

**The Workshop on APEC Coal Supply Security
Asia Pacific Energy Research Centre, Tokyo Japan**



***Coal Policy and Supply/Demand
in Japan***

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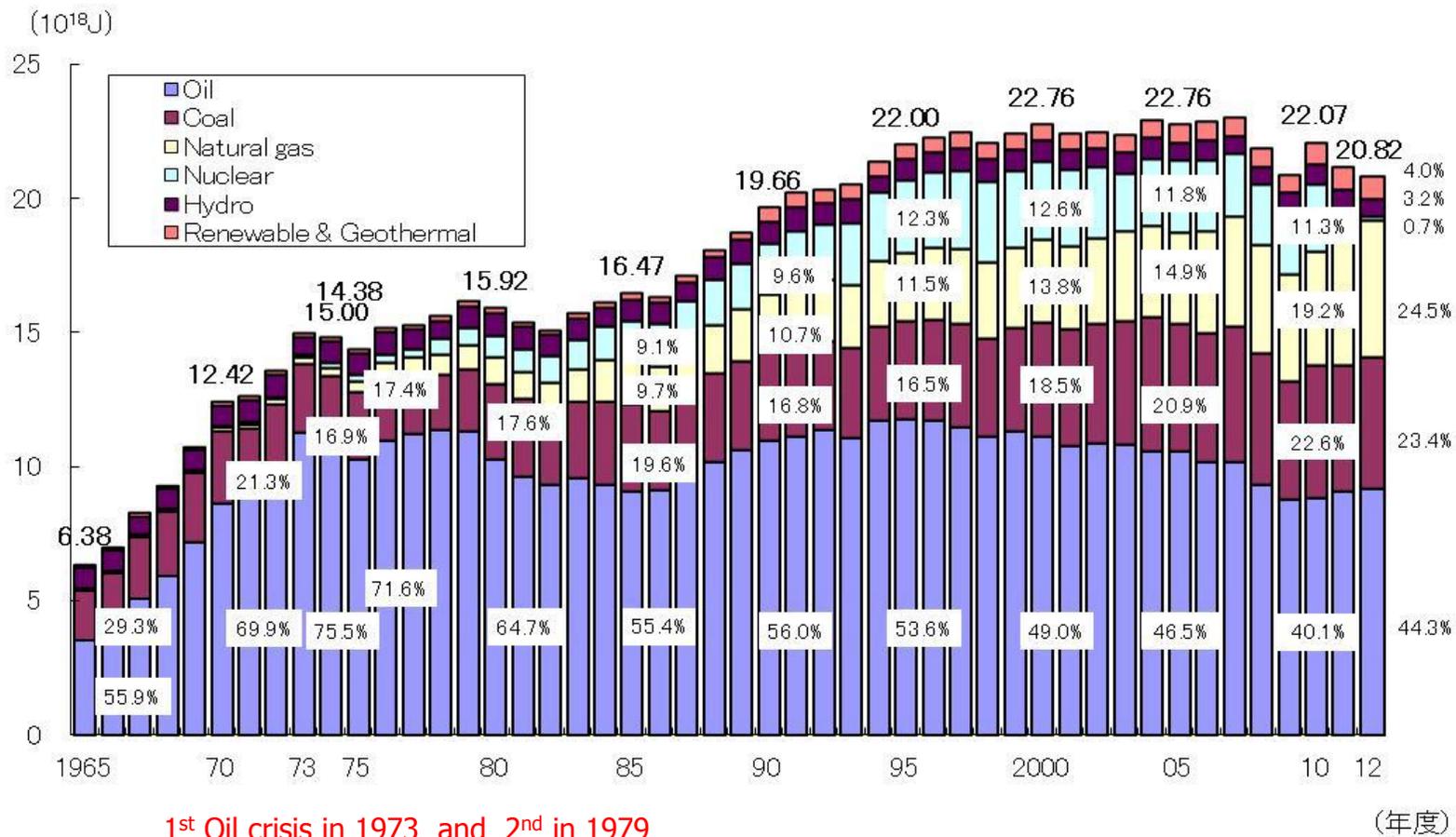
1. Trend of Coal Supply & Demand

