

WORLD **ENERGY** OUTLOOK 2012

World Energy Outlook 2012

■ Foundations of global energy system shifting

- *Resurgence in oil & gas production in some countries*
- *Retreat from nuclear in some others*
- *Signs of increasing policy focus on energy efficiency*

■ All-time high oil prices acting as brake on global economy

- *Divergence in natural gas prices affecting Europe (with prices 5-times US levels) and Asia (8-times)*

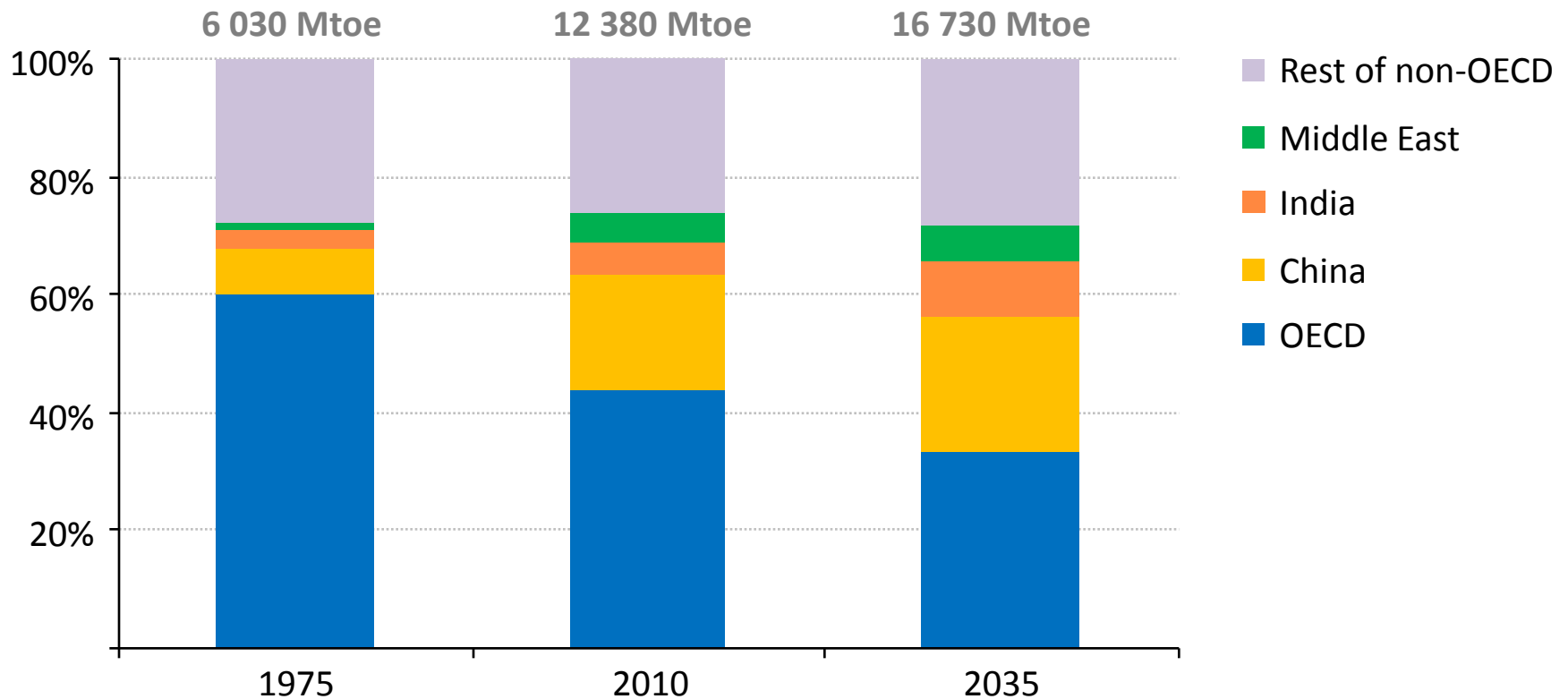
■ Symptoms of an unsustainable energy system persist

