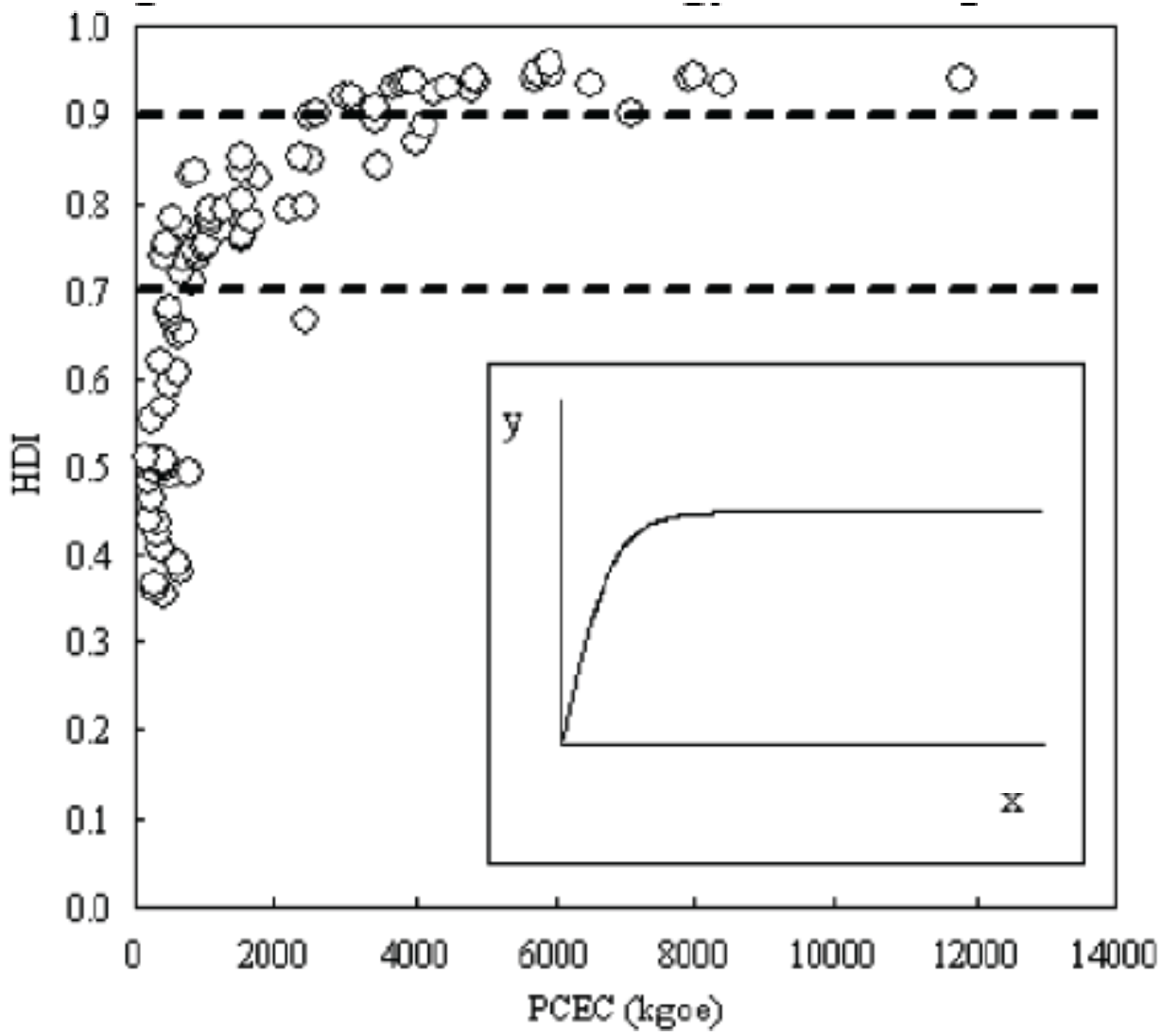
Global energy politics

Chandra Bhushan

HDI vs. PCEC



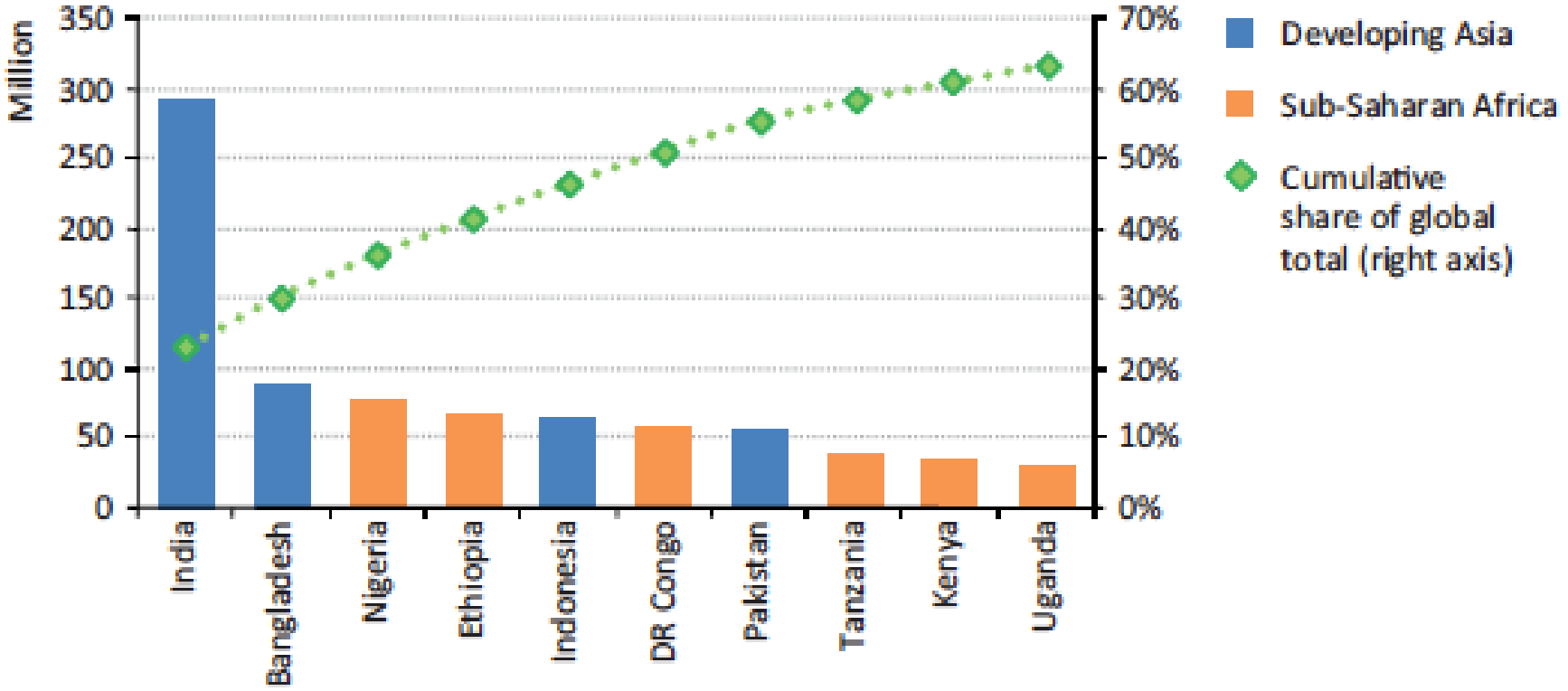
PCEC (in kgoe)