- Seeing the trend, you can imagine what Coal Policy should be. -

2. Current Coal Policy and Measures

Trend of Primary Energy Consumption in Japan

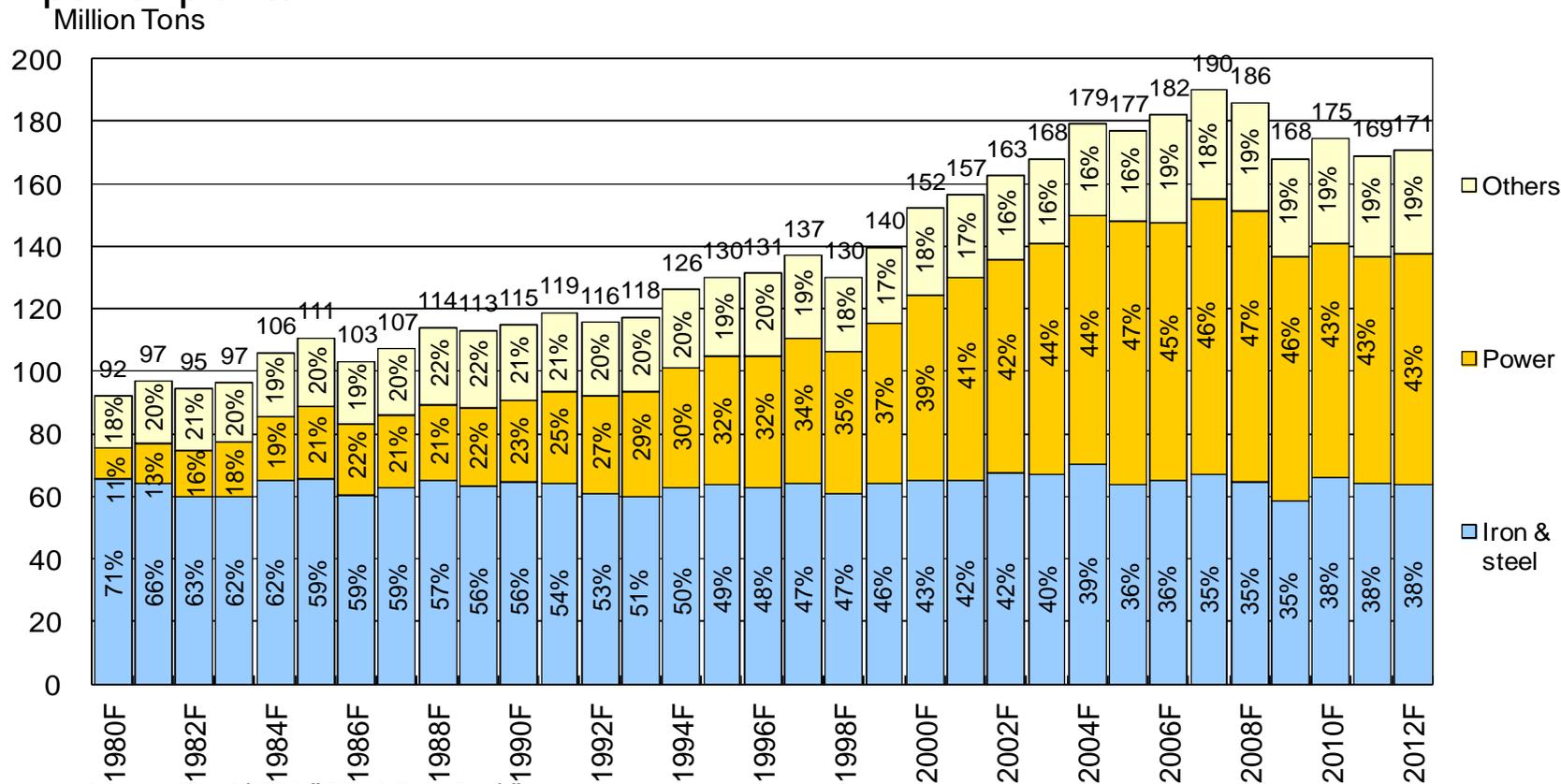
- Two oil crisis made coal revived.
- In JFY 2012, coal is accounted for 23.4% of total primary energy.



Source: METI

Trend of Coal Demand by Industry in Japan

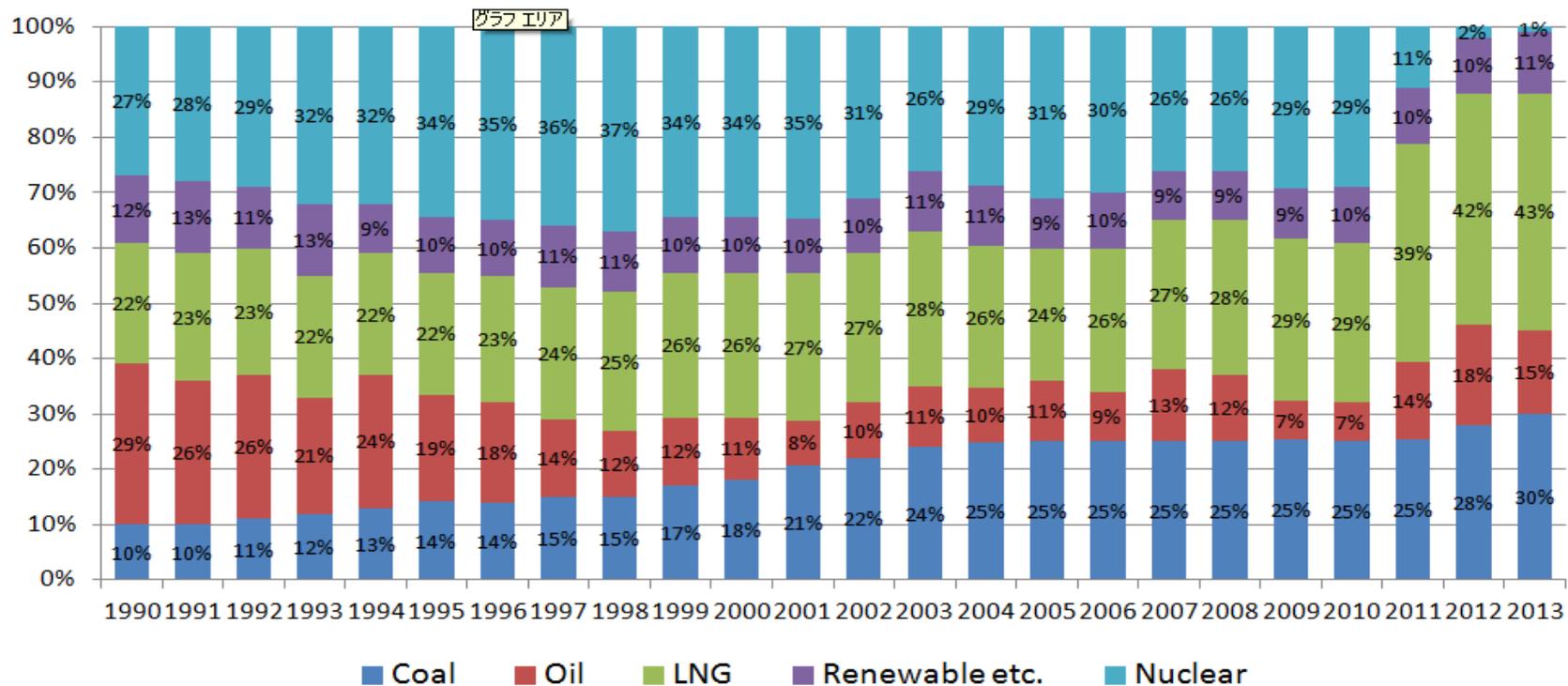
- Iron & steel and other industries are staying about the same volume since JFY 1980.
- Power industry's coal demand is constantly growing up after oil crisis or since JFY 1980.
- And big earthquake in 2011 has promoted the development of new coal-fired power plants.



