

“The Japanese Energy Picture – A U.S. Perspective.”

NARUC International Relations Committee

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Principle Purpose of Mission to Japan

The mission's principal purpose was:

1. To advance the delegation's knowledge of Japan's cutting-edge technology and how the United States might benefit from it
2. Discuss the principles of regulation used in the United States, and cost-plus and market-based models that Japan may use to restructure its power industry,
3. Acquire knowledge about how Japan's coal-dependent society is addressing and balancing its needs through fossil fuel use, and how coal benefits and poses challenges to Japan's complex energy system.

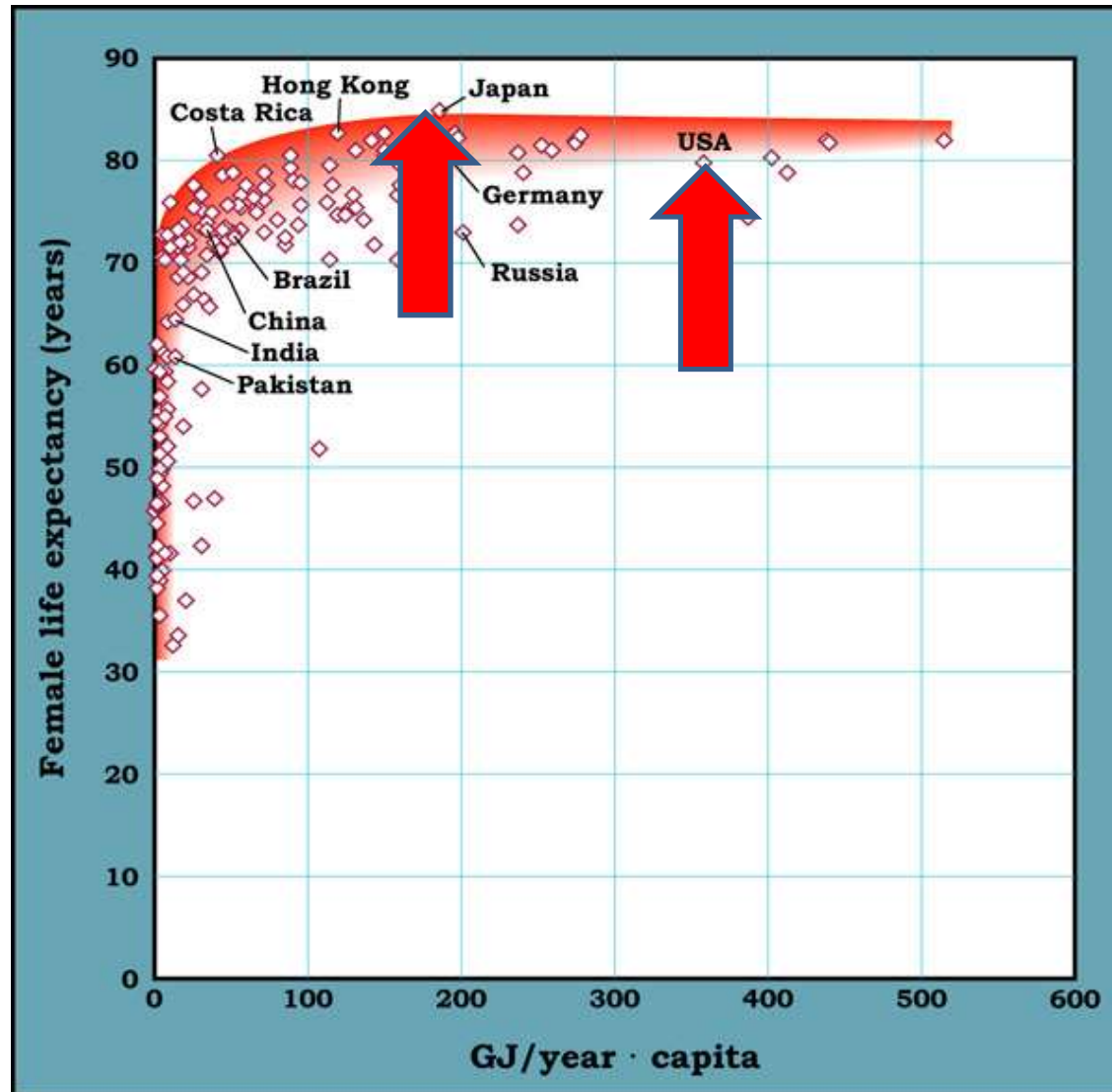


Why Japan is of Interest

