

Japan's Energy & Climate Strategy



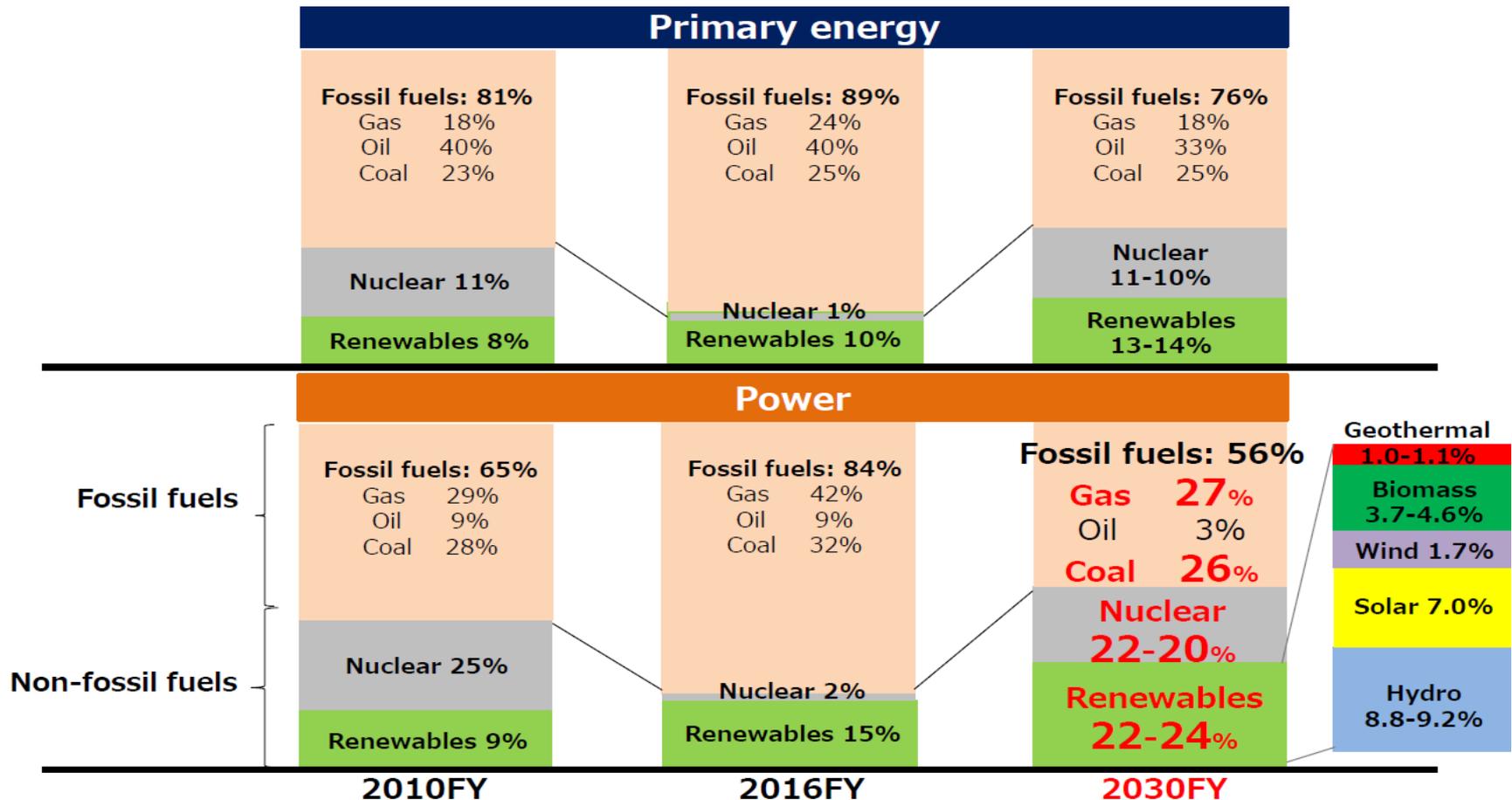
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Japan's Power Generation Mix in 2030