- World average: 1800
- OECD: 4280
- China: 1700
- Africa: 670
- India: 580 with 0.55 HDI

Countries with HDI of 0.7 or above have PCEC above 800 kgoe

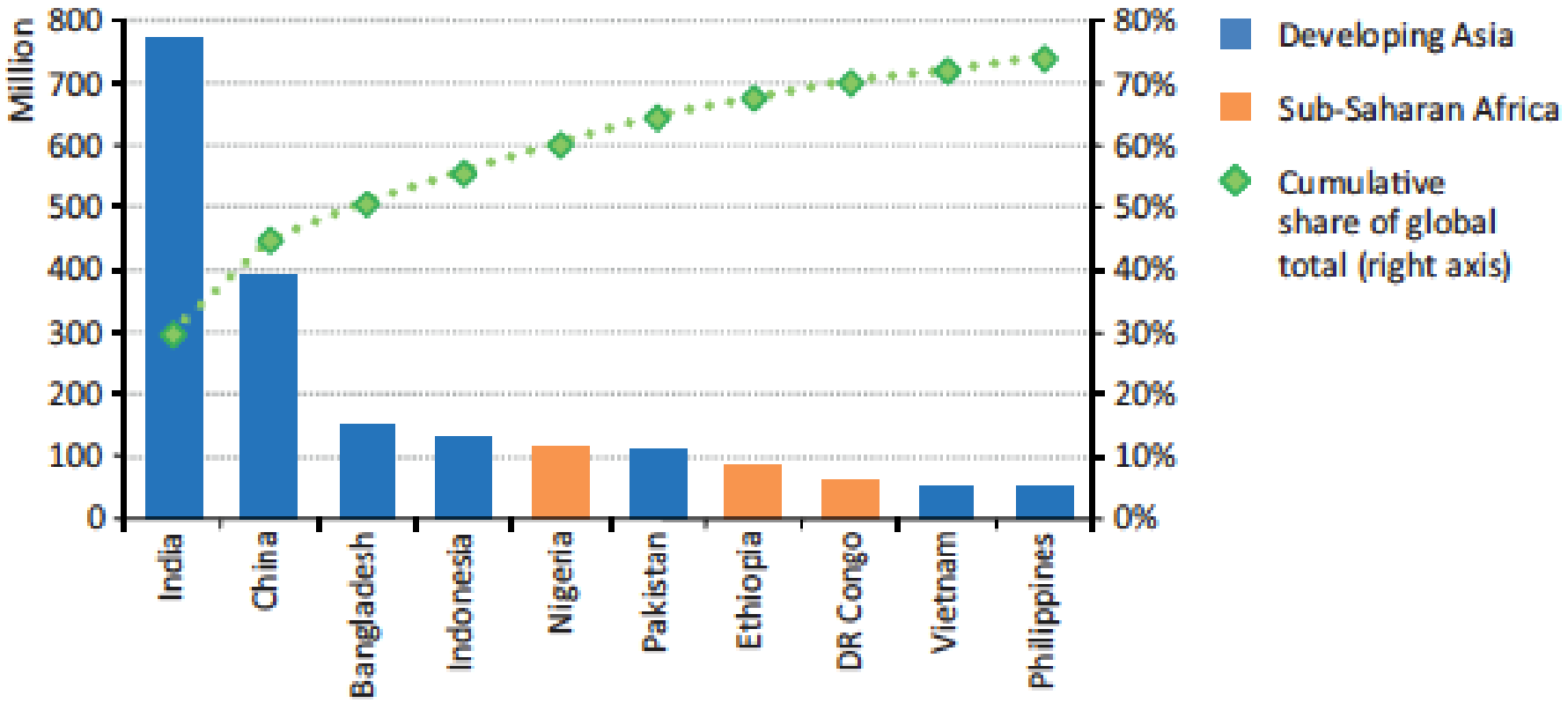
No major advantage of using more than 2500 kgoe

Access to electricity



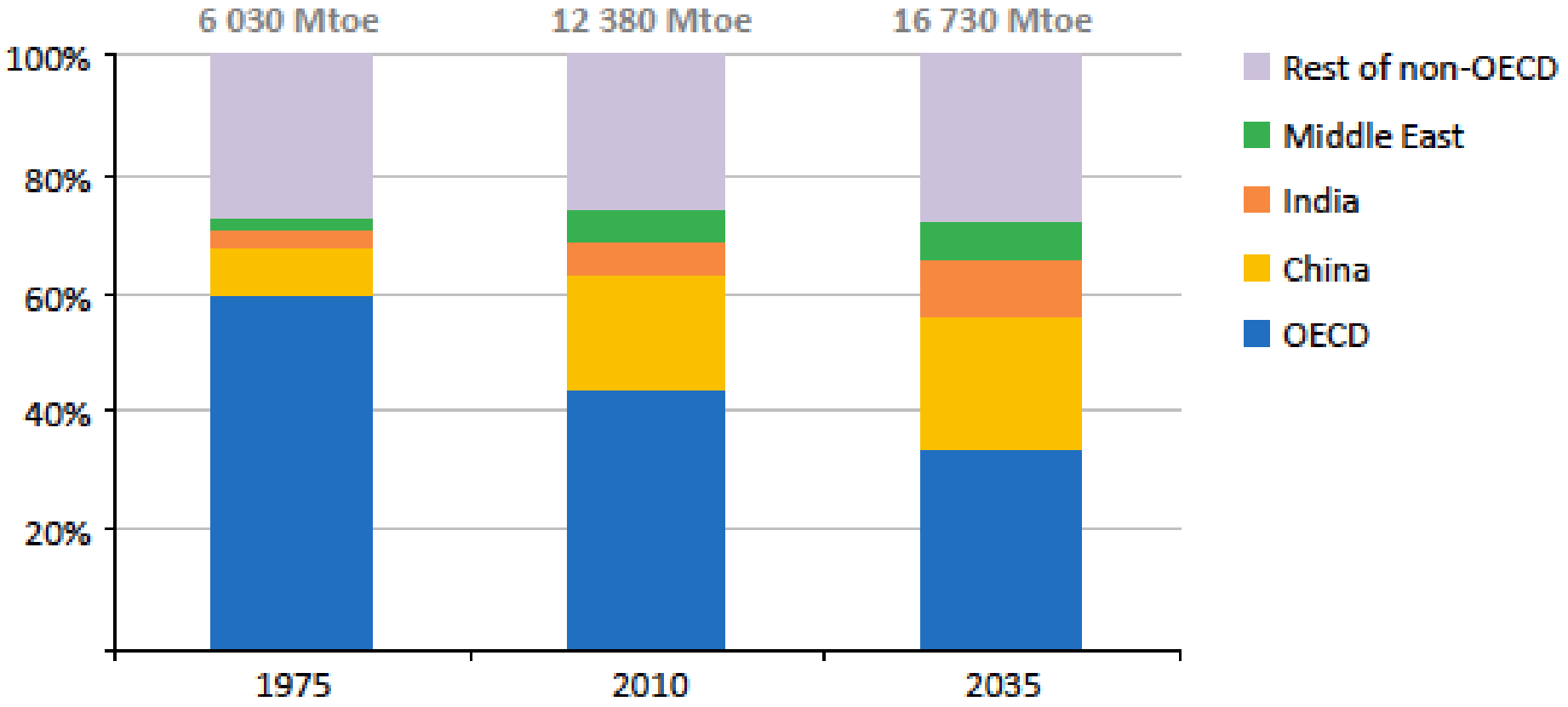
- In 2010, nearly 1.3 billion people did not have access to electricity; two-thirds of which are in 10 countries.

