Outlook for Energy Prices and Supply

Session 2: Implications of Prolonged Low Energy Prices on the Energy Mix

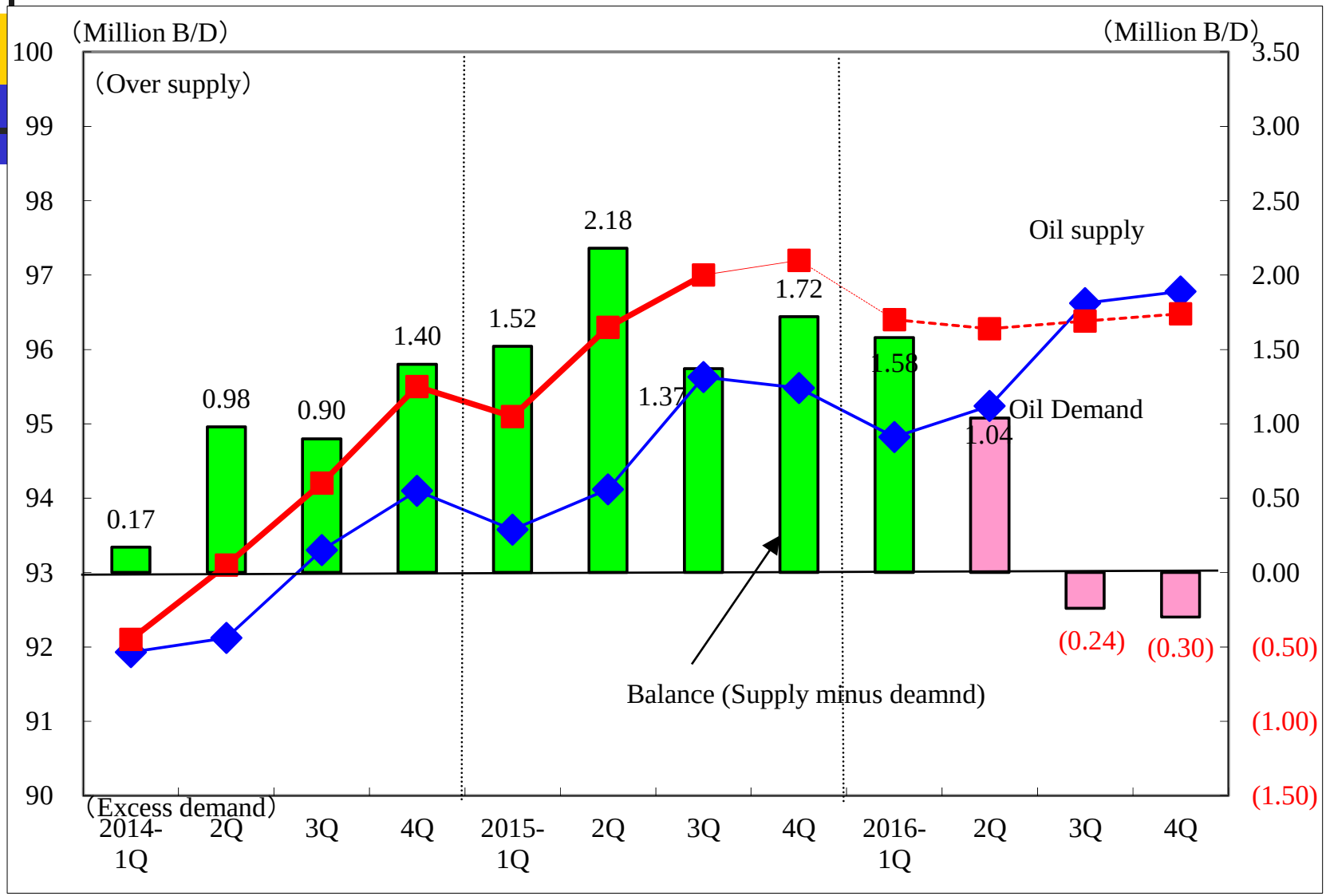
APERC Annual Conference 2016

May 25th, 2016

Ken Koyama, PhD

Chief Economist, Managing Director
Institute of Energy Economics, Japan

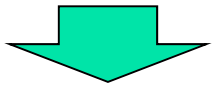
Outlook for Oil Supply-Demand



Source: Outlook by the Author based on data from IEA “Oil Market Report”

