

Japan and Asian Oil Market Outlook

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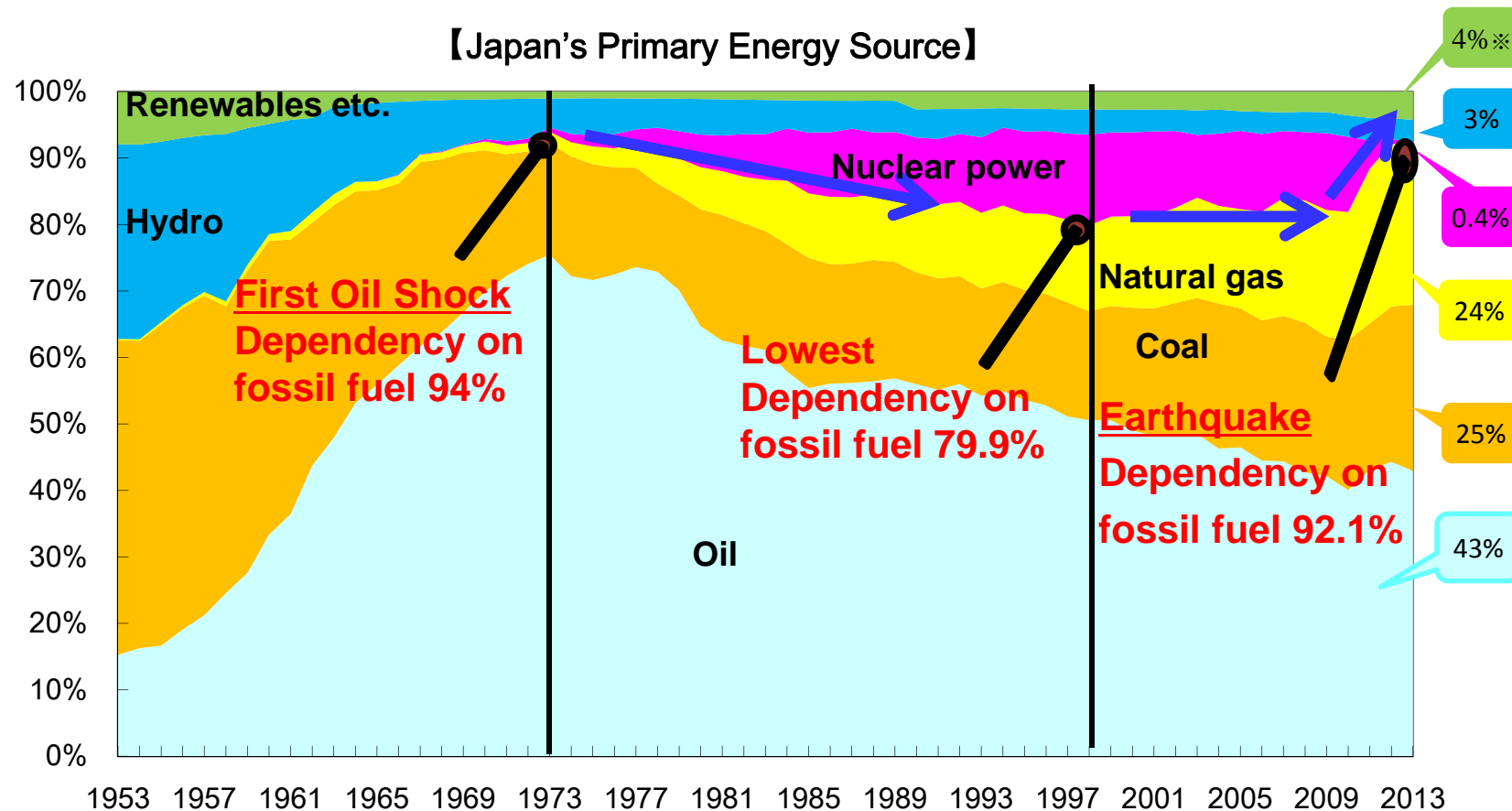
Agency for Natural Resources and Energy

Ministry of Economy, Trade and Industry of Japan

1. Japan's oil market

Japan's Energy Supply Structure (Long term trend)

- Japan's main energy source is shifting from Coal to Oil until the first oil shock, and then from Oil to Natural Gas and Nuclear.

