

World Energy Outlook 2014

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Signs of stress in the global energy system

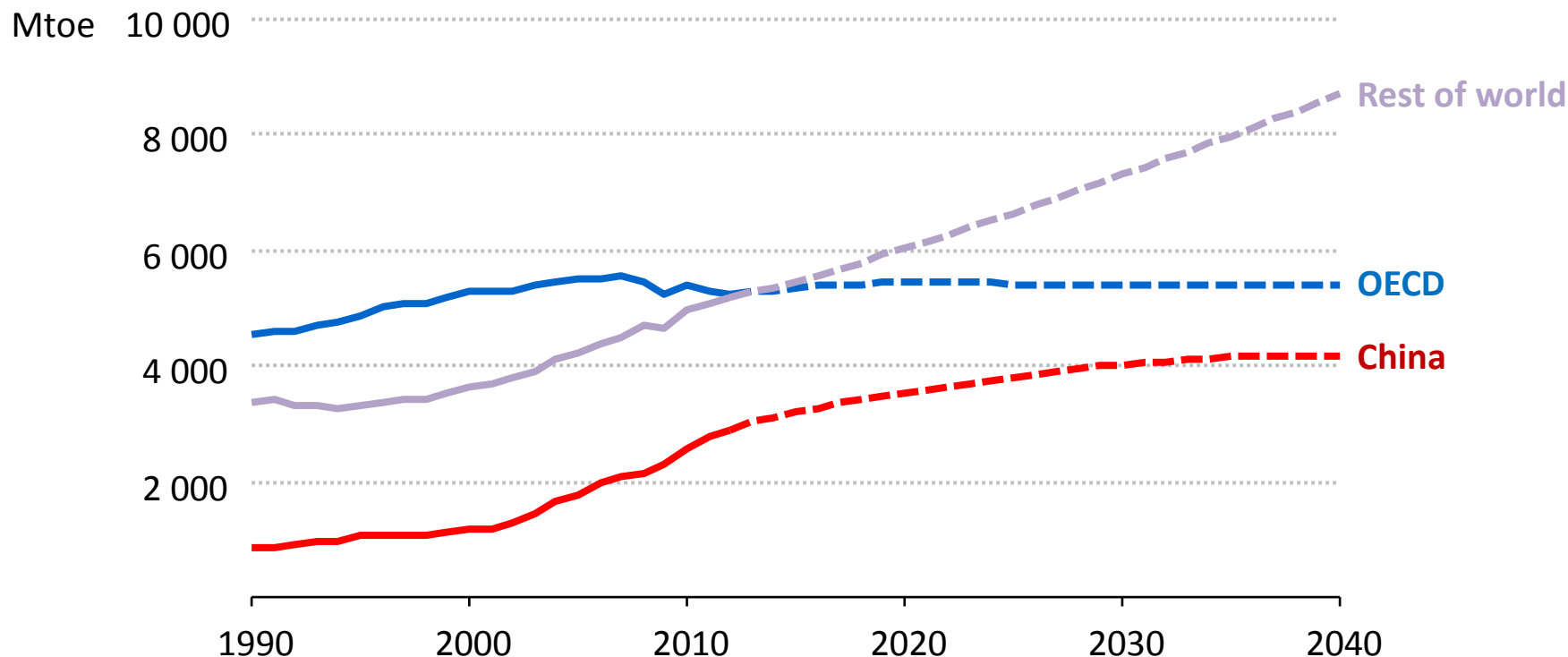
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Energy
Outlook
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- **Current calm in markets should not disguise difficult road ahead**
 - *Turmoil in the Middle East raises doubts over future oil balance*
 - *Resurgent debate over the security of gas supply to Europe*
- **Mixed signals in run-up to crucial climate summit in Paris in 2015**
 - *Global CO₂ emissions still rising, with most emitters on an upward path*
 - *At \$550 billion, fossil fuel subsidies over four-times those to renewables*
 - *Increasing emphasis on energy efficiency starting to bring results*
- **Will change in global energy be led by policies, or driven by events?**