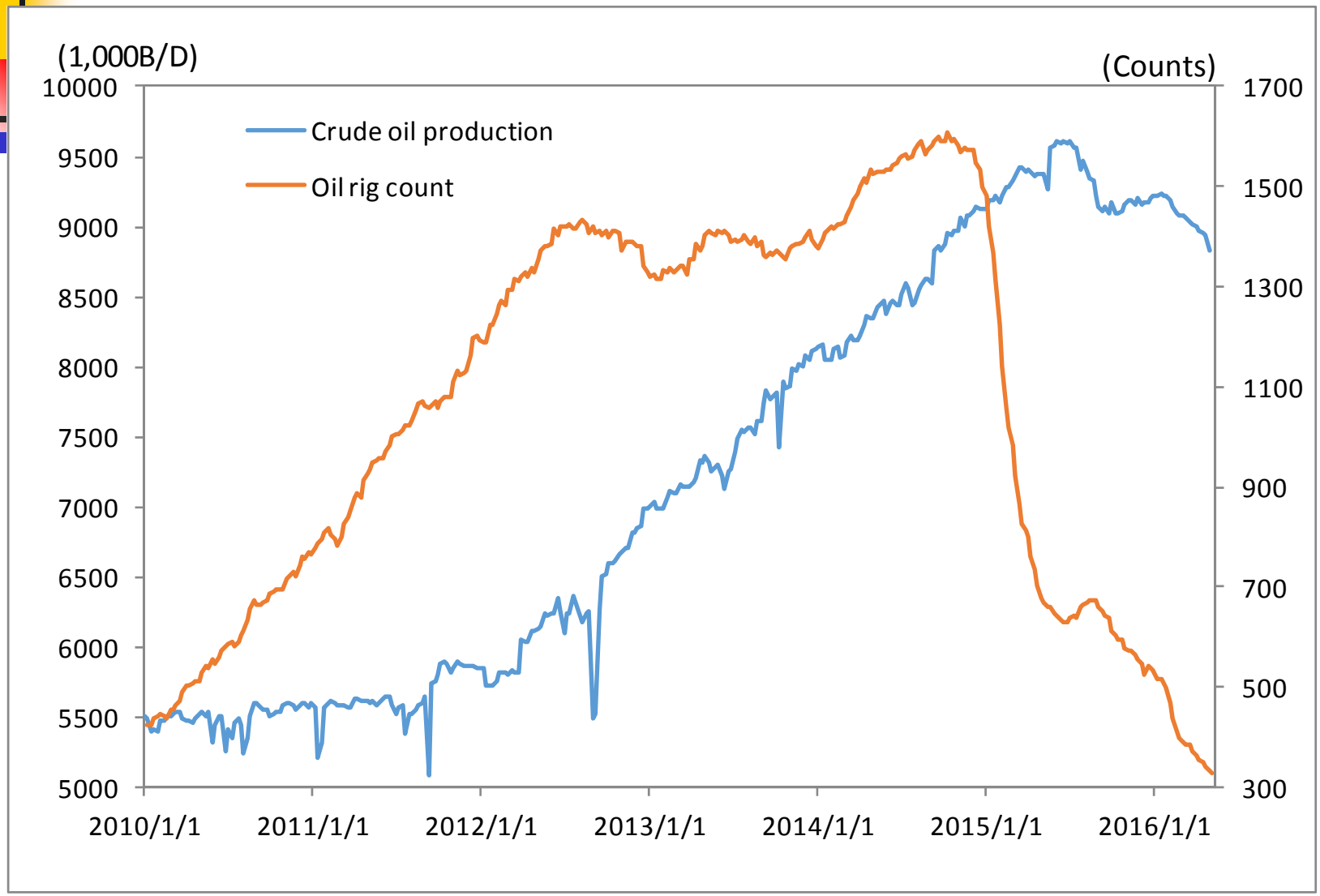
Background to Saudi's Decision

- Protecting prices by cutting production is self-defeating.
- Tough lessons from the swing producer experience
- "The market will naturally balance itself out."
- Various "strategic thoughts" ≠ "conspiracy theory"
- Availability of financial resources to withstand low prices for some time
- Searching for new price equilibrium while maintaining its market share



- Market lost its foothold and plummeted.
- Response to the idea of concerted production restrain?

