

Japan's nuclear situation

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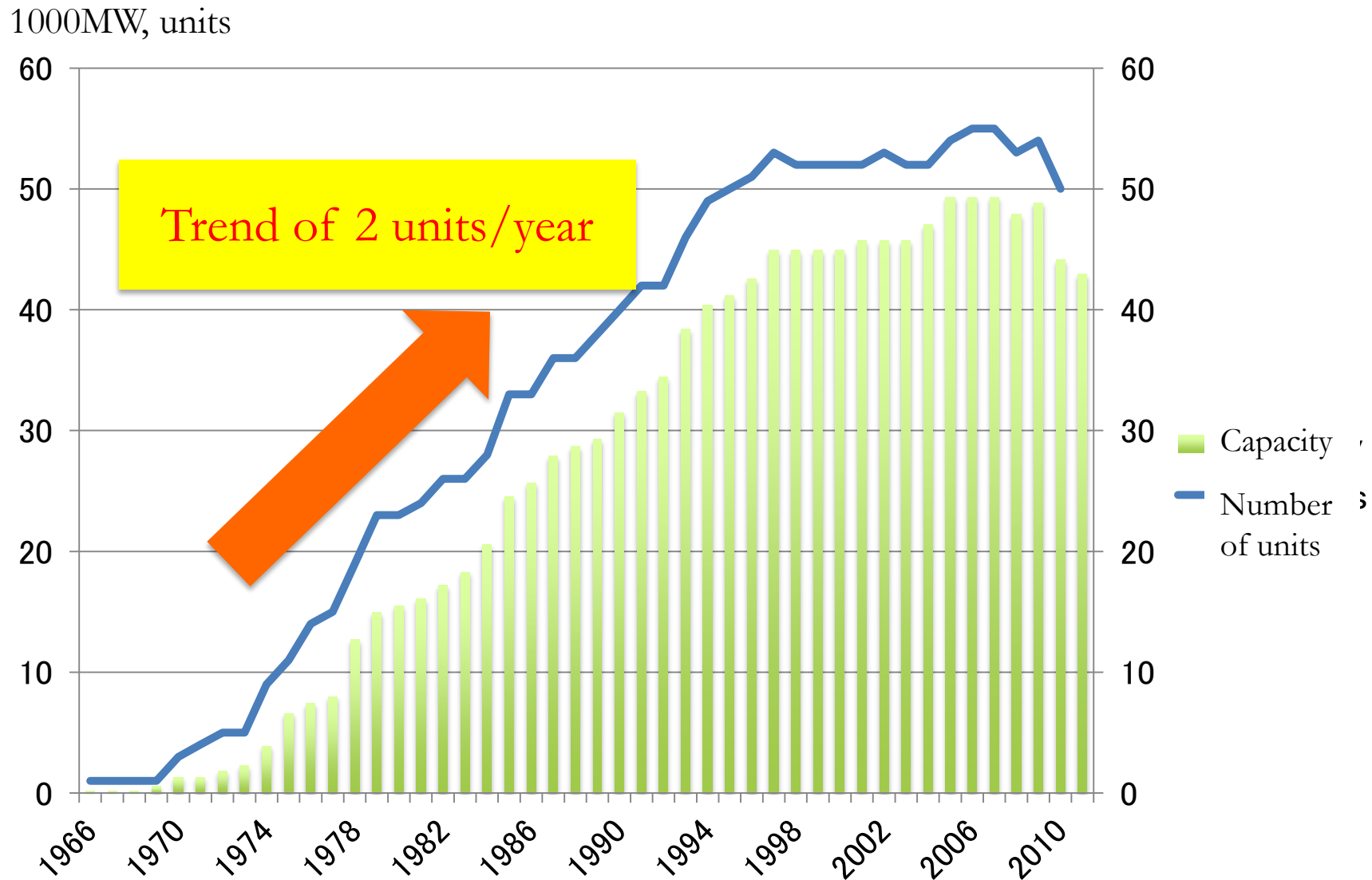
Outline

- Pre-Fukushima nuclear policy
- Post-Fukushima policy changes and backlash
- Future of nuclear and energy mix