Source: EDMC/IEEJ, "EDMC Data Bank"

Trend of power mix in Japan

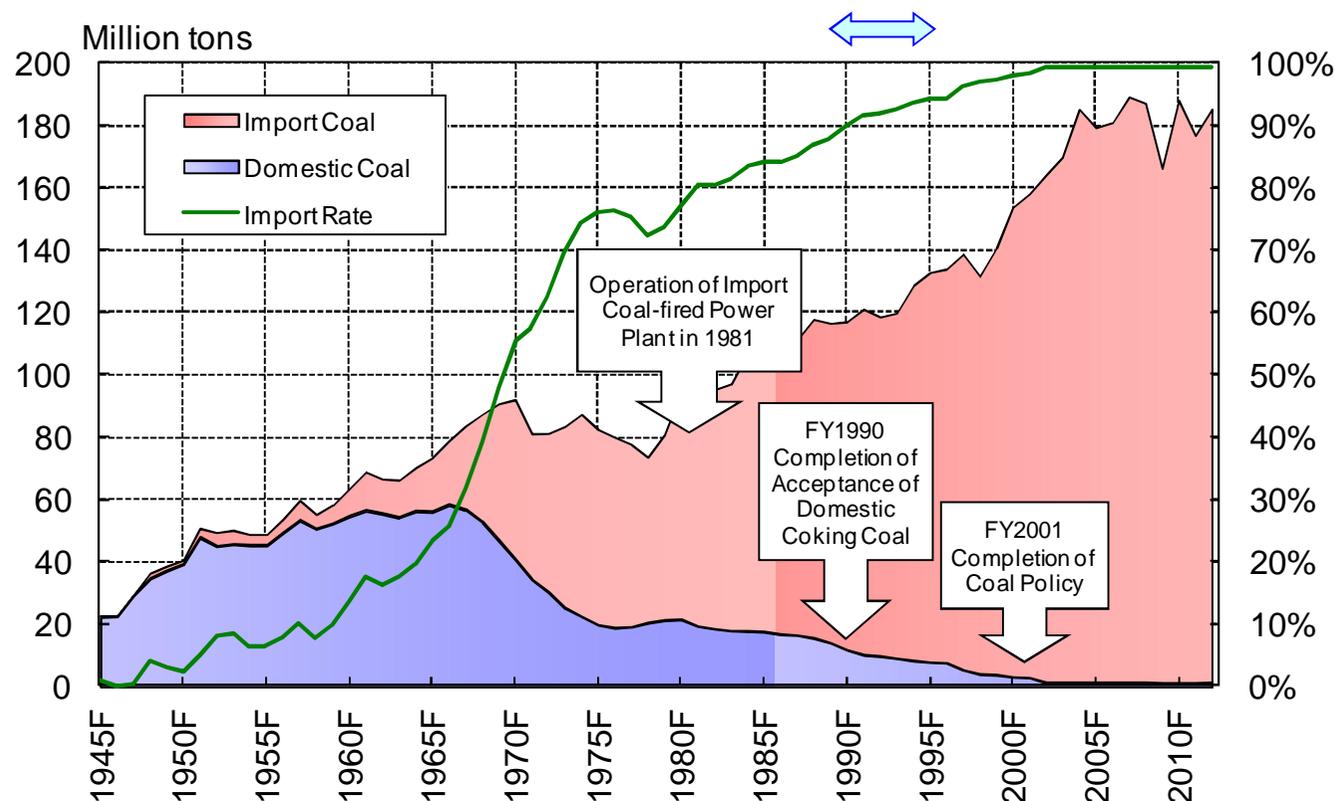
- Before the big earthquake in 2011, power mix was well balanced among nuclear, LNG and coal.
- After the big earthquake, LNG-fired generation increased. And coal has increased its share gradually in the power mix.
- And new coal-fired power plants are being developed or planned much. Volume of power from coal will increase.



Source: METI

Trend of Coal Supply in Japan

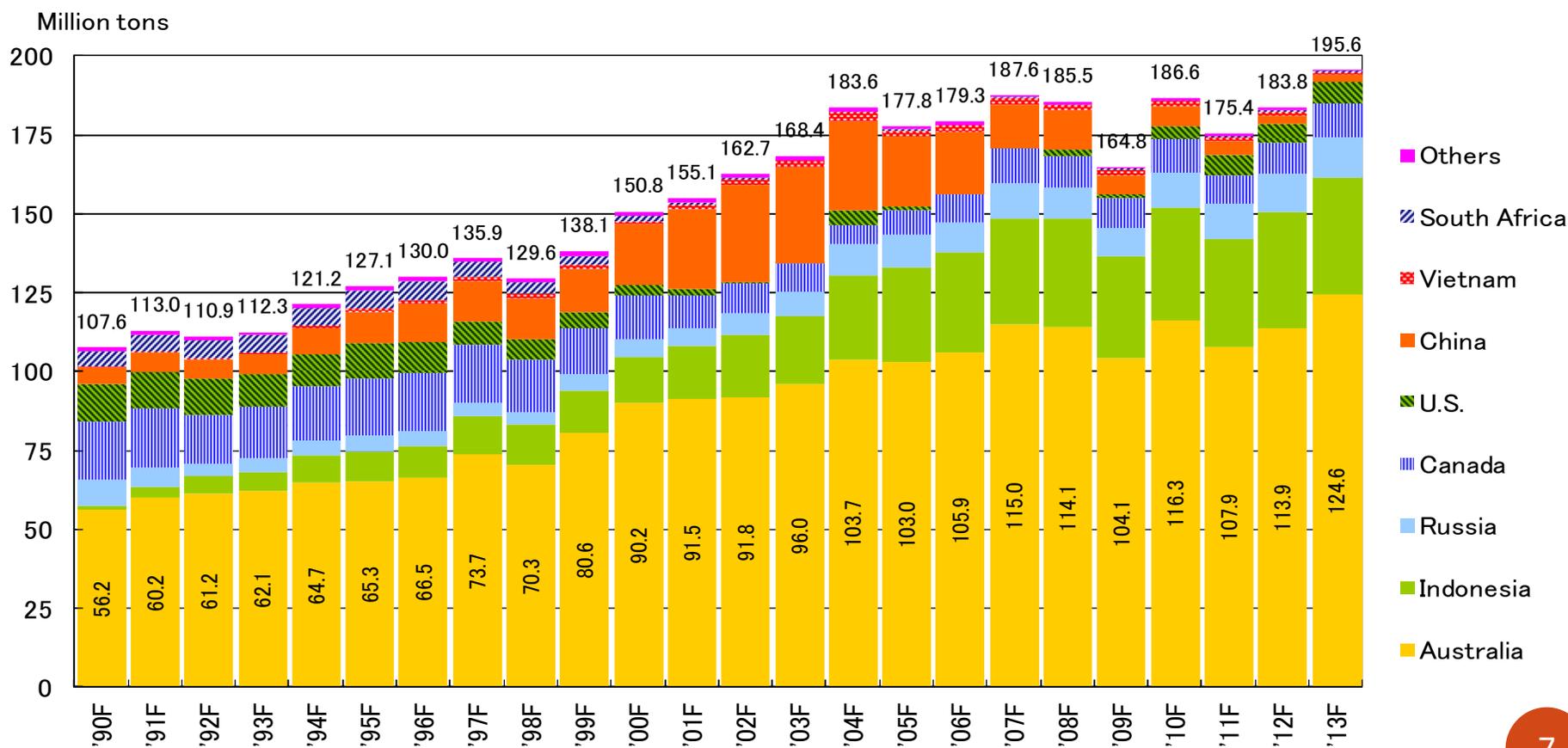
- The volume of coal supply has been increasing constantly in Japan.
- But domestic coal supply decreased drastically since the mid-1960s.
- The whole coal supply came to 185 million tons in JFY 2012, but domestic coal share is 0.7%.
- It means that Japan should and will continue to depend on overseas coal.



