

Asian Energy Outlook up to 2035

A Joint Study to Develop the “Asian Energy Outlook”
by experts from Asian Petroleum Producing-Consuming Countries

April 18, 2011

**This outlook was made in February 2011, therefore does not reflect
any change of situation in Japan.*

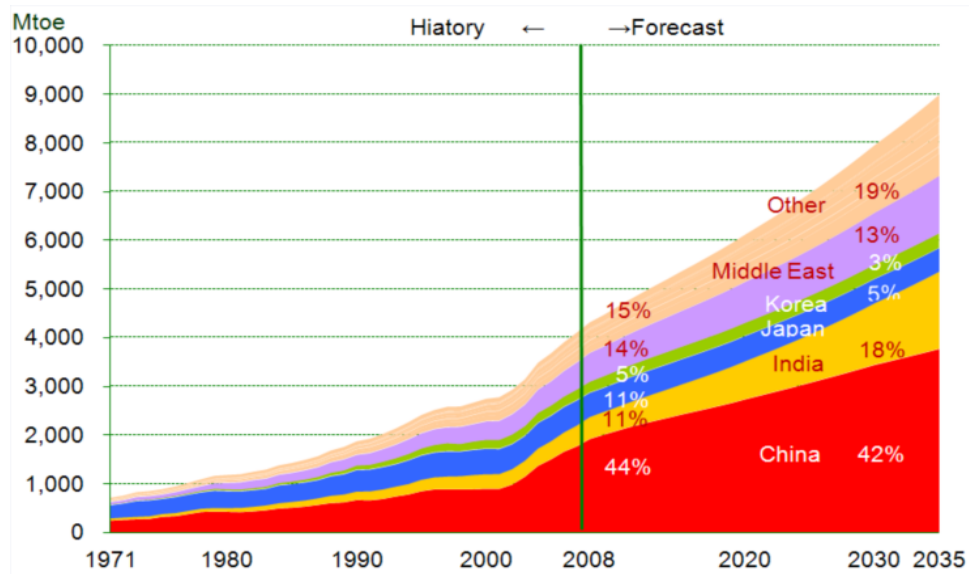
Background and Features of the “Outlook”

- The world energy market faces various uncertainties and challenges
- Common recognition that the improvement of transparency and enhancement of predictability for energy supply-demand is critical for market stabilization
- The 3rd Asian Ministerial Energy Roundtable in Tokyo (April 2009) welcomed Japan’s proposal to conduct a study to jointly develop an “Asian Energy Outlook” as a means of promoting better understanding of the market prospects
- The study has been conducted in collaboration with experts from Asian oil producing and consuming countries and international organization such as IEA, IEF and OPEC
- Workshops were held for four times in various Asian cities (Tokyo, Beijing, Riyadh and Delhi) to discuss, refine and finalize the Outlook, with the participation of experts

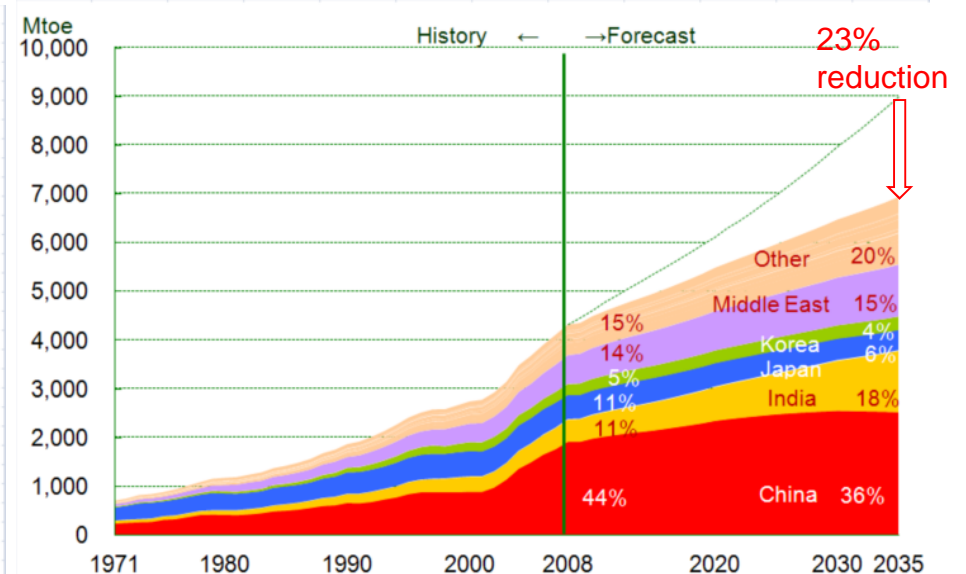
Outlook of Primary Energy Demand (BAU and Alternative scenario)

- Asia's primary energy demand in 2035 under BAU (Business as Usual) scenario will increase 2.1 times from 2008.
- However, if we succeed to implement all possible policies for energy saving and energy diversification (under Alternative Scenario), Asia's primary energy demand in 2035 can decrease by 23% compared to BAU scenario (a 1.6-fold increase).
- * For reference, oil demand will increase 1.9 times from 2008 to 2035 under BAU scenario, and 1.5 times under Alternative Scenario.

<BAU(Business As Usual) Scenario>



< Alternative Scenario >



Assumptions for the Alternative Scenario

- BAU scenario: continuation of current market situation and policies
- Alternative scenarios: implementation of the following energy efficiency and diversification policies
 - (1) Maximum impact scenario (MIS): the maximum success of those policies
 - (2) Strong policy scenario (SPS): more moderate success of those policies than the maximum impact scenario

Regulation, National targets, SSL, etc.

Carbon tax, emissions trading, RPS, subsidization, FIT, efficiency standards, automobile fuel efficiency standard, low carbon fuel standard, energy efficiency labeling, national target etc.

Promotion of R&D, International Cooperation

Encouragement of investment for R&D, international cooperation on energy efficient technology, support for the establishment of efficiency standards

【Demand Side Technology】

■ Industry

Best available technology for industrial processes such as steel making, cement, paper, oil refineries, etc. become internationally penetrated

■ Transport

Globally expand clean energy vehicles (high fuel efficiency vehicles, hybrid vehicles, plug-in hybrid vehicles, electric vehicles, fuel cell vehicles)

■ Buildings

Efficient electric appliances (refrigerators, TVs, etc.), high efficiency water heating systems (heat pumps, etc.), efficient air conditioning systems, Efficient lighting, strengthening heating insulation

【Supply Side Technology】

■ Renewable

Further expansion of wind, PV, CSP, biomass power generation, biofuel

■ Nuclear

Effective use of nuclear power taking safety into consideration

■ High efficiency fossil fuel power plants, further expansion of coal-fired power plants (USC, IGCC, IGFC), natural gas MACC

■ CCS

Introduction in power generation (coal-fired, gas-fired) and industrial sector

Recommendations

- Enhance cooperation and dialogue between energy producing and consuming countries in Asia and take a concerted approach to world economic growth and market stability.
- Make investment plans by Asian producing countries to help them expand their production capacity to meet growing demand in the future.
- Refine the outlook on energy demand and supply with the corporation of Asian countries, and share a common understanding among policy makers and the market players.
- Implement strong policies to promote energy conservation and introduce renewable energy in the view of meeting increasing demand and using fossil fuel effectively.
- Proceed the Roundtable as a platform to further enhance cooperation and dialogue in Asian region.

Thank you for your attention.

*For more details about the outlook,
please visit following website;

<http://eneken.ieej.or.jp/en/whatsnew/4thAEMR.htm>