

IEEJ 50th/ APERC30th Anniversary Joint Symposium

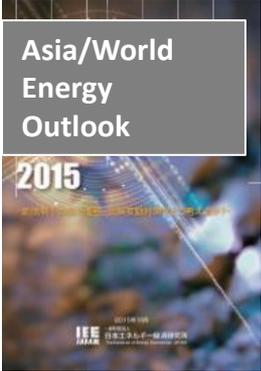
Lessons from Japan's Energy Mix Debate and its Relevance to the World

Yukari Yamashita

The Institute of Energy Economics, Japan (IEEJ)

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Tokyo, Japan



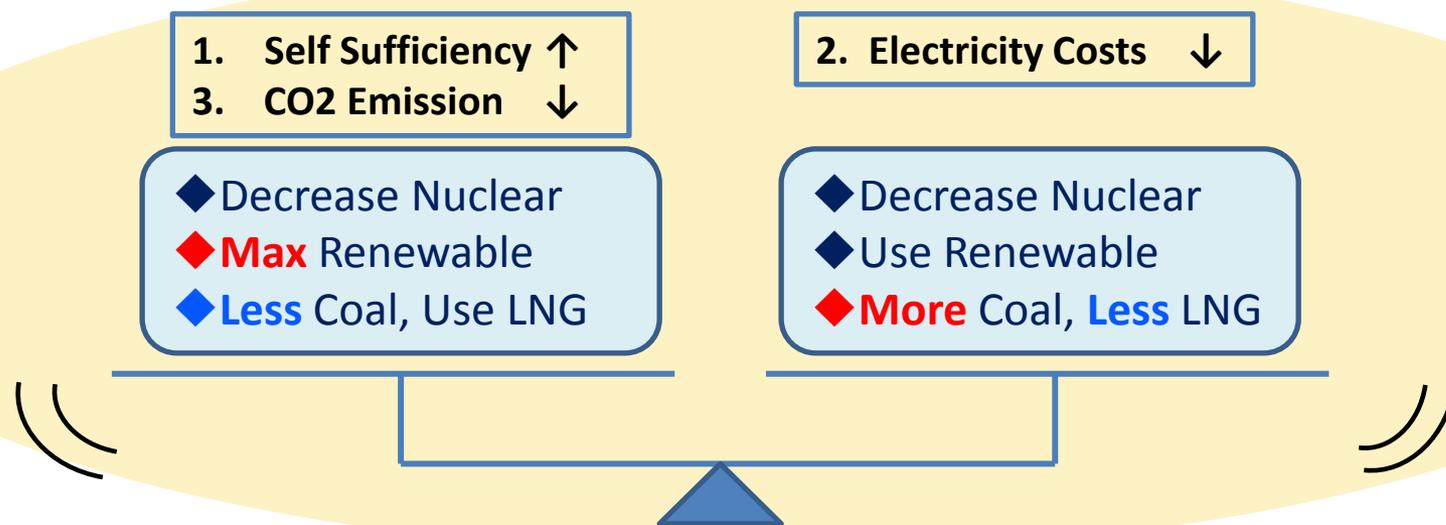
Three Policy Targets to be Achieved

Energy Mix (Demand & Supply Outlook) : public comment process (until 1 July)

To secure “**S**safety + **3E**” of Japan’s energy demand and supply :

Foremost condition: Nuclear safety (**S**safety)

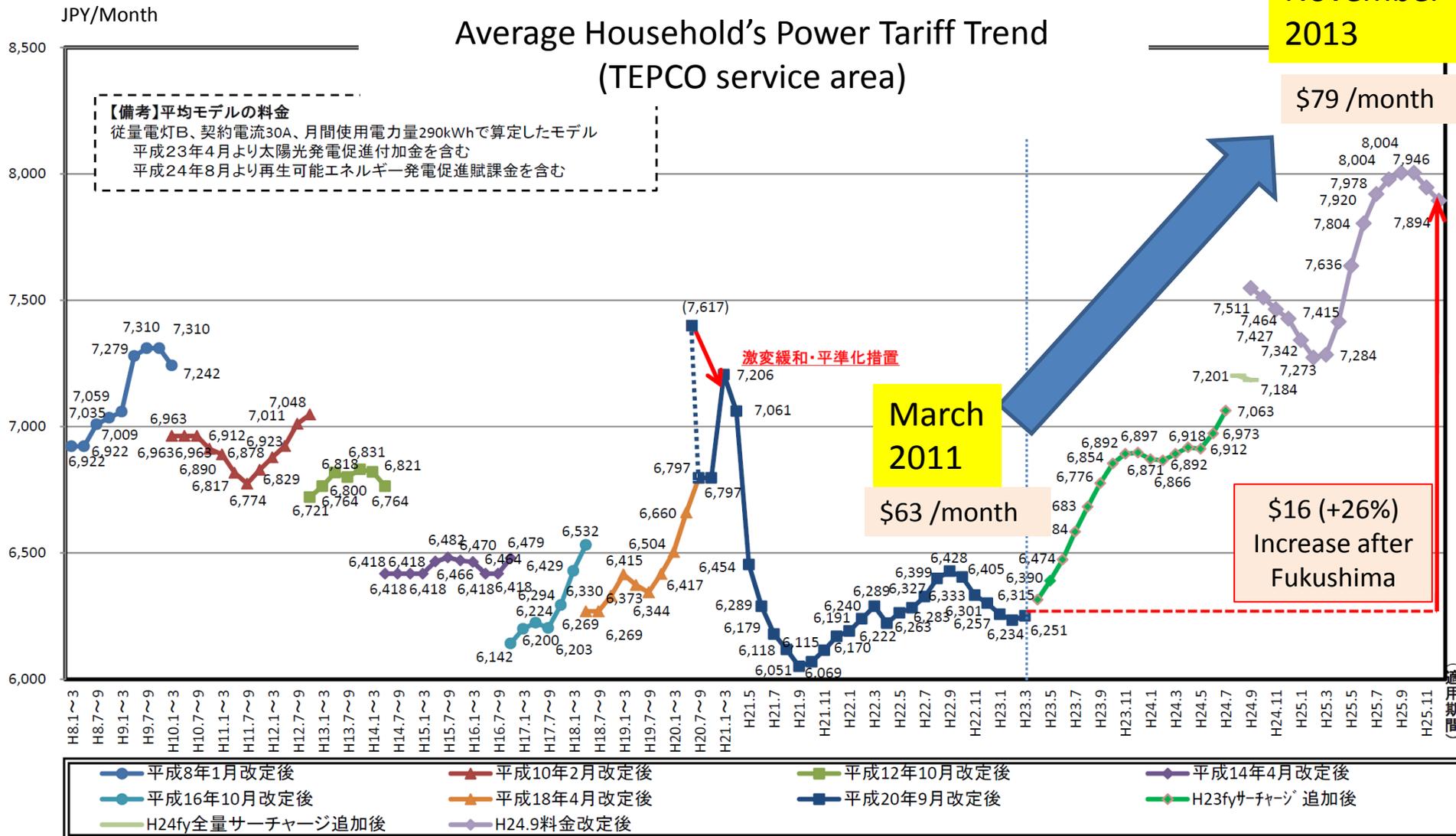
1. Improved **self sufficiency** (about 25%) (**E**nergy Security)
2. **Lower electricity costs** (**E**conomic Efficiency)
3. Set a **GHG reduction** target and lead the world (**E**nvironment)



