Thailand is a country with limited energy resources. Although we have indigenous reserve of oil, gas and coal, easily accessible supplies of oil and gas reserves have been depleted in the face of growing demand and coal is deemed hazardous by the public. This leads to more reliance on energy import. In the past, Thailand also subsidized energy prices in an effort to shield consumers from volatile energy prices and improve access to energy for the poor. However, it was later revealed that energy subsidies have unintended consequences for the economy, the environment and social equity. They strain public finances, encourage over-consumption, and benefit wealthier citizens far more than the poor.

Policy Statement

Policy Statement of the Government of General Prayuth Chan-ocha
to the National Legislative Assembly on 12 September 2014



Energy price restructuring

- To better reflect actual costs and encourage more efficient use of energy



Exploration and production

- Oil and Gas
- Onshore and Offshore



Construction of new energy infrastructure

- Renewable energy and fossil fuels



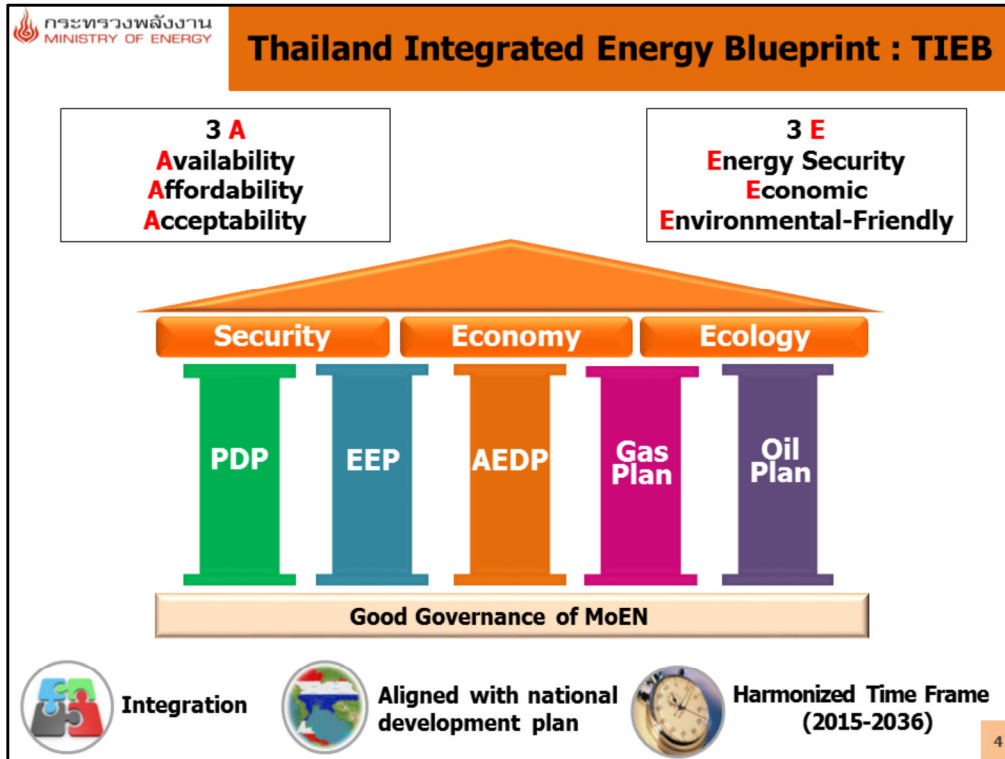
International Cooperation

- To develop new energy sources

To solve this pressing energy issues, Prime Minister General Prayuth Chan-Ocha in his policy statement to the National Legislative Assembly has emphasized on 2 issues: 1) Supply-side Management and 2) Demand-side Management.