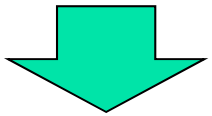
US Oil Production and Rig Count



Source: Data from EIA and Baker Hughes

Low Oil Price and US LTO

- US LTO, relatively high cost oil production
- But cost differs greatly by area, well and producer
- "Breakeven cost" vs "Short-run marginal cost"
- Rig counts decline dramatically, but "shift to quality"
- Financial problems of shale oil producers
- Low oil price results in lower production cost
- Existence of uncompleted wells



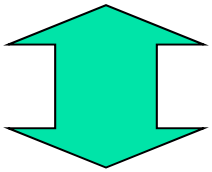
- US LTO shows resilience to low oil price
- LTO production may bounce back if price goes up

Outlook for Near-Term Global Oil Market

- Current price level likely to remain in the near term due to prevailing over-supply situation.
- The impact on the production of high-cost oil (US shale, etc.) is emerging, but full scale impacts will be felt later this year.
- But US LTO production may be resilient and start to pick up again if oil price goes beyond a certain level.
- What can be a "surprise"?
  - OPEC decision?
  - Supply disruption in oil producer countries?
  - Economic downside risks?
  - Speed and degree of Return of Iranian oil?
- Current price level is not sustainable for mid-term. Market may head for 70-75$ in 2020

Pros and Cons of Low Oil Prices: Macro

- Positive for the global economy in general
- Great benefits for consumers (highly import-dependent) countries
- Also benefits for energy-importing companies and users
- Tax-break effect on people's lives