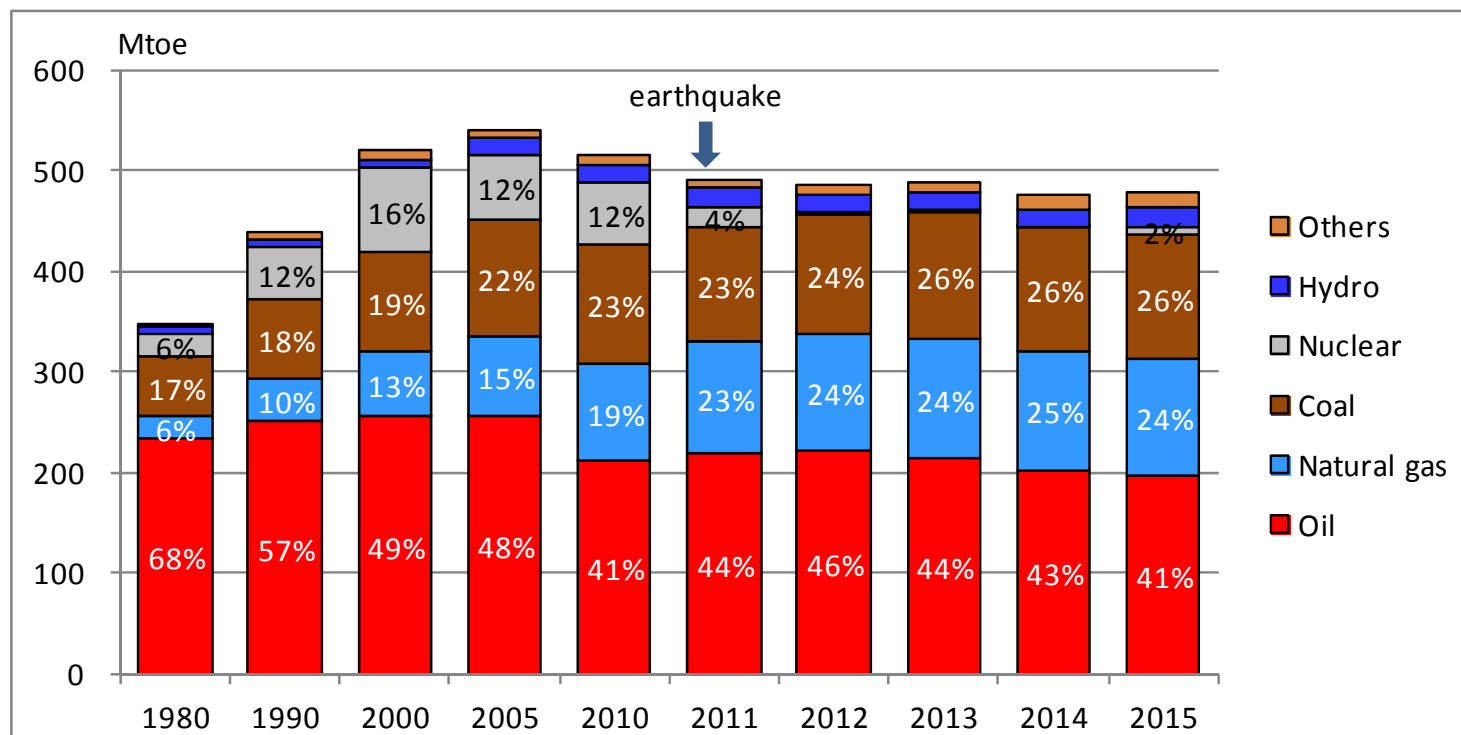


* "Renewables etc." consists of solar power (0.1%), wind power (0.2%), geothermal heat (0.1%), and biomass (3.6%).