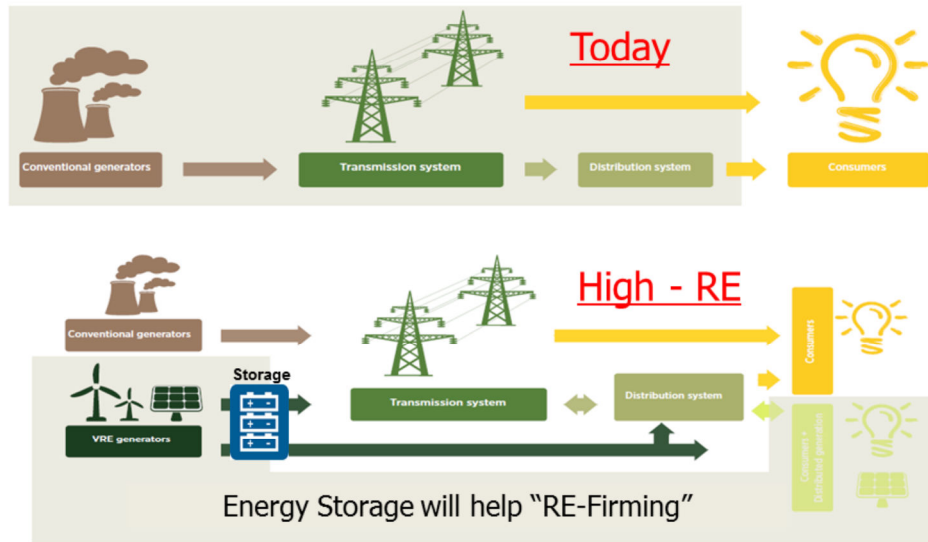
On supply-side management, the government needs to **secure Thailand energy supply** by supporting an exploration and production of natural gas and crude oil both on and off shore, encouraging the construction of new energy infrastructure, promoting the use of renewable energy and enhancing international cooperation to facilitate access to clean energy technology and new sources of energy.

On demand-side management, the government insists on having **fair energy pricing**. This is with the intention of improving the country's energy efficiency and deterring consumers from wasteful use of energy. The government not only tries to reform energy price structures in order to reflect actual costs and ensure an appropriate tax burden for different kinds of fuel and different types of users but also phase out wasteful fossil-fuel subsidies that results in great amount of money being wasted instead of being used for other urgent matters.



With that policy statement in mind, the Ministry of Energy has also come up with and is in the process of implementing our first long-term energy master plan or “**Thailand Integrated Energy Blueprint**” (TIEB) to help the country reach the desirable goal of **energy security, economic prosperity and ecological sustainability** in the long-run.

Thailand Electricity Grid

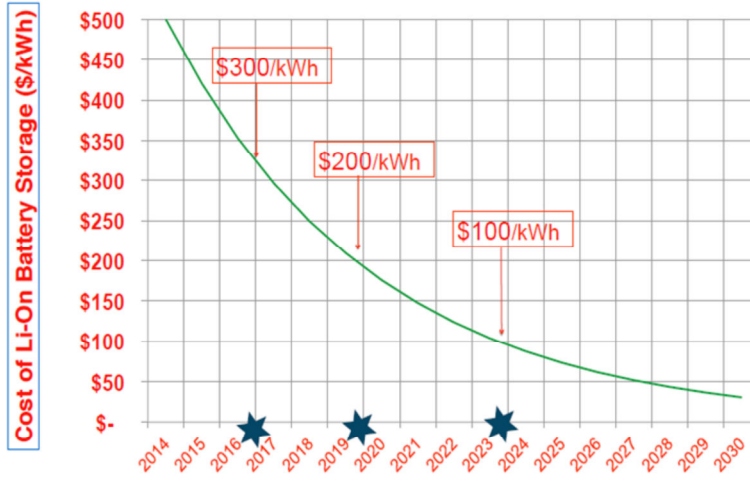


* Adapted from Figure in , IRENA, Scaling up Variable Renewable Power: The Role of Grid Codes

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The most important issue in renewable energy landscape today is to upgrade the grid. I do believe that EGAT's transmission grid needs to be equipped with advanced technology such as Area-wide control management system and Big energy storage. Energy storage would become essential to stabilize renewable energy facilities implemented in distributed manner.