Source: EDMC/IEEJ, "EDMC Data Bank" and JCOAL

Trend of Import volumes by Sources

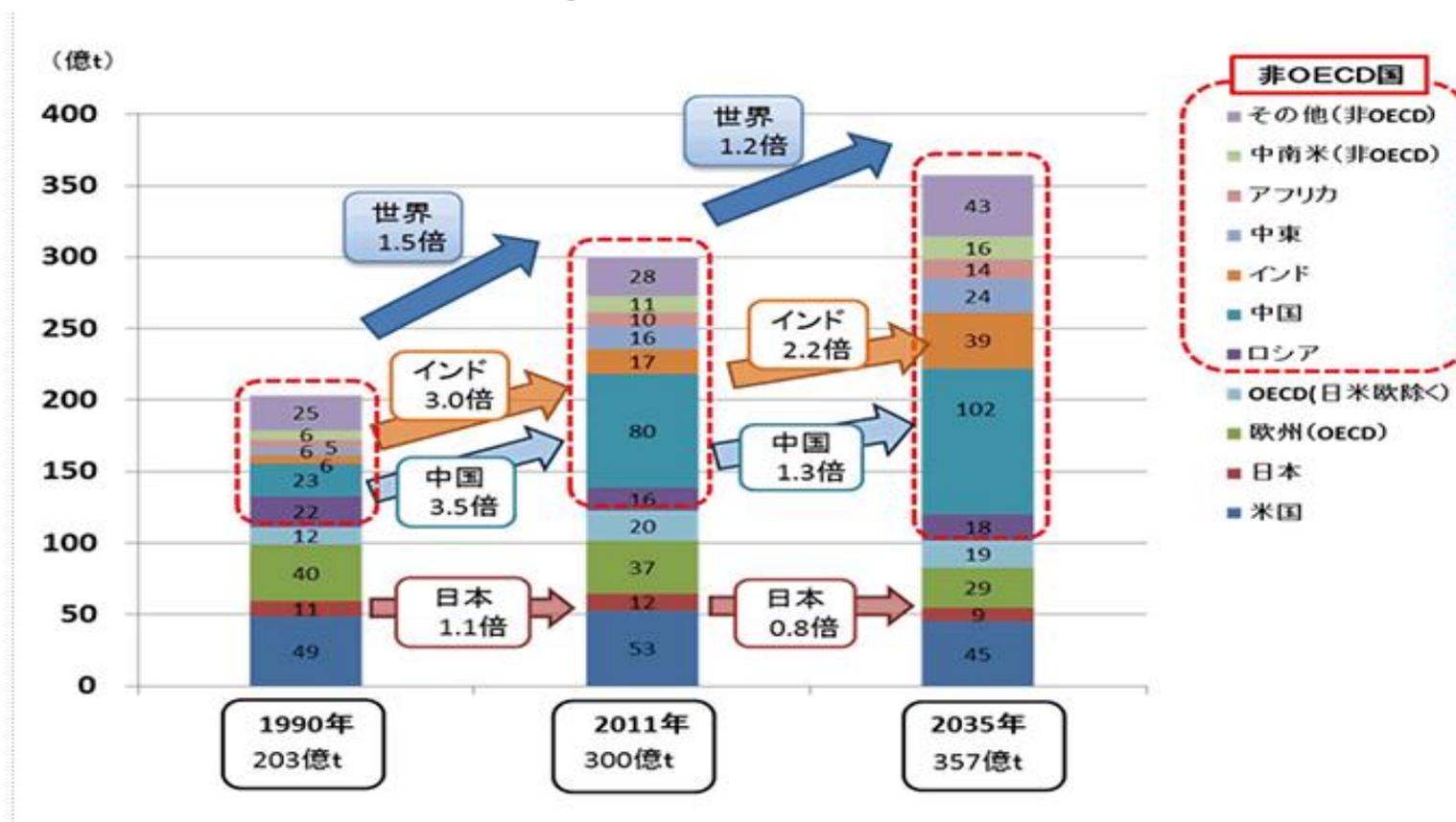
- Australia and Indonesia have been increasing export volume to Japan.
- Two economies supplied by 80% of total supply in Fy2013.
- These two economies are much reliable suppliers, but no need of diversification of supply source?