Changing dynamics of global demand

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Energy demand by region

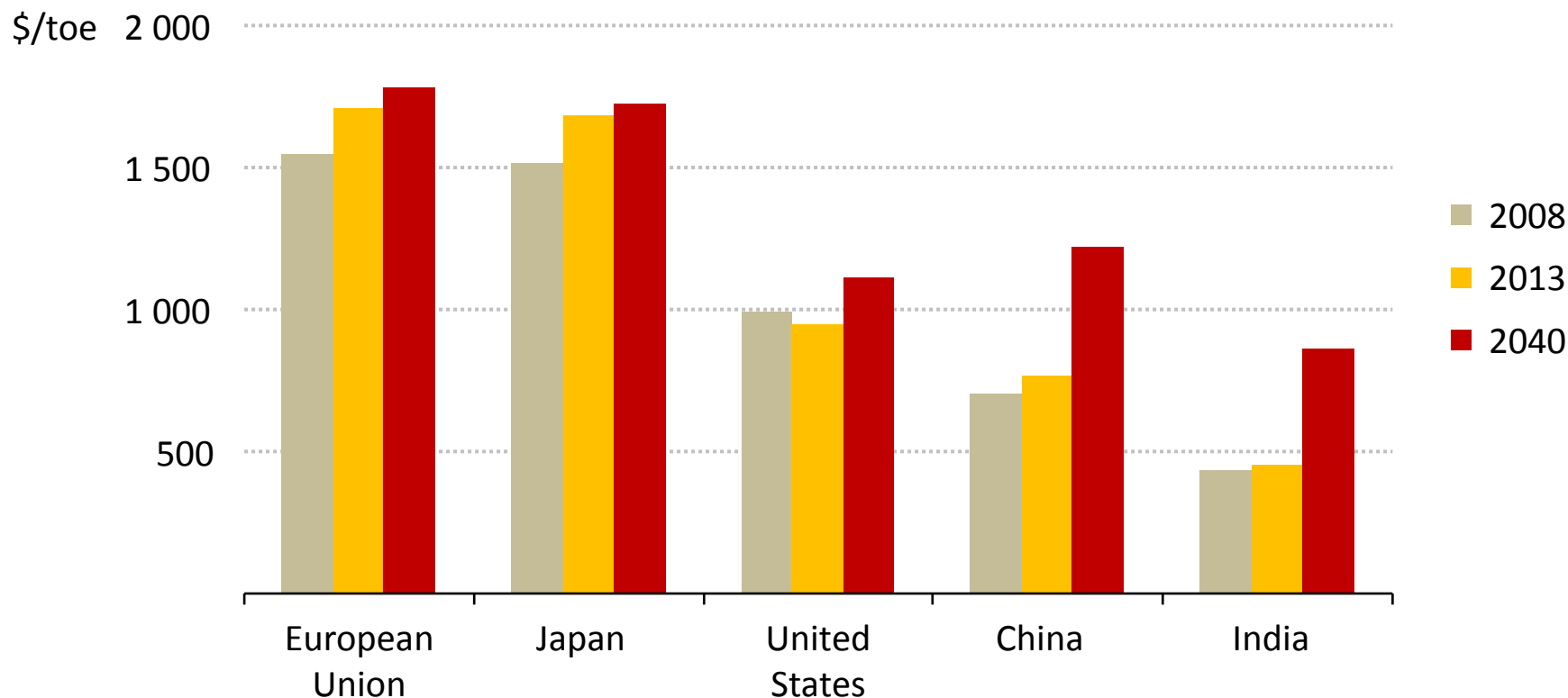


As China slows, then India, Southeast Asia, the Middle East and parts of Africa & Latin America take over as the engines of global energy demand growth

United States holds a strong position on energy costs

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Weighted average cost of energy paid by consumers