Power Tariff Rose by 20-30 %

November 2013

Average Household's Power Tariff Trend (TEPCO service area)

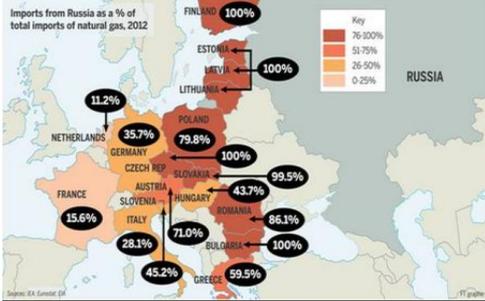


Increased Uncertainties

Higher Oil Dependency than after Oil Crises

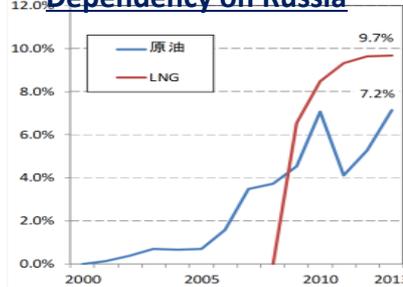
Ukraine

Dependency on Russian Gas

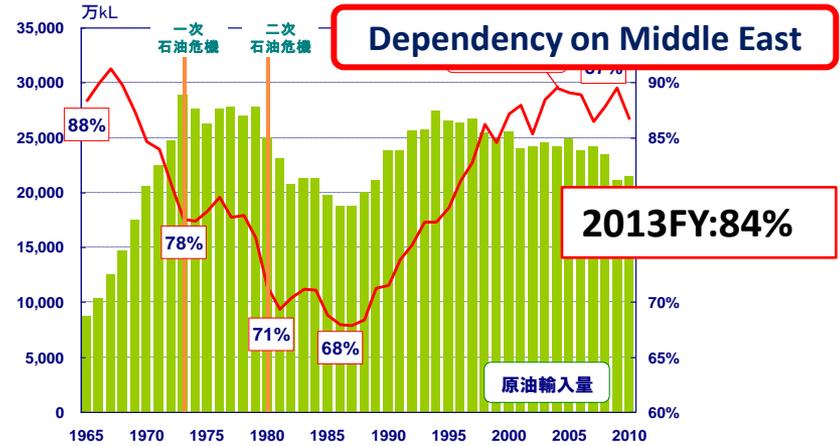


(Source) The Financial Times, April 4, 2014.

<Reference> Japan's Dependency on Russia



(Source) Resource Energy Yearbook, Trade Statistics



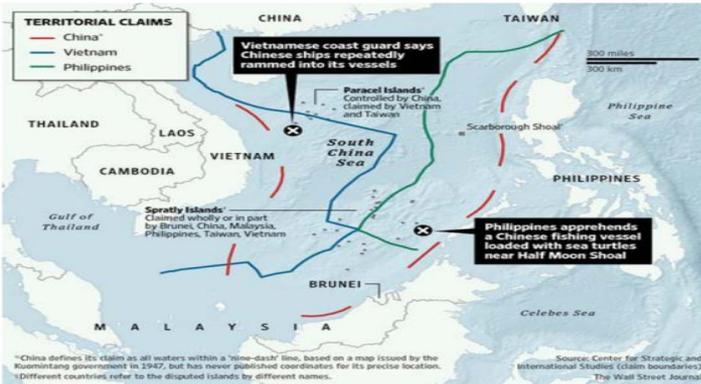
Iraq, Middle East

Instability

- Unclear Middle East Peace Pact
- Situation of inside & outside of Iraq after the war
- International tension surrounding the Iranian nuclear development issues
- Economic & Political Impacts of Shale O&G
- Factors of instability of current governments & governance in Middle East induced by the Arab Spring.
- Risks of Terrorism Activity Against Petroleum Facilities
- Increasing Dissatisfaction in Arab-Islam Society against USA