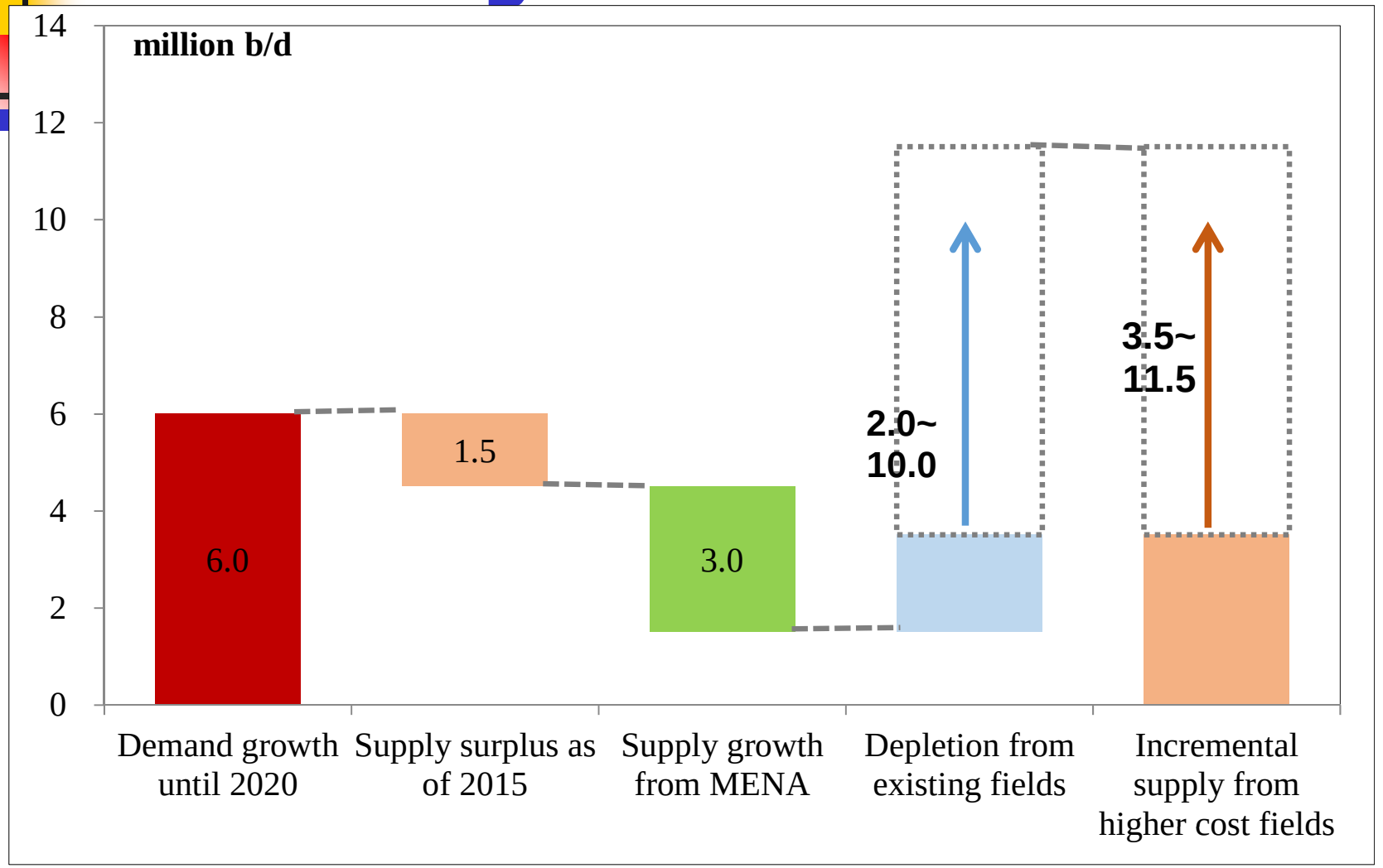


- Serious negative impact on resource-rich countries
- Economic instability of resource-rich countries could precipitate financial and credit crisis.
- Risk of economic and financial crises spreading internationally
- Most vulnerable: Russia, Venezuela, Nigeria, etc.

Impact of Low Oil Prices: Energy

- Crude oil prices: "the deeper the valley, the higher the peak"?
- Destabilizing oil-producing and resource-rich countries
- Adverse effect on investment in energy supply (high-cost PJs)
- Difficulty in decision-making on choice of energy, LNG price formula, etc.
- Restructuring and institutional issues of domestic and overseas energy industries (Corporate integration and asset reshuffling)
- Increased need for cost reduction and higher efficiency