- *Fossil fuel subsidies up almost 30% to \$523 billion in 2011, led by MENA*
- *CO₂ emissions at record high, while renewables industry under strain*
- *Despite new international efforts, 1.3 billion people still lack electricity*

Emerging economies steer energy markets

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Share of global energy demand

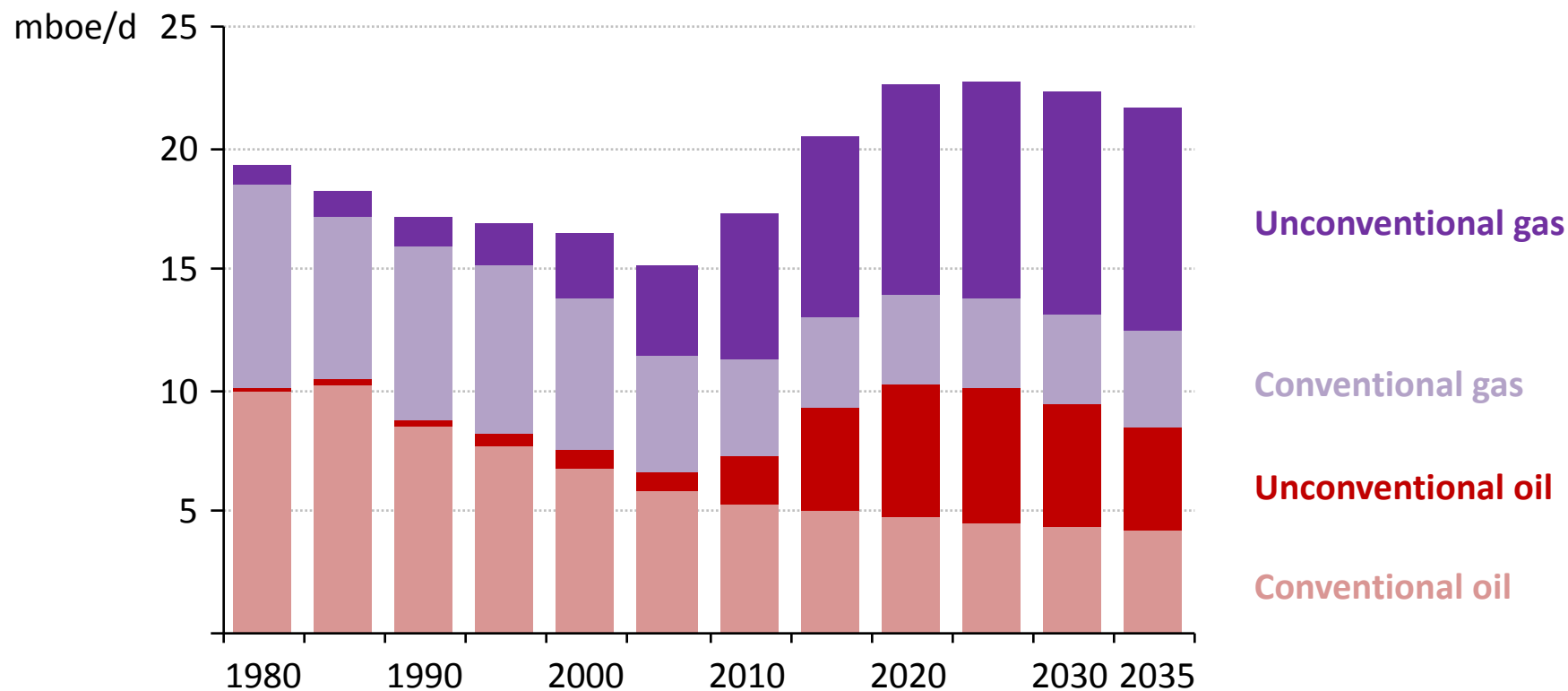


Global energy demand rises by over one-third in the period to 2035, underpinned by rising living standards in China, India & the Middle East

