

**Thailand: Recent Developments  
in the Energy Sector**

GMS: Special Meeting of the Sub-regional Energy Forum  
Bangkok, Thailand, 18-19 March 2009

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**Agenda**

- **Developments in Institutional/Policy Framework**
  - ❖ Thailand's Energy Policy under the Present Government
  - ❖ Energy Industry Regulation in Thailand
  - ❖ Thailand's Strategies to Enhance Energy Security
- **Progress in Energy Programs**
  - ❖ Natural Gas Supply Management
  - ❖ Oil Supply Management
  - ❖ Alternative/Renewable Energy Strategy and Target
  - ❖ Energy Efficiency Improvement

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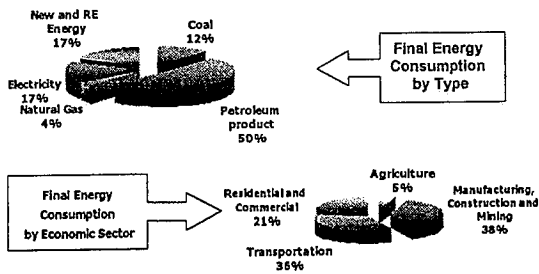
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**Energy Situation in Thailand**

**Thailand Energy Situation in 2007**



Total final energy consumption 64.87 Mtoe (Energy Import 24,062 Million USD)\*  
\*1 USD = 34.72 THB

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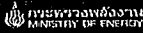
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## Thailand's Energy Policy (PM Abhisit Administration)

- 1. Intensify Energy Development for Greater Self-reliance**
  - ☞ expediting more investment in E&P of energy within the country, in JDAs and from neighboring countries, including creating energy mix in power development – particularly, power generation from potential domestic RE sources.
- 2. Set the Policy on Alternative Energy as a National Agenda**
  - ☞ by encouraging production and use of alternative energy, particularly biofuels and biomass, to enhance energy security; encouraging production & use of RE at the community level; expediting greater use of NG in the transportation sector; and promoting R&D of all forms of RE.
- 3. Supervise & Maintain Energy Prices at appropriate, stable & affordable levels**
  - ☞ by setting appropriate price structure; managing prices through market mechanism and Oil Fund to promote economical use of energy; and encouraging competition and investment in energy business, including improvement of service quality and safety.
- 4. Promote Serious and Continuous Energy Conservation and Efficiency**
  - ☞ in the household, industrial, service & transportation sectors, with appropriate incentives, by setting energy efficiency standards of electrical appliances & buildings and supporting development of mass public transportation and rail systems.
- 5. Promote Energy Production & Consumption concurrently with Environmental Conservation**
  - ☞ giving importance to facilities, safety and



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## Energy Industry Regulation in Thailand

- **Energy Industry Act B.E. 2550 (2007) has come into force since 11 December 2007.**
- **The Energy Regulatory Commission (ERC) was graciously appointed by His Majesty the King on 1 February 2008.**
- **The ERC is responsible for regulating the electricity and natural gas industry under the policy framework of the government.**
- **The Office of the Energy Regulatory Commission (OERC) has been established to function as the Secretariat to the ERC.**



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## Thailand's Strategies to Enhance Energy Security

Apart from **efficient supply management of conventional fuel:**

- **Natural Gas Supply Management**
- **Oil Supply Management**
- **Power Supply Management**

another major approach in the energy sector to enhance energy security is to **diversify energy types and supply sources**, taking into consideration environmental dimension.

- **Promotion of Alternative/Renewable Energy**
- **Consideration on Nuclear Energy**

**Energy efficiency improvement** is another important means that helps reduce overall energy demand, and hence reduce dependency on energy import.



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## Natural Gas Supply Management (1)

### Natural Gas Demand

- In Thailand, NG utilization is promoted, particularly in power generation and transport sectors, to replace petroleum products such as fuel oil, diesel and gasoline.
- Since the world oil prices have increased during recent years, more industries have switched to use NG instead of oil.
- Based on PDP 2007, NG demand during 2007-2011 is projected to increase by an average of 6% per year for power generation.
- If included industry and transport demand, NG demand will grow at an average of 10% per year.



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## Natural Gas Supply Management (2)

### Natural Gas Supply

- Total supply of NG (Aug 2008) was 3,652 million cubic feet per day (MMSCFD), 6.75% increase from the end of 2007.
  - > 2,805 MMSCFD (77%) produced in Thailand.
  - > 847 MMSCFD (23%) imported from Myanmar.
- It is expected that NG production will increase to about 5,400 MMSCFD in 2012 and about 7,440 MMSCFD in 2021.
- Support PTTEP to be the arm of the government in petroleum resource development, particularly at the international level.
- Encourage Thai energy operators to joint venture in energy projects overseas.