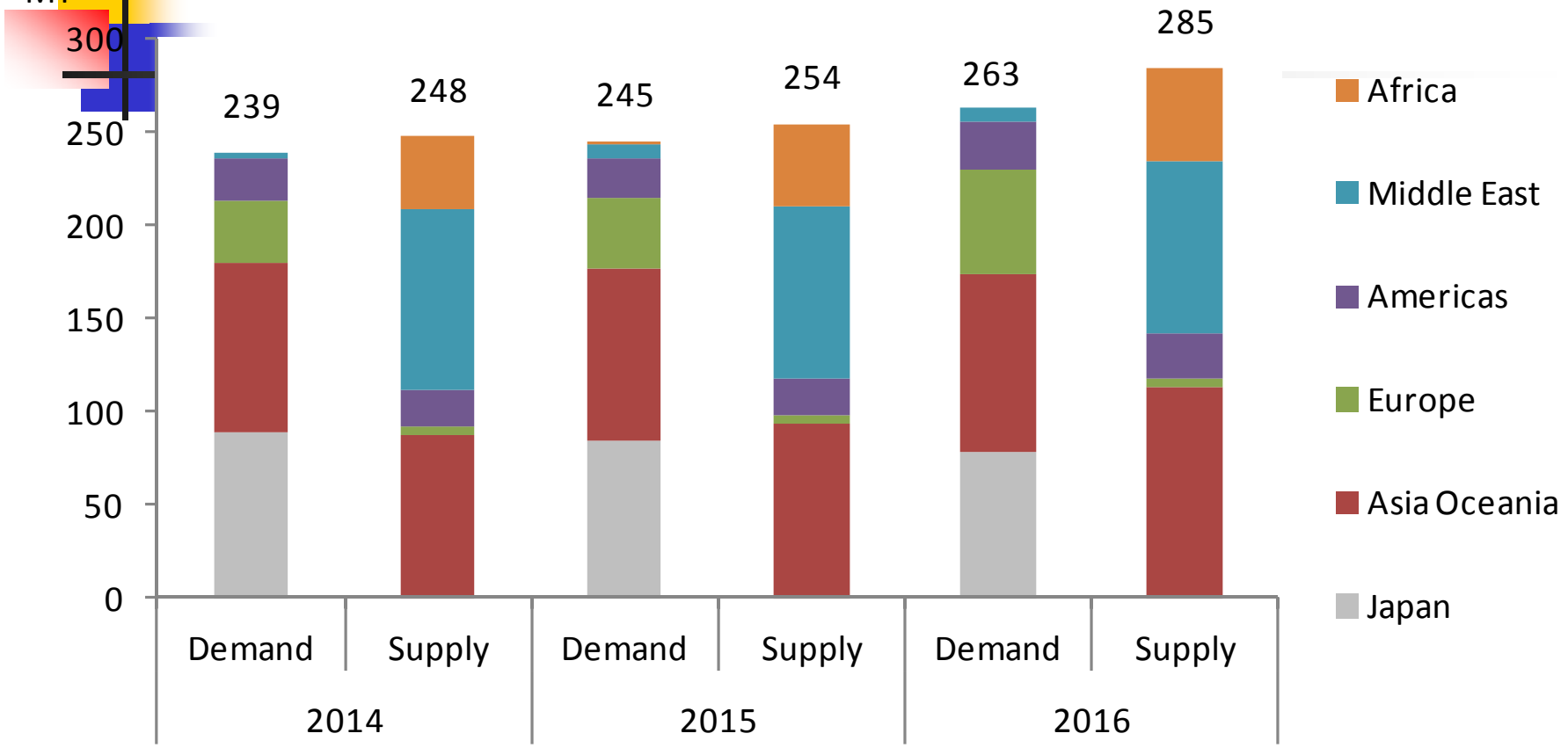
Need for Higher Cost Oil Production



Source: Prepared by IEEJ based on IEA data and others

Global LNG Balance up to 2016

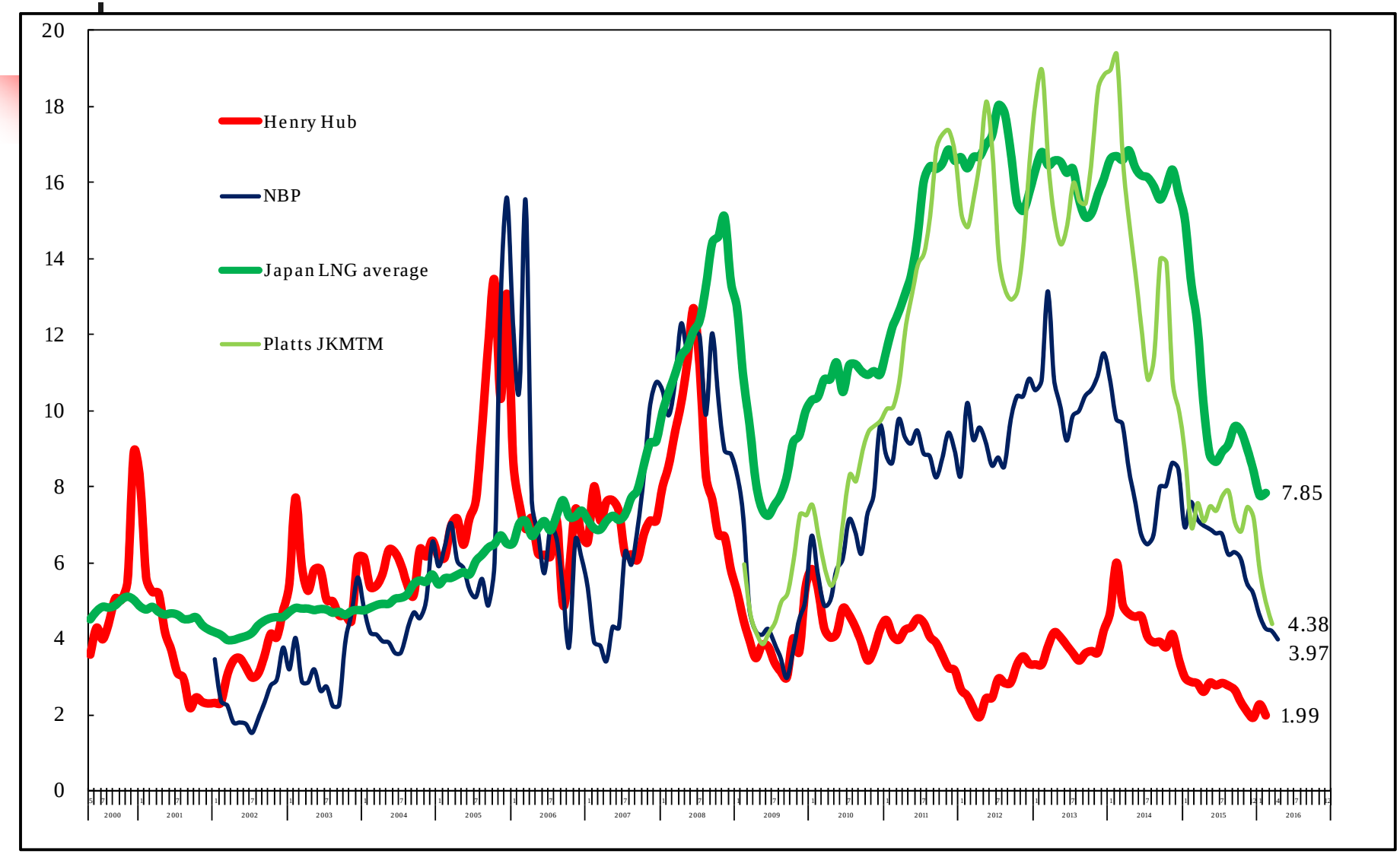
Ample supply continues to exist in the short term and LNG market will be weakened further in 2016