A United States oil & gas transformation

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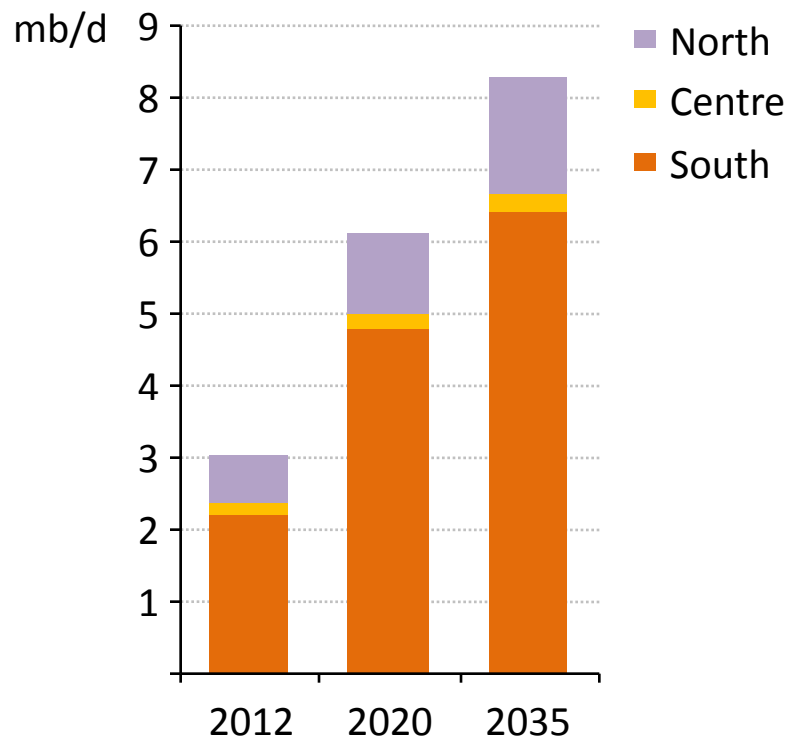
US oil and gas production



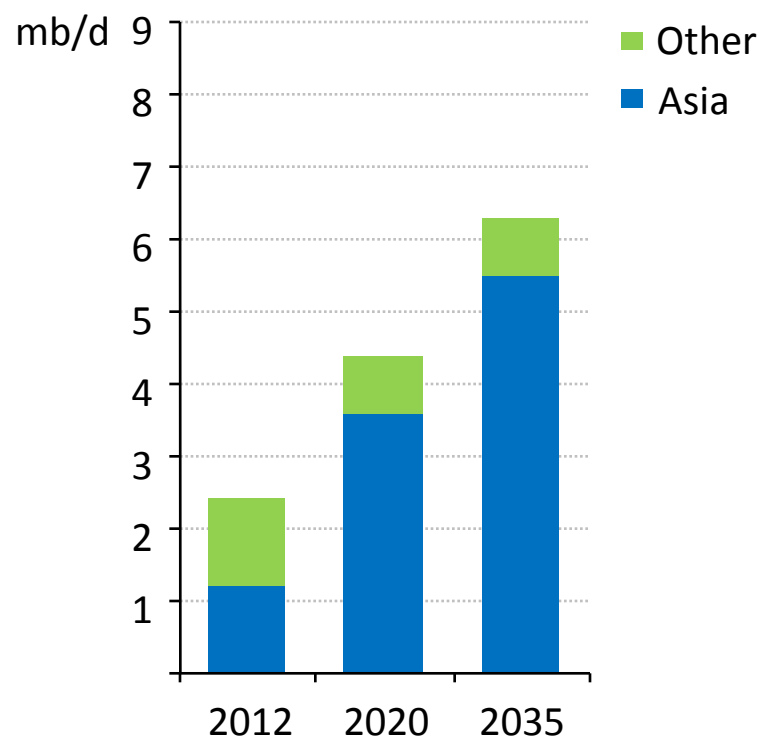
The surge in unconventional oil & gas production has implications well beyond the United States

Iraq oil poised for a major expansion

Iraq oil production



Iraq oil exports