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## Oil Supply Management (1)

Oil demand is projected to increase at an average growth rate of 3.3% during 2007-2021.

- Oil remains to be the major fuel of the country in spite of promotion of energy conservation and greater use of NG.
- Oil remains the major fuel in the transport sector.

Projection of Oil Demand up to 2021

Unit: KBD

Type	2006	2007	2011	2016	2021	CAGR %				
						2007	2007-11	2012-16	2017-21	2007-21
LPG*	86	88	100	131	169	2.2	3.0	5.6	5.2	4.6
Gasoline**	124	128	149	172	200	2.9	3.7	2.9	3.0	3.2
Jet & Kerosene	78	81	97	122	155	4.1	4.3	4.8	4.9	4.7
Diesel**	317	329	381	446	530	3.9	3.7	3.2	3.5	3.5
Fuel Oil	101	85	82	80	99	-16.3	-4.2	-0.5	4.5	-0.1
Total	707	711	808	951	1,154	0.6	2.7	3.3	3.9	3.3

\* Excluding demand in petrochemicals  
\*\* Replacement by NGV already deducted

### Review of Alternative/RE Strategy and Target



- Former target according to the Energy Conservation Plan, Phase 3, was to increase the use of RE to 9% by 2011.
- Given the highly volatile oil price in the past year, Thailand plans to boost RE development in order to reduce dependency on imported oil.
- A 15-year Renewable Energy Development Plan (REDP) was submitted to the National Energy Policy Council on 16 January 2009 and further presented and approved by the Cabinet on 28 January 2009.



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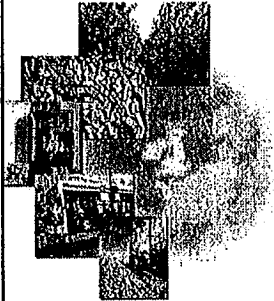
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### Alternative Energy Policy In Thailand



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### Alternative Energy Development Plan (2008-2022)

#### Objectives:

1. To utilize alternative energy as a major energy supply of the country for replacing oil import,
2. To increase energy security of the country,
3. To promote an integrated green energy utilization in communities,
4. To enhance the development of alternative energy technology industry,
5. To research and encourage high efficiency alternative energy technologies.

#### Target

**"To increase a share of alternative energy mixed to be 20% of the country final energy demand in the year 2022"**

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**Alternative Energy Development Plan  
AEDP (2008-2022)**

**Key Success Factors**

1. Subject RE as a "National Agenda".
2. Government continuously and strongly support RE, especially, Incentive of BOI, ESCO Fund, Revolving Fund and add cost
3. Government provides infrastructure for the RE expansion.
4. Revise of the obstructive legislation.
5. Fully allocate the budget for research, development, demonstration, dissemination and public relation of RE.
6. Accessibility of RE data, e.g. Potential and raw material management
7. RE technology standards.

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**Alternative Energy Development Plan  
AEDP (2008-2022)**

**Output and Outcome**

- (1) **Economics aspect**
  - ❖ Currency saving on energy import 460,000 MB/year within 2565.
  - ❖ Increase investment of private sector 382,240 MB.
  - ❖ Creates 40,000 clean and new jobs.
  - ❖ Opportunity to earn 14,000 MB/year from Carbon Credit trading.
  - ❖ Delay the construction of new fossil fuel power plant 3,8000 MV (equivalent to 100,000 MB).
  - ❖ Create Country's incomes by exporting biofuels, RE technologies (Gasification, Biogas fermentation system).
- (2) **Social aspect**
  - ❖ Migration mitigation due to job creation in rural areas.
  - ❖ Extra income to farmers.
  - ❖ Improve quality of life for Thai people.
- (3) **Environmental aspect**
  - ❖ Low Carbon Society to mitigate the global warming

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**Nuclear Power:  
Major Reasons for Nuclear Power Introduction**

1. **Energy Security**  
At present, Thailand uses natural gas from the Gulf of Thailand and import from Myanmar for power generation, accounting for a share of almost 70%.  
However, the R/P of domestic natural gas reserves is rather low (~ 30 years), which is considered a high risk in terms of energy supply and resources.
2. **Concern over Global Warming and Climate Change**  
The global warming crisis has clearly and vigorously reflected itself in climate change, resulting in the global pressure to reduce GHG emissions urgently.  
For an NPP, no GHG emission from the power generation process.
3. **Maintenance of Energy Price Stability & Competitiveness in the Long Run**  
In the past 5-6 years, there has been a 3-4 fold increase in the prices of petroleum and natural gas and the prices have been volatile.  
Nuclear power is a fuel option for large-scale power generation, with low generation cost that can be competitive with other types of power plants.

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