Project cost of Li-On Battery \$/kWh

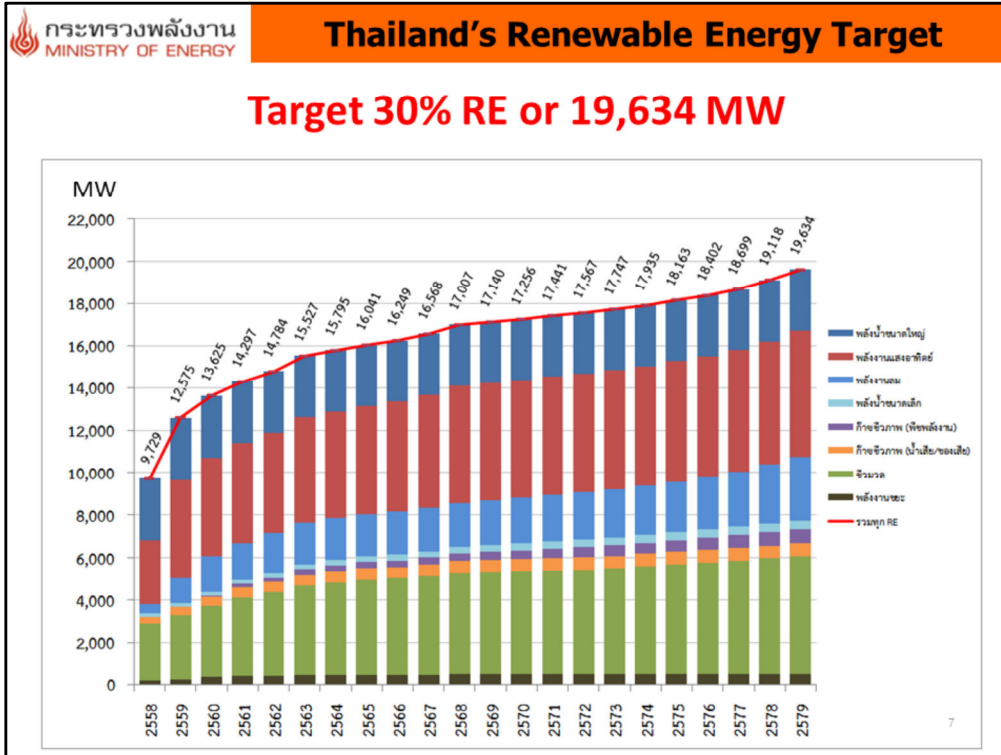


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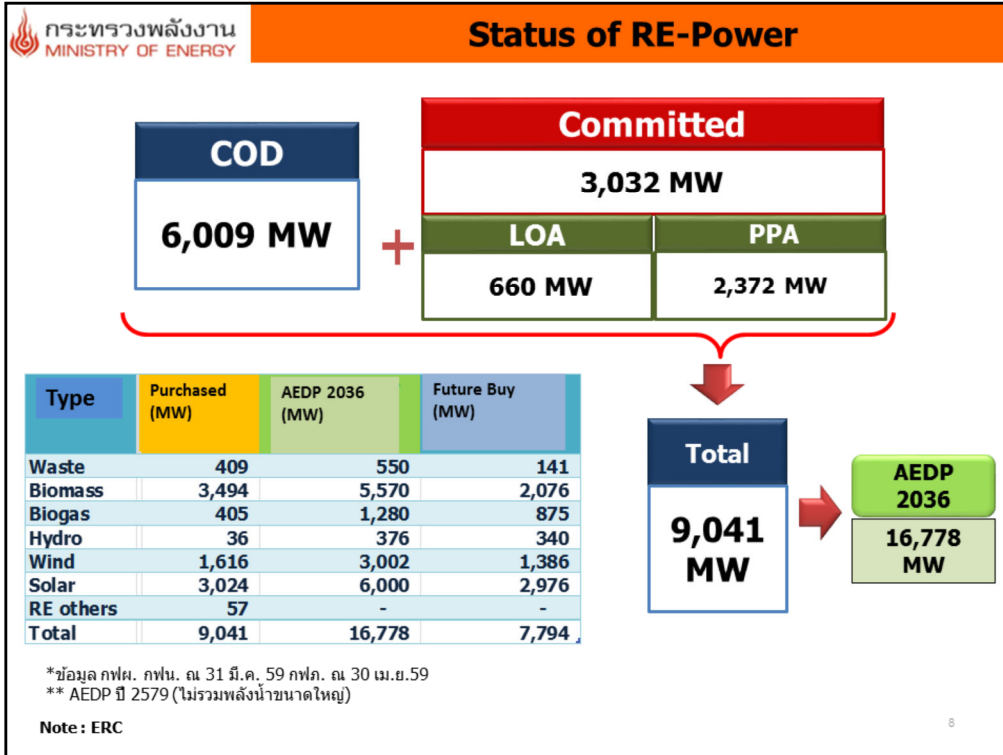
Assumption: 16%/year Reduction Technology Curve

