Presentation
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Nuclear Energy Vision 2100

-Toward a Low Carbon Society-

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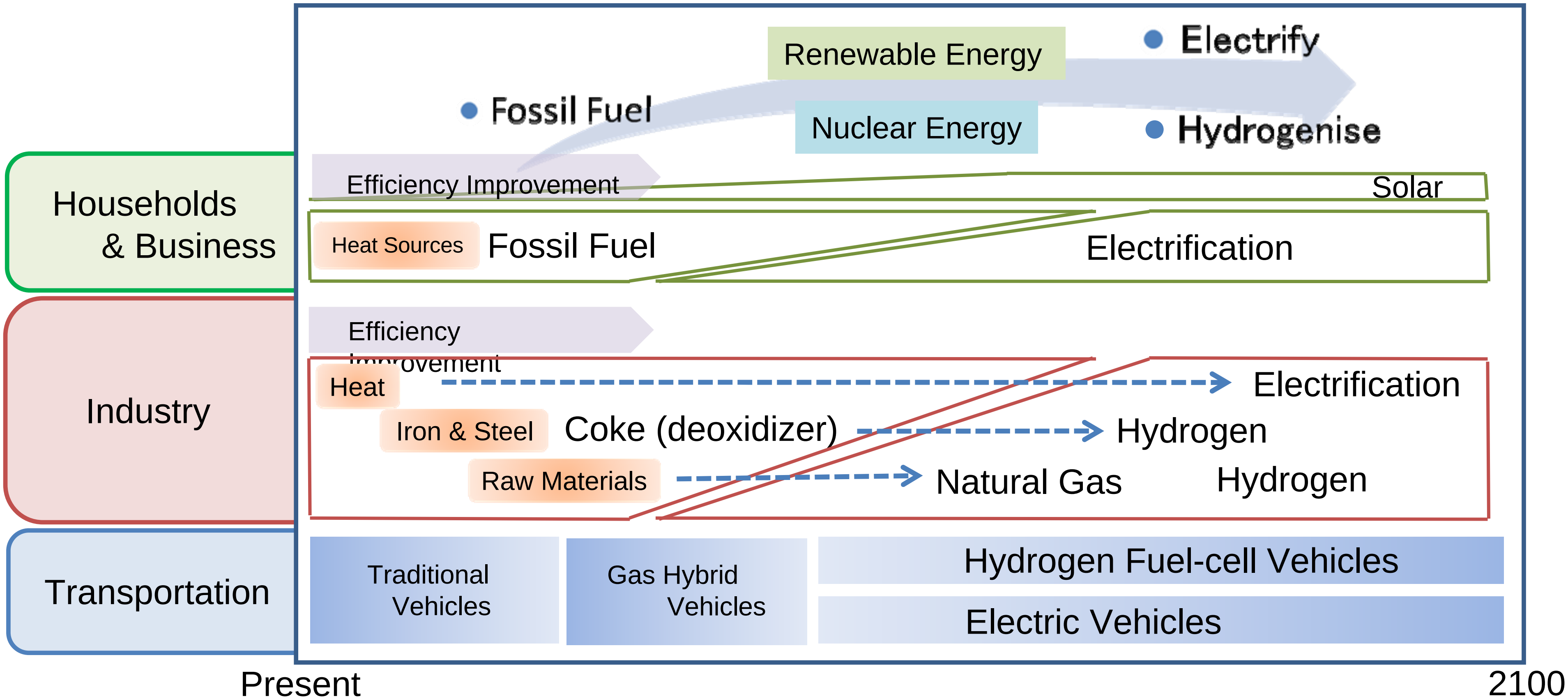
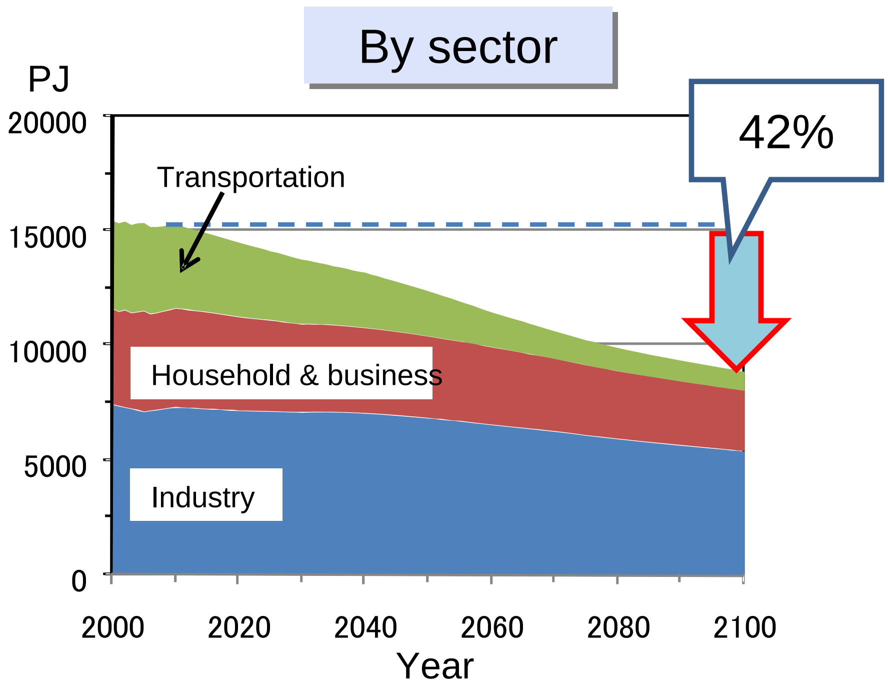
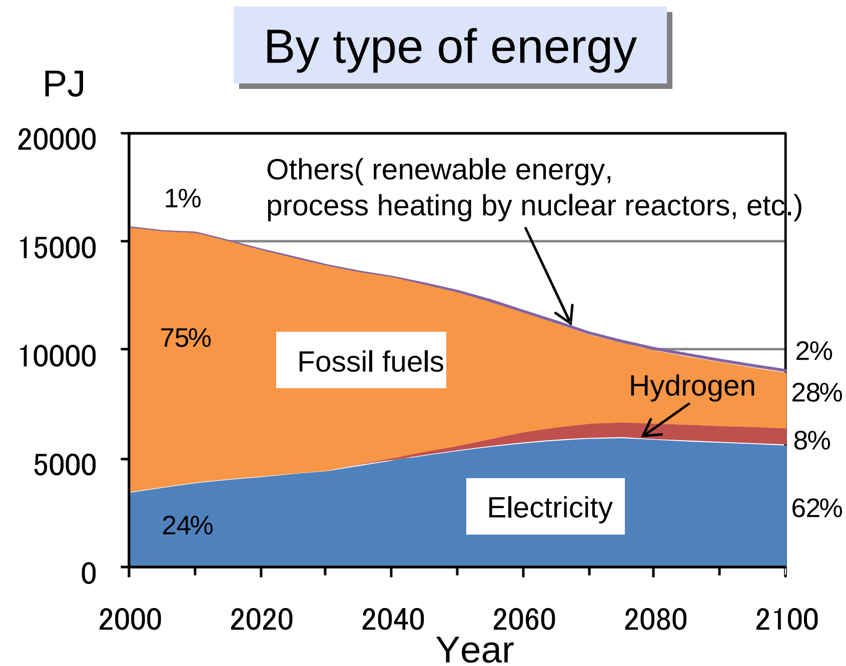
Estimated Technology Changes