Source: Prepared based on "Comprehensive Energy Statistics (Preliminary Report for 2013)" issued by the Agency for Natural Resources and Energy."

Japan's Energy Supply Structure (after the earthquake)

- Oil and LNG increase compensates for the decline of nuclear power.
- Energy demand had shown steep decline after the earthquake, because of economic downturn and strong energy/electricity saving measures.
- If we will be able to restart nuclear, oil, highest cost energy, and natural gas demand is expected to decline sharply.



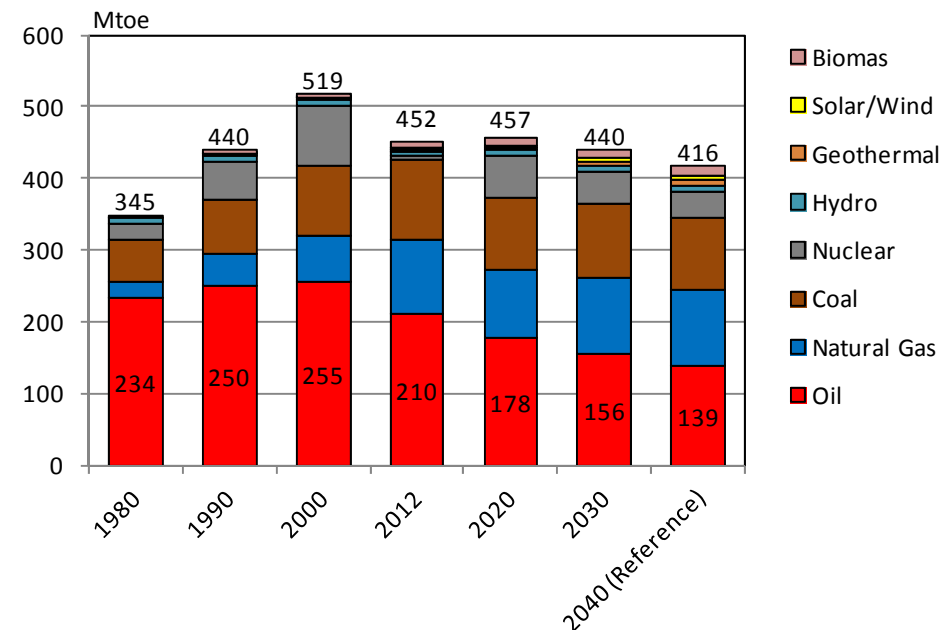
Long term outlook : Reference Scenario

【Reference : NPP-40Years decommissioning scenario】

	1980	1990	2000	2012	2020	2030	2040
Generated elec. From NPP [TWh]	83	202	322	16	227	169	141
Number of working NPP					31	22	18
Working Ratio [%]					80	80	80

- Primary Energy Demand will slightly decrease from 9.2Mbd(452Mtoe) in 2012 to 8.2Mbd(416Mtoe) in 2040 for Reference Case.
- Oil demand may continuously decrease more than other energy.

