

Energy Policy of Japan: Post-Fukushima Developments

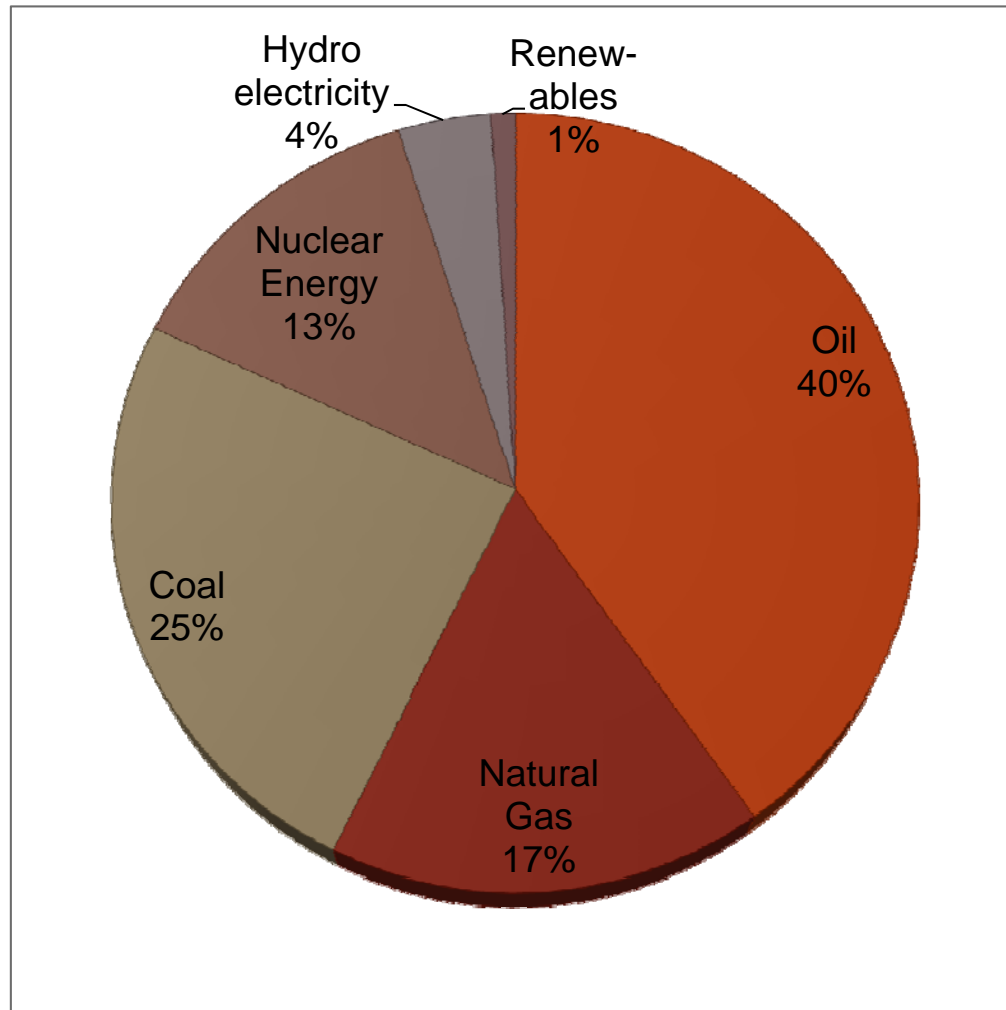
Nandakumar Janardhanan
Energy Policy Researcher
Climate Change Division
IGES

IGES-TERI Policy Research Workshop on
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New Delhi
India

Agenda

- Energy Mix in Japan, 2010
- Survey Results
- Post Fukushima Developments in Energy Sector
- IGES Study
- Energy Mix minus Nuclear: Options & Challenges
- Implications on Emission Targets
- Possible Energy Scenario in Japan: Perceptions
- Is Energy Independence Feasible?
- Evolving Energy Policy in Japan