Source: Ministry of Finance, "Trade Statistics of Japan"

CO2 emissions from fossil fuel in the world

- CO2 emission in the world has increased and will continue to increase.
- Japan should struggle to reduce the emission volume.
- But coal emits CO2 most among fossil fuels.



Source: METI (IEA World Energy Outlook 2013)

Contents



1. Trend of Coal Supply & Demand under the coal policy
 - Seeing the trend, you can imagine what Coal Policy should be. -
- 2. Current Coal Policy and Measures**

◆ Security of stable supply of coal resource

- < Acquisition of interests >
- < Policy dialogue with coal producing countries >
- < Diversification of coal resource >
- < Moderation of coal demand/supply through utilization of low rank coal >

As the world's second biggest coal importer, it is necessary to promote development of overseas coal for energy security in Asia in order to secure stable coal supply in response to growth in coal demand in Asia.

◆ Promotion of coal utilization technologies

- < Development promotion and overseas deployment of CCT >
- < Improvement of efficiency, reduction of CO₂, utilization of low rank coal, etc. >
- < Contribution to CO₂ reduction overseas through deployment CT >

It is necessary to develop and spread CCT to overcome problems related to coal (global warming, acid rain, and difficulty in handling and processing of coal).

- On April 11, 2014, the Cabinet decided to approve the new Strategic Energy Plan as the basis for the orientation of Japan's new energy policy, considering the dramatic changes in energy environments inside and outside Japan.
 1. Basic viewpoint of the energy policy
 - 1) 3E (Energy Security, Economic Efficiency, Environment) + S (Safety)
 - + 2) Importance of the Global Viewpoint
 - + 3) Importance of the viewpoint of economic growth
 2. Position of coal in the primary energy structure and its policy direction
 - **Position**

Though coal has a problem — it emits a large amount of greenhouse gas — it is now being re-evaluated as an important base-load power supply because it involves the lowest geopolitical risk and has the lowest price per unit of heat energy among fossil fuels.
 - **Policy direction**

In addition to promoting the replacement of aging thermal power plants and introducing available leading-edge technology through the construction of new facilities and the expansion of existing ones, GOJ further promotes the development of technologies to drastically reduce greenhouse gas emissions per unit of generated power (e.g., IGCC) by largely improving the power generation efficiency. It is necessary to use coal while reducing the global environmental load by promoting the introduction of such high-efficiency technologies not only in Japan but also globally.

Budget for the Coal Policy (Unit: billion yen)

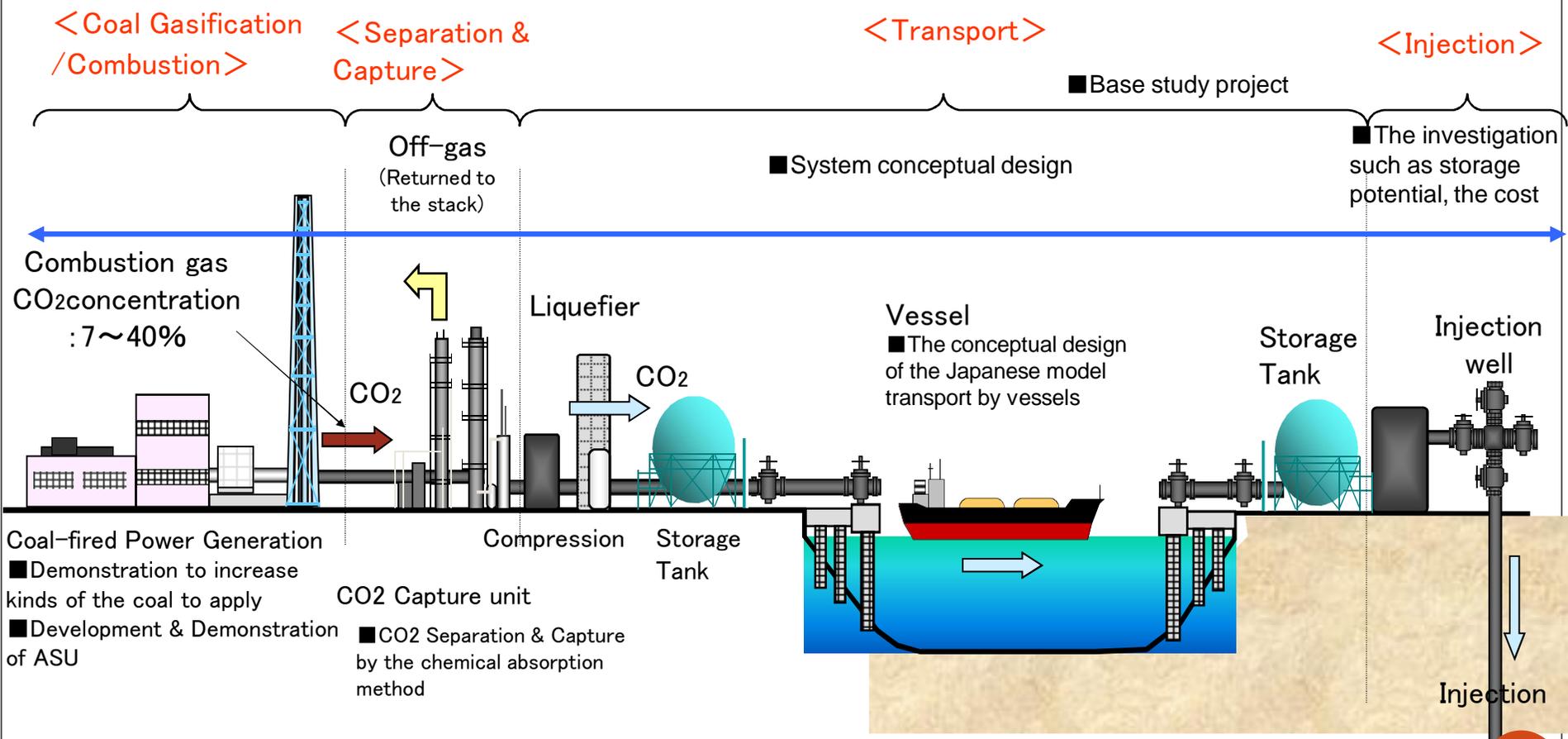


	FY2014 Budget	FY2015 Budget
1. Support for acquisition of coal mining interests	1.70	1.70
2. Strengthening of relationship with the coal producing countries (Training Project on Coal Mining Technology)	2.25	1.61
3. Realization of low-carbon and zero emissions coal-fired power plants	8.06	7.97
4. Development of effective utilization technology of low rank coal	0.87	0.50
5. Promotion of overseas deployment of Japanese made clean coal technology	2.07	3.32
Total	14.95	15.3