【Primary Energy Demand】



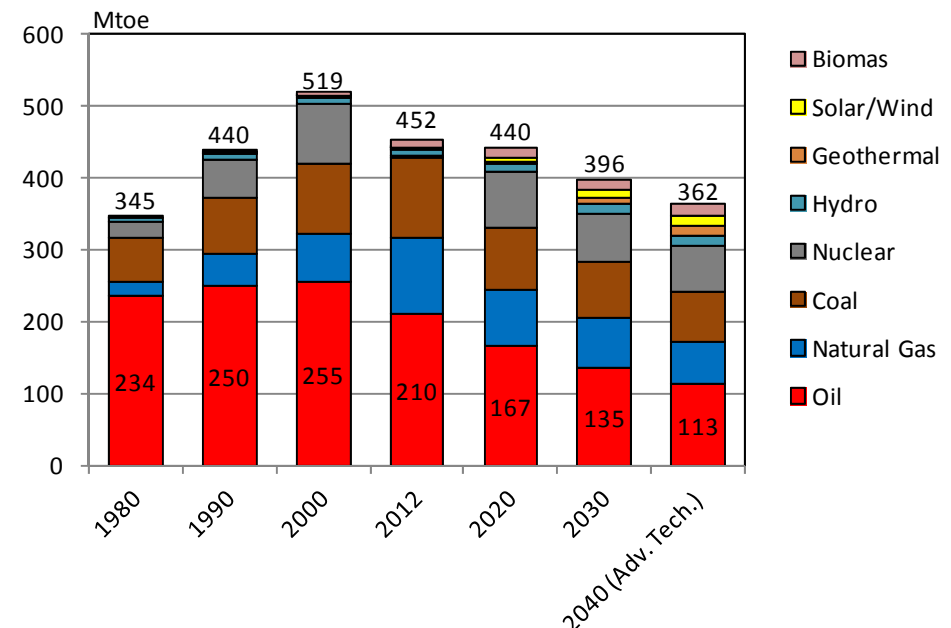
Long term outlook : Adv. Tech. Scenario

【Adv. Tech. : NPP-50Years decommissioning scenario】

	1980	1990	2000	2012	2020	2030	2040
Generated elec. From NPP [TWh]	83	202	322	16	297	254	245
Number of working NPP					45	35	33
Working Ratio [%]					80	80-85	80-85

- Primary Energy Demand will drastically decrease from 9.2Mbd(452Mtoe) in 2012 to 7.3Mbd(362Mtoe) in 2040 for Adv. Tech. Case.
- Fossil energy (Oil, Natural Gas & Coal) demand may continuously decrease. On the other hand, Renewable energy will increase.