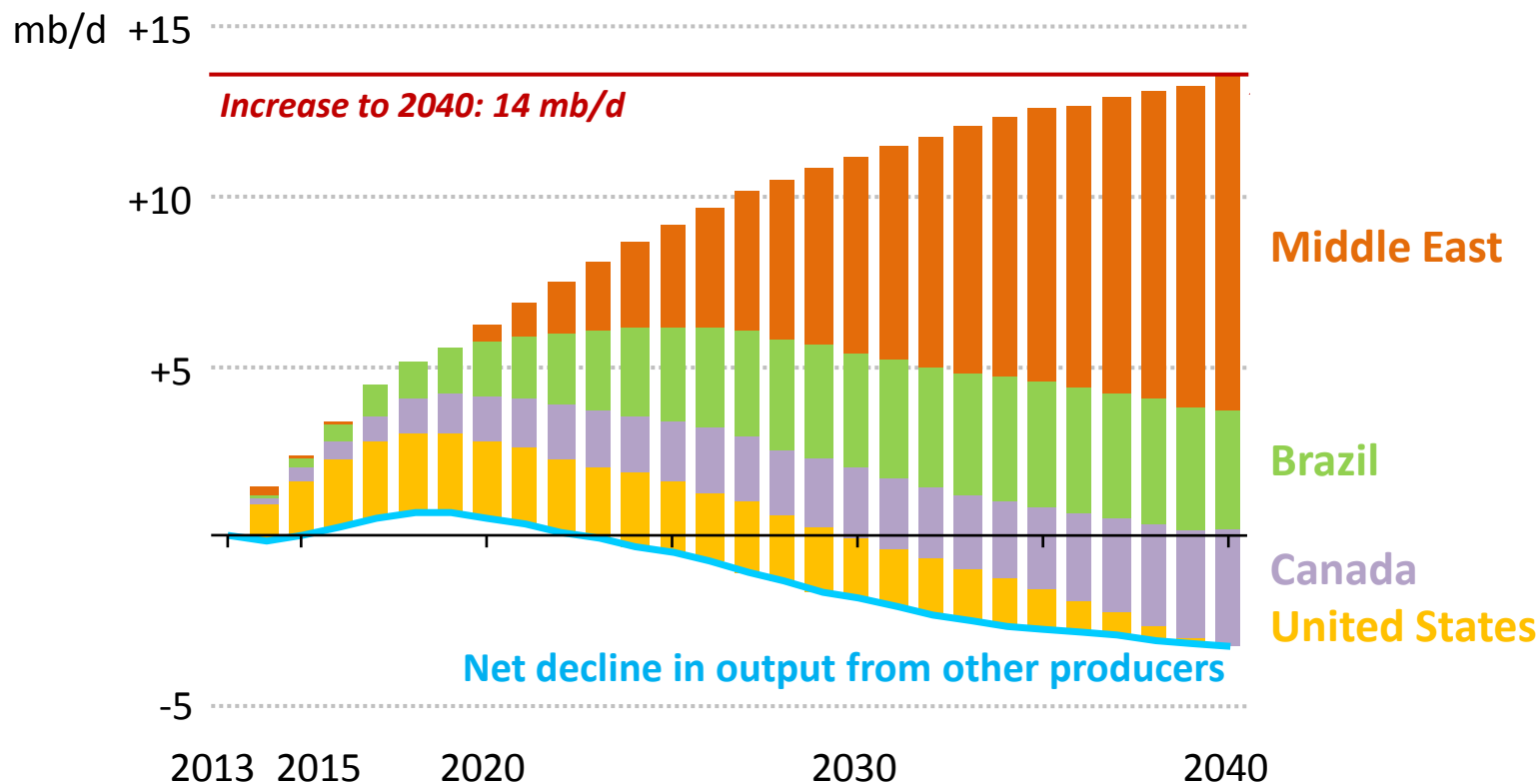


Economies face higher costs, but the pace of change varies: China overtakes the US, costs double in India & remain high in the European Union & Japan

Instability in the Middle East a major risk to oil markets

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Oil production growth in United States, Canada, Brazil & the Middle East



The short-term picture of a well-supplied market should not obscure future risks as demand rises to 104 mb/d & reliance grows on Iraq & the rest of the Middle East