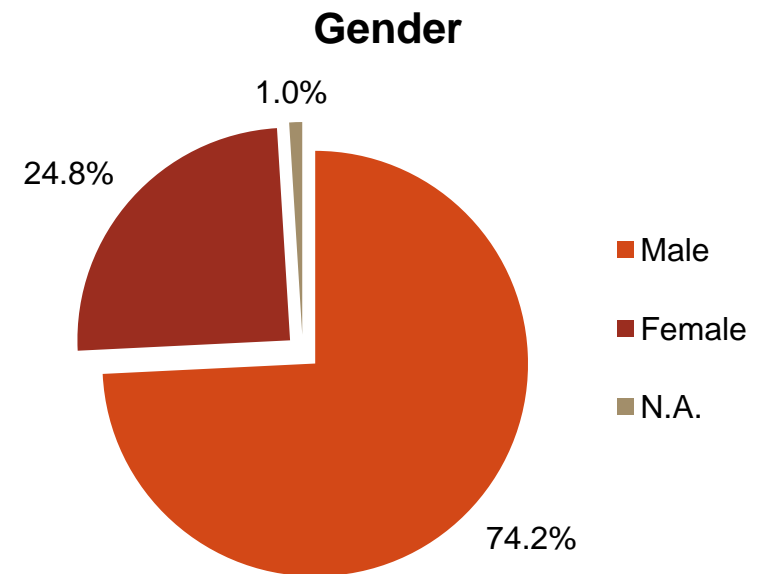
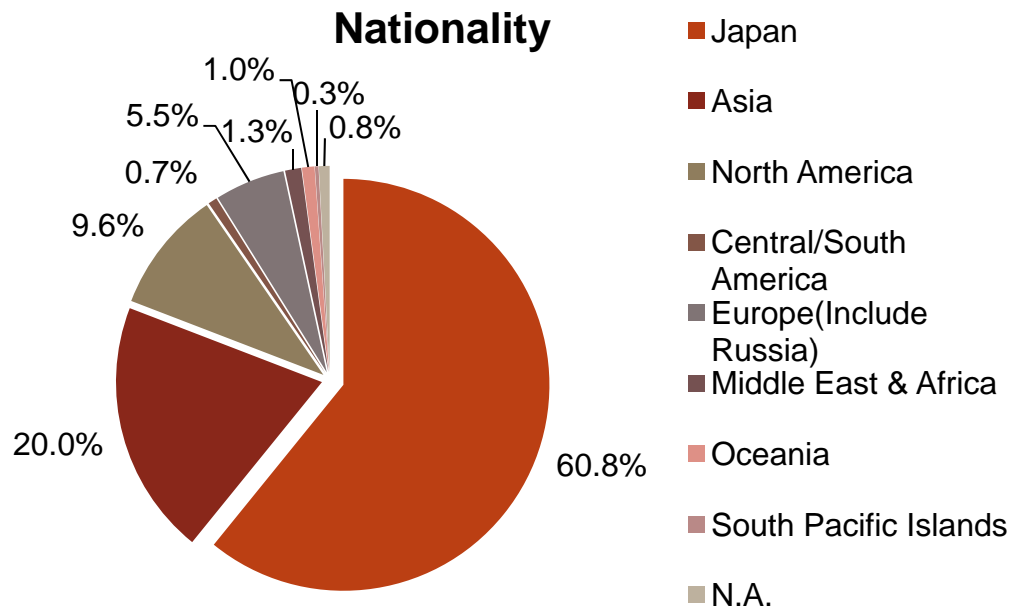
Energy Mix in Japan, 2010



Nuclear constitutes 13% of total primary energy consumption and about 30% of total electricity supply