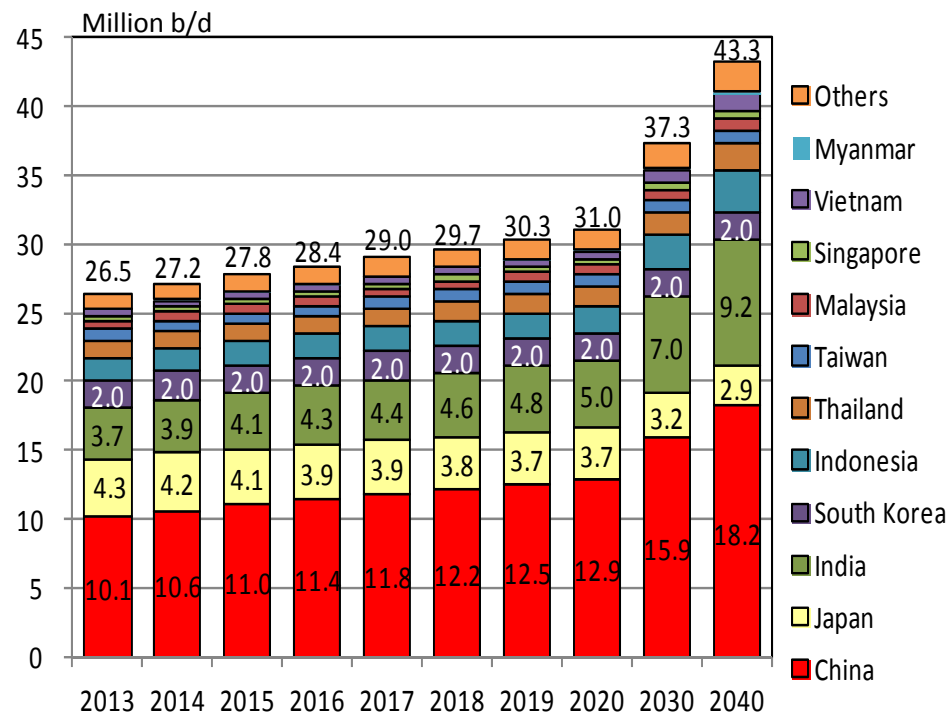
【Primary Energy Demand】



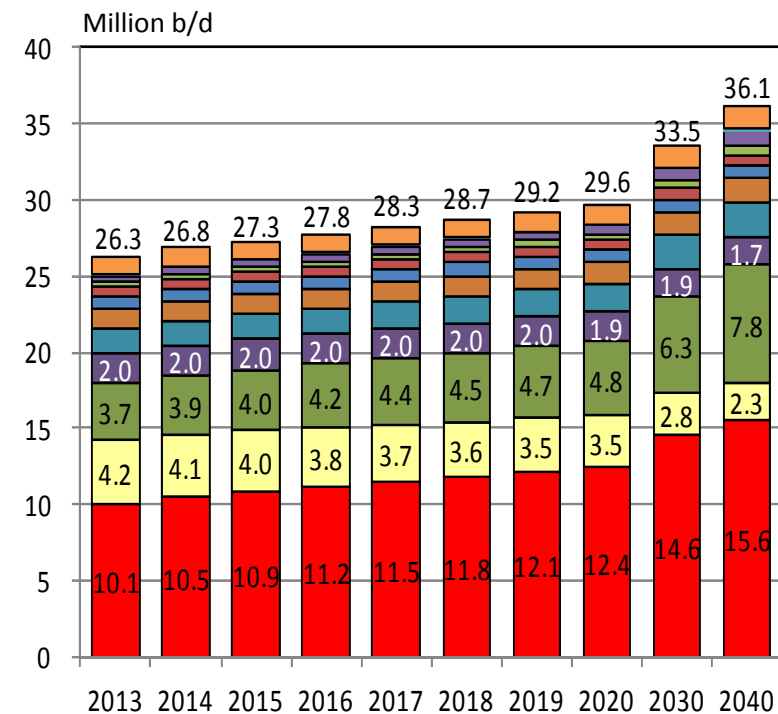
Long term outlook : Oil Demand in Japan among Asia

- The Japanese share will decrease with both cases.
- But, Japanese oil demand will keep large market among Asian countries.