Source: IEEJ

World gas prices by region

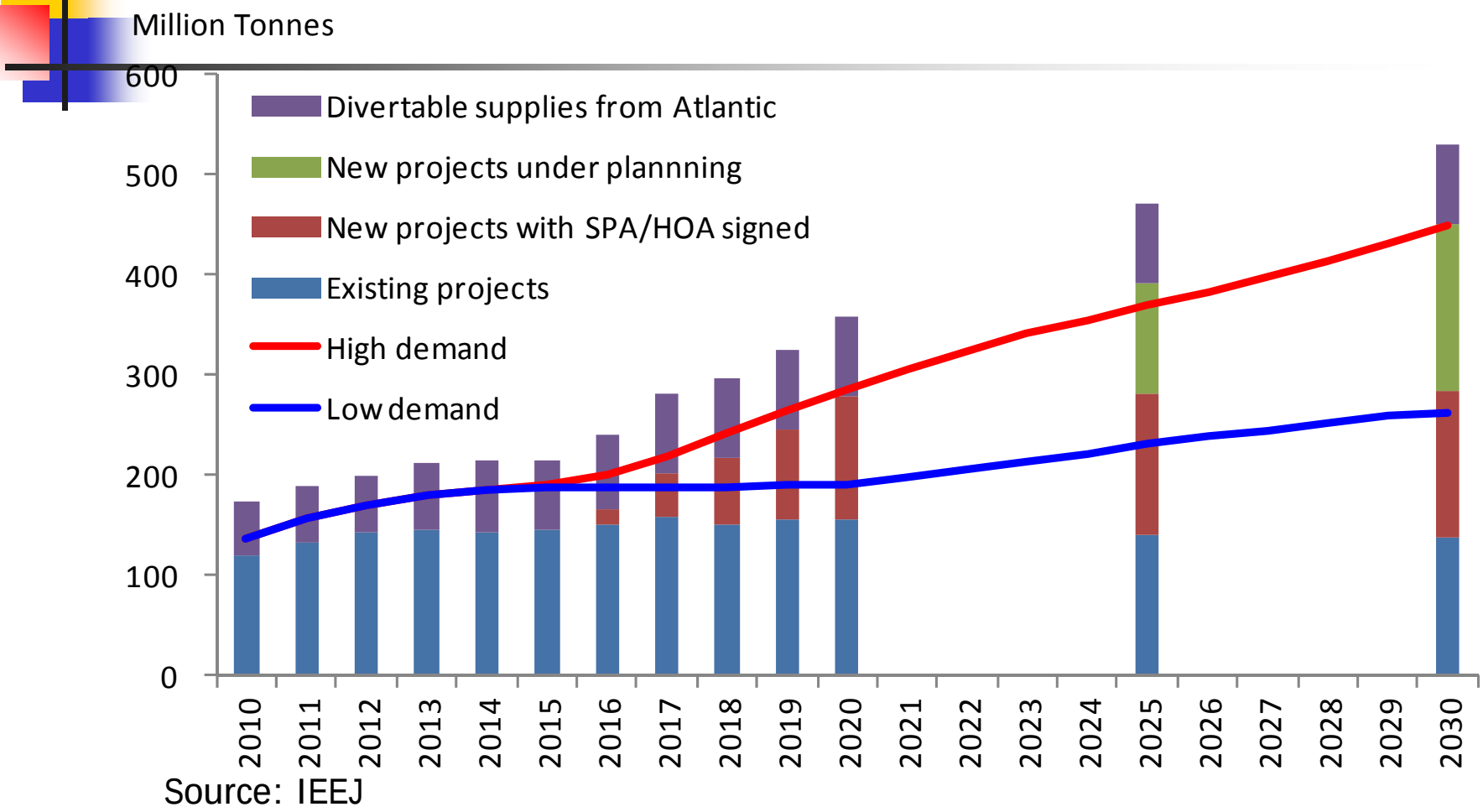
Price gaps by regions significantly narrowed