Post-Fukushima Japan: Energy and Climate Survey

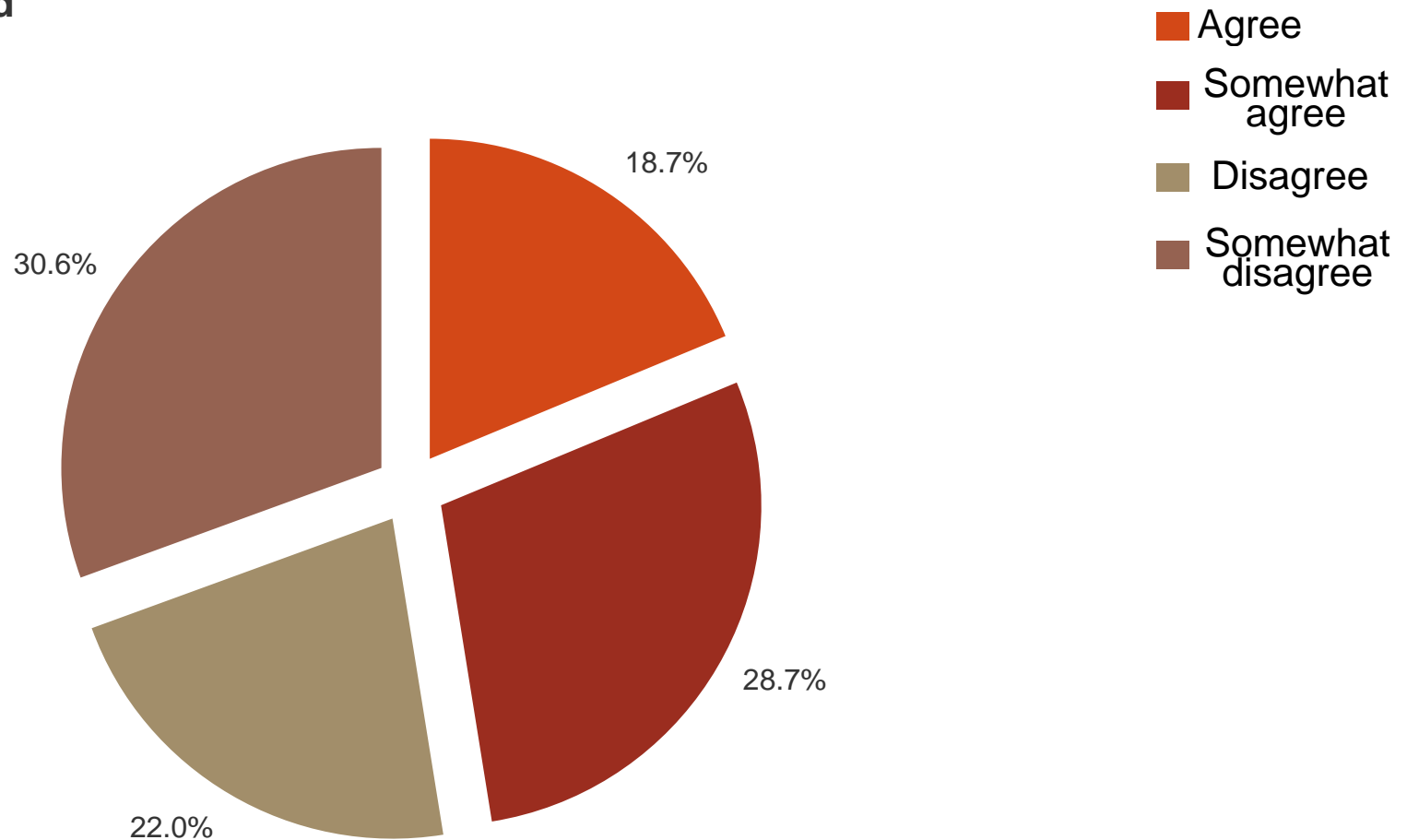
- ◆ Objective: To understand the perception of global intelligentsia on the Energy and Climate Policy in post-Fukushima Japan
- ◆ Survey Period: 17 days (15th July – 31st July 2011)
- ◆ Number of Response: 710 (Japan-432)
- ◆ Survey Sample:



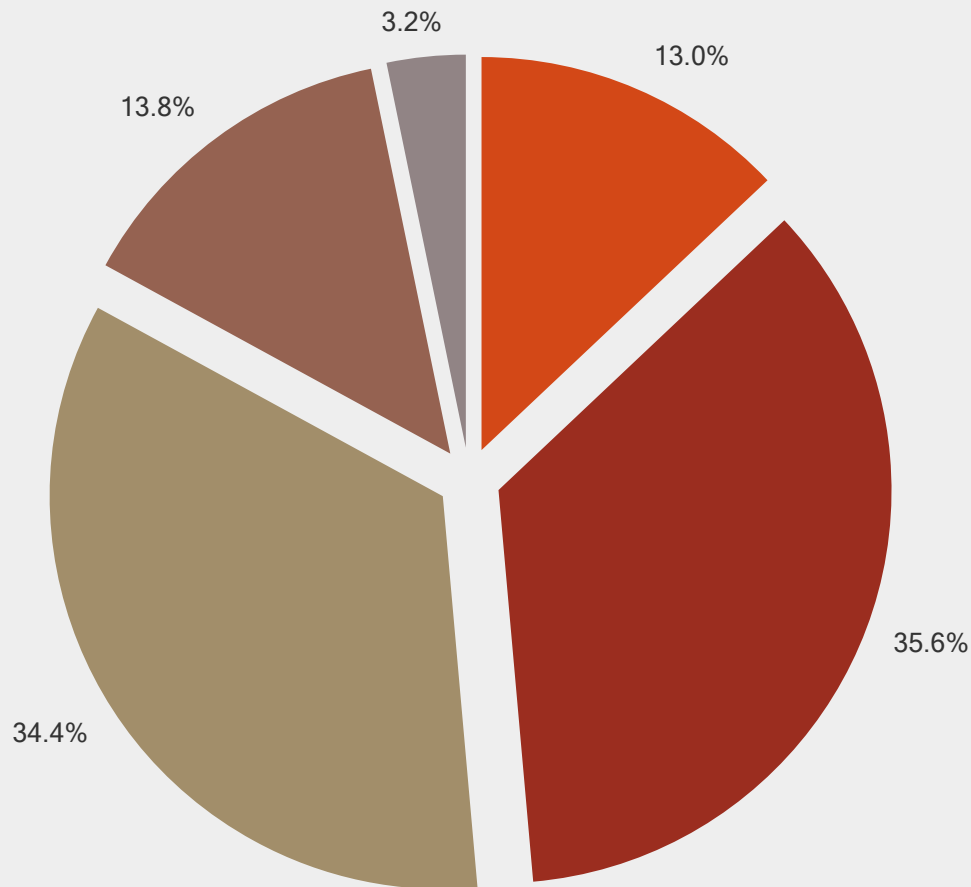
Post-Fukushima Japan: Energy and Climate Survey

◆ NP is needed to meet energy needs? Agree or disagree?