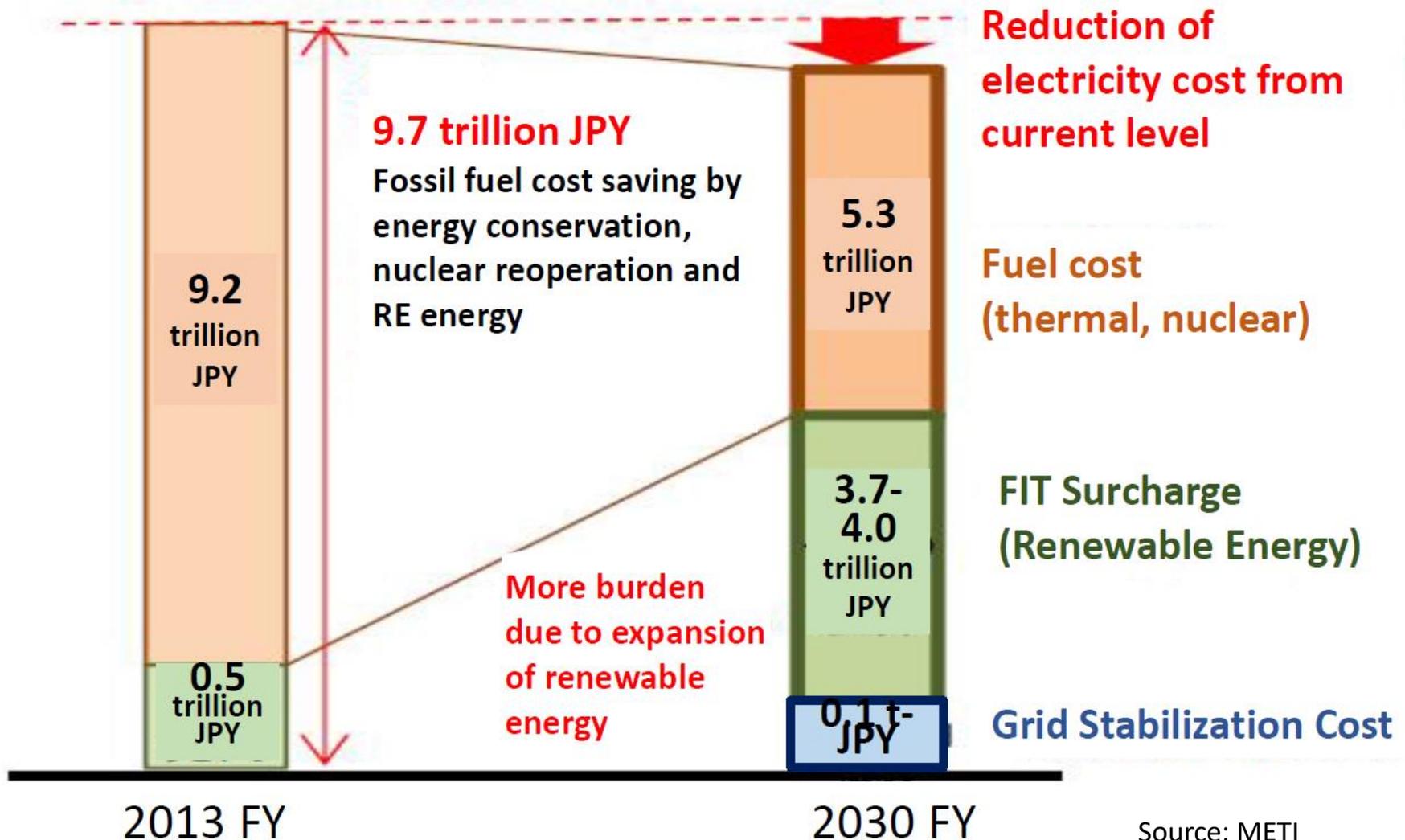
- Japan's energy mix underpinning 26% target has been formulated based on 3Es.
- ◆ Restore the energy self-sufficiency to around 25% surpassing the pre-Earthquake level
- ◆ Reduce the electricity costs lower than today
- ◆ Comparable GHG reduction goal with other developed countries