Source: Clean Disruption

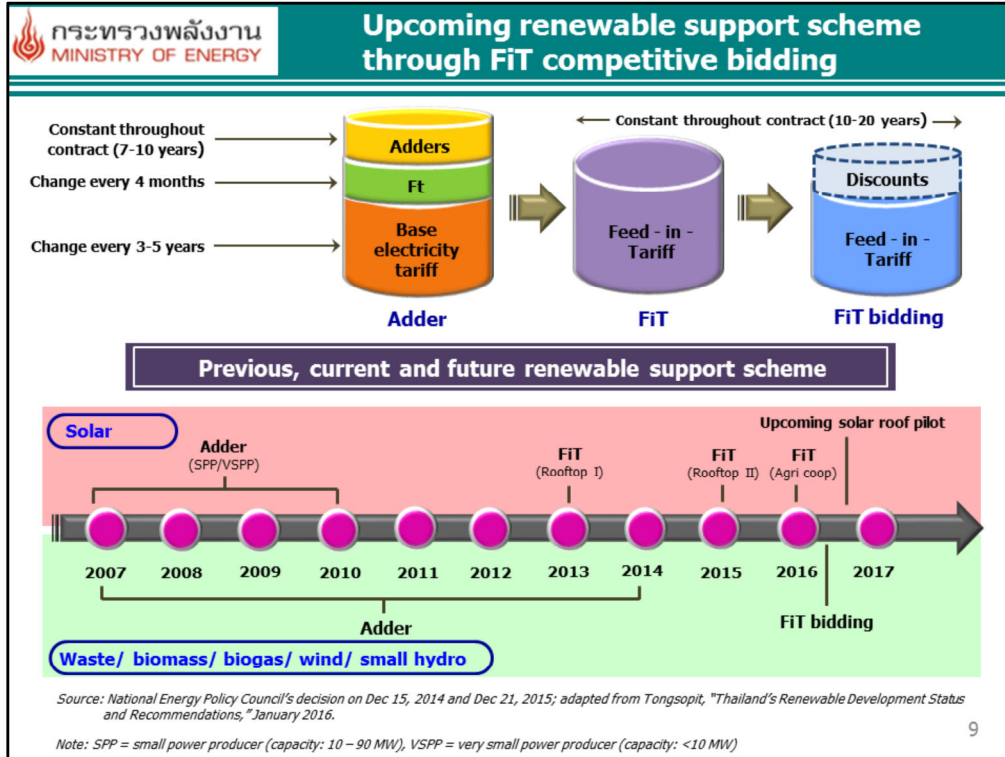
Last month, the ENCON Fund Committee approved 500 million baht research program to accelerate R&D activities in battery technology in Thailand.