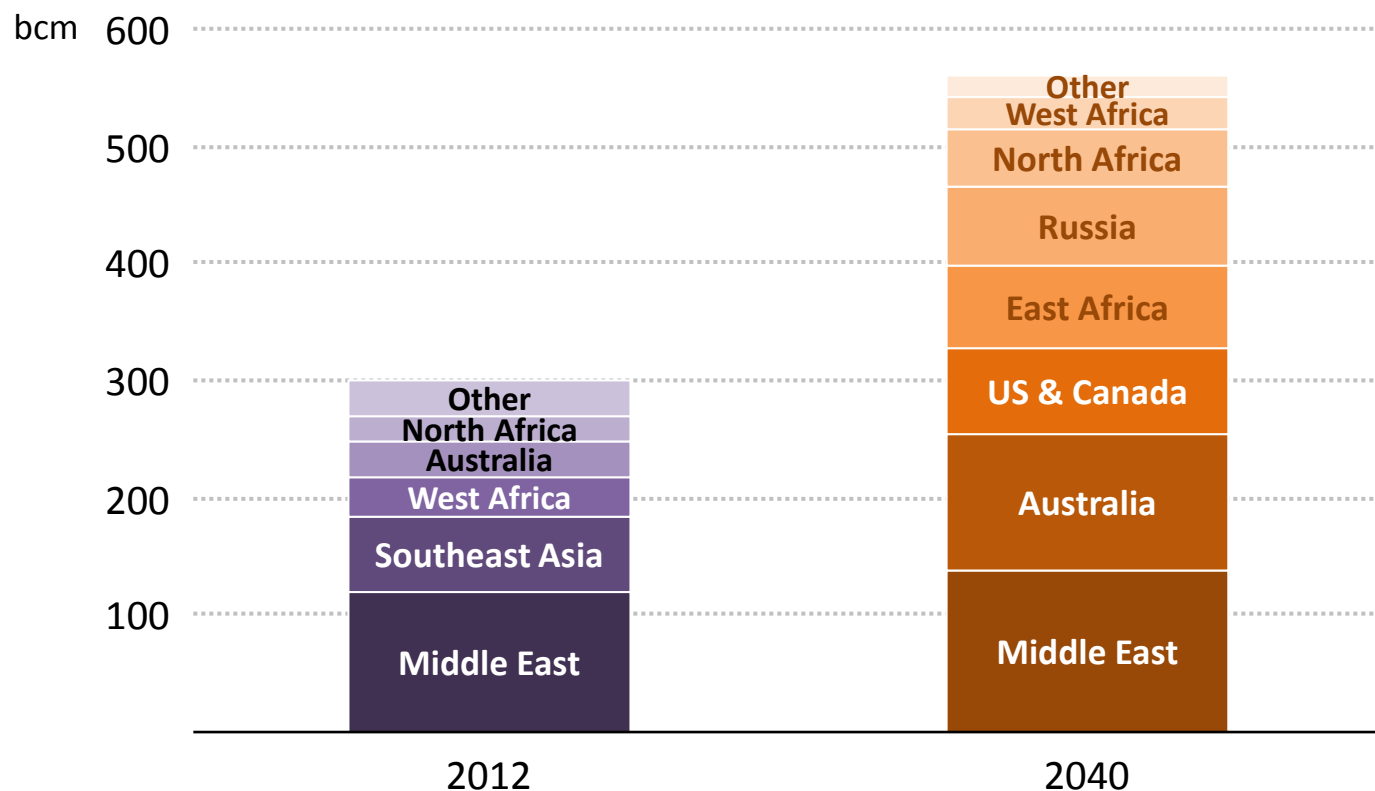
Looking ahead on the oil price

- Against a backdrop of weaker demand, buoyant supply in North America has brought prices down – but can it keep them down?
- Lower prices are starting to curtail upstream spending plans, with implications for future supply
- Over time, squeezed cash flow would constrain the capacity of North America & Brazil to act as engines of global supply growth
- Current oil price levels could provide some breathing space to major oil importers, boosting demand & GDP
- It would also accelerate reliance on low-cost producers in the Middle East, some of which face major investment challenges

Gas on the way to become first fuel, with role of LNG on the rise

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Outlook
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Main sources of regional LNG supply