World



Post-Fukushima Public Perception of Nuclear Energy in Japan

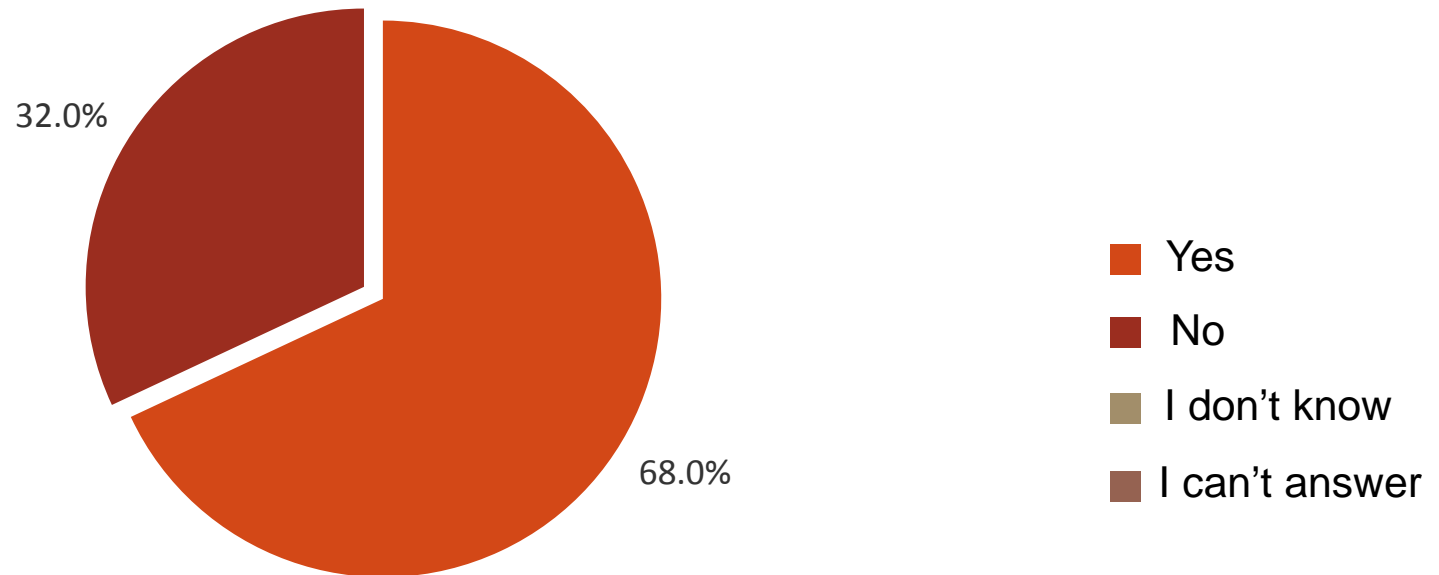


- All plants should be stopped within 1-2 years and then enter a process of shutting down. Electricity shortage will be dealt with by other sources and energy conservation.
- All plants should be gradually stopped by 2020 and then enter a process of shutting down. Electricity shortage will be dealt with by other sources and energy conservation.
- Each plants should be stopped when its operating license expires in 30-40 years (all plants should be stopped by 2050) and then enter a process of shutting down. Electricity shortage will be dealt with by other sources and energy conservation.
- Supply from nuclear power should be maintained around 30% of the total electricity in Japan
- Supply from nuclear power should be increased

Survey on Emission Targets

◆ Japan should keep 25% reduction target?
Yes or No?

25% reduction target



Post Fukushima Developments in Energy Sector

- The dependency on fossil fuel, especially natural gas increased.
- Due to the disaster, Japan will have an additional demand of 110,000-140,000 bbl oil/d and 6.2-8.6 MT gas by end of 2011 (IEEJ)
- Government is increasingly focusing on developing alternative sources.
- There is concern about availability of fossil fuels and price. R/P: Oil 46 years, Gas 58 years, Coal 118 years. In Japan's energy mix (commercially traded primary sources) these fuel types constitute 40, 16 and 24 % respectively.

Post Fukushima Development: IGES Study

Policy Scenarios	Descriptions
2. Fossil fuel scenario –Long Run:	Cutting down nuclear power supply gradually from the supply mix by 2050
3. Fossil fuel scenario –Short Run:	Very aggressive cut off of all nuclear power supply by 2015.
4. Renewable Energy Scenario (REN)	Deliberate introduction of 15% wind and 25% solar energy supply of total electricity supply by 2050. Geothermal restricted to only 10% until 2050.