Pre-Fukushima nuclear policy

- Basic Energy Plan & Long-Term Energy Demand Forecast
 - ① Full commitment of nuclear expansion (an nonsensical policy)
 - Promotion of nuclear fuel cycle
 - Nuclear expansion plan (9 new units by 2020, 14 by 2030)
(Originally this was not considered a possibility)
 - ✂ Why did this fail?
 - ✂ Can we even call this a plan?
 - ② Meanwhile, coal is being expanded
(This neglects climate change measures)
 - ③ Renewables: Not considered a major energy source. Failure of RPS.
 - ④ Deregulation of electricity/Separation of power generation from distribution and transmission → Not full scale

Japan's development of nuclear



Post-Fukushima Nuclear

The Democratic Party of Japan (DPJ)

- Review of Energy Policy = Energy and Environment Meeting
(independent from the Ministry of Economics, Trade and Industry(METI))
 - 1) ”Innovative Strategy for Energy and the Environment” (September, 2012)
 - ① Careful review of the full commitment to nuclear development
 - Aim for a zero-nuclear society by the 2030s
 - ② Clarification of greenhouse gas reductions
 - Verification of a 80% cut by 2050
 - 4th Environmental Basic Plan (April 27th, 2012)
 - Reduction of 20% by 2030 (5-9% cut in Japan compared with 1990 levels) ✕
 - ✳ This was a weak target compared to the original “25% reduction by 2020)
 - 2) Review of energy policies
 - Taking another look at nuclear costs and policies, introduction of FIT, and electricity system reform
 - 3) Establishment of a “National Debate”
 - Hearings, deliberative polls, call for public comments
 - Hold a meeting to validate the information (independent of the government) ◦
 - ✳ Although this is insufficient, such measures have not been taken before

The LDP Administration's handing of nuclear issues

- Basic Energy Plan (April, 2014) and the energy mix
 - Nuclear:
 - ① Important base load electricity
 - It reveals that it is very important terminology
 - “base load electricity” rate became an issue later on
“Nuclear + Coal + Hydro + Geothermal”
 - ② “Reduce nuclear dependency as much as possible through energy saving measures and the expansion of renewables as well as improving the efficiency of thermal power plants”
 - By how much nuclear will be cut is unclear
 - ✂ Cutting the rate of nuclear to 20-22%
 - This is not reducing nuclear dependency “as much as possible”

Electricity System Reform and Nuclear

- Moving forward with energy system reform
 - Separation of power generation from distribution and transmission
→ Operate over a large area
 - Electricity Deregulation → Establishment of an electricity market
 - 2016 Full de-deregulation for retail businesses
 - 2018-2020 The approval rate system was abolished based on the fully distributed cost principle