South China Sea

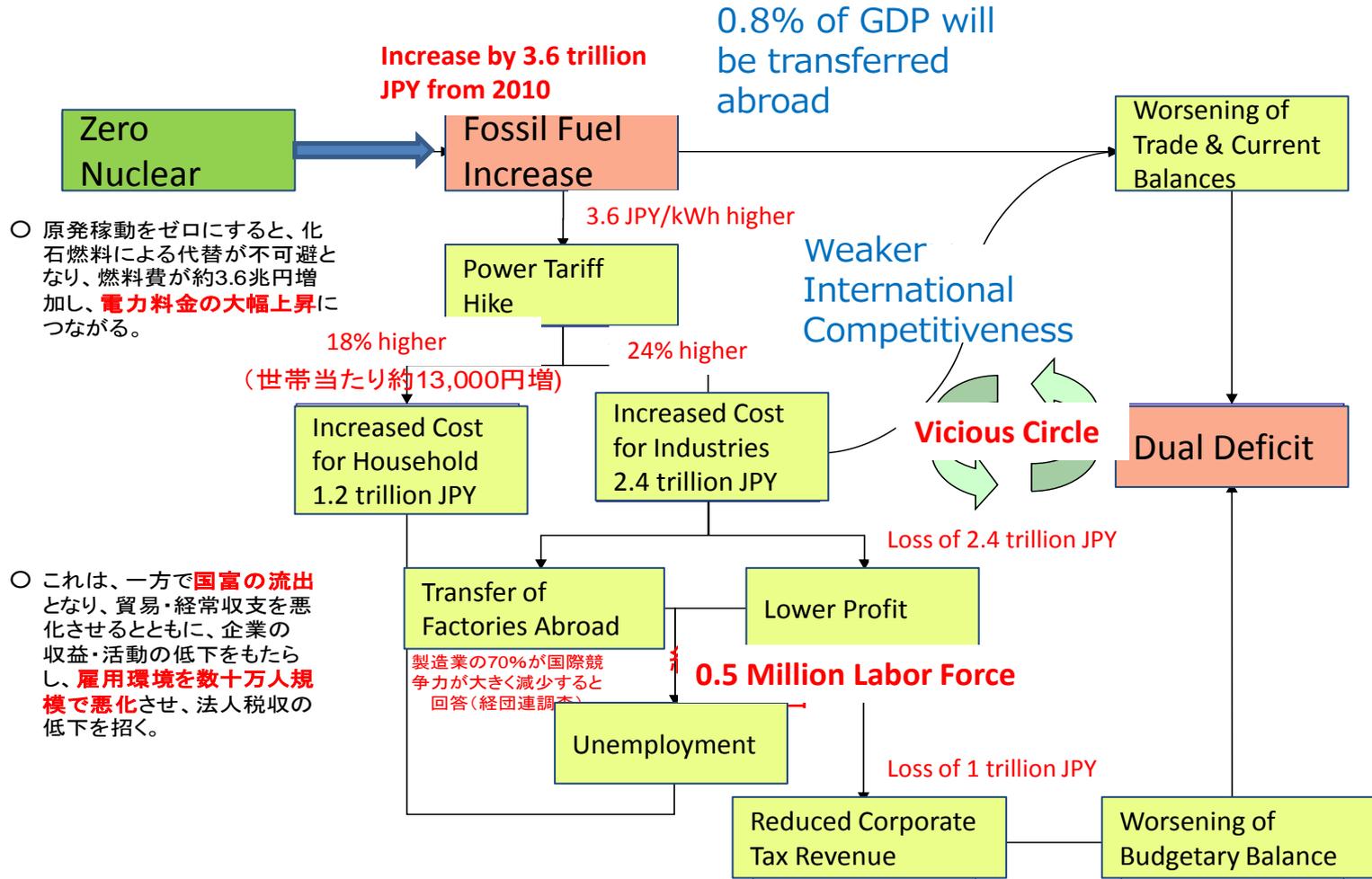
Territorial Disputes in the South China Sea



(Source) The Wall Street Journal, 2014 May 9 (Japanese Web)

Bad Influence on Macro Economy: National Wealth Loss and Hollow Out of Industries

Zero Nuclear brought bad influence on Japanese Economy (FY2013 case)