1. Previous trips had focused on China or China/Japan
2. Japan is somewhat of an outlier in that it has a prosperous economy AND has high energy costs.
3. Japan relies heavily on imports
4. Japan is still recovering from the Fukushima Daiichi accident
5. Following the Great East Japan Earthquake, Japan is accelerating momentum towards full deregulation of electricity markets by 2020.
6. Japan has one of the lowest emitting and most efficient coal fleets in the world
7. Japan is a top market for US coal (and would be an even greater market if we had a West Coast export terminal to get them additional quantities.)



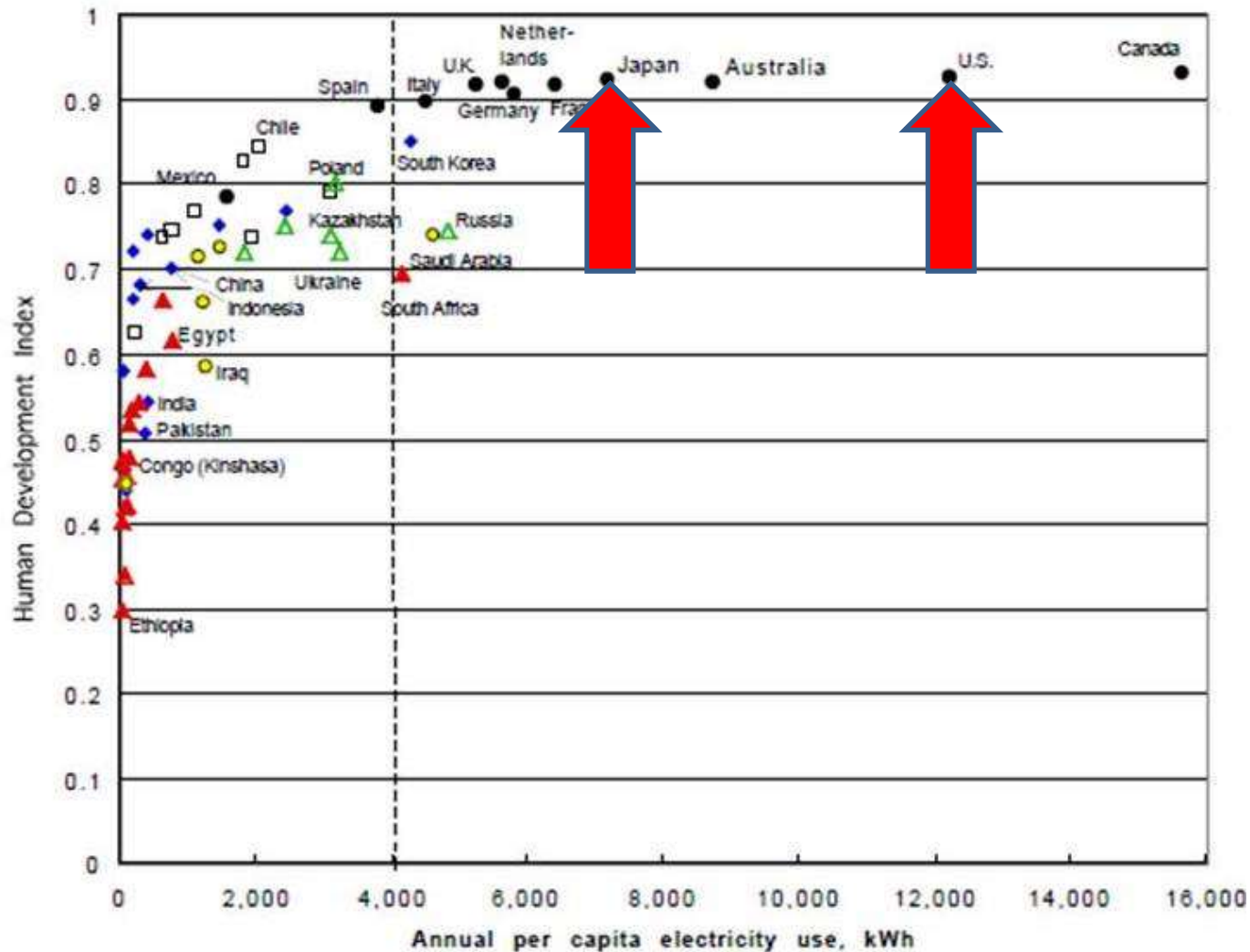
Life Expectancy and Energy



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Human Development Index (HDI) and Energy