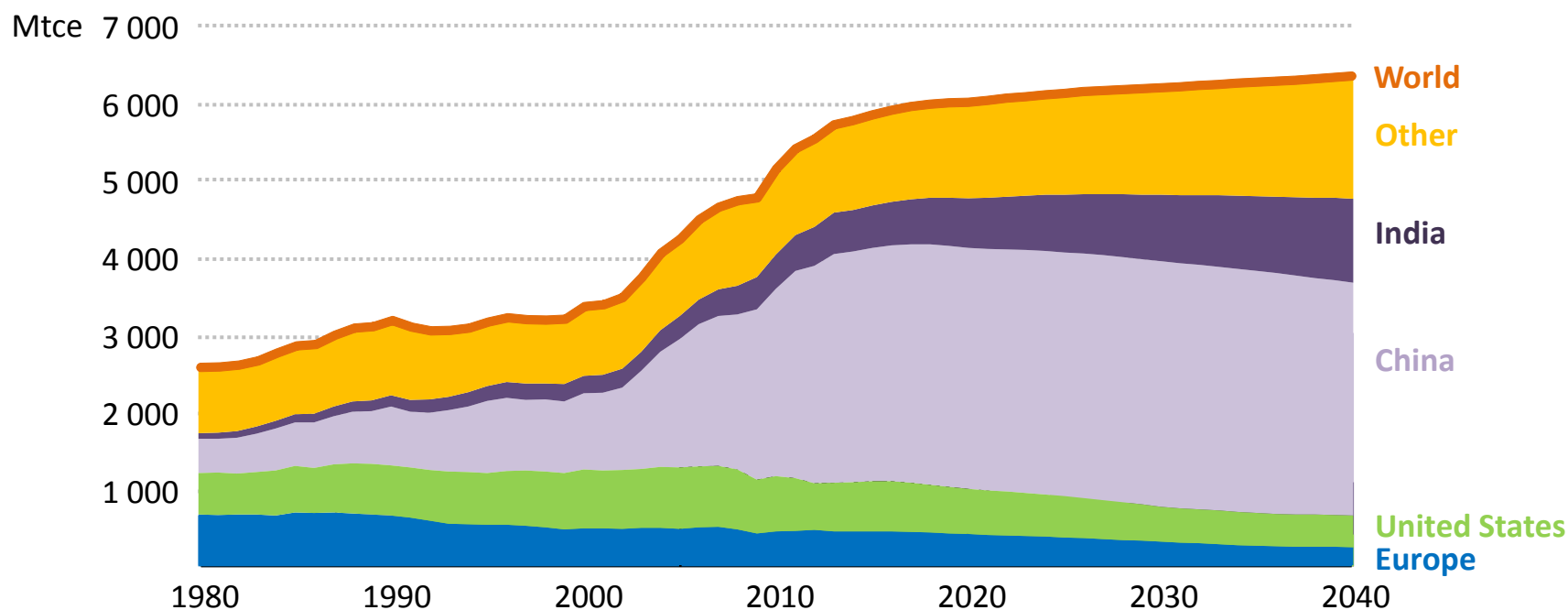


***Share of LNG rises in global gas trade, pushed by a near-tripling in liquefaction sites:
LNG brings more integrated & secure gas markets, but only limited relief on prices***

Global coal demand leveling off

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Global coal demand by key region

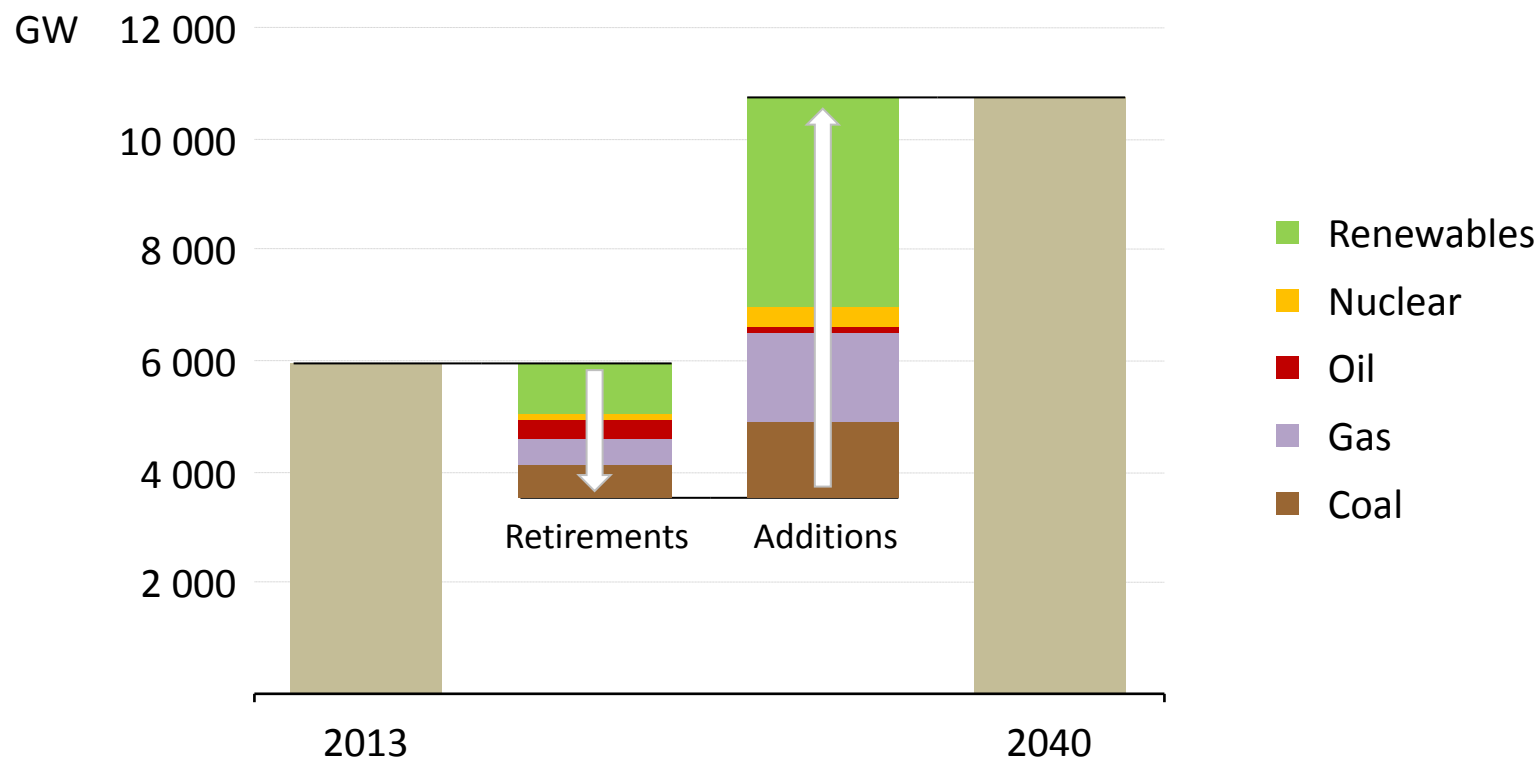


Global coal demand growth slows rapidly due to more stringent environmental policies, underlining the importance of high-efficiency plant & CCS to coal's future