Source: METI

Realization of low-carbon and zero emissions coal-fired power plants

● METI is involved in the development of the total system of CCS from gasification/combustion to CO2 injection.

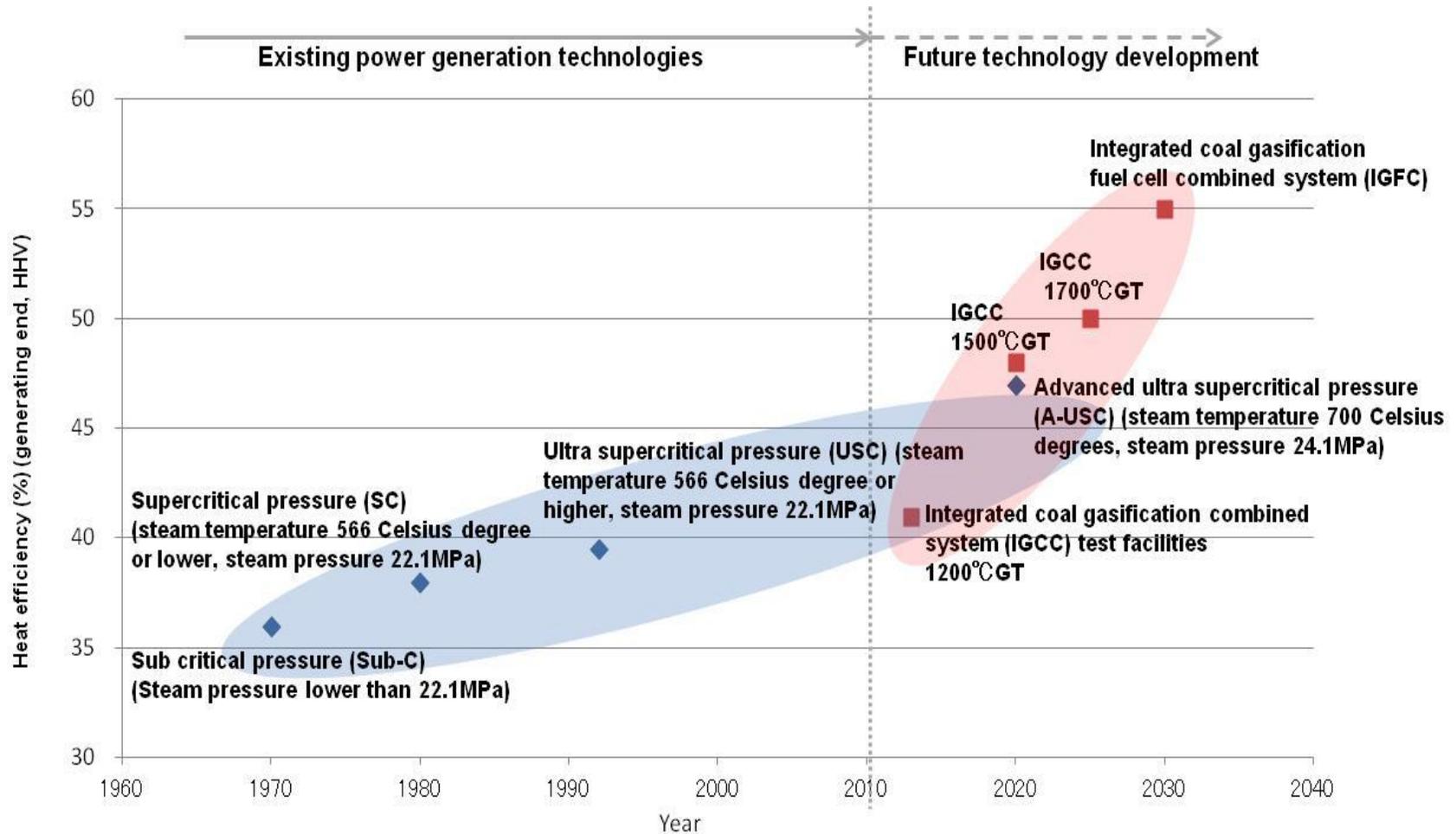


Source: METI

Realization of low-carbon and zero emissions coal-fired power plants



(Roadmap for efficiency improvement of coal fired power generation)