With the help of battery technology in renewable energy firming, we think the target of 30% renewable energy mix can be achieved at least 5 to 10 years before the planned target of 2036.



Today, Thailand has already had 6,000 MW of renewable energy power in the grid.



The supporting scheme for renewable energy has been changed from the “**Adder**” program into a better well-known of **FiT**. FiT was set into 2 stages. From 2013 until the beginning of this year, we used fixed FiT method. However, from now onward, we will use a new program of FiT bidding experimented in biomass and biogas for facilities invested in the Southern part of Thailand. We will soon introduce the FiT bidding program for the nation-wide later this year.

Solar rooftop project

Solar PV development

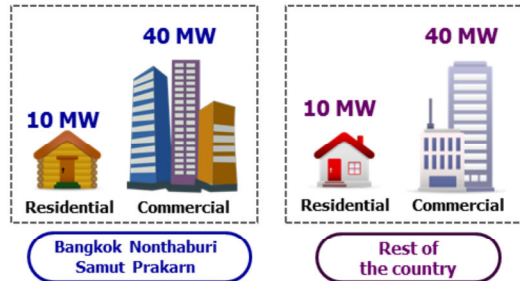
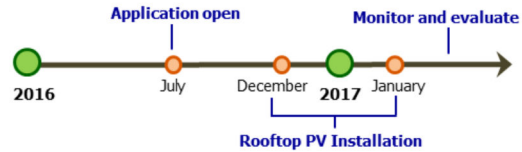
The next stage for solar PV development in Thailand will be rooftop PV:

- Production aims for self-consumption
- Distributed, rooftop on residential and commercial buildings
- Year-round, open application

Opportunities

Home office and commercial buildings, who pay high electricity rates during the day, would have the biggest incentive to participate in the pilot project.

Upcoming solar rooftop pilot project



No compensation for excess electricity generation
Source: National Energy Policy Council's decision (3 Feb 2016)

Upcoming solar rooftop pilot project could boost demand for rooftop PV by end of the year, especially for commercial buildings

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Another new program starting from July this year is the new **“Solar Rooftop”** program which aims for self-consumed power. The first pilot program is 100 MW divided equally between MEA and PEA. This project would include all-roof type but the focus would be on Commercial roof rather than the Residential roof.

Ethanol

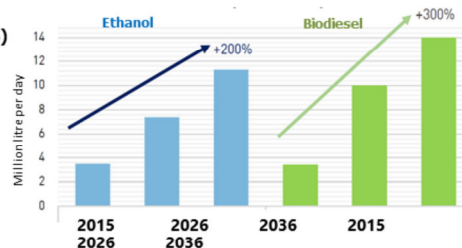
(3.5 million litre per day in 2015)

- **Source:** Sugar cane, molasses, cassava blended into gasoline in the form of Gasohol91, Gasohol95, E20, E85
- **Disadvantages:**
 - Higher production cost than gasoline
 - Lower heat content (less km per litre)
- **Government's supports:** Subsidies and tax benefits

Rationales for supporting biofuels

- 1 Reduce expense from oil import
 - 33.2 billion baht in 2014
- 2 Create of economics value and jobs
 - Boost investment
 - Boost agricultural income
 - Boost labor demand
- 3 Potential to scale up