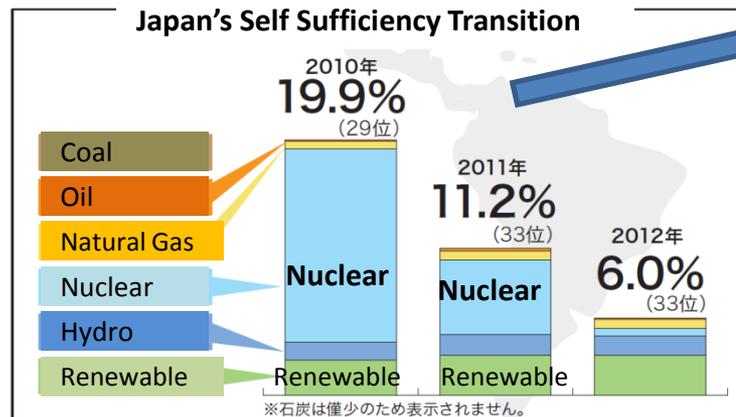
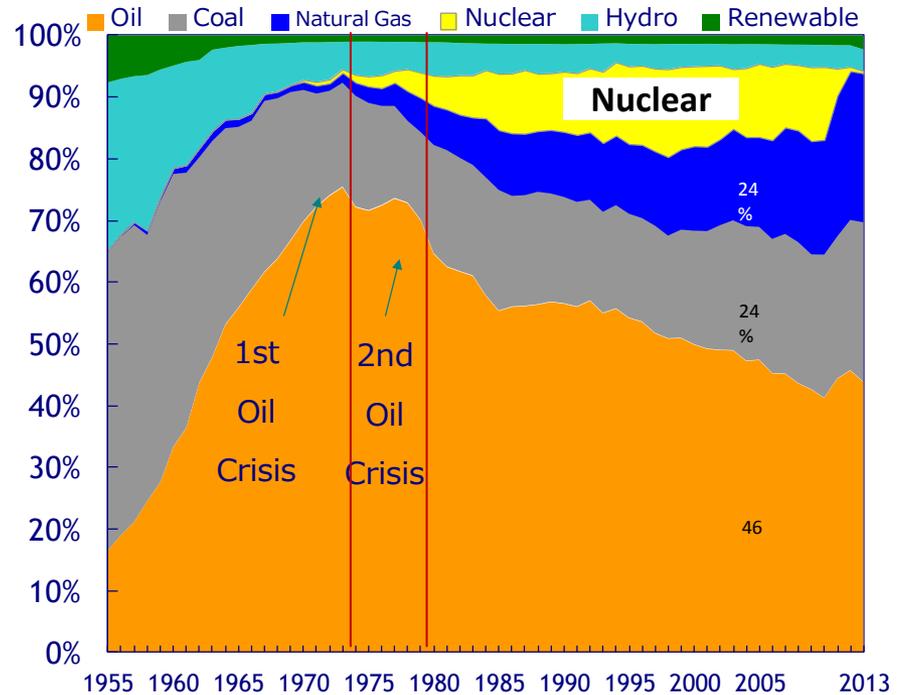
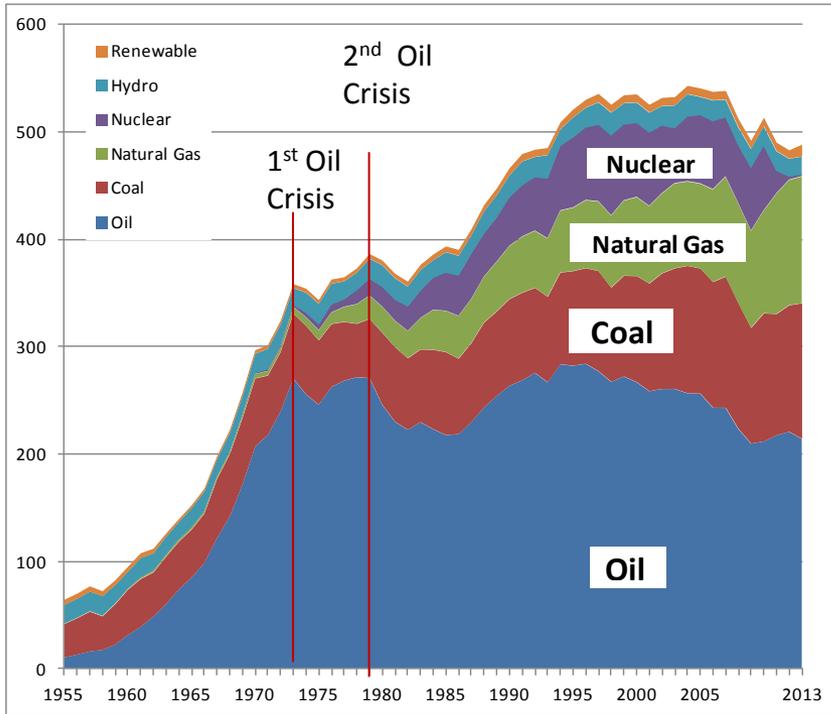
○ 原発稼働をゼロにすると、化石燃料による代替が不可避となり、燃料費が約3.6兆円増加し、**電力料金的大幅上昇**につながる。

○ これは、一方で**国富の流出**となり、貿易・経常収支を悪化させるとともに、企業の収益・活動の低下をもたらし、**雇用環境を数十万人規模で悪化**させ、法人税収の低下を招く。

製造業の70%が国際競争力が大きく減少すると回答(経団連調査)