Source: METI

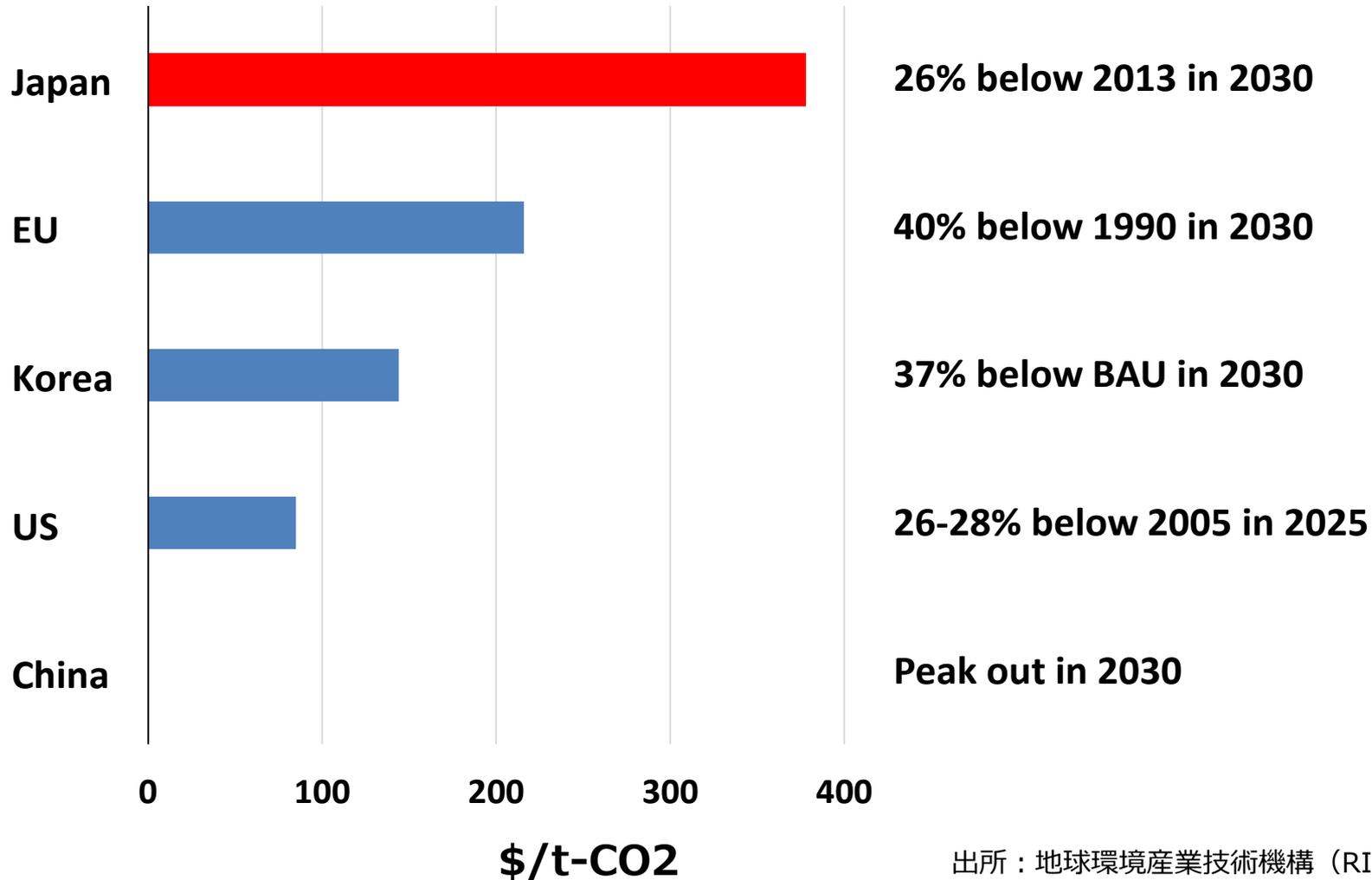
Cost Reduction while Expansion of Renewable