Access to clean cooking fuel



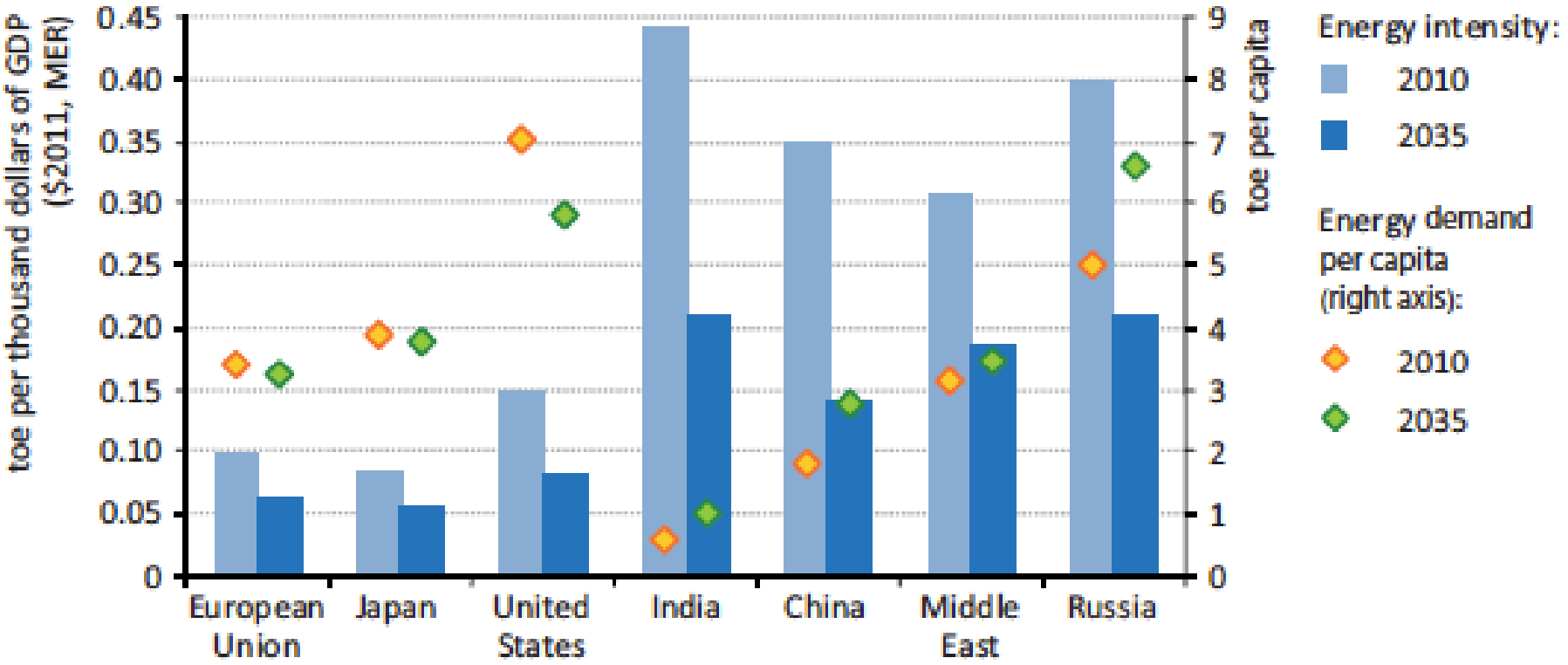
- In 2010, around 2.6 billion people relied on traditional biomass for cooking.
- Nearly two-thirds of India's and 80% Sun-Saharan Africa's population remains without clean cooking facilities.

Share of global energy demand



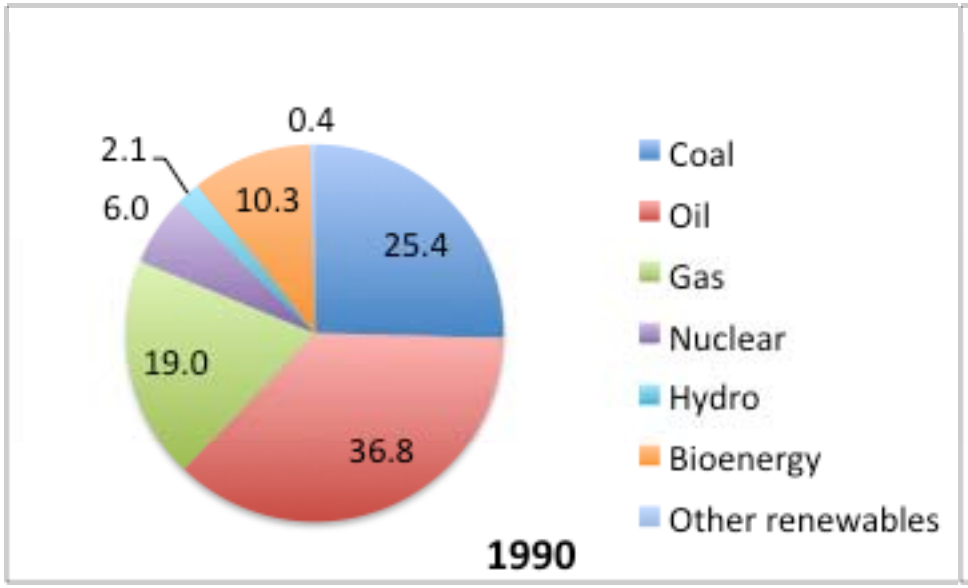
- Global energy demand grows by more than one-third by 2035 @ 1% pa. China (2% pa), India (3% pa) and the Middle East (2% pa) accounting for 60% of the increase.
- But demand increase in high consuming OECD countries as well at 0.1-0.2% pa.