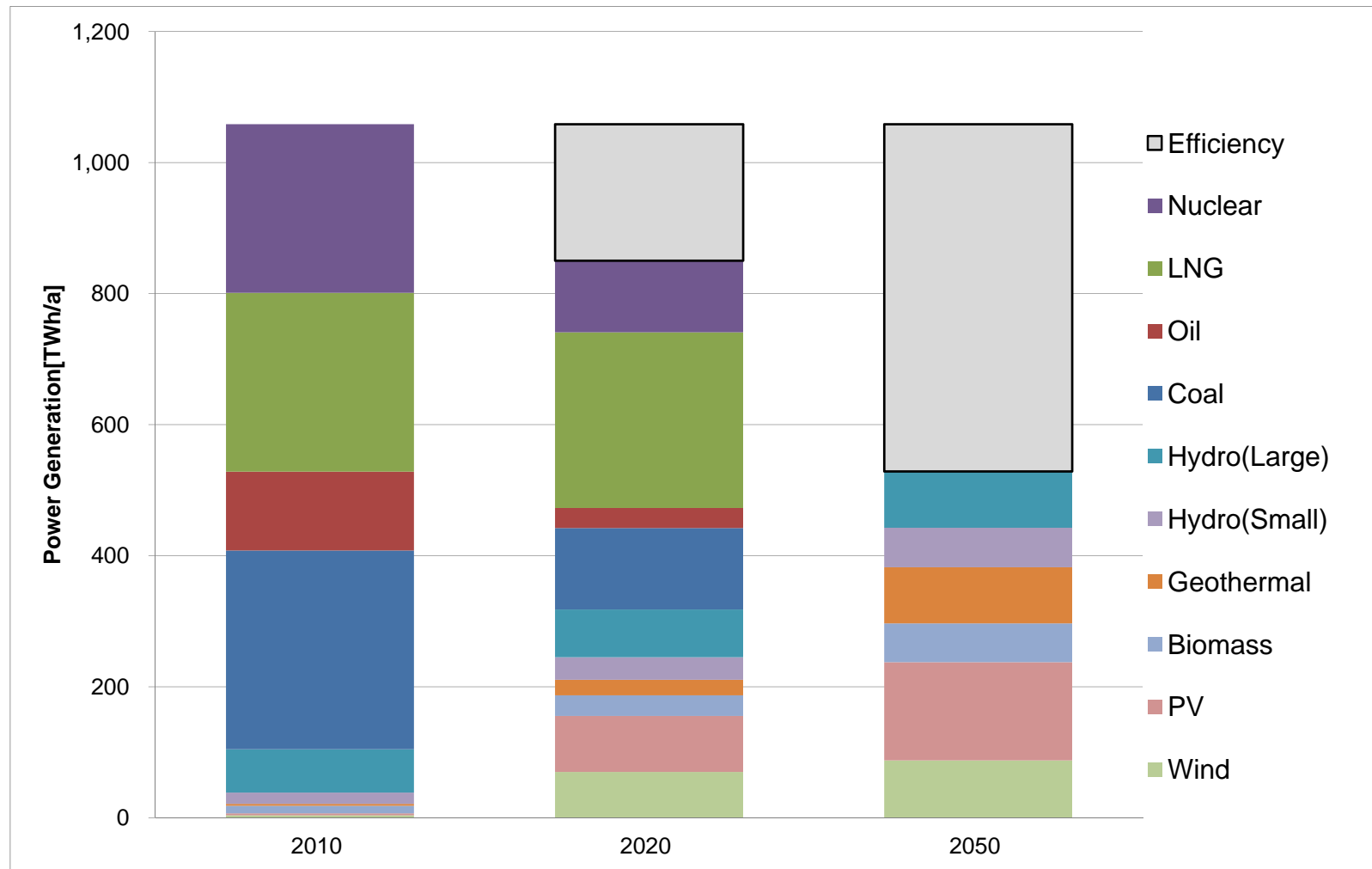
Energy Mix minus Nuclear: Options & Challenges

Energy Mix minus Nuclear (Options)	Energy Security Perspectives	Economic Perspectives	Climate Mitigation
Higher share of fossil fuel	<ul style="list-style-type: none"> •Vulnerable to supply challenges •price fluctuation 	<ul style="list-style-type: none"> •Higher energy bill 	<ul style="list-style-type: none"> •Challenge to climate mitigation targets
Extensive Demand Side Management and Clean Technology integration	<ul style="list-style-type: none"> •Slower implementation •supply concerns 	<ul style="list-style-type: none"> •Investment •unit cost of power •technological constraints •challenges to industry 	<ul style="list-style-type: none"> •Efficient mechanisms •cost for industry
Higher share of Renewable Sources	<ul style="list-style-type: none"> •Slower implementation •supply concerns 	<ul style="list-style-type: none"> •Investment, technological constraints •challenges to industry 	<ul style="list-style-type: none"> •Low emissions •need for incentives •tax benefits