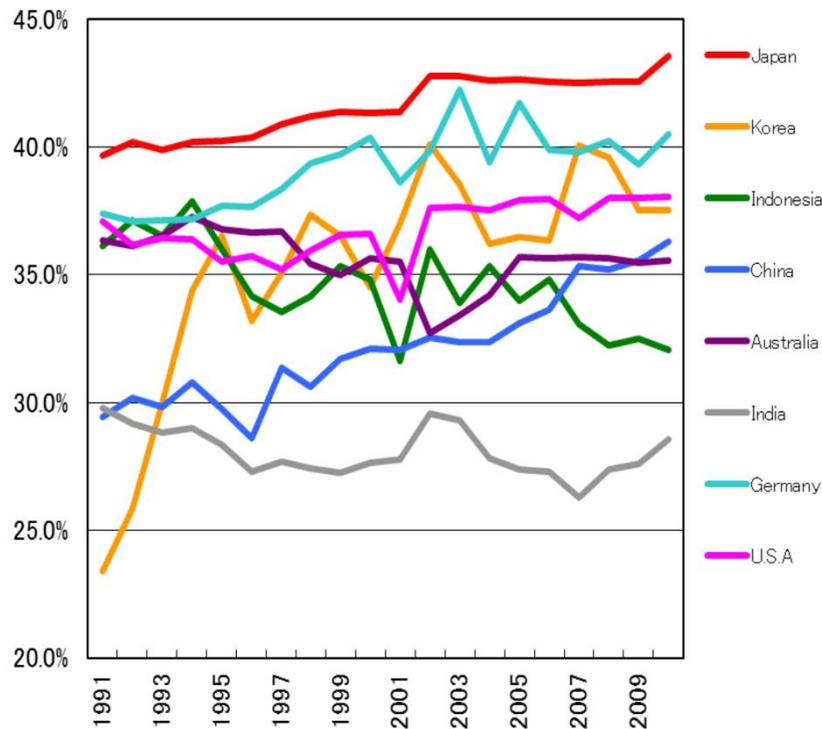


Source: METI

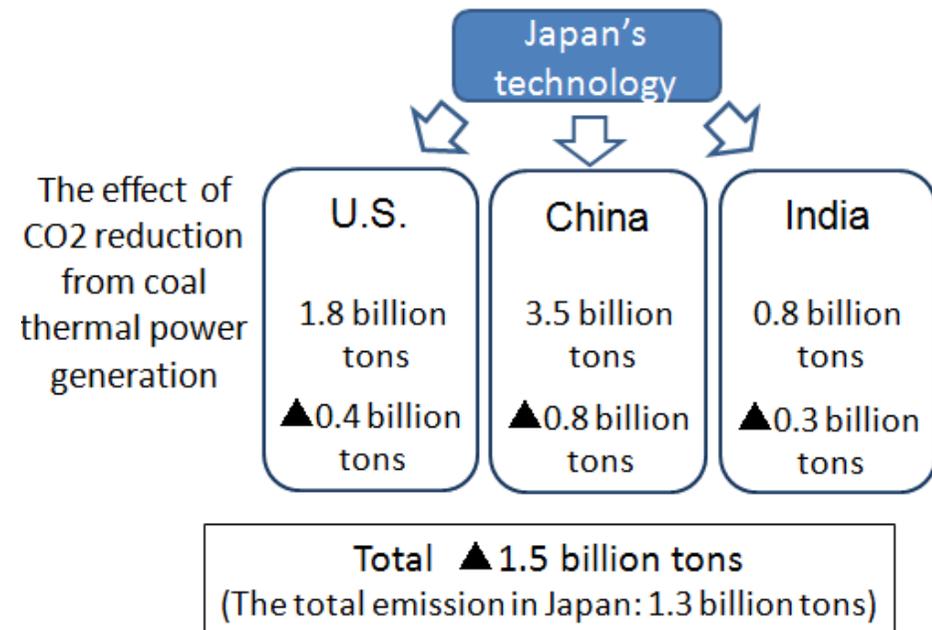
Promotion of overseas deployment of Japanese made clean coal technology

- Japan's Coal-Fired Power Plants are at the highest global standards in terms of thermal efficiency.
- If the most advanced technology in operation in Japan is applied to coal thermal power generation in the U.S. , China and India, it is estimated that CO2 emissions could be reduced by about 1.5 billion tons.