- In 2100: population; 64.2mil, GDP/person;JY8.25mil
- End use efficiency improvement by 13% until 2030 (Not count on further technology developments thereafter, in order not to underestimate CO_2 emission).
- Electrify and "hydrogenise" end use energy in order to centralize energy transforming facilities.
- Rely on renewable energy and nuclear as much as possible to reduce dependence on fossil fuel except CCS (Carbon Capture and Storage) equipped generation stations.
- Introduction of high-temperature reactors in hydrogen production and process heat.



Final Energy Consumption

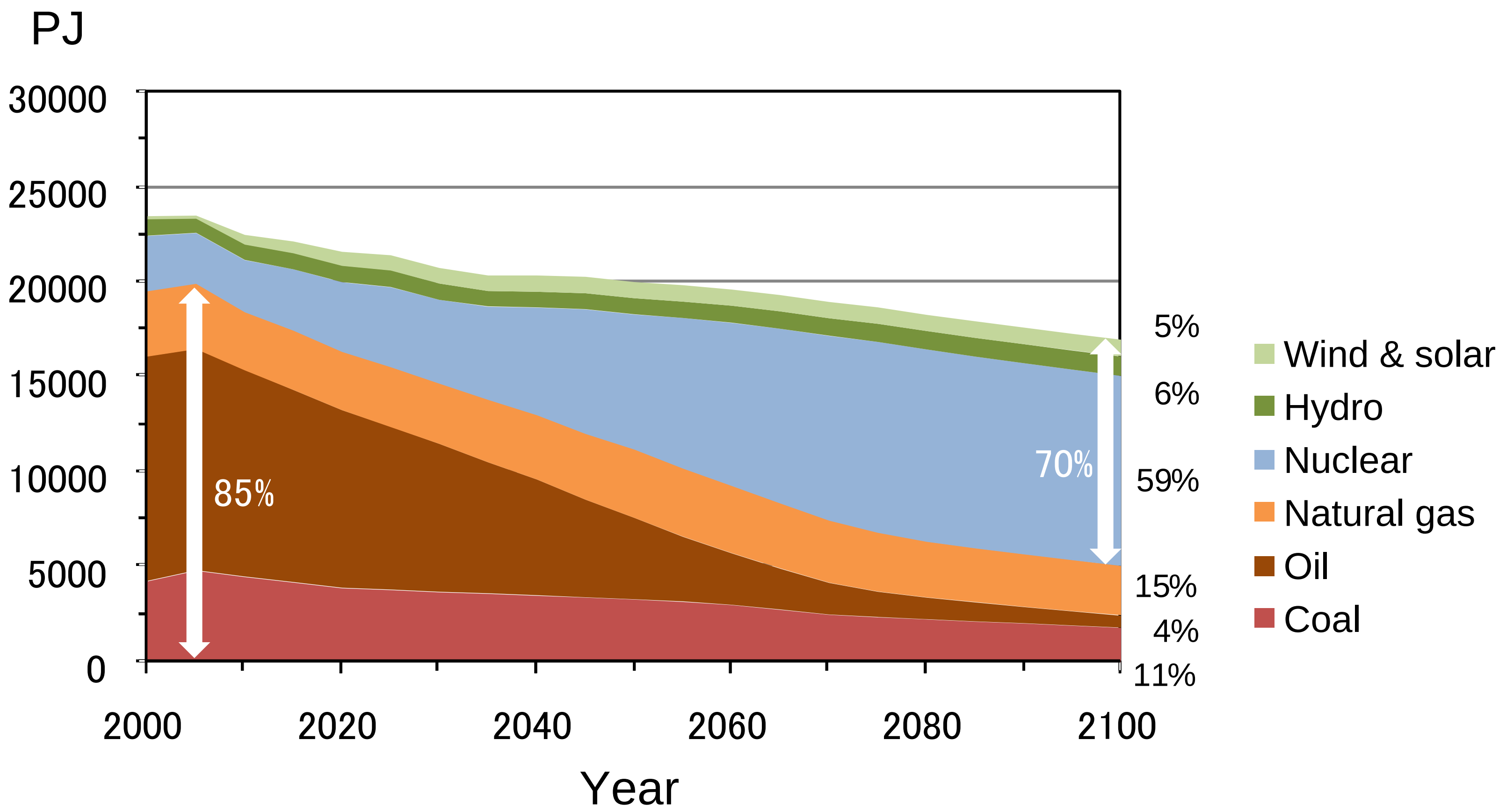




- Final Energy Consumption in 2100 will be 42% lower than the current level due mainly to improved efficiency in the transportation sector.
- Dependence on electricity grows from 24% in 2005 to 62% in 2100 reflecting further electrification mainly in the household & business sector.
- About 8% of final energy is consumed as hydrogen in the transportation and the industry sectors.

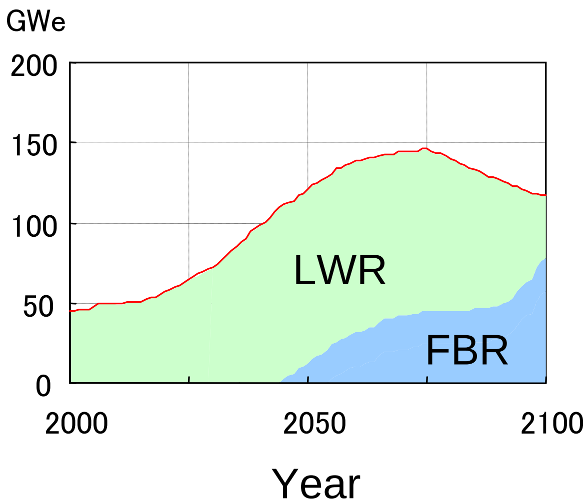
Primary Energy Supply

In 2100, of primary energy supply,
about 60% is borne by
nuclear(now10%)
10% by renewable energy (now