Retirements add to the investment challenge in the power sector

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Power capacity by source, 2013-2040

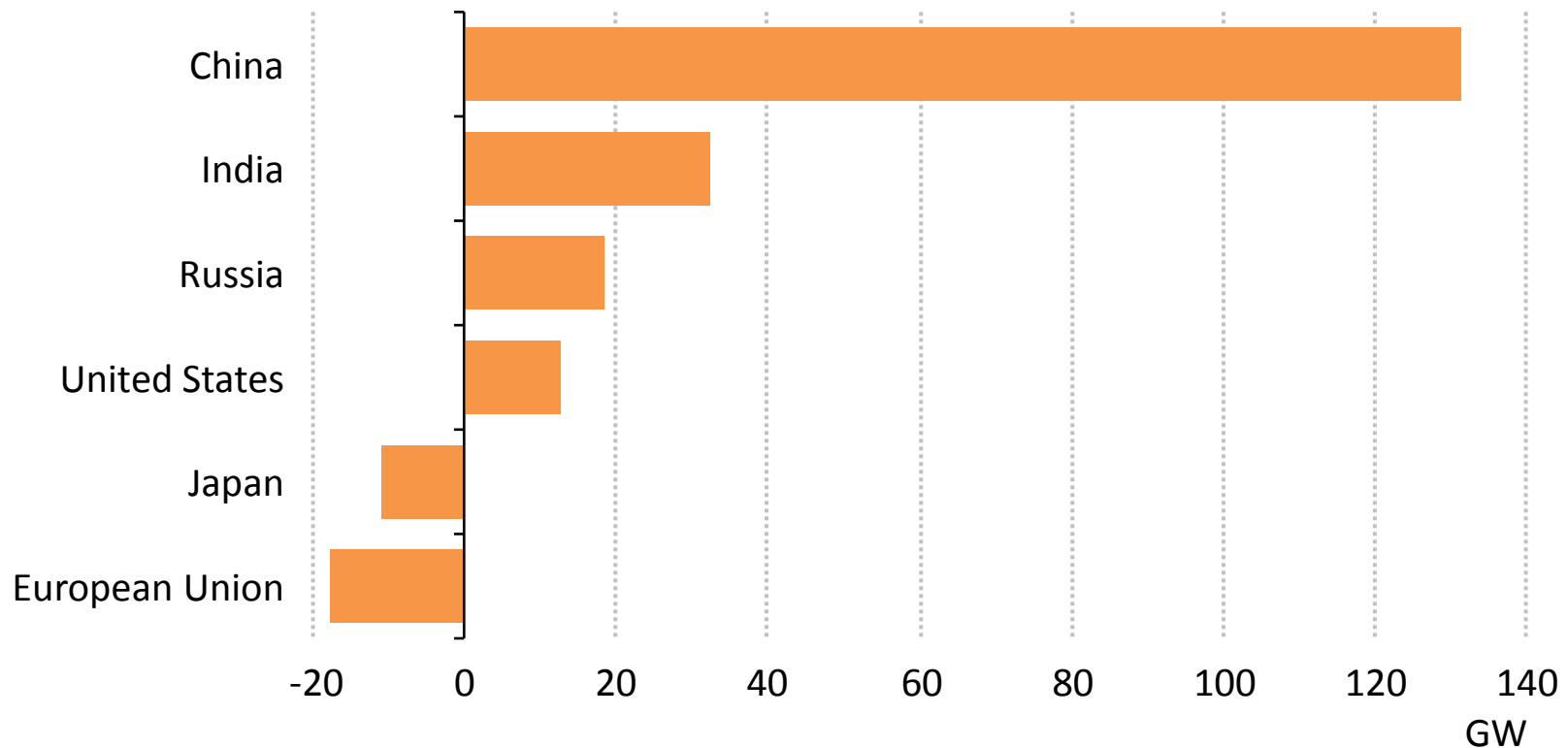


Despite limited demand growth, OECD countries account for one-third of capacity additions – to compensate for retirements & to decarbonise

Nuclear capacity grows by 60%, but no nuclear renaissance in sight

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Net capacity change in key regions, 2013-2040