Energy Supply Diversity & Self Sufficiency

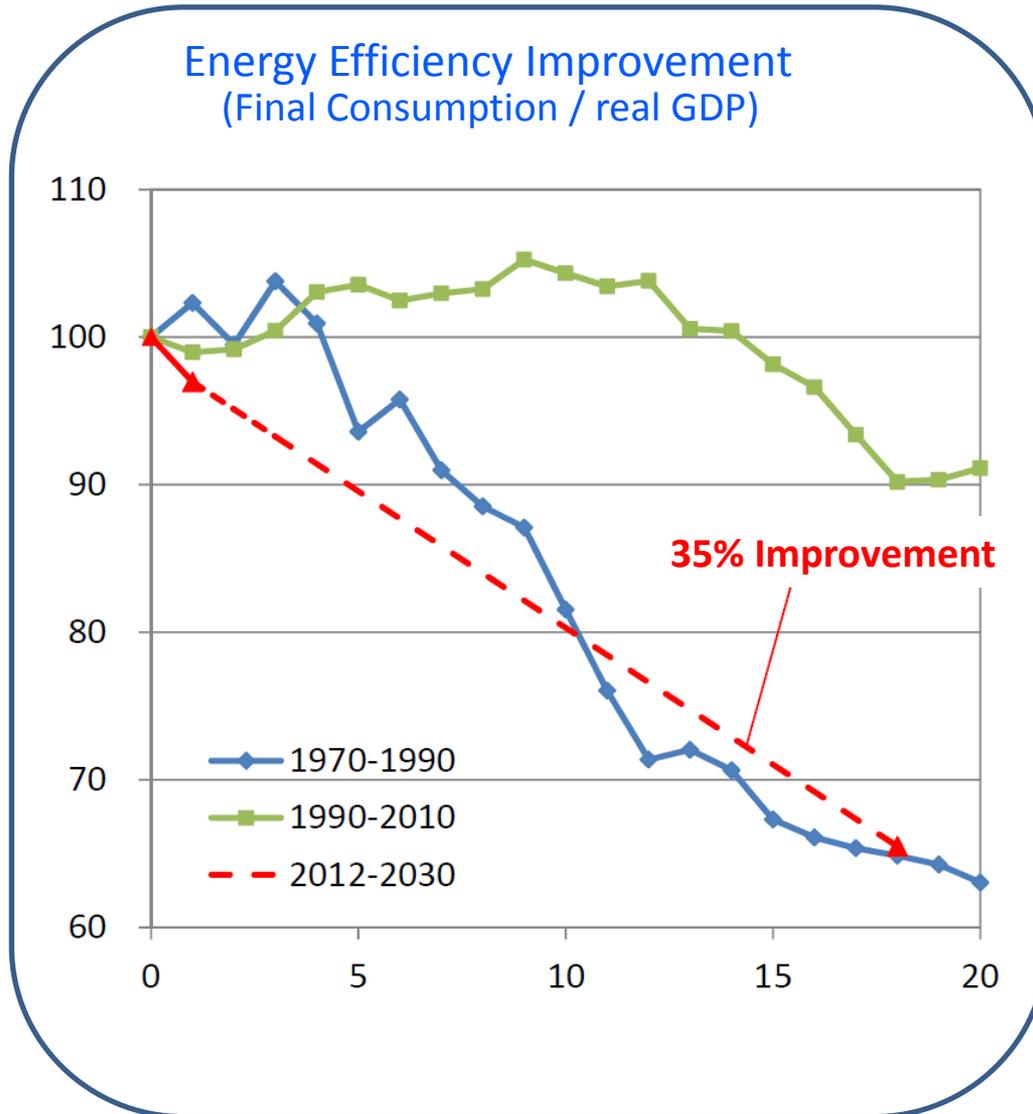
Primary Energy Supply Trend of Japan (1955-2013)



2030
25%

Primary Energy Supply
- Renewable : 13-14%
- Nuclear : 11-10%

Energy Efficiency to be Improved Drastically



From 2013 to 2030
Economic
Growth
(1.7%/year)

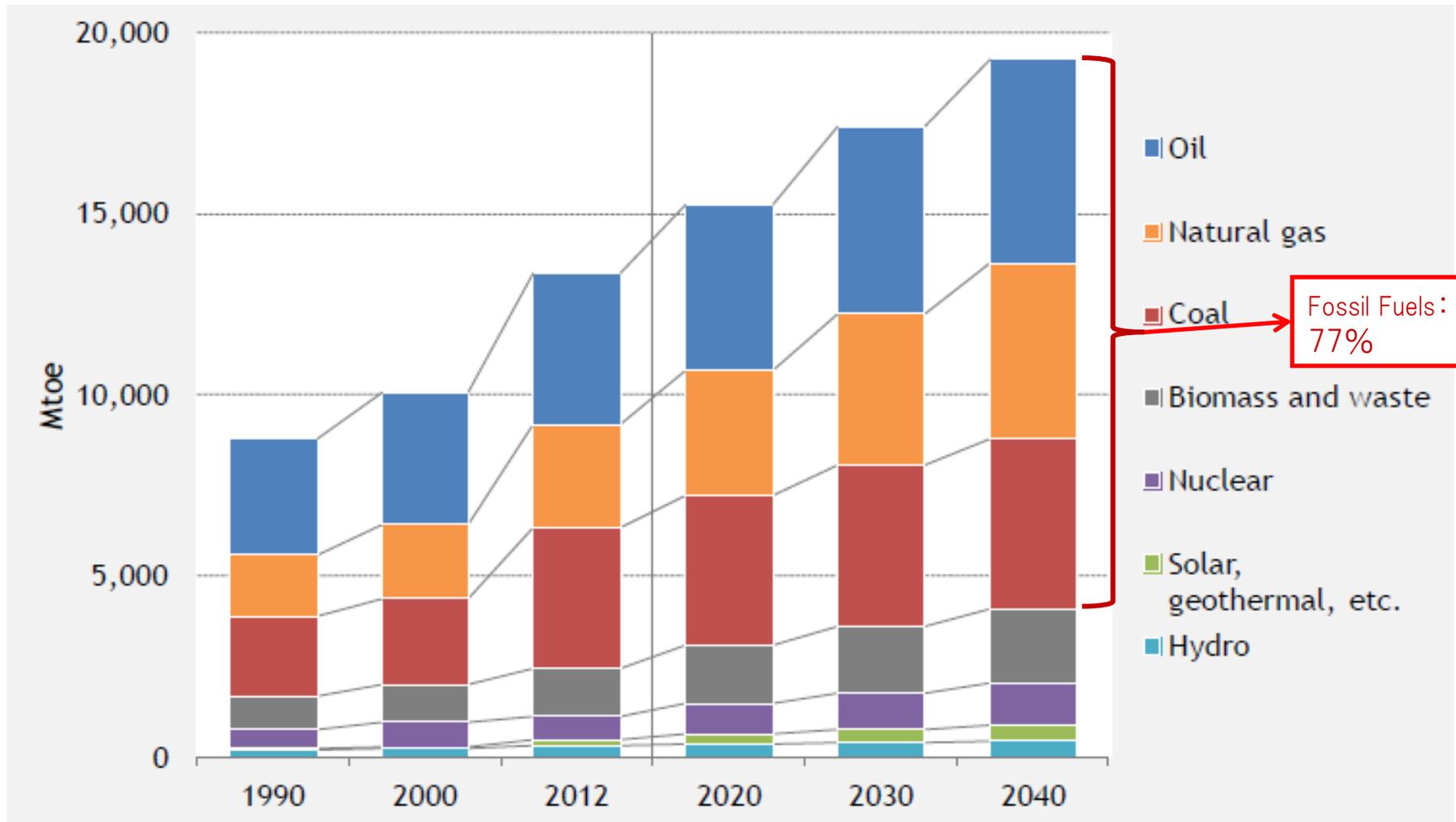
**Maximum EE
Improvement
(50 mil KL, ▲13%)**