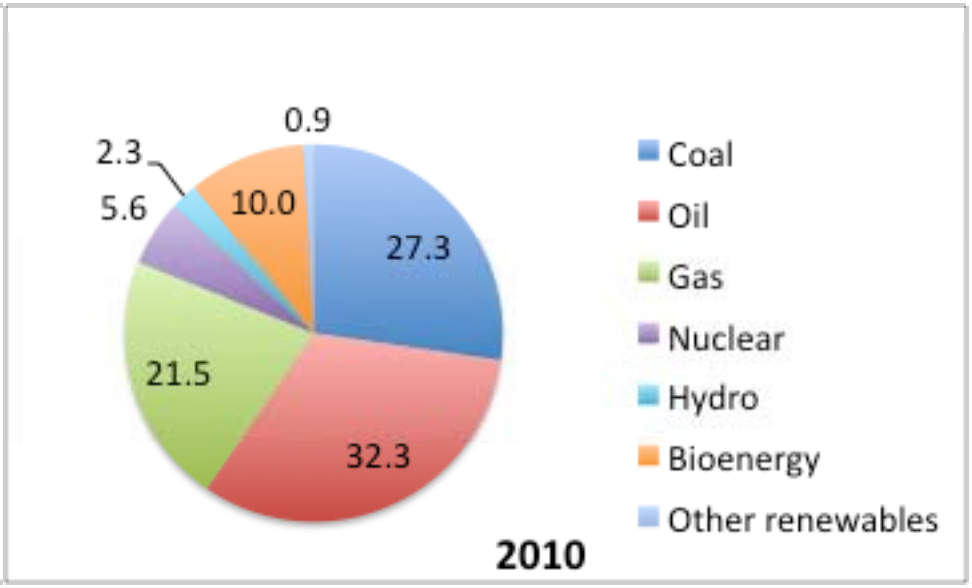
PCED and Energy intensity

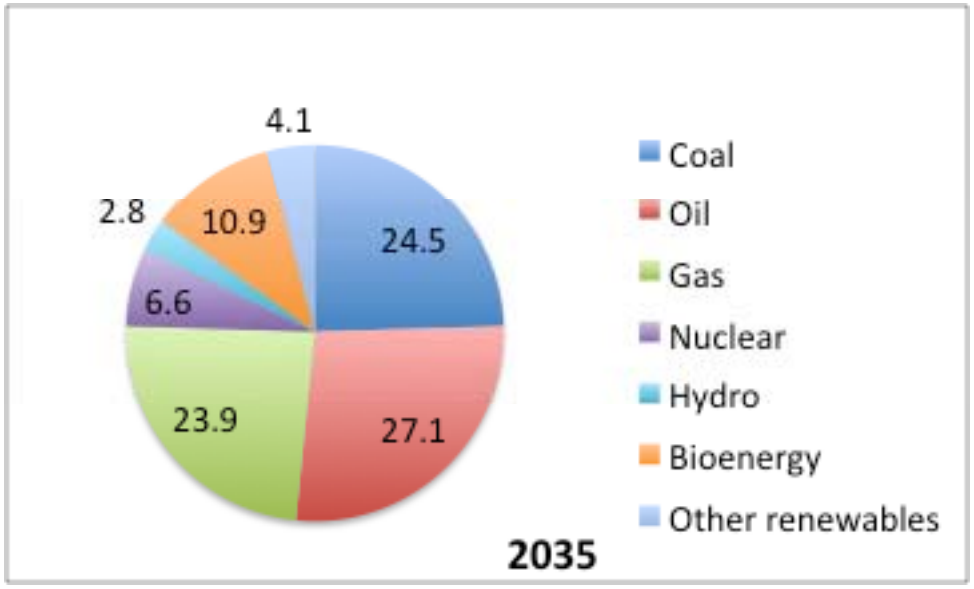


- Even in 2035 PCED of China and India will be half and one-sixth of the US.
- PCED increase in India and China along with major improvements in energy efficiency.