Source: US EIA and IEA

LT LNG Supply-Demand Outlook for Asia

Supply potentials can continue to exceed demand



Source: IEEJ

- LNG will be oversupplied at least till 2020
- Timely upstream investment is the key to meet the demand growth towards 2030

Key Points for the Asian LNG Market
Up to 2020 and beyond

■ Demand side

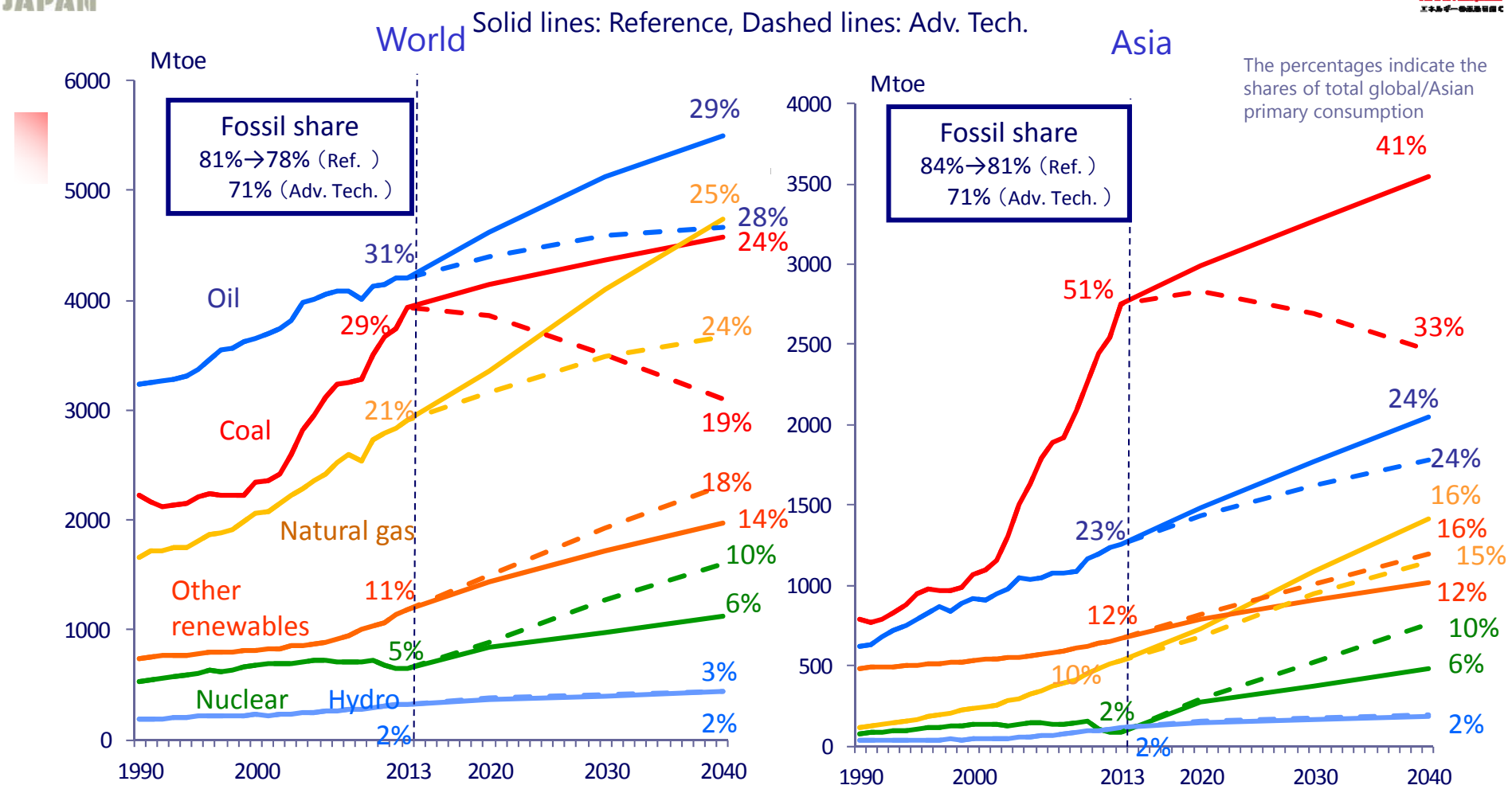
- Demand in Japan will decline subject to the degree of restart of nuclear power plants.
- Demand in Korea (and Taiwan) will depend on nuclear, competition with coal and economy.
- China's gas demands may grow, spurred by action to curb air pollution. But key question is economic growth trend. LNG demands will basically expand, but economy, Russian PL and domestic supplies could slow growth.
- **Overall, Asia's LNG demand will see some growth** **← The impact of the fall in LNG price? Competitive and flexible procurement of LNG will be a key.**