【Reference Case】



【Adv. Tech. Case】



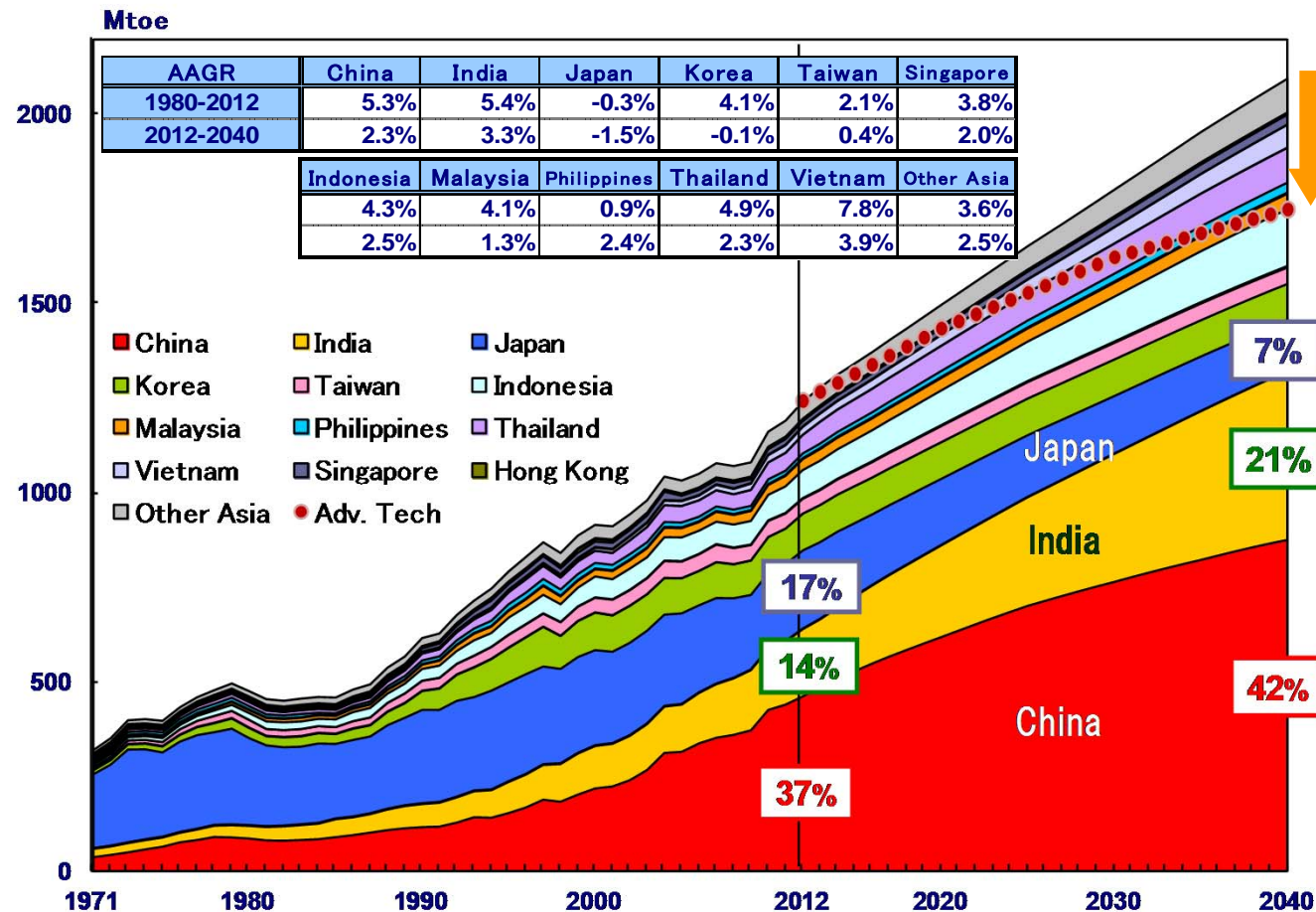
Reference: Projections are based on actual values in 2012.



2. Perspective for East Asian oil market

Oil Demand Will Grow in Asia

- Although the vehicles' fuel efficiency is improving and clean energy vehicles are expanding, oil demand in Asia will increase due mainly to its escalating vehicle ownership.
- In the Adv. Tech. Scenario, projected oil demand saving will be equal to 17% .