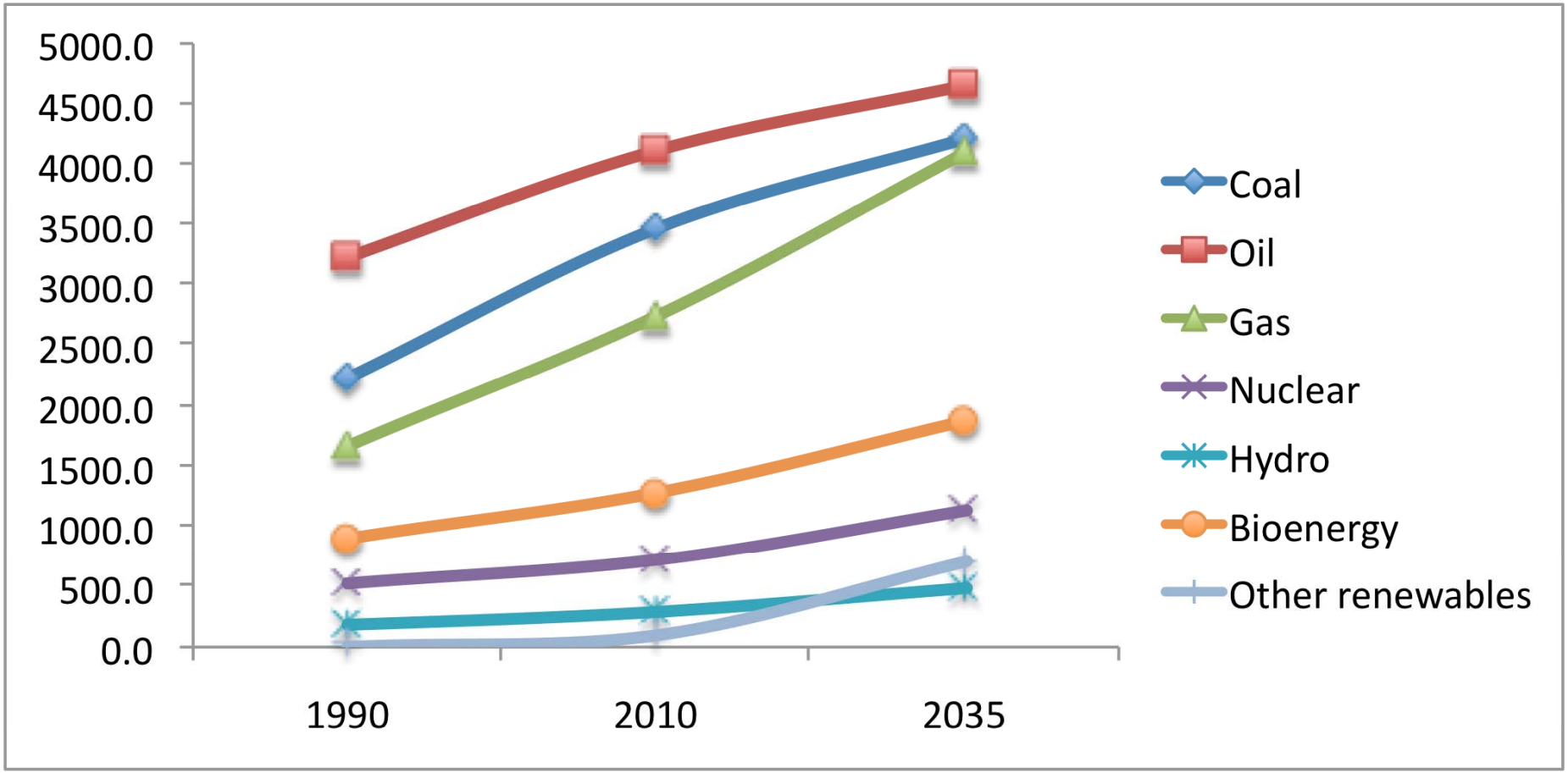
Global Energy Mix







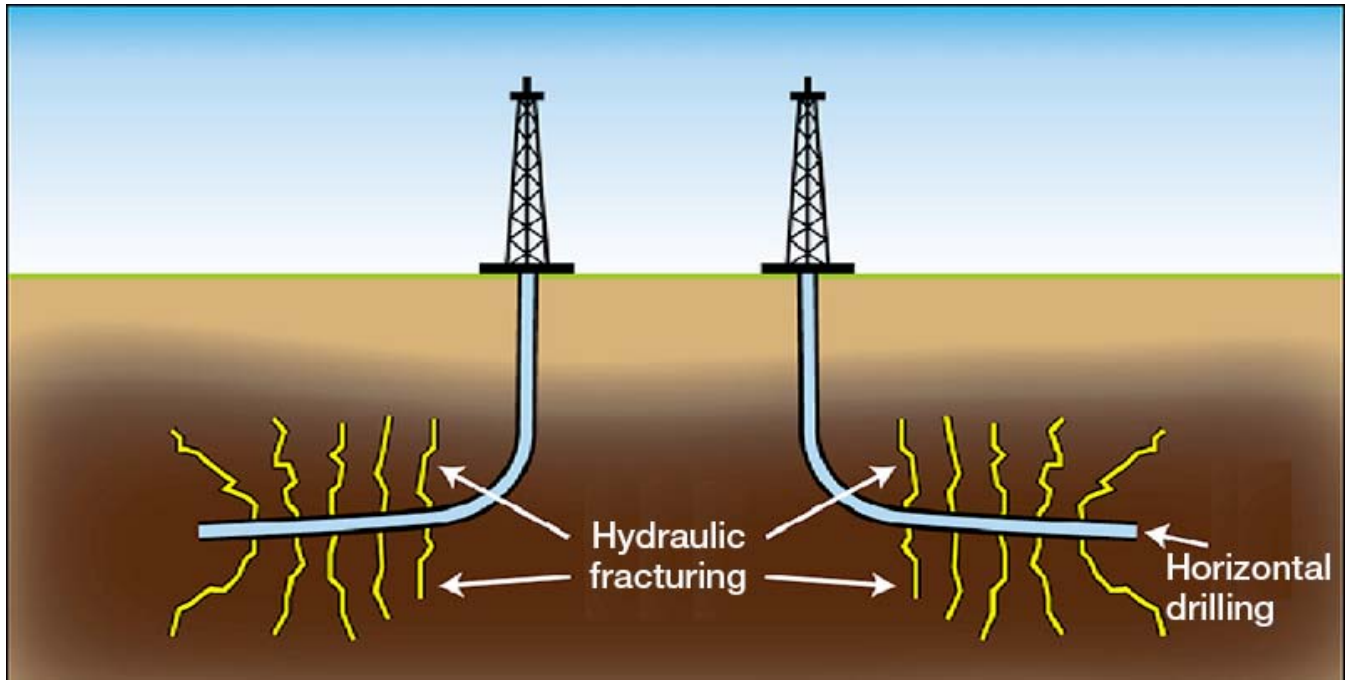
Increasing fossil fuel consumption



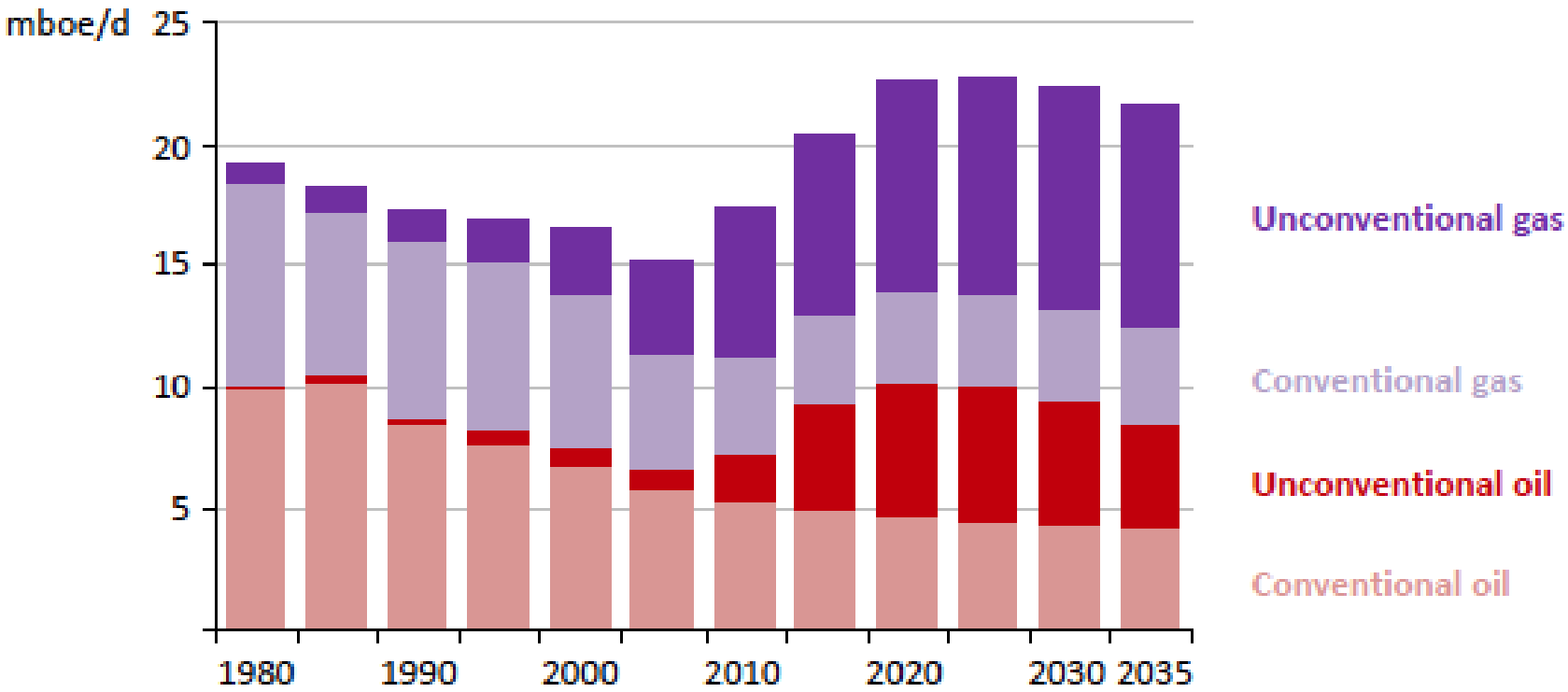
- Fossil fuels will meet about 60% of the overall increase in demand.
- Other Renewables will grow @ 7-8% pa. But still will contribute only about 4% of total demand.

The unconventional gas age

- Unconventional gas (shale gas/ frack gas) surge in North America;
- Many countries are lining up to emulate this success; notably in China (highest potential), Australia, Europe & Latin America
- Highly water, land and pollution intensive