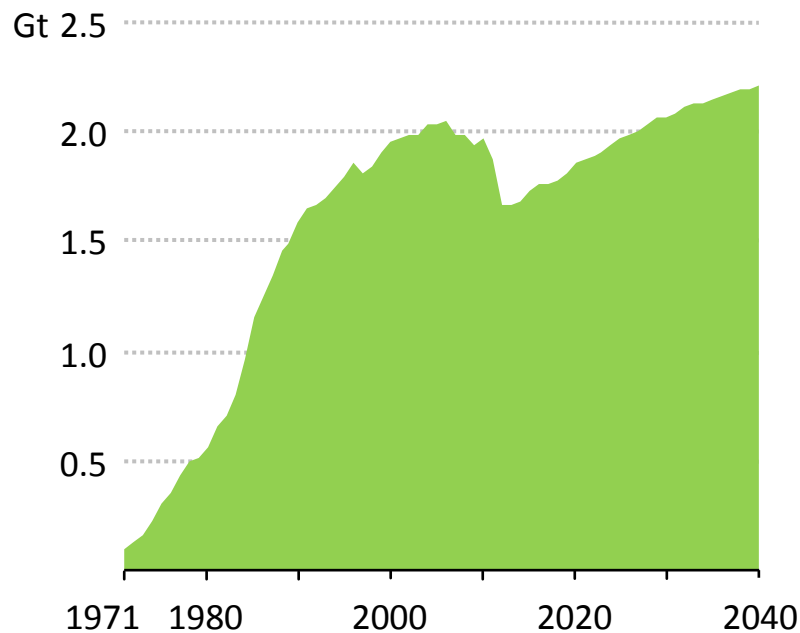


By 2040, an expanded nuclear fleet has saved almost 4 years of current CO₂ emissions & for some countries has improved energy security & balances of energy trade

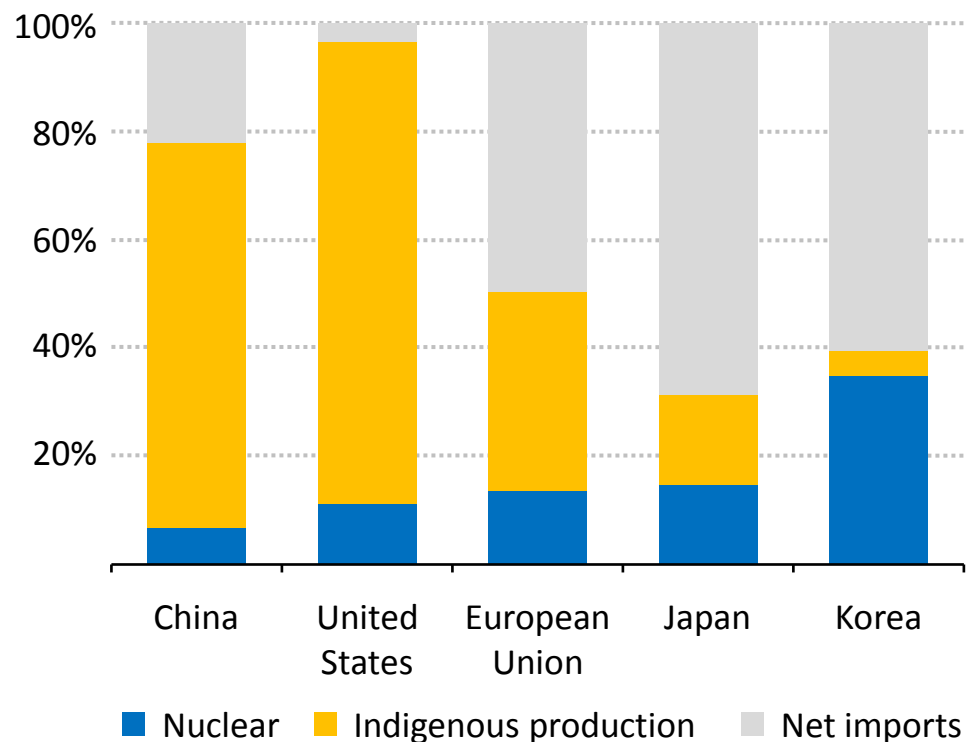
Nuclear power can play a role in CO₂ abatement & energy security

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CO₂ emissions avoided annually by nuclear power
1971-2040