Implications on Emission Targets

- Supply challenges in the post disaster expected to affect emission targets
- Power generation sector account for about 30% of the total carbon emission in Japan (2009). Hence, any changes in the fuel mix could have visible impact on the emission targets
- Achieving emission reduction targets (25% by 2020) is in question.
- Former Environment Minister Sakhito Ozawa's statement: The 25 percent emission reduction goal will be removed and there is a possibility of revised emissions targets

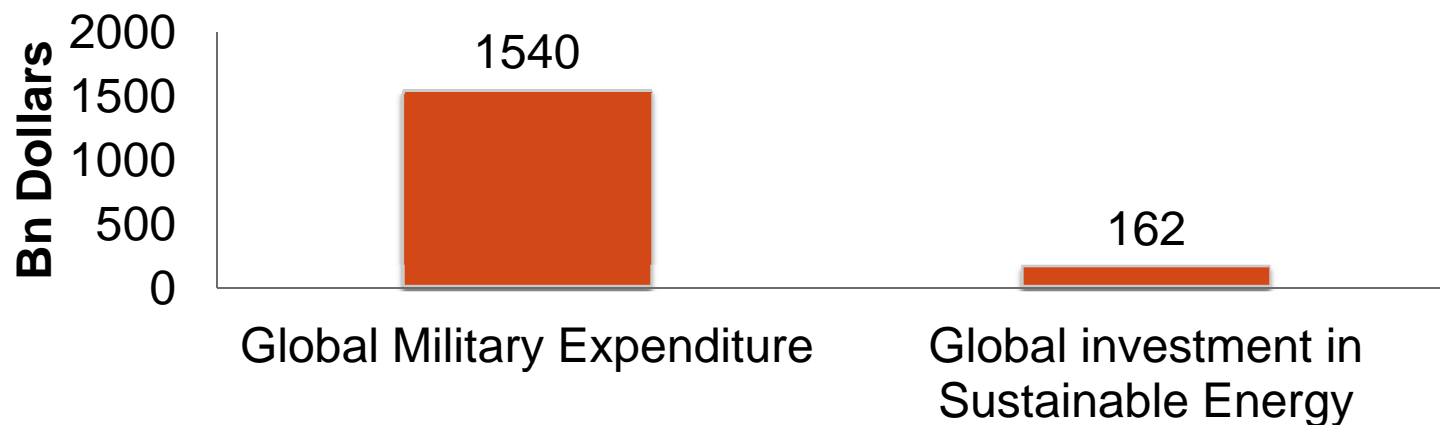
Possible Energy Scenario in Japan: Perceptions



Source: Institute of Sustainable Energy Policy, Japan

Is Energy Independence Feasible?

- While a complete energy independence could be too ambitious for Japan, a significant shift in the fuel mix is important taking into account the domestic and international energy scenario and climate targets
- Over dependence on fossil fuels and the lack of political confidence are the major hurdles
- Myth of financial feasibility for transition to domestically available sources vs. defence expenditures (2009)



Source: SIPRI report & UNEP-Bloomberg report

Post Fukushima Energy Policy in Japan

- 3-11 disasters culminated in strong anti-nuclear public sentiments
- Greater emphasis has been given to enhancing domestic supply capability
- Energy Security: Reduce overseas dependency and energy bill
- Introduction of Feed-In-Tariff to promote renewable energy development
- Importance given to expanding solar and geothermal sources
- Policies to target energy efficiency and energy conservation

Thank You

Please send your comments to Nandakumar Janardhanan:
janardhanan@iges.or.jp