Planned biofuels production potential



Biodiesel

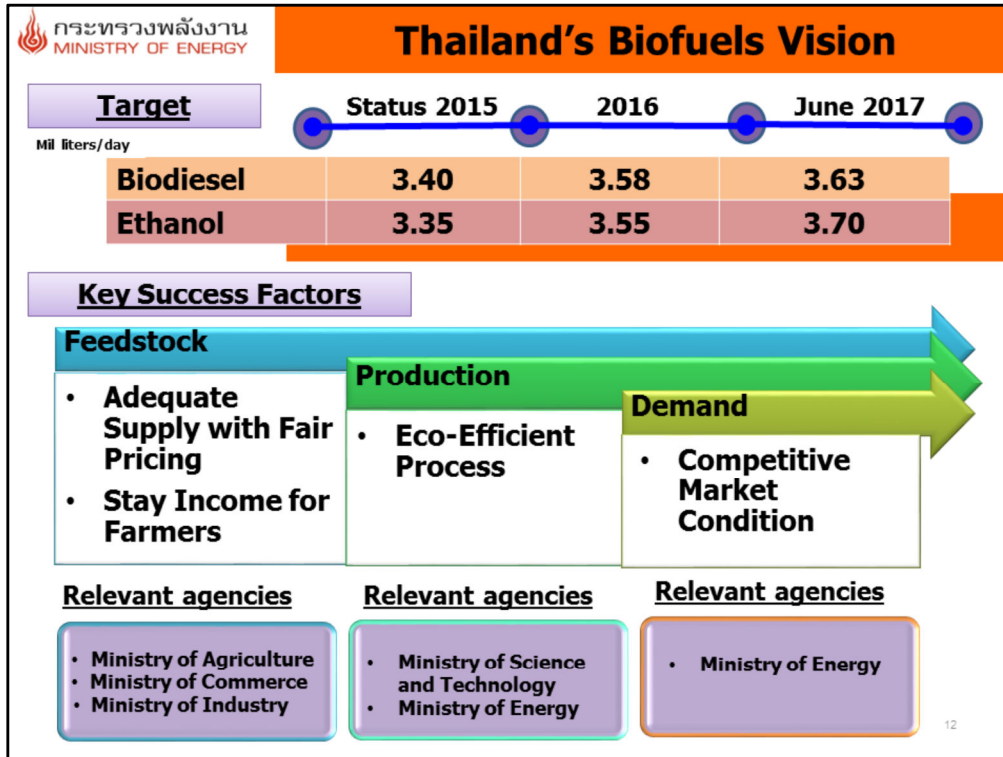
(3.4 million litre per day in 2015)

- **Source:** Palm oil products
- **Disadvantage:** Higher production cost than pure diesel
- **Government's support:** Mandated commercial diesel to blend in 2-7% of biodiesel since 2010

Biofuels need government's supports to be price competitive with pure fossil fuels

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On the other front, Thailand is very committed to biofuels development. We have great potential in both **ethanol** and **biodiesel**. For ethanol, we have 2 feedstocks from Sugar-cane and Cassava, while only Palm Oil serves as the single feedstock for biodiesel.



At the moment, the ethanol has already achieved 15% market share in the Gasoline market. On the other hand, biodiesel could only achieve 7% mix and due to the seasonal volatility, we might anticipate some changes in the future even though we are pushing forward for 10% mix by mid-next year.

3E's Concepts

Energy Security

- Steady Supply
- Balanced Mix

Economic

- Fair Energy Prices

Environmental-Friendly

- Eco-Efficient
- Sustainability

Thailand's vision of energy security, economic prosperity and environmental sustainability cannot be realized without international collaboration. **ASIA Sustainable Energy Week 2016**, which consists of **Renewable Energy Asia 2016**, **Energy Efficiency Expo 2016** and **Entech Pollutec 2016**, will certainly serve as a platform for government officials, energy experts and technicians to exchange critical views and share valuable experiences that might lead to constructive energy solutions for the region. On the other hand, Thailand's lesson learnt and experiences will provide delegates from various countries in the region with profound insights.



On behalf of the Ministry of Energy, I would like to thank the organizer, UBM Asia (Thailand) for their expertise in helping make ASEAN Sustainable Week 2016 a major success for those who attended including all associations and private and public sectors for their generous assistance in making the ASEAN Sustainable Energy Week 2016 one the most successful and memorable event of the year. I wish the conference a great success and ask for your continued support for the event in the future.

I now officially declare **"ASEAN SUSTAINABLE ENERGY WEEK 2016"** open.