Source: from documents discussed at the
“Long-term Energy Outlook Sub Committee”,
10th Session (1st June 2015)

N.B: EE stands for Energy Efficiency

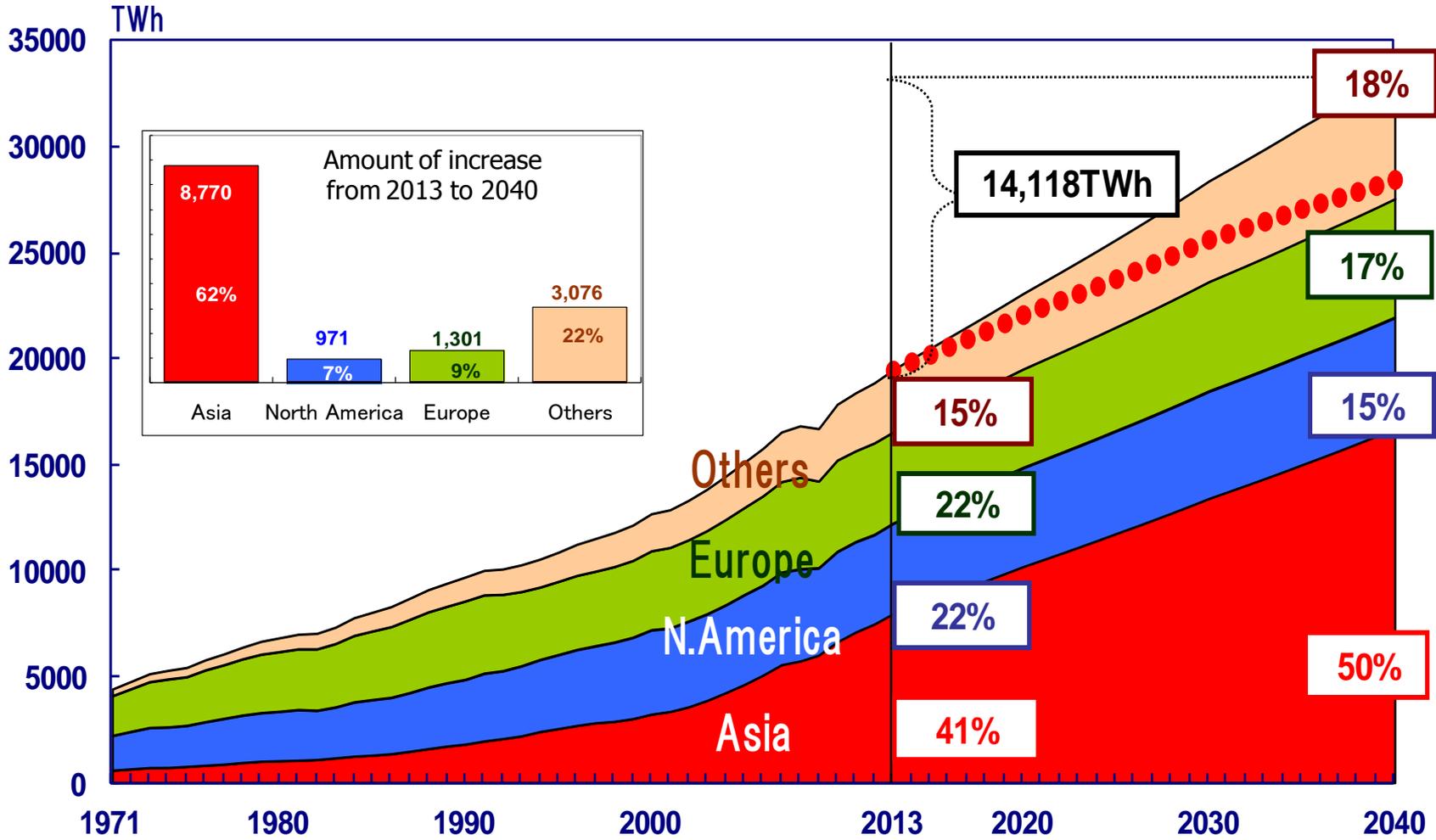


World Primary Energy Supply (By Energy)