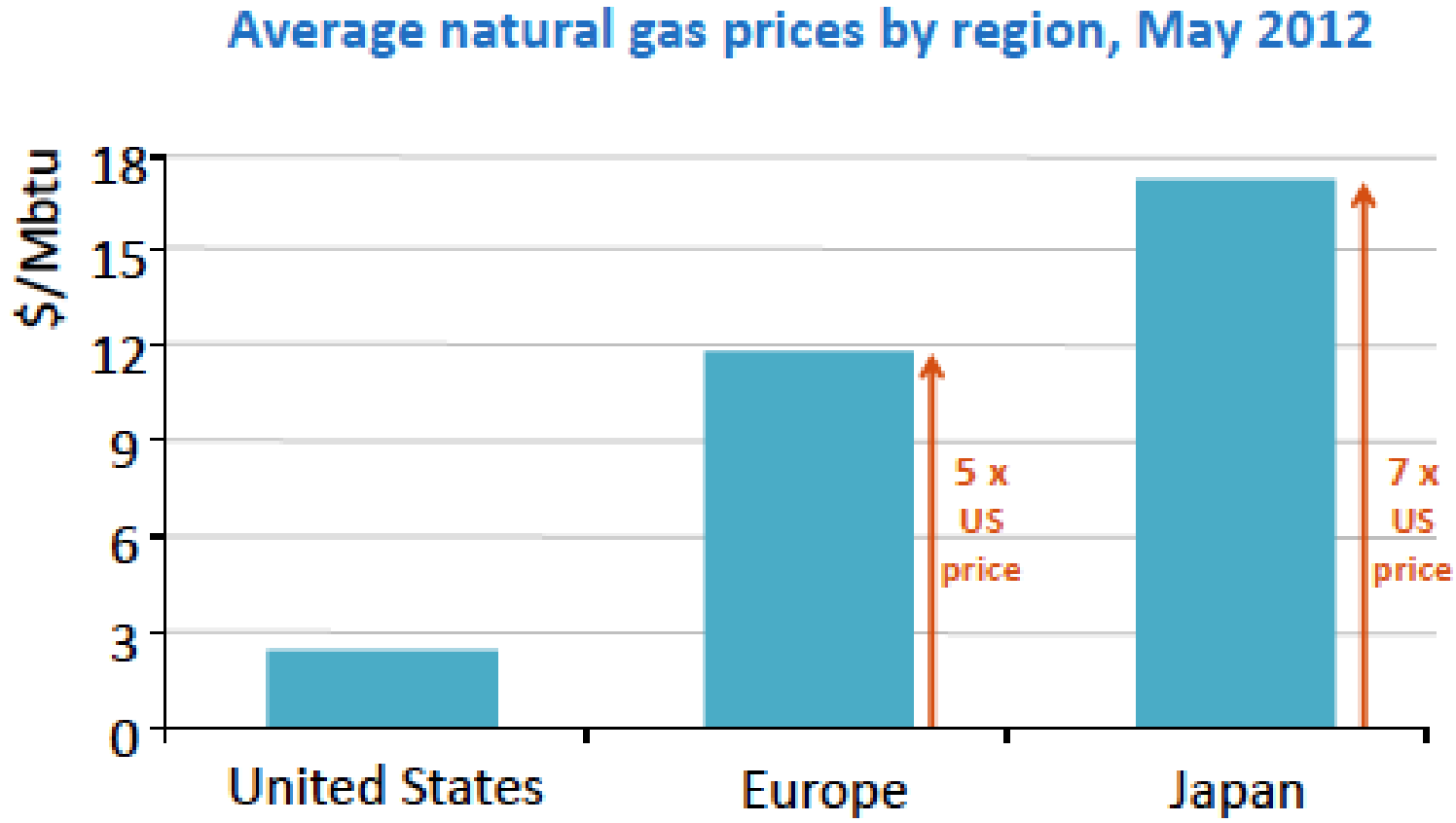


US energy sector renaissance



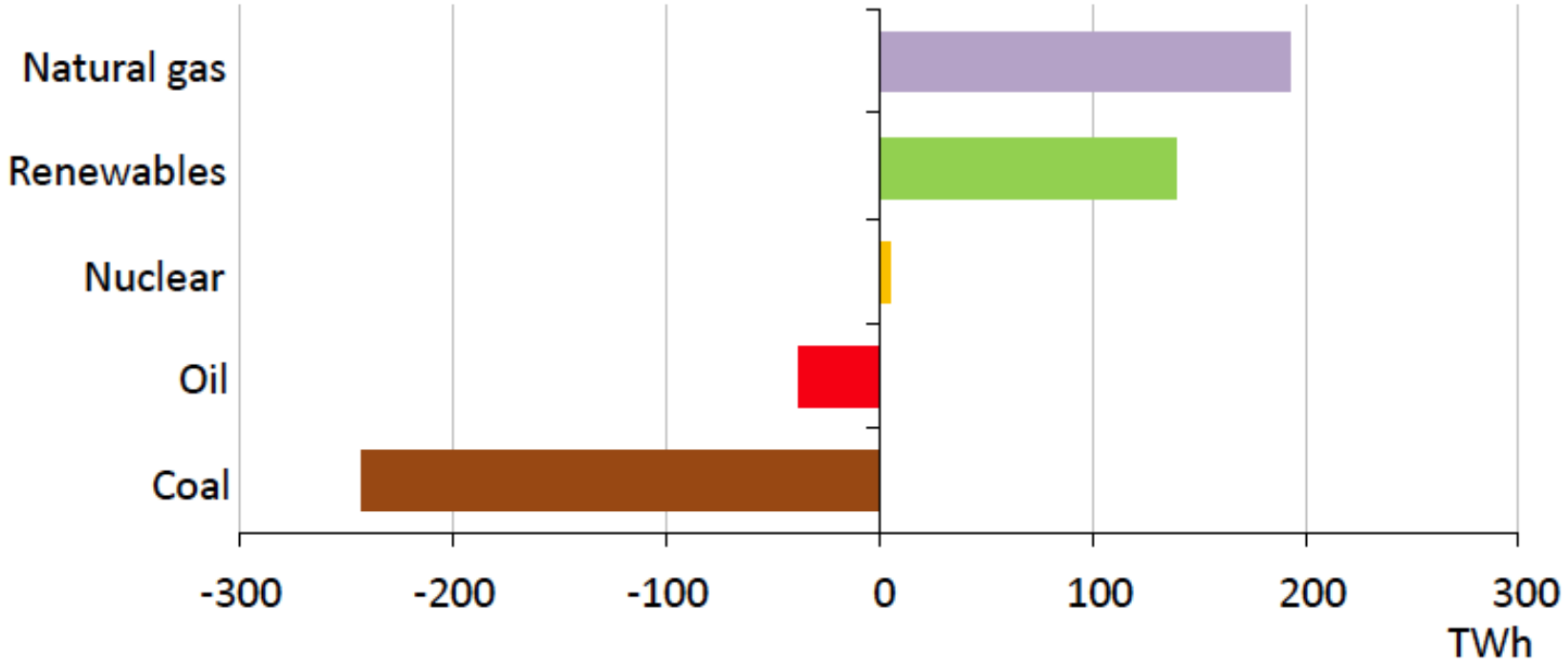
- Unconventional oil and gas production in the US is reshaping world's energy landscape.
- US currently imports 20% of its energy demand; but rising production of oil and shale gas means it becomes self-sufficient by 2035.