- Restarting nuclear is necessary for absorbing soaring cost for increasing RE



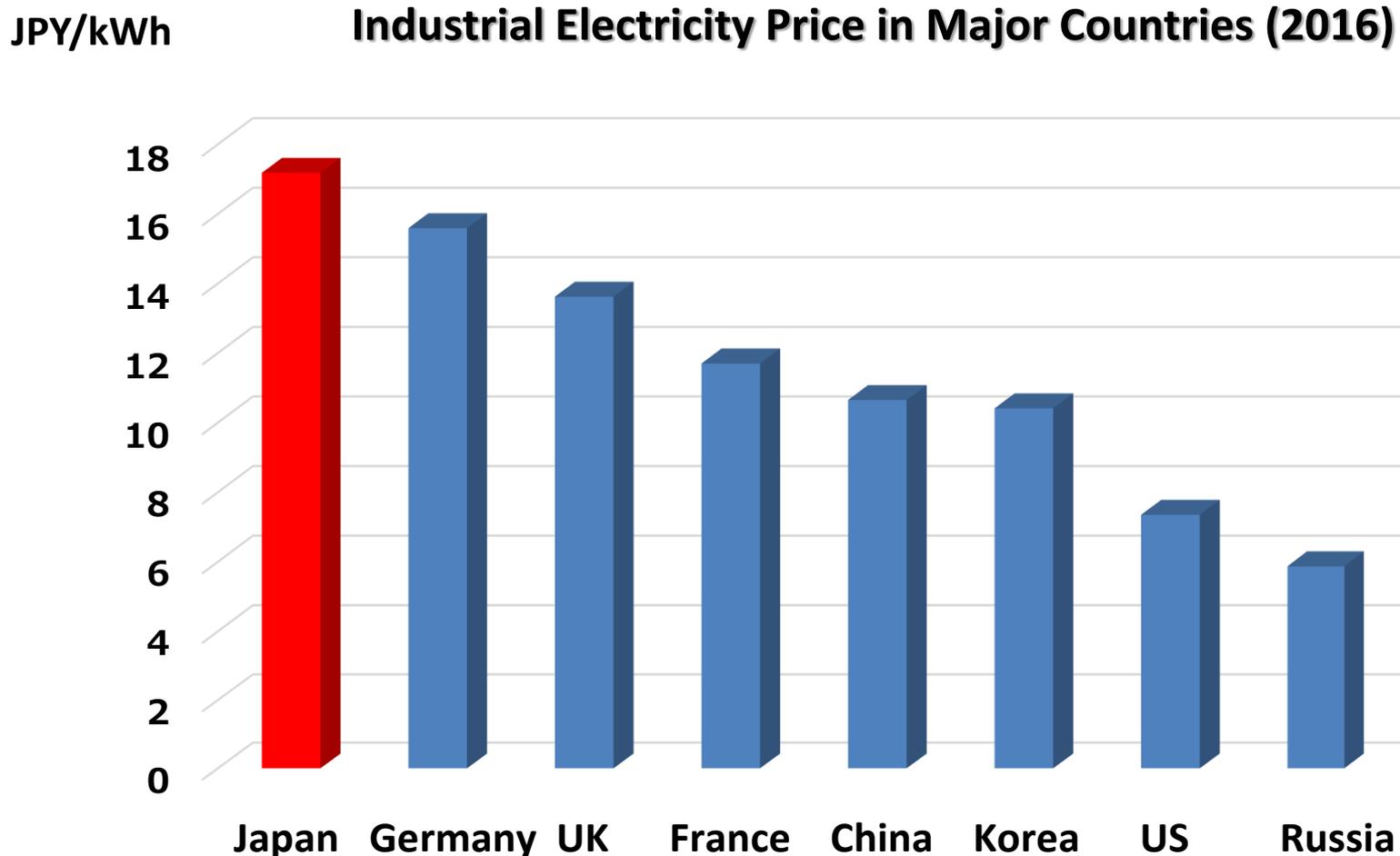
MAC of Major Countries' NDC

- MAC (marginal abatement cost) of Japan's NDC is highest among major countries. MAC will further go up if nuclear restart does not go as expected and more RE is introduced for achieving 26% target.