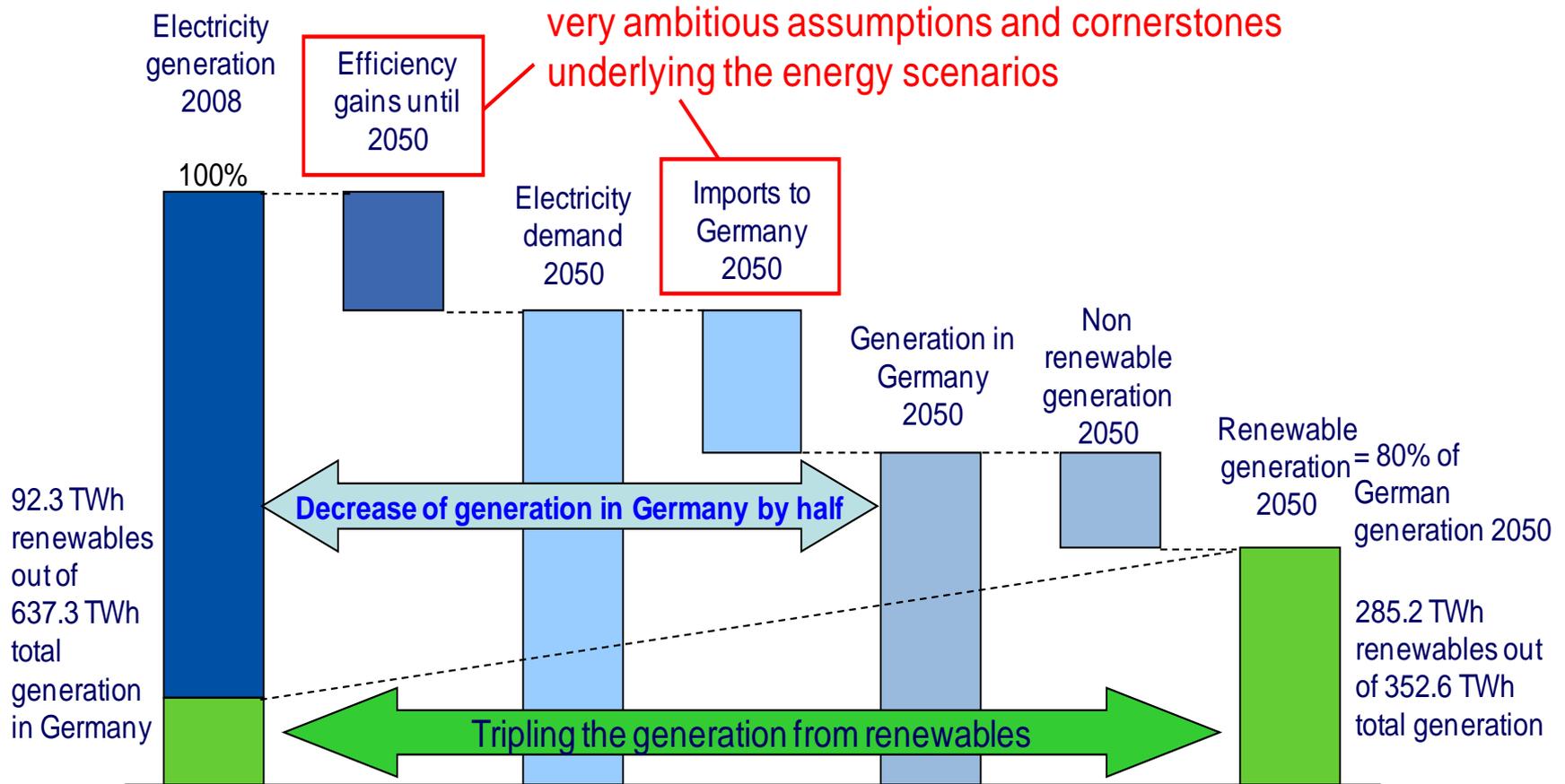
Source: IEEJ, Asia/ World Energy Outlook 2015

Electricity Consumption by Region (World)