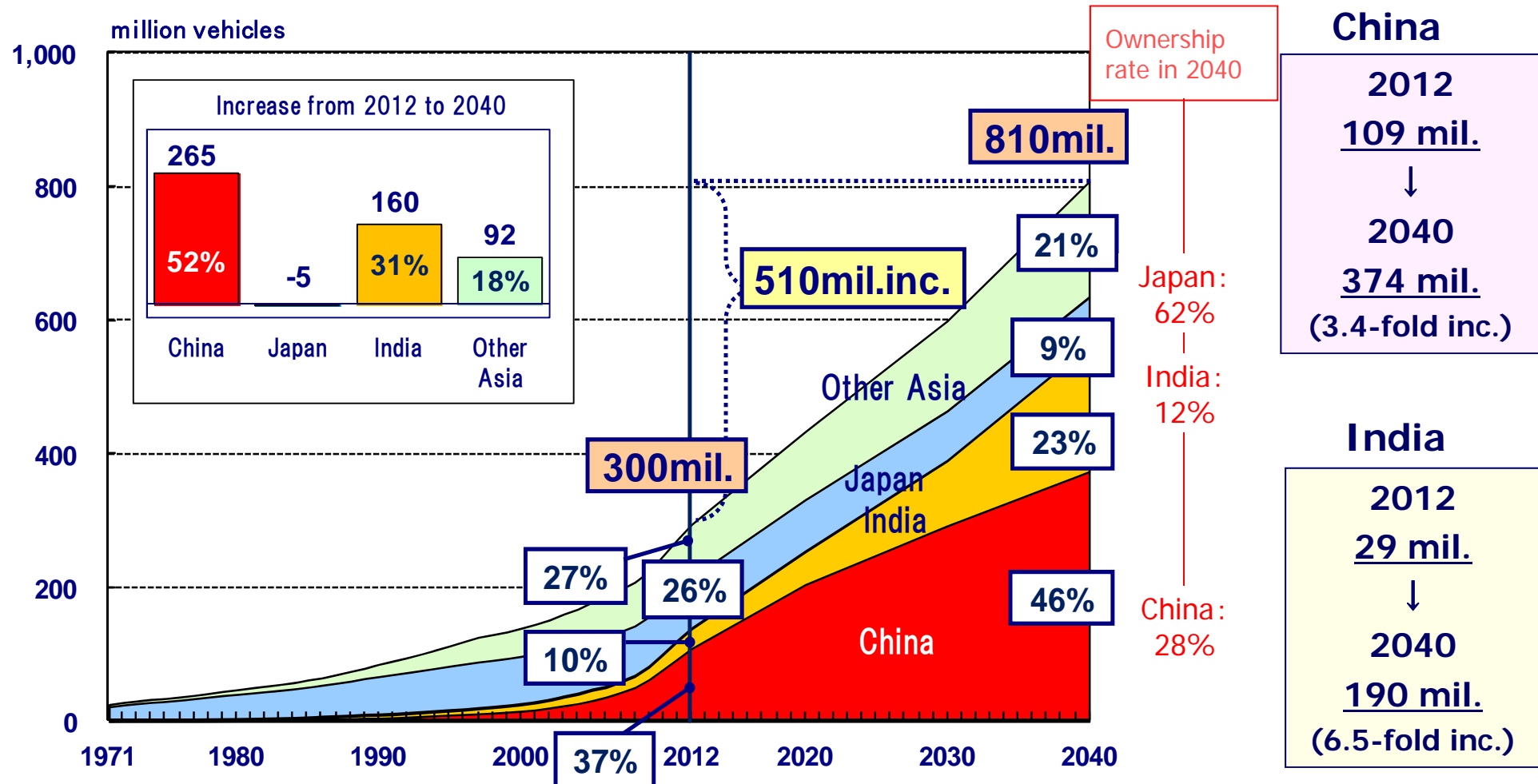
0.35 bil.toe (17%)
Reduction

2012
1.24 bil.toe (25.7 mbd)
↓
2040
Reference
2.10 bil.toe (43.3 mbd)
Adv. Tech.
1.75 bil.toe (36.1 mbd)

Source) IEEJ

The Number of Vehicles (Asia)