Share of energy demand met by domestic sources
and nuclear power in 2040

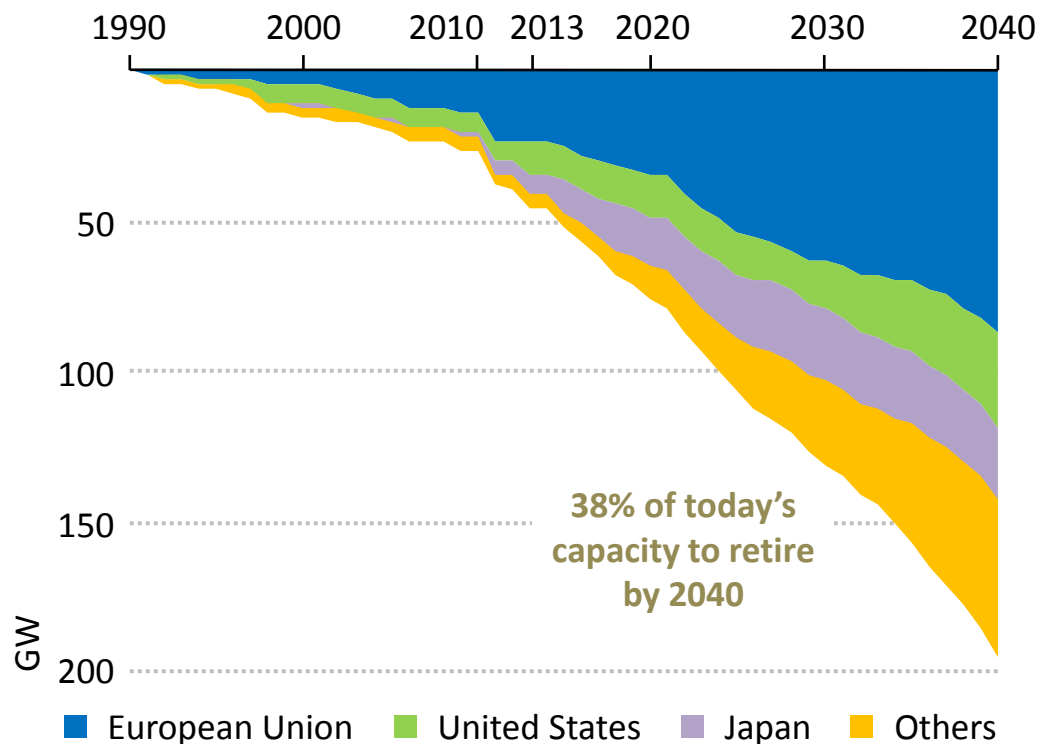


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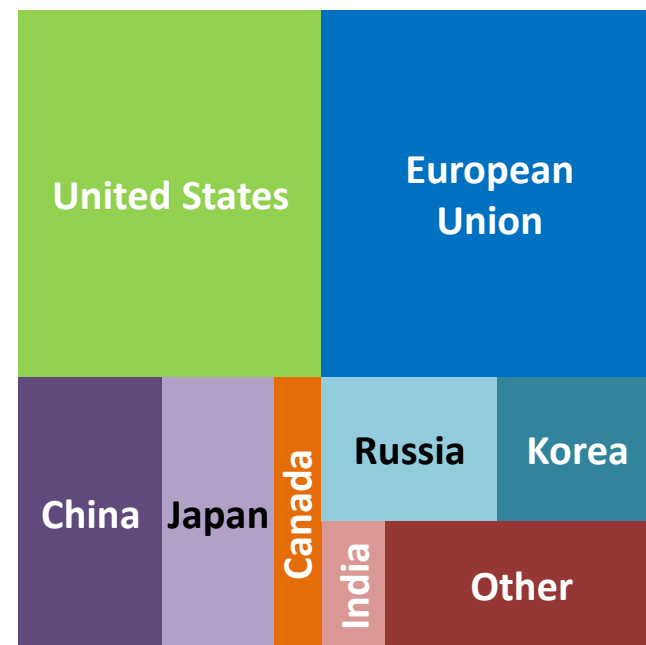
Nuclear power: public concerns must be heard and addressed

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Retirements of nuclear power capacity
1990-2040



Spent nuclear fuel
1971-2040: 705 thousand tonnes



**Key public concerns include plant operation, decommissioning & waste management;
By 2040, almost 200 reactors are retired & the amount of spent fuel doubles**



Navigating a stormy energy future

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- **Geopolitical & market uncertainties are set to propel energy security high up the global energy agenda**
- **Volatility in the Middle East raises short-term doubts on investment & spells trouble for future oil supply**
- **Nuclear power can play a role in energy security & carbon abatement – but financing & public concerns are key issues**
- **Far-sighted government policies are essential to steer the global energy system on to a safer course**
- **Reconciling competitiveness, the imperatives of energy security and climate change will be critical for European policy-makers in 2015**

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