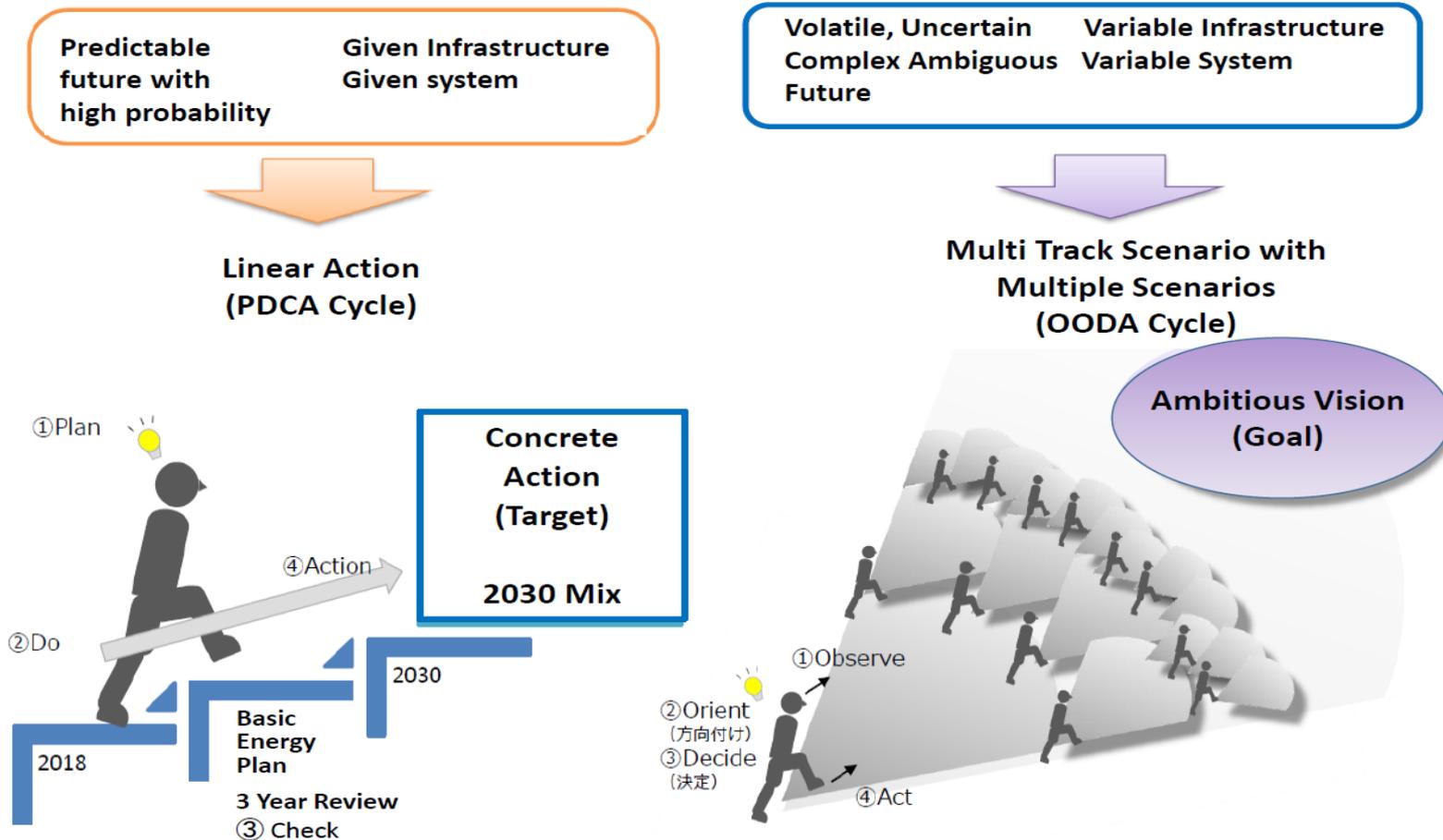
Industrial Electricity Price in Major Countries