US energy sector renaissance



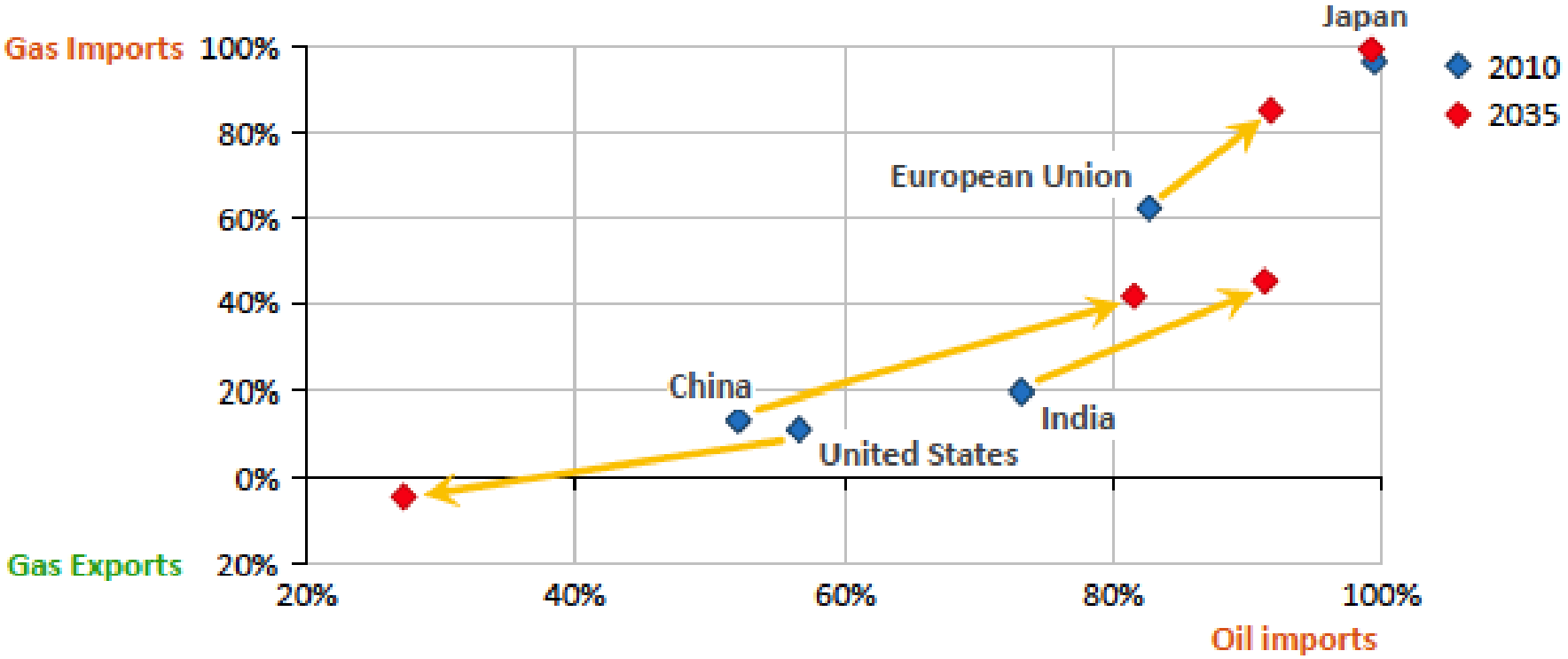
- Shale gas is even cheaper than coal in the US.
- US has started exporting coal to Europe and Asia

US electricity growth 2006-2011



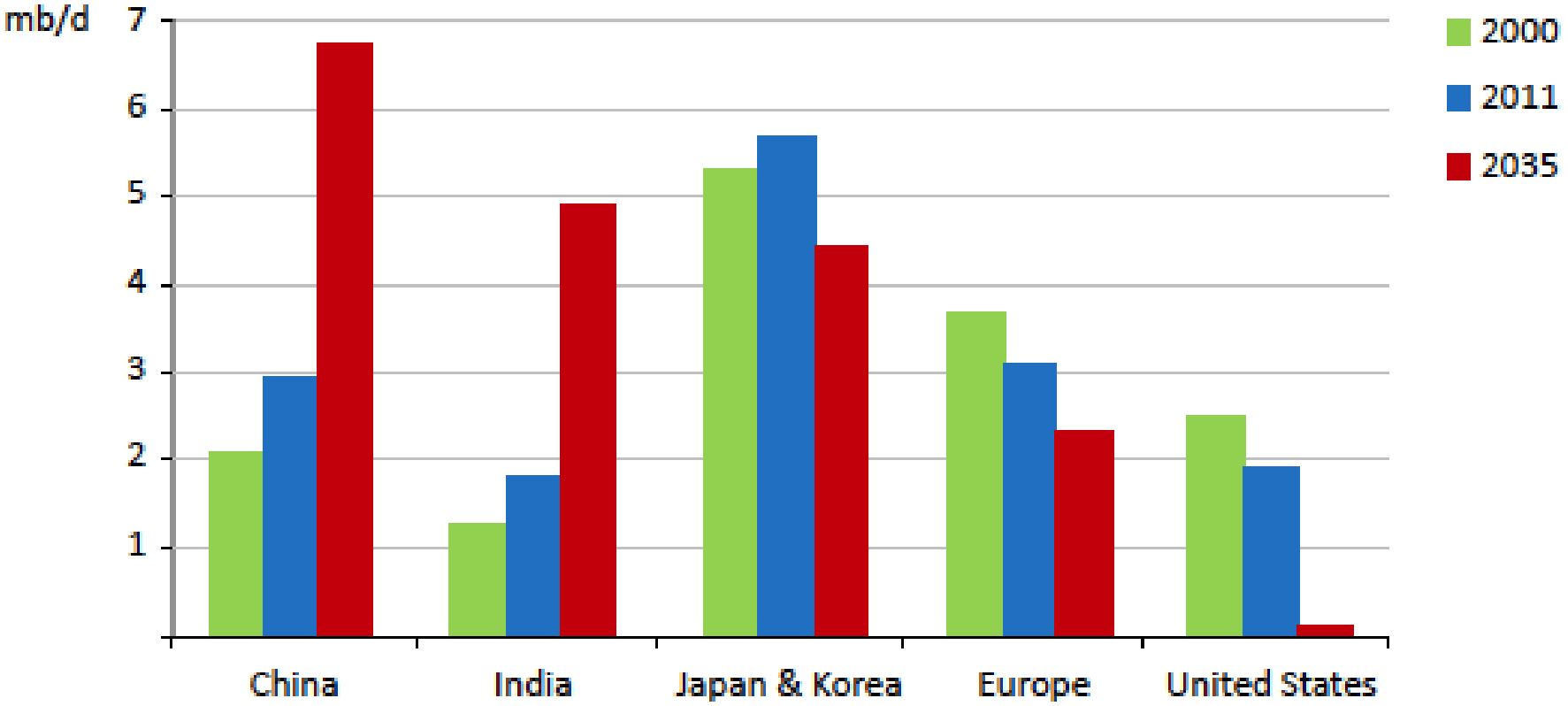
- US is phasing out coal and oil with Shale gas
- Shale gas has about half the carbon intensity of coal. So, a shift to shale gas means significant reduction in CO_2 emissions