Efficiency of Coal-fired Power Plant



The estimation of CO2 reduction in case Japan's technology is applied



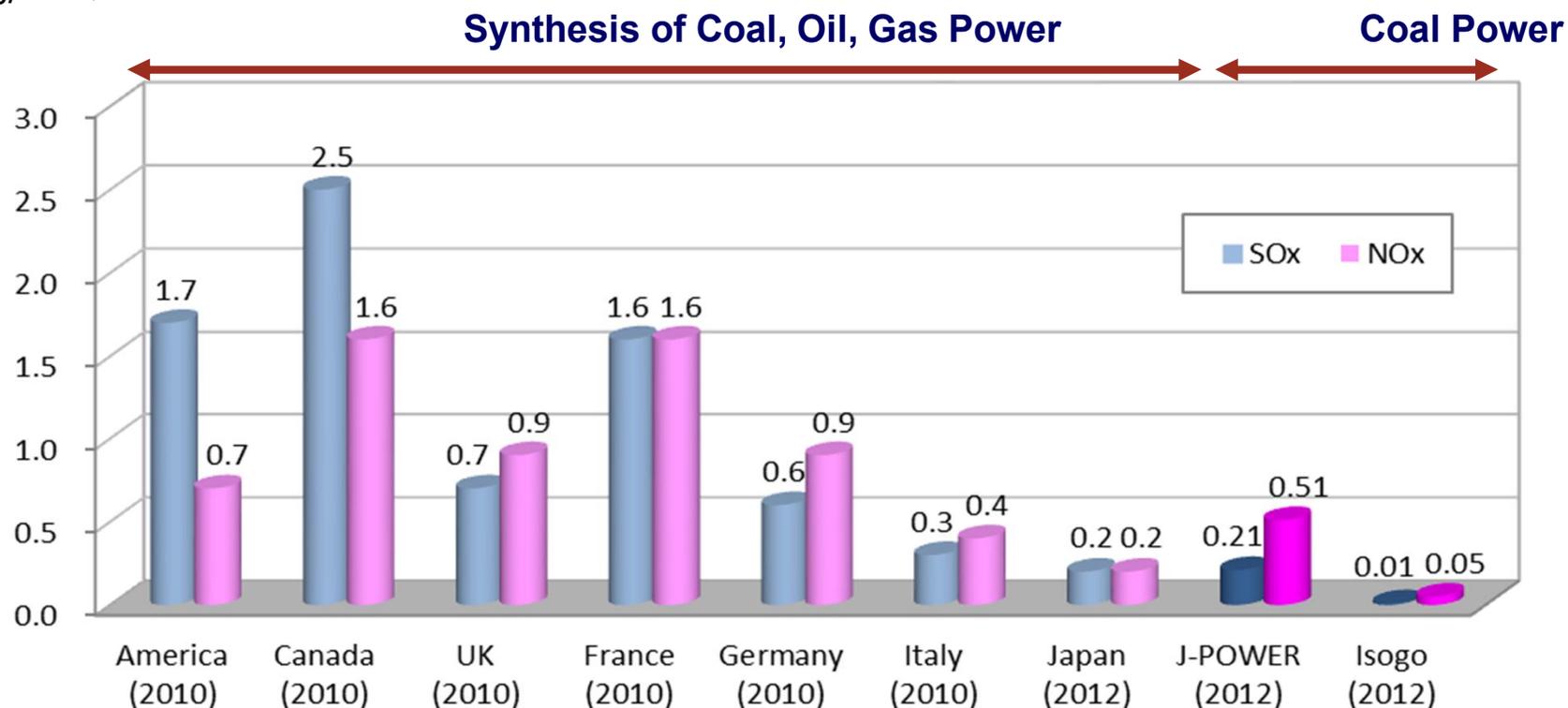
Source: METI

Promotion of overseas deployment of Japanese made clean coal technology (Superiority in DeSOx and DeNOx)



SOx and NOx emissions from ISOGO Power Station is far less than those of fossil-fired power generation in other developed countries due to advanced DeSOx and DeNOx system.

International comparison of the amount of SOx, NOx per thermal-power-generation (g/kWh)



Source: overseas: emission/OECD Stat Extract Complete database available via OECD's iLibrary
 electricity generation/IEA ENERGY BALANCES OF COUNTRIES 2012 EDITION
 Japan: Federation of Electric Power Companies investigation J-POWER • Isogo: actual data at 2012

Training Project on Coal Mining Technology

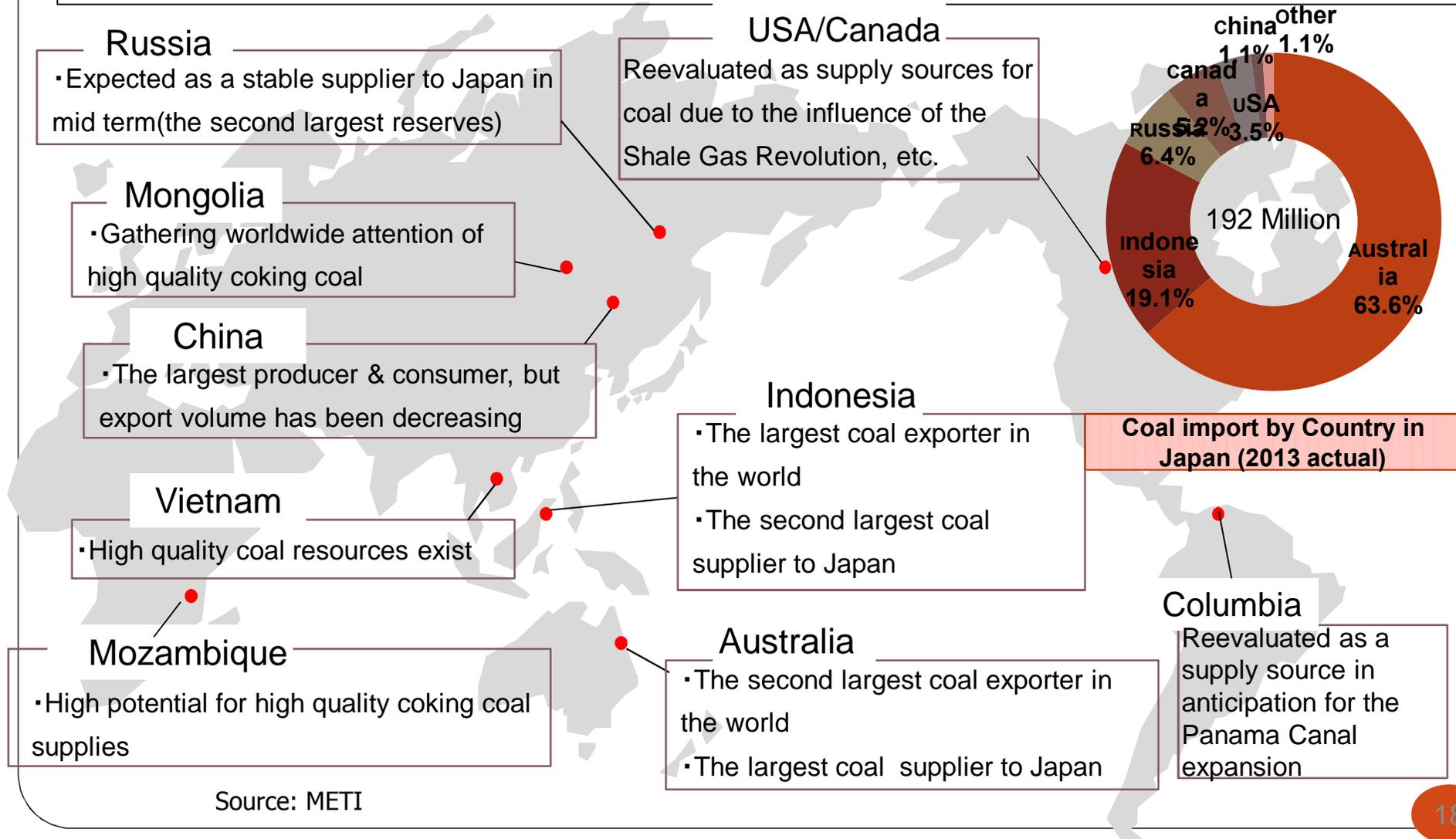
Transferring Japanese advanced coal mining technology to overseas coal producing countries anticipated improving mining condition.

- Domestic training program which receive trainees from coal producing countries to domestic coal mines.
- Overseas training program which send Japanese experts to overseas coal mines and give technical guidance to engineers.



Resource Diplomacy for Coal

It is essential to strengthen the relationship with main coal supply countries, such as Australia and Indonesia, and build a relationship with countries expected to be new suppliers, such as Mongolia and Mozambique.



Source: METI

Thank you very much for your kind attention!