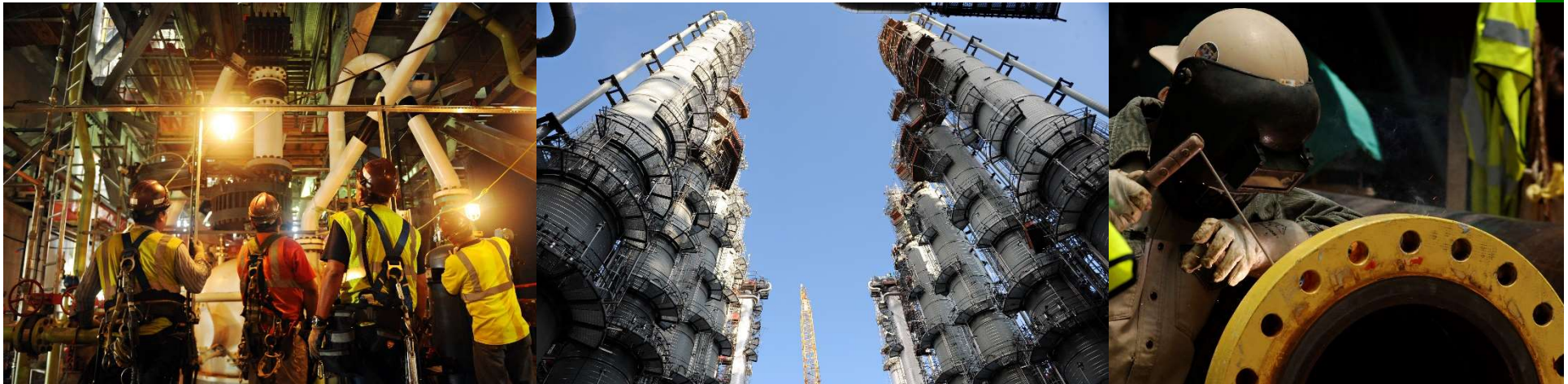


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Trump Administration Energy Priorities in DOE's Office of Fossil Energy

- Boosting Domestic Energy Production
- Grid Reliability and Resiliency
- Job Creation
- Energy Security