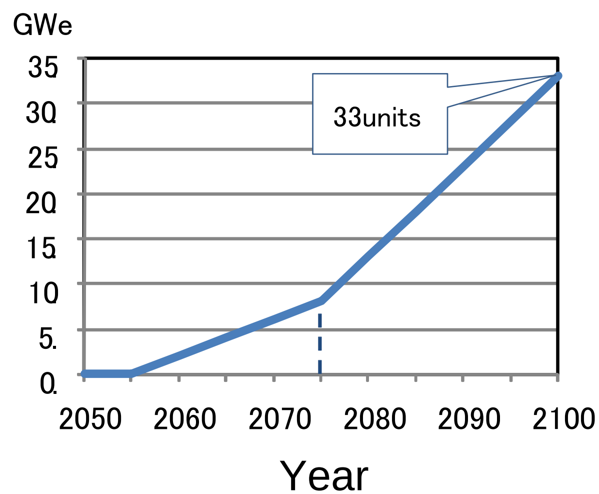


Nuclear Facilities Required

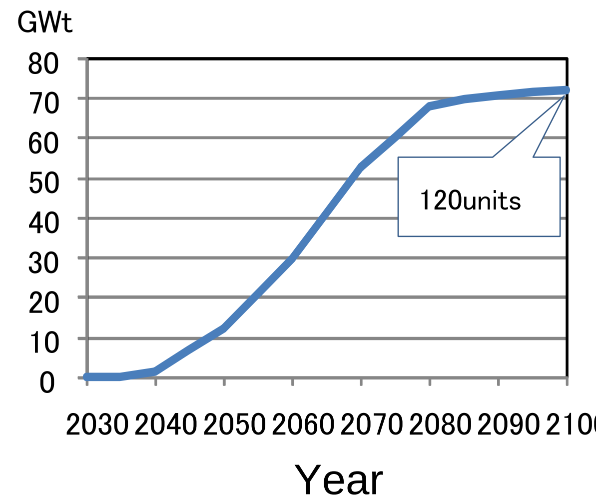
Fission Power Generating Reactors



Fusion Power Generating Reactors



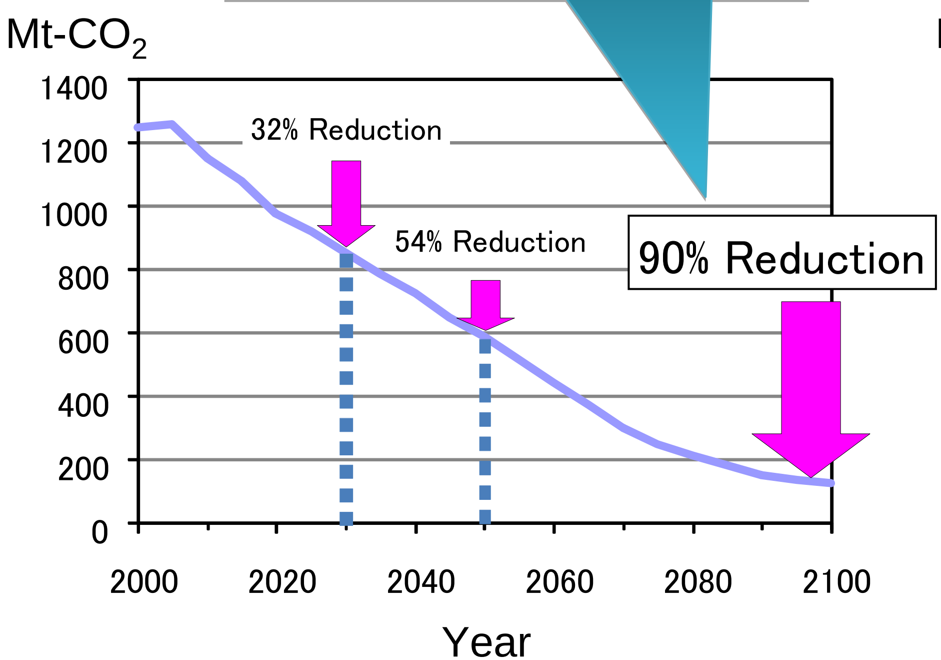
High-temperature Reactors for Hydrogen Production & Process Heat



- About 100 units of fission power generating reactors (1.5GWe/unit) should be operated in the peak year (2075), which is twice the current number.
- Building more than 30 fusion reactors (1GWe/unit) by 2100 will enable Japanese companies to establish and maintain international competitiveness in the market.
- About 120 high-temperature reactors (600MWthermal/unit) will be enough to fill each local demand on hydrogen fuel for vehicles.

CO_2 Emission

Of current level,
less than half in 2050
only 10% in 2100 !



Contribution of Technology Options in CO_2 Emission Reduction

- Nuclear energy contributes 51% in 2100
  (Power Generation:38%,
  ydrogen Production & Process
  eat:13%)