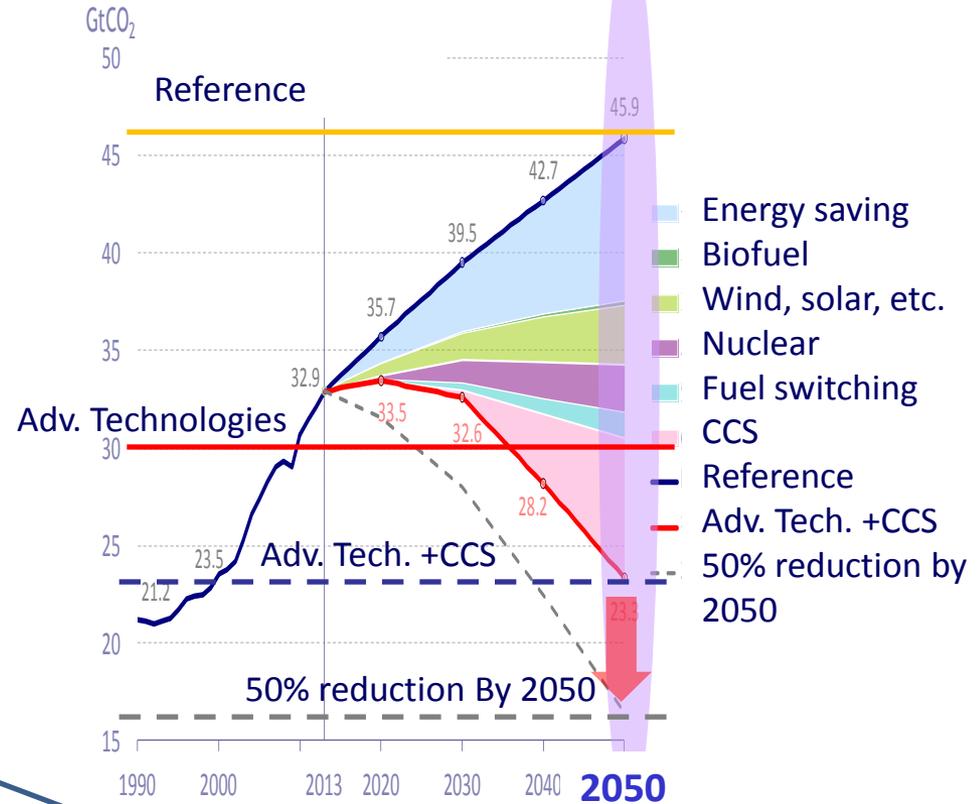
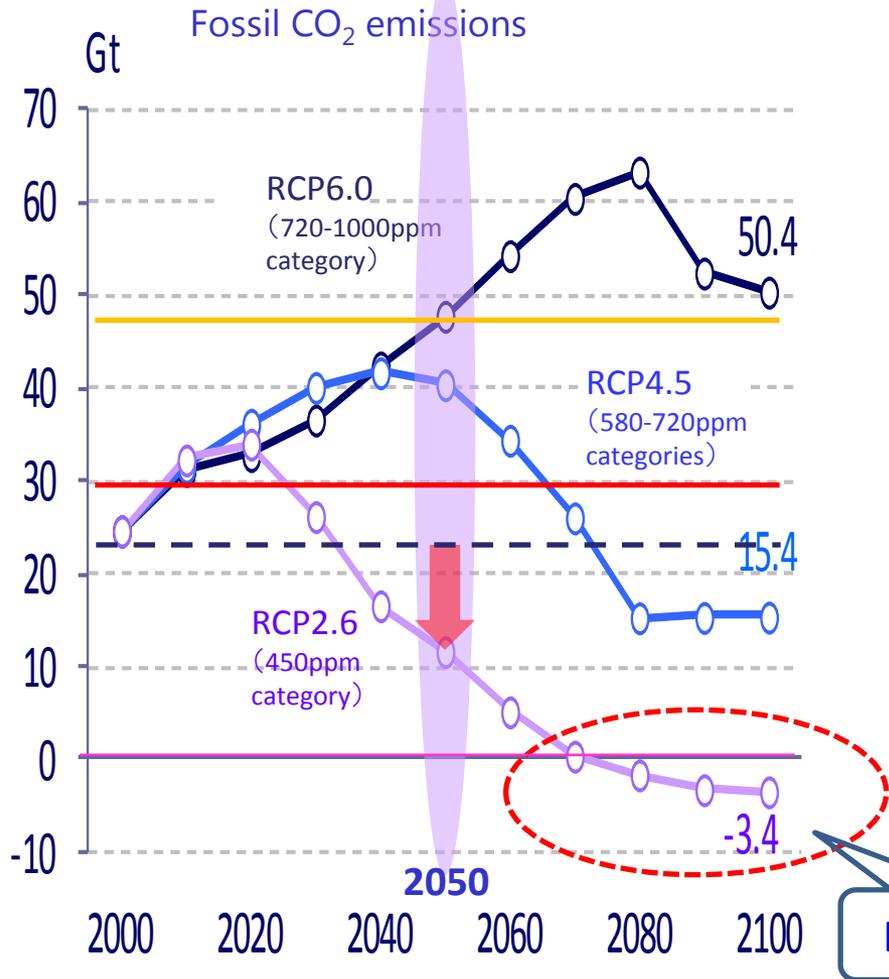
Source: IEEJ, Asia/ World Energy Outlook 2015

Can Germany's Abandoning Nuclear Power Provide a Lesson?



Source: Bruttostromerzeugung gemäß Tabelle A 1-7, Szenario II A, Energieszenarien EWI, GWS, Prognos

IPCC 5th Assessment Report v.s. IEEJ Outlook



※Calculated using MAGICC 6.0
 Meinshausen, M., S. C. B. Raper and T. M. L. Wigley (2011). "Emulating coupled atmosphere-ocean and carbon cycle models with a simpler model, MAGICC6: Part I – Model Description and Calibration." Atmospheric Chemistry and Physics 11: 1417-1456.

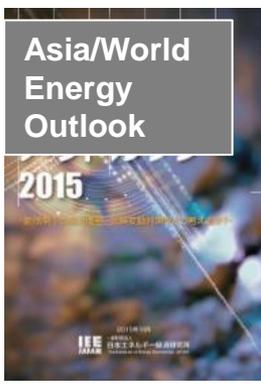
Conclusion

- **Energy security** is essential and **macro and direct economic** impacts are the keys for every country.
- Robust, lean, smart, efficient, advanced, AND DIVERSIFIED energy use (supply) makes a difference.
 - Diversified **energy type** & diversified **energy suppliers** (countries).
- Establishment of **regional security** brings added values.
- Energy **imbalance** may have big macro economic implications.
- The global energy market is full of UNCERTAINTIES.....AND changes come rather **fast** ...
- Learning both **success** and **failure** from **international experiences** is useful.
- **Global warming** cannot be solved by a single country and **innovative technologies** are essential for bigger reduction.



一般財団法人

日本エネルギー経済研究所
The Institute of Energy Economics, Japan



IEEJ's **Asia/World Energy Outlook 2015**

is available at

<http://eneken.ieej.or.jp/en/whatsnew/421.html>