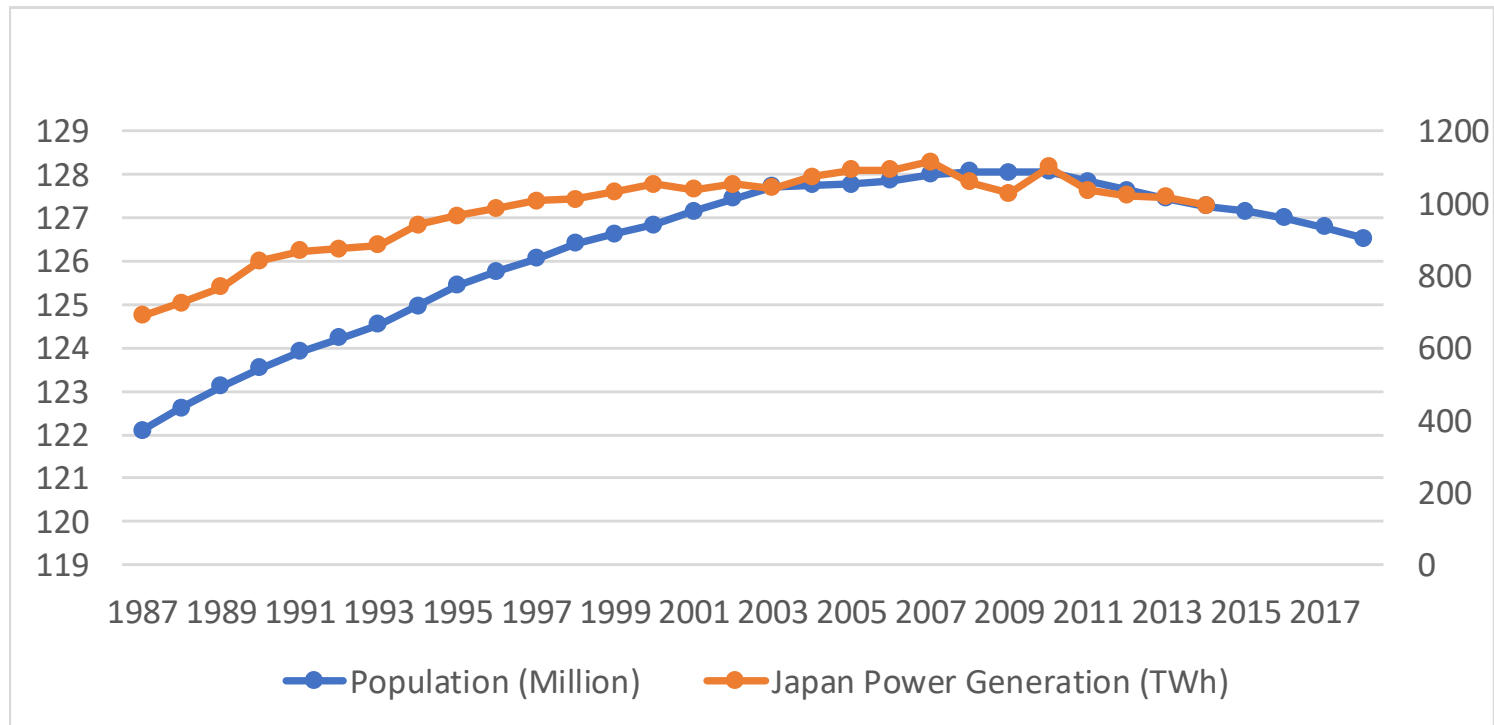


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“All of The Above Strategy”

Electric Consumption Mirroring Population Decline



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Japan's High Reliance on Energy Imports

Japan energy self-sufficiency ratio



Source: Ministry of Energy Trade and Industry (METI), "Comprehensive Energy Statistics."



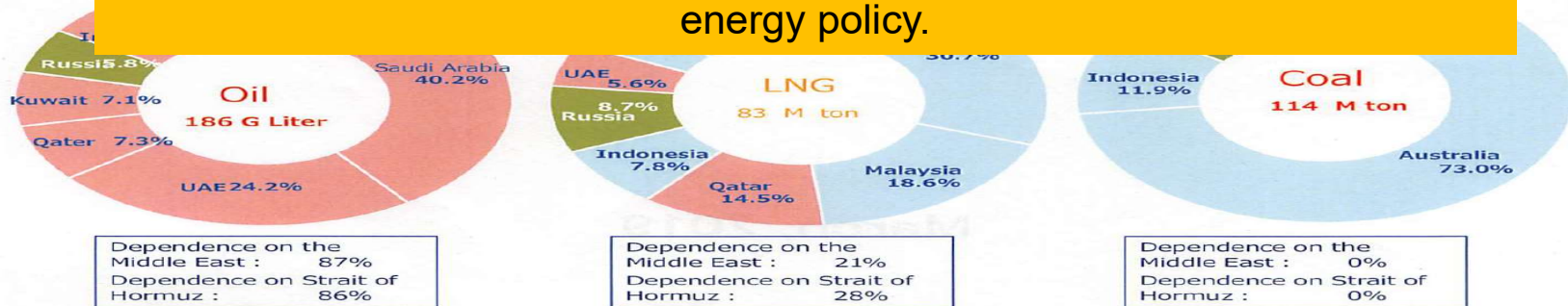
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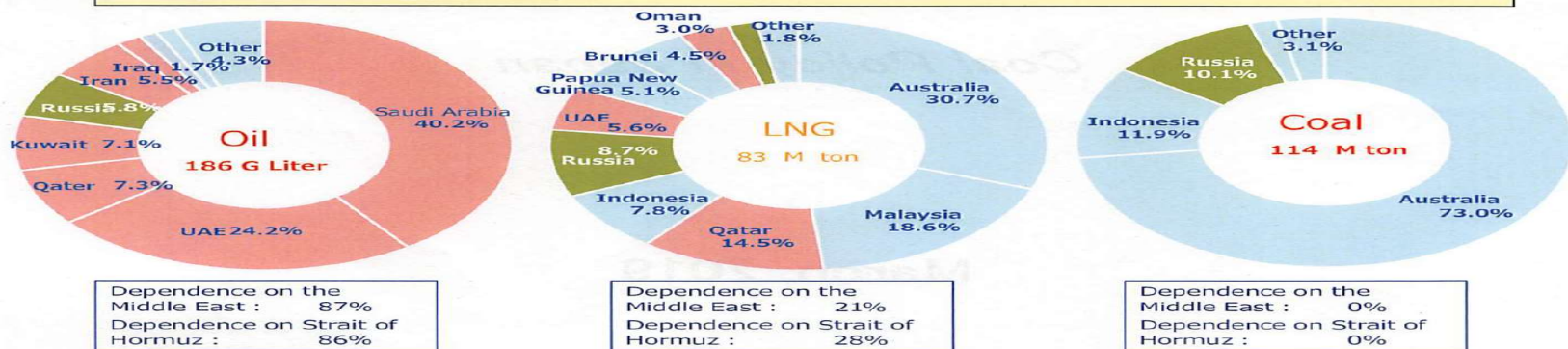
Japan's Energy Security