- Japan's industrial electricity price is highest among major countries. Further cost hike could jeopardize Japan's international competitiveness and cause carbon leakage.

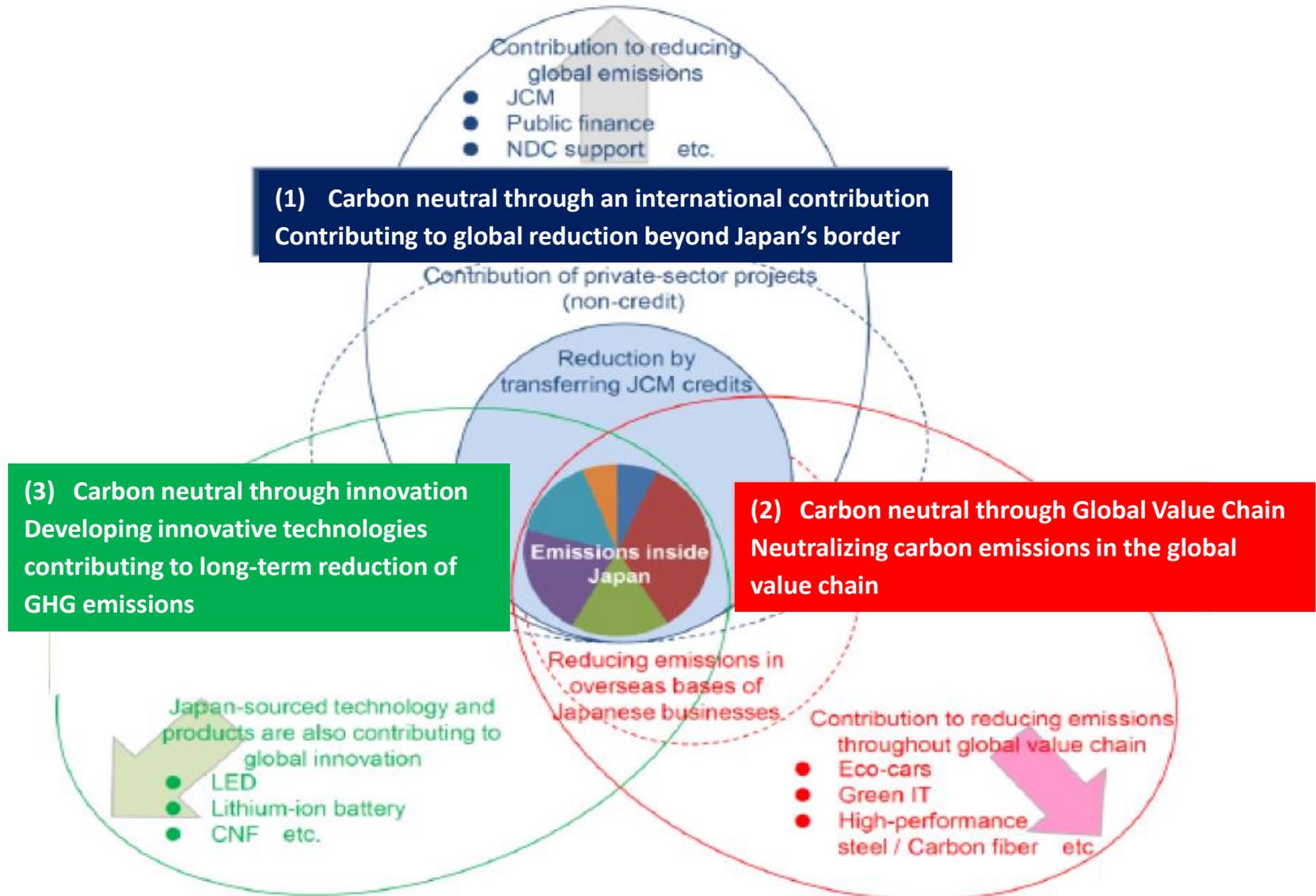


Mid Term Target and Long-Term Goal

- ◆ 80% GHG emissions reduction by 2050.
- ◆ 2030 “target”; underpinned by the energy mix and achievement of energy mix pursued by concrete measures on each energy source.
- ◆ 2050 “goal”: “ambitious vision” to be pursued based on multi-track scenarios, not establishing a specific energy mix of which priorities are to be decided based on the most updated information



Long-Term GHG Reduction Beyond Border



(1) Carbon neutral through an international contribution
Contributing to global reduction beyond Japan's border

(3) Carbon neutral through innovation
Developing innovative technologies contributing to long-term reduction of GHG emissions

(2) Carbon neutral through Global Value Chain
Neutralizing carbon emissions in the global value chain

Source: METI

Japan's Long Term Strategy (1)

■ Basic Concept

- ◆ Take measures for reducing GHG emissions by 80% by 2050, aiming at “decarbonized society” as early as possible in the second half of this century
- ◆ “A virtuous cycle of environment and growth” with business-led disruptive innovation

■ Sectoral Actions and Policy Direction

- ◆ Pursue all the options for energy transition/decarbonization
 - Renewable energy : economically stand-alone and decarbonized major power source (e.g. drastic cost reduction, overcoming power grid constraints)
 - Thermal power: reducing CO2 emissions in line with the PA long-term goals (e.g. the first commercial-scale CCU technology by 2023, early use of CCS/CCU)
 - “Hydrogen Society” (90% reduction of CO2-free H2 production cost)
 - Battery, Nuclear, Energy Efficiency
- ◆ Decarbonizing manufacturing
(e.g. zero-carbon steel with CO2 free H2, artificial photo synthesis with CCU/biomass)
- ◆ Well to Wheel Zero Emission in transport sector