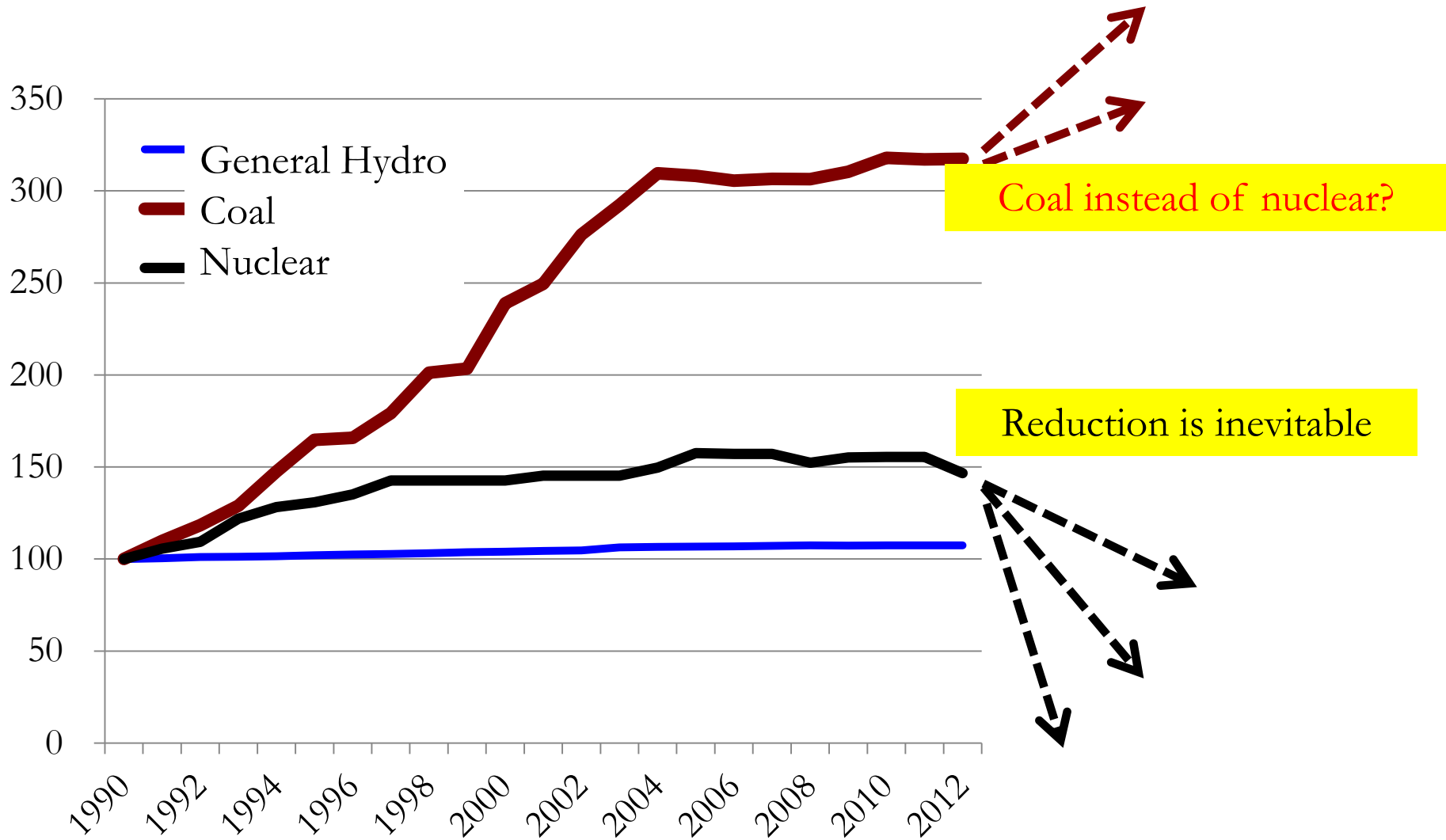
→ Longevity of nuclear even with electricity deregulation

= Advance of Business Conditions Enhancement Doctrine

Posed by the Ministry of Economy, Trade and Industry since 2013

Included in the “Policy on Electricity System Reform” (April, 2013) and “Basic Energy Plan” (April, 2014)

Coal and Nuclear



※Power generation is set at the value of 100 for FY1990

Maintaining nuclear business conditions 1

1. Losses from decommissioning

- Nuclear facilities
 - Nuclear fuel
- } Power company **assets**

→ Large, sudden **losses** due to decommissioning

→ Can something be done?