Japan's Fuel Sources have high reliance on Strait of Hormuz

Japan depends largely upon fossil fuels imported from other countries, which makes energy security/diversification a critical touchstone for Japan's energy policy.



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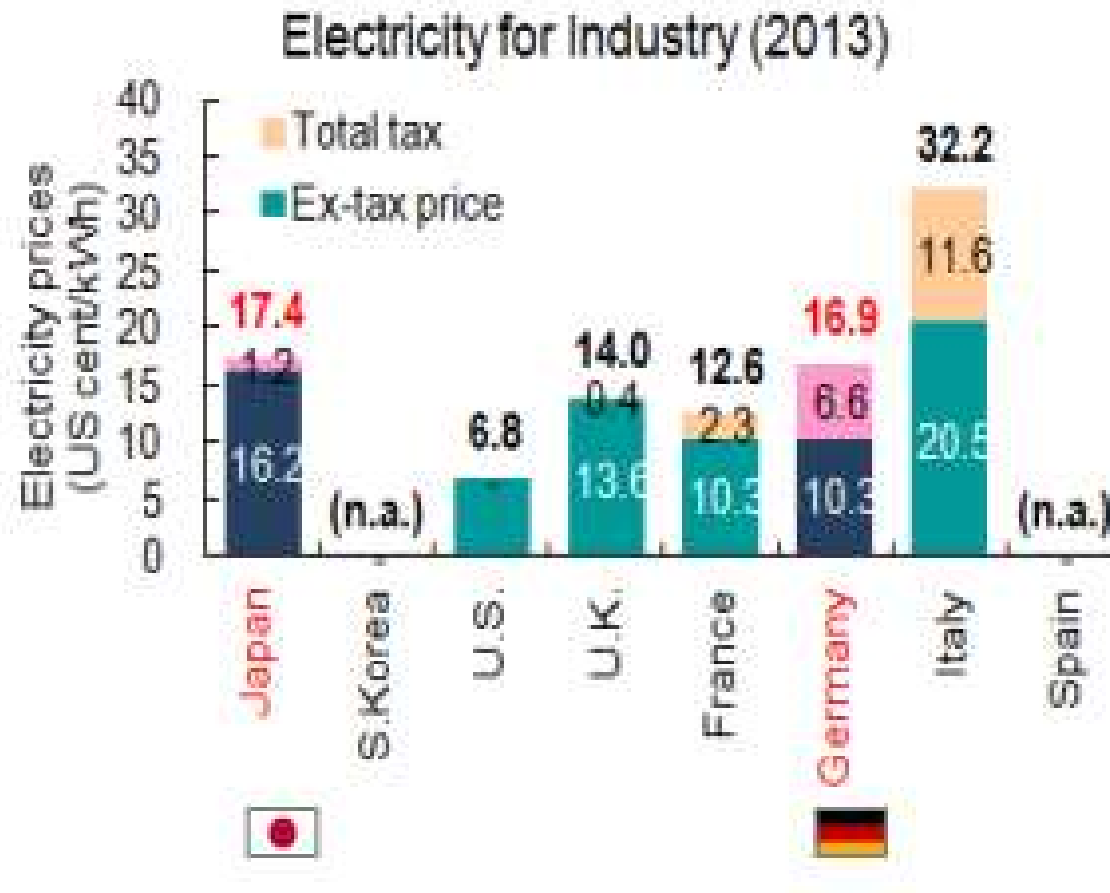
Source: JPower, METI, Trade Statistics of Japan