Net oil & gas import dependency



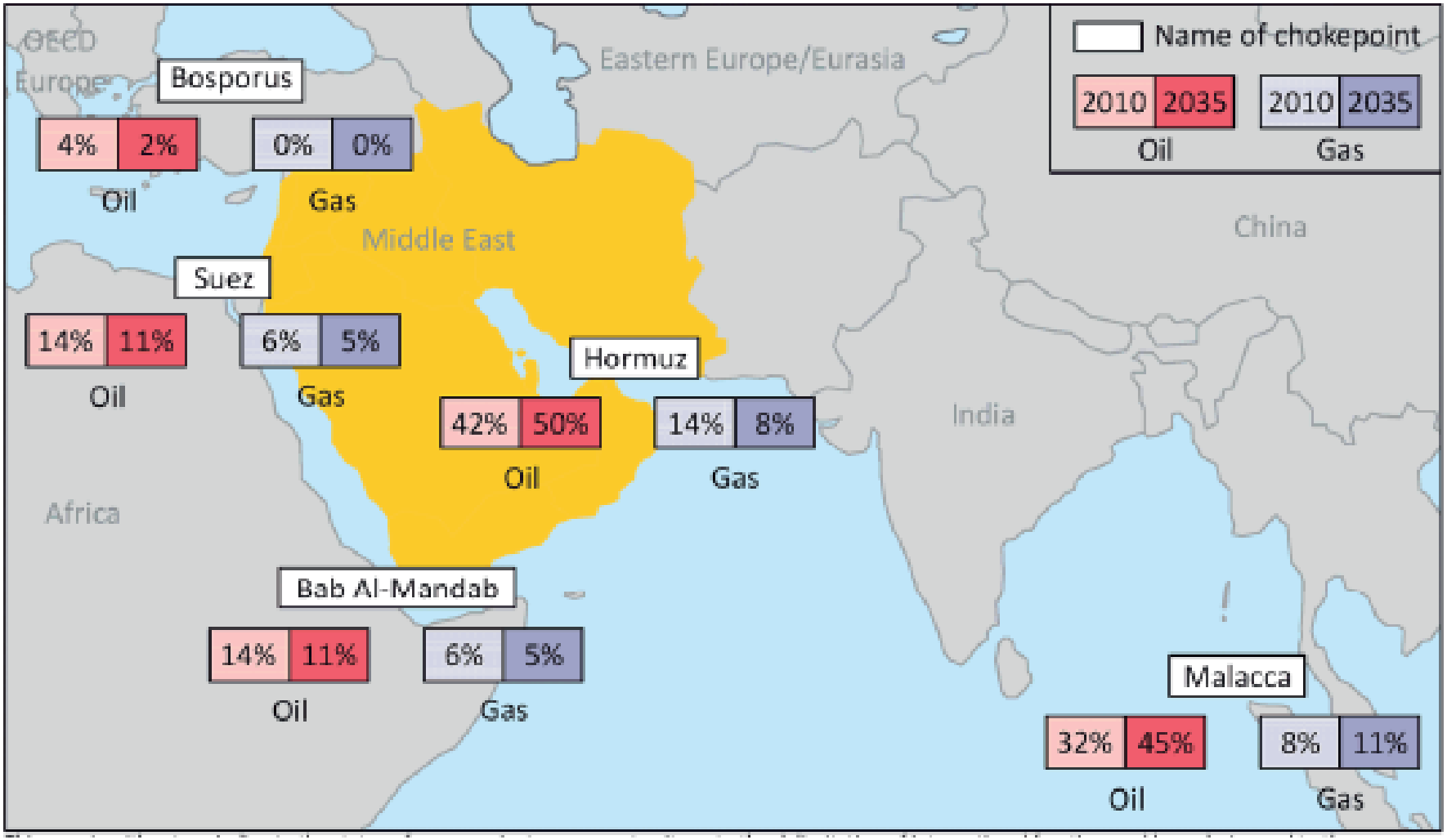
- Other than the US, all major economies will import more and more oil and gas
- This will have major geopolitical implications on key strategic maritime routes.

Oil export by Middle East



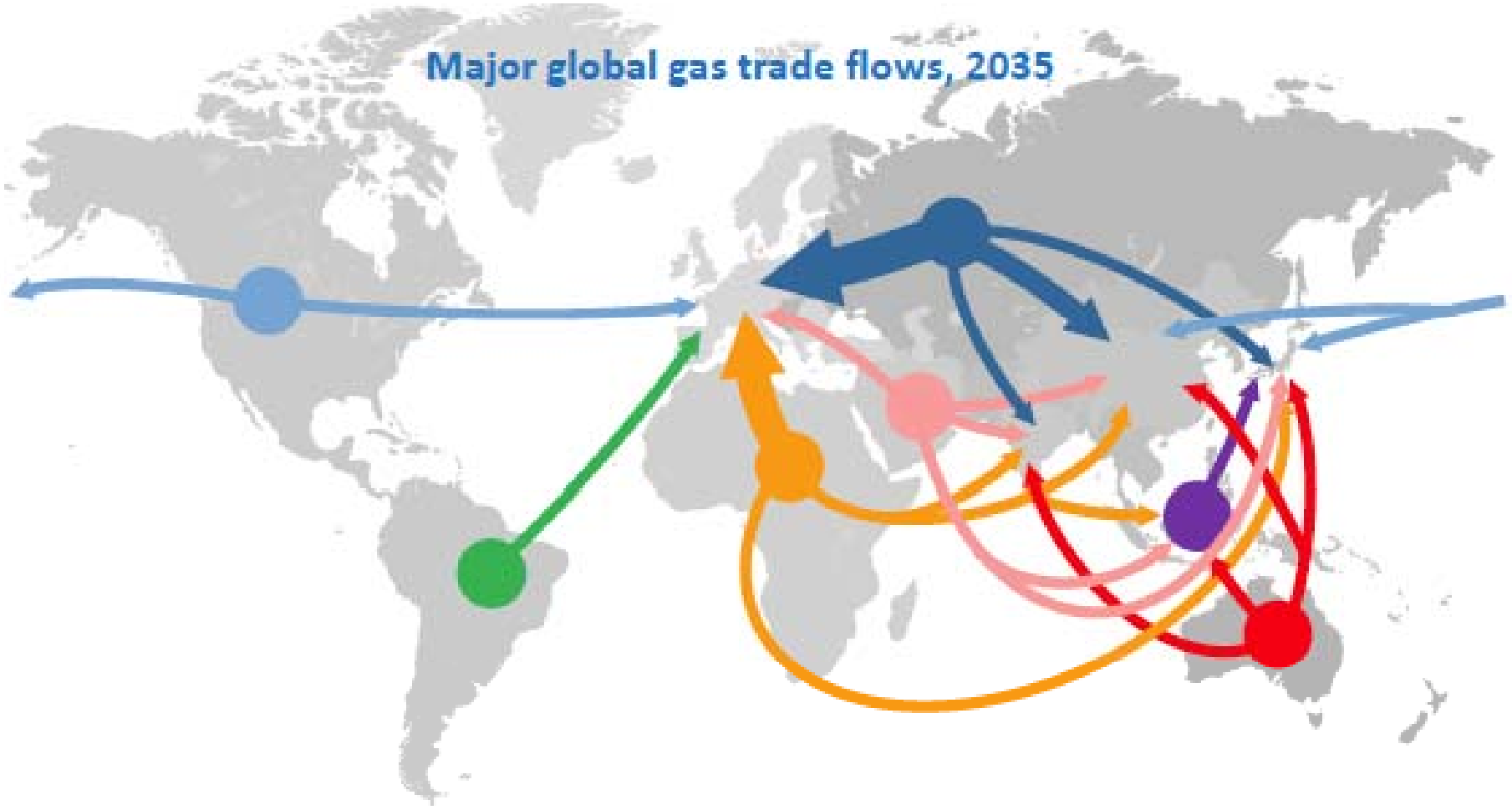
- By 2035, almost 90% of Middle Eastern oil exports go to Asia

Maritime oil and gas routes



- Straits of Hormuz and Malacca will become more and more important and so will the importance of Indian Ocean

Major gas trade flows, 2035



Impact on climate negotiations

- US now more confident of reducing emissions by phasing-out coal and shifting to Shale gas. This will reduce emissions as well as energy costs
- China has already built its energy infrastructure and is likely to move on shale gas quickly as well – can take emission reduction commitments
- EU, especially Germany, will go for renewable energy and imported gas – competitiveness vis-à-vis the US is likely to lower its emissions reduction ambitions
- In India, Coal is the only domestic option (till we find shale gas). Can reduce emissions only by more efficiency and more renewables. **Expensive**.

What the future looks like?

- Dawn of the gas age
- Cheaper gas means less interest in renewable energy (unless the world force shift to RE through anti-shale gas campaign)
- Less likely to meet 2^0C target.
- Anti-coal campaign led by the US; pressure on India to reduce coal and emissions
- We must have a strategy that combines energy security, affordability with climate action