■ Supply side

- US LNG export permission will exceed 80 million tonnes.
- New LNG projects are to be launched in Australia, possibly in Canada and East Africa as well.
- Russian gas exports (PL) to China may expand. Russia will try to reinforce sales in Asian markets, depending on the Ukraine situation.
- Risk factors on the supply side include geopolitical situation and others.
- **Overall, there is enough (or more than enough) supply potential to cover the increase in demand.**

→ The impact of the fall in oil and LNG prices?

Primary Energy Demand by Source



- In both the Reference and Advanced Technologies Scenarios, oil continues to be the largest share of primary energy consumption and remains a major energy source up to 2040.
- In Asia, coal remains the largest share among energy sources. In the Advanced Technologies Scenario, coal consumption declines substantially while retaining the largest share among energy sources.
- Share of fossil fuel declines until 2040, while maintaining the 70% in the Advanced Technologies Scenario.

Source: IEEJ, “Asia/World Energy Outlook 2015”

INDC by Country

Party	Date of submission	Target type	Reduction target	Base year	Target year	Coverage
EU	Mar 6	Absolute emissions	40%	1990	2030	GHG
United States	Mar 31	Absolute emissions	26～28%	2005	2025	GHG including LULUCF
Russia	Apr 1	Absolute emissions	25～30%	1990	2030	GHG
China	Jun 30	GDP intensity	60～65%	2005	2030	CO_2
Japan	Jul 17	Absolute emissions	26%	2013	2030	GHG
Indonesia	Sep 24	Reduction from BAU	29%	BAU	2030	GHG
Brazil	Sep 30	Absolute emissions	37% (43% for 2030)	2005	2025	GHG
India	Oct 1	GDP intensity	33～35%	2005	2030	GHG

- In advance of the United Nations Climate Change Conference (COP21) in Nov. 2015, the participating countries have submitted the Intended Nationally Determined Contributions (INDCs) which present the post-2020 climate actions each country intends to take.
- By Oct 1st, 117 countries and regions (totaling 144 countries) have submitted their INDCs.
- The 8 major countries and regions shown above cover 65% of global GHG emissions in 2010.

Source: IEEJ, “Asia/World Energy Outlook 2015”

Factors to affect Coal Demand (in Asia)

- **Economic growth**
- **Lower price**
- **Future of nuclear power**
- **Competition against natural gas and other competing fuels**
- **Need to protect environment (both for climate change and air pollution)**

- **In particular, coal demand in China is a key**