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Japan's High Electricity Prices



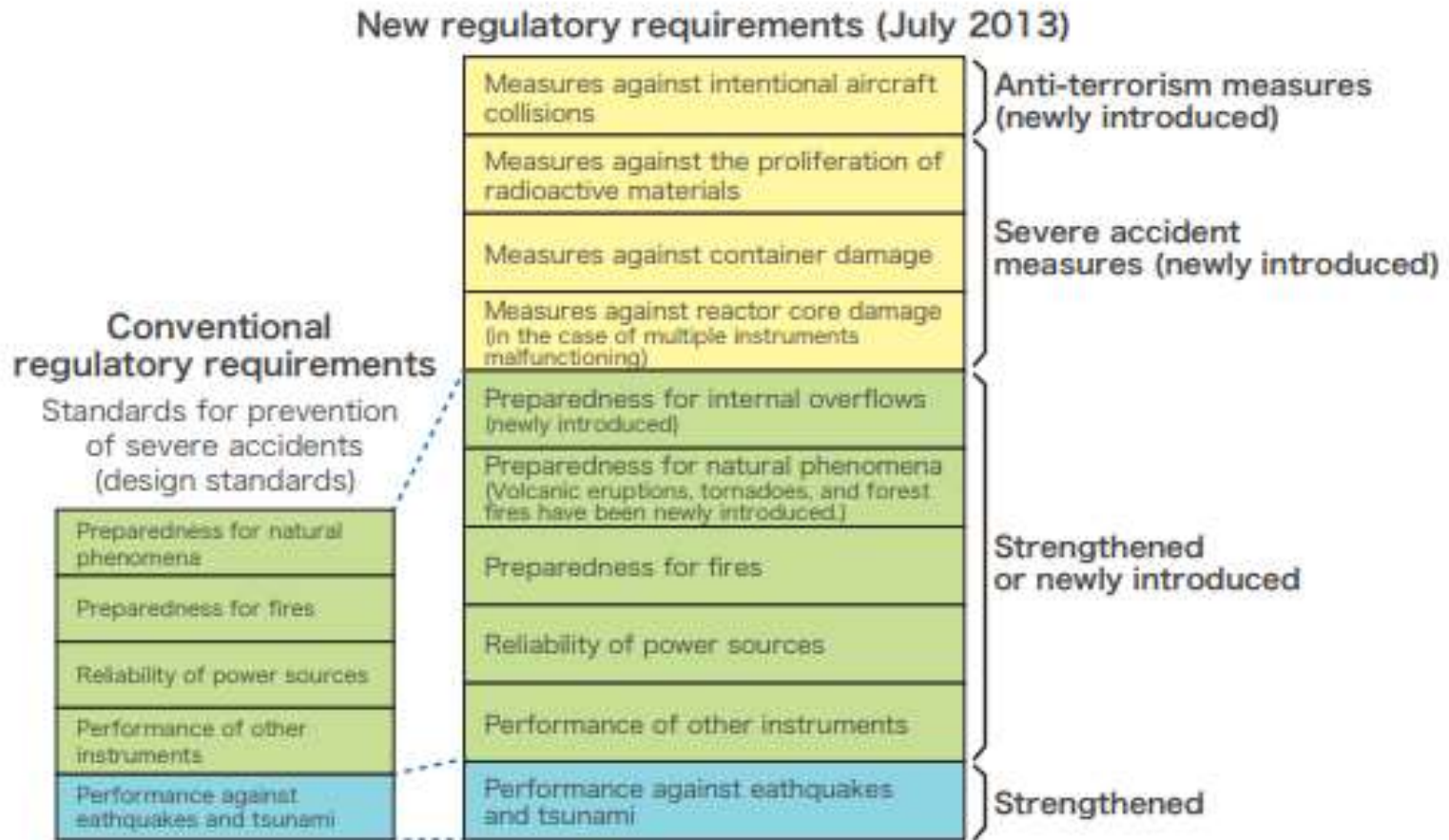
Source: IEEJ, OECD/IEA "Energy Prices & Taxes,; 2nd Quarter 2014)