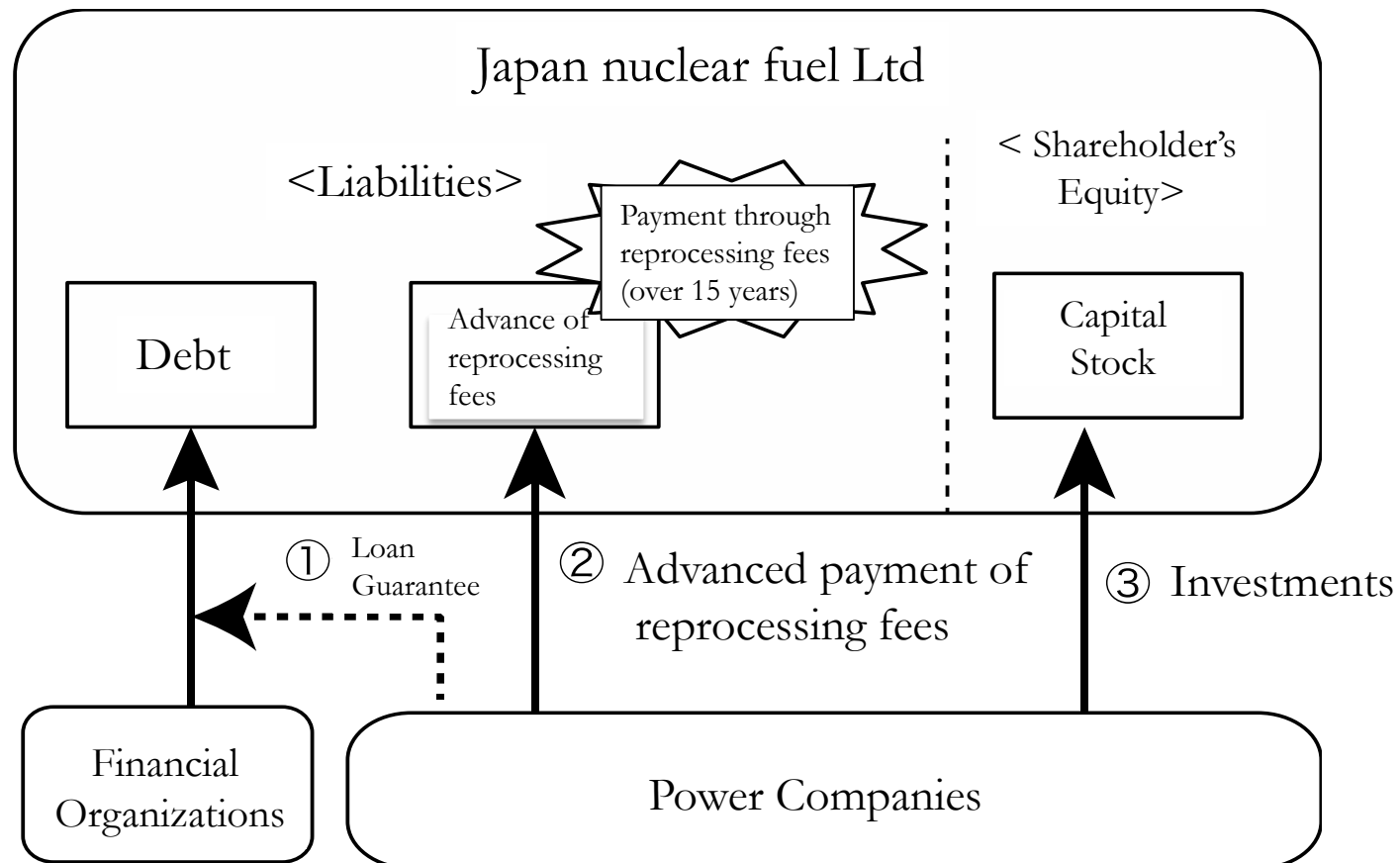
Changes in finances / electricity rates

Revision of decommissioning accounting and electricity pricing system

1. Amount of unpaid reserved fund for dismantling nuclear facilities
→Even after the facility is discontinued, provide provisions (October, 2013)
2. Impairment loss from nuclear facilities
 - ① Impairment loss from decommissioned nuclear facilities
→Make repayment possible (October 2013)
 - ② Impairment loss from nuclear facilities that was only used for generating power
→Make repayment possible (April, 2015)
3. Impairment loss from nuclear fuel assets
→Make repayment possible (April, 2015)

Maintaining nuclear business conditions 2

- *As electricity deregulated*, support to Japan Nuclear Fuel Limited (from power companies) will end



Maintaining nuclear business conditions 3

- Increasing liability for damages
- **Current** principles of nuclear damages
 - No-fault liability
 - Channelled liability
 - **Unlimited Liability:** Naturally through the roof following the nuclear accident



Moving towards limited liability

If damages exceeds the limit, this will become **a burden on citizens**

Conclusion

- The nuclear rate is set at 20-22% but in reality this is very difficult to achieve
- Nevertheless, to maintain nuclear power generation, nuclear business condition is promoted. This benefits utilities which possess nuclear facility under the process of electricity system reform.
- When maintenance of nuclear facilities becomes difficult, it is likely that dependency on coal-fired thermal energy will increase.