(e.g. 80% emissions reduction per Japanese vehicle by 2050)

Japan's Long Term Strategy (2)

■ Three Pillars

◆ Innovation

- Promoting innovation for deployment and cost reduction of cross-sectoral decarbonization technologies for drastic GHG reduction reduction
- Innovative environment innovation strategy
 - Setting clear goals such as costs, maximizing investment of public and private resources
 - Research and Development 20 for clean energy technologies (RD20)
 - Target setting and visualizing challenges for the practical use
 - Innovation of economic/social systems and life style

◆ Green Finance

- “Visualizing” corporate efforts in innovation
- Mobilizing ESG finance for innovation

◆ Business-led International Application and International Cooperation

- Promoting technologies and products with high environmental performance contributing to the global GHG emission reductions
- GHG emissions reduction throughout the whole LCA cycle
- Development and investment of infrastructure contributing to CO2 emission reductions compatible with PA long-term goal

■ Re-examine policies and measures flexibly every 6 years

Japan Initiatives based on Long-Term Strategy

Innovation

H₂EM 2019



Green Finance



Carbon Recycling
International Conference on Carbon Recycling 2019



Business-led International Cooperation



Japan's Approach to Long-Term Decarbonization

- **We should pursue simultaneous achievement of economic growth and climate mitigation.**
- **Unduly high energy cost will not be politically and economically sustainable not only in developing countries but also in developed countries.**
- **“Virtuous Cycle of environment and economic growth” is only possible when innovative technologies are developed and deployed with affordable cost.**
- **Deep decarbonization will not happen only with ambitious target setting.**
- **Strong emphasis on mitigation means (e.g. innovation, cost reduction) rather than mitigation target and time table**

Thank you very much