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Japan's Nuclear Safety Standards Increasing



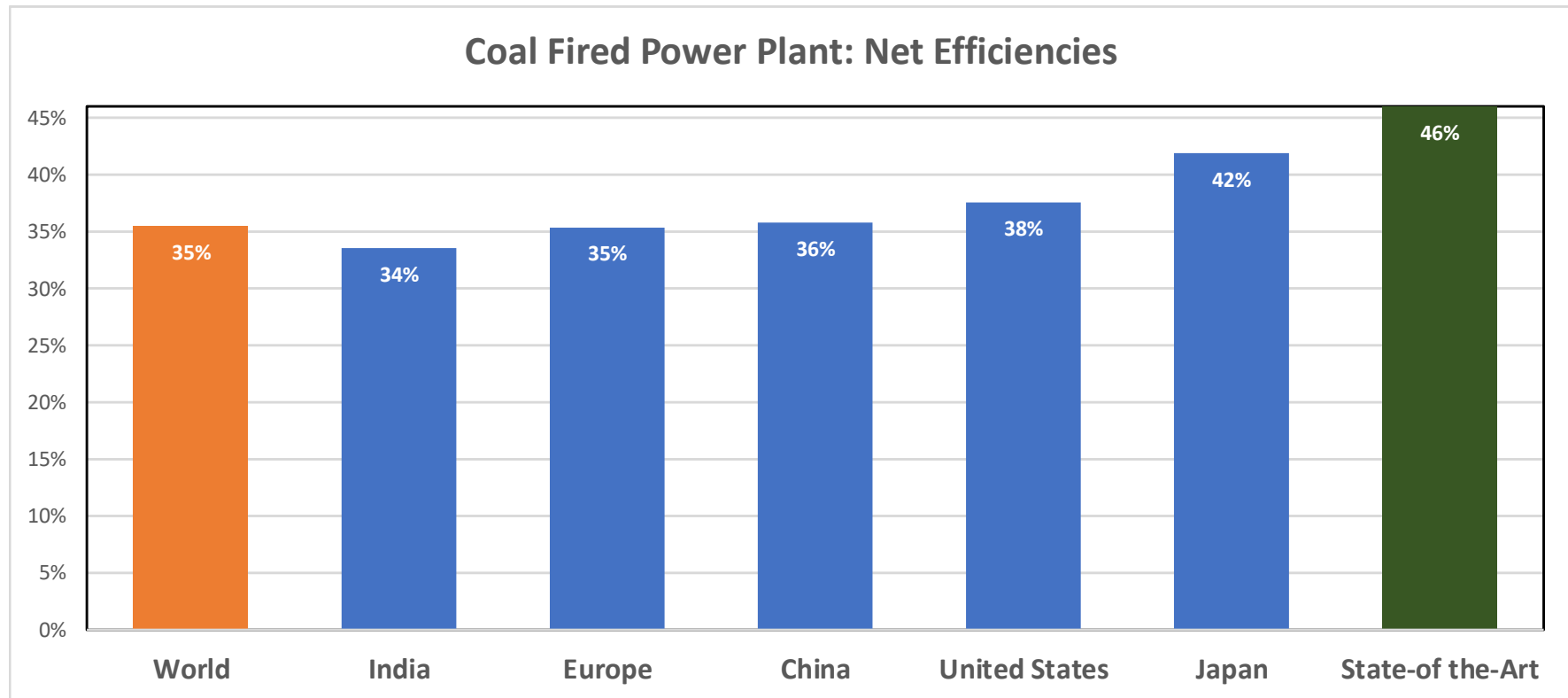
Source: METI, Nuclear Regulatory Agency (NRA)



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Japan's Coal Fleet is the Most Efficient



Source: Energy Efficiency Indicators, World Energy Council 2014



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Japan's 2030 Strategic Energy Plan (2018)

Green House Reduction Goals

2030 GHG emission reduction
Target - 26%

- Lower Dependency on nuclear power generation to the extent possible
- Restart of nuclear power plants and continuous improvement of safety