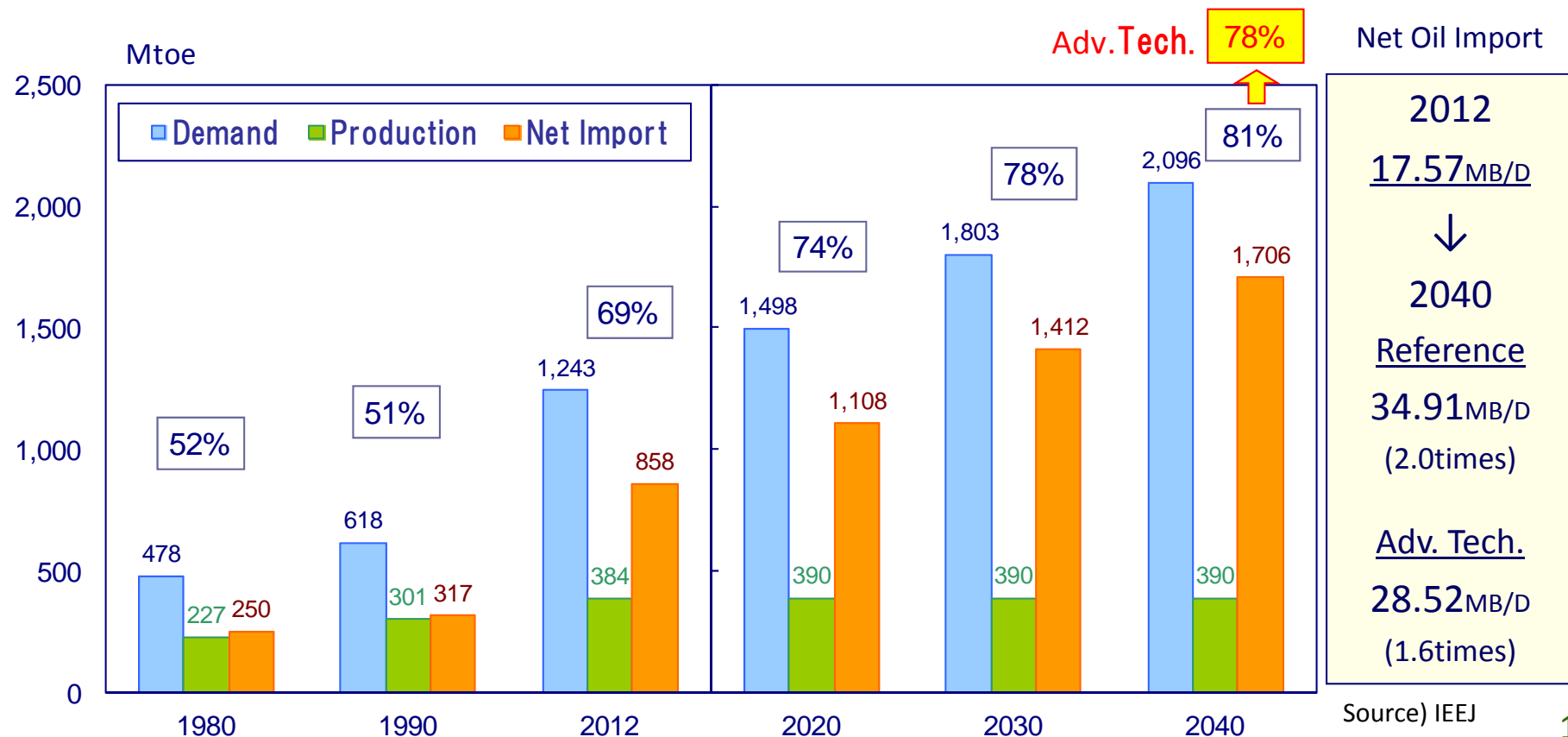
Reference
Adv. Tech.



- China vehicle stock expands substantially due to an increase in the income level. The stock of vehicle in China increases from 109 million units in 2012 to 374 million units in 2040. India's vehicle stock surpasses that of Japan around 2025, increasing from 29 million units in 2012 to 190 million units in 2040.

Concern Over Rising Import Dependency

- Net oil import in Asia will expand continuously.
- Oil production in Asia (such as China, India, Indonesia and Malaysia) will marginally increase, not keeping pace with the steady increase in oil demand.
- Therefore, net oil import ratio will reach 81% in the Reference Scenario, and 78% in the Adv. Tech. Scenario by 2040 (compared with 69% in 2012).



Who will supply to Asia?

- Crude oil export from Middle East to Asia is projected to increase in the reference scenario.
- However, possible unconventional oil development and US crude export has big implication for future landscape.