2050 GHG emission reduction
Target - 80%

- Nuclear remains an option for decarbonization
- Pursuit of safe reactors, development of back end technologies

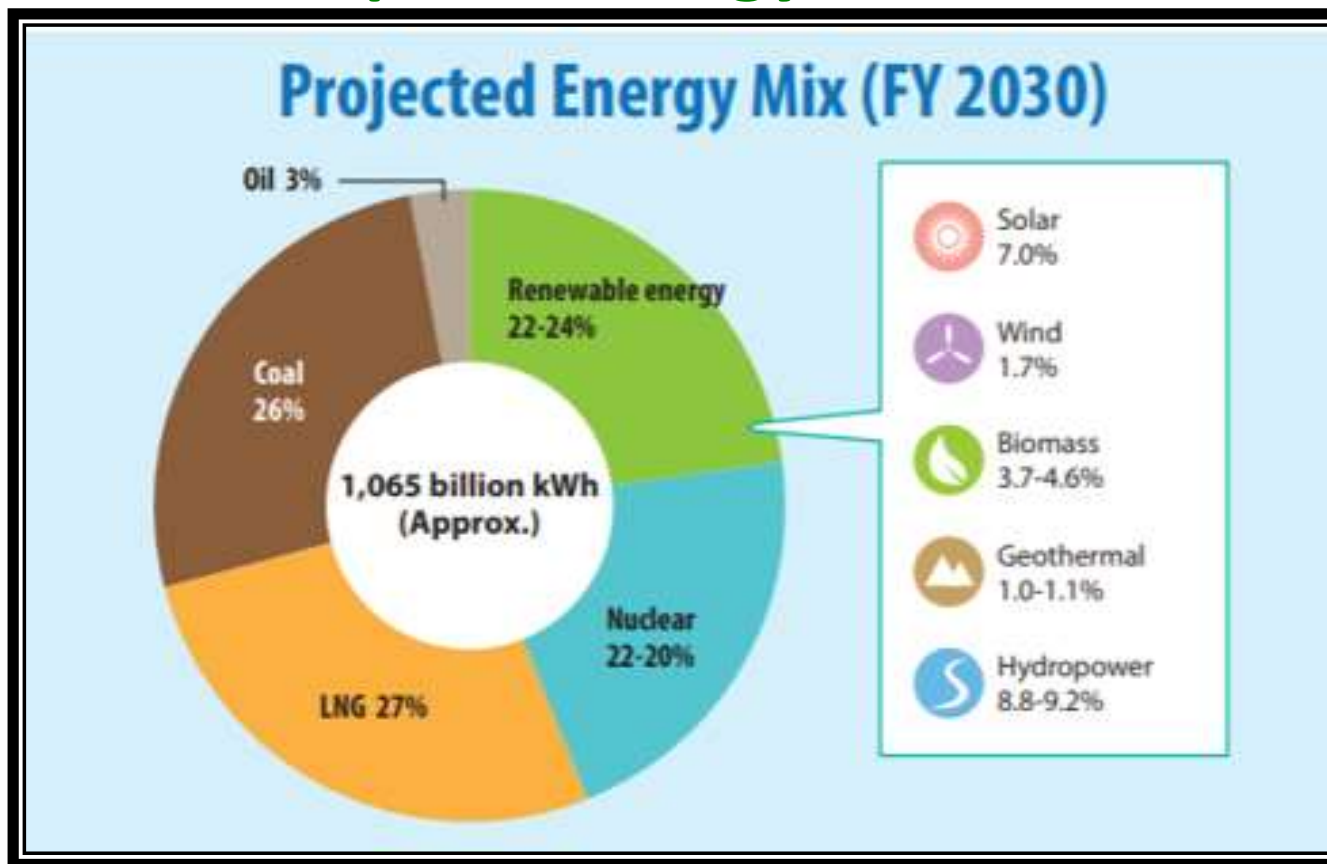
Source: METI, The Institute of Energy Economics, Japan (IEEJ)



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Japan's Energy Future



- Energy Security remains paramount
- Challenges of Japan's nuclear restarts counters energy cost, security and GHG emission goals
- High import energy costs limit use of FIT to incentivize renewable resources
- Clean Coal technologies target a 30% reduction in GHG emissions



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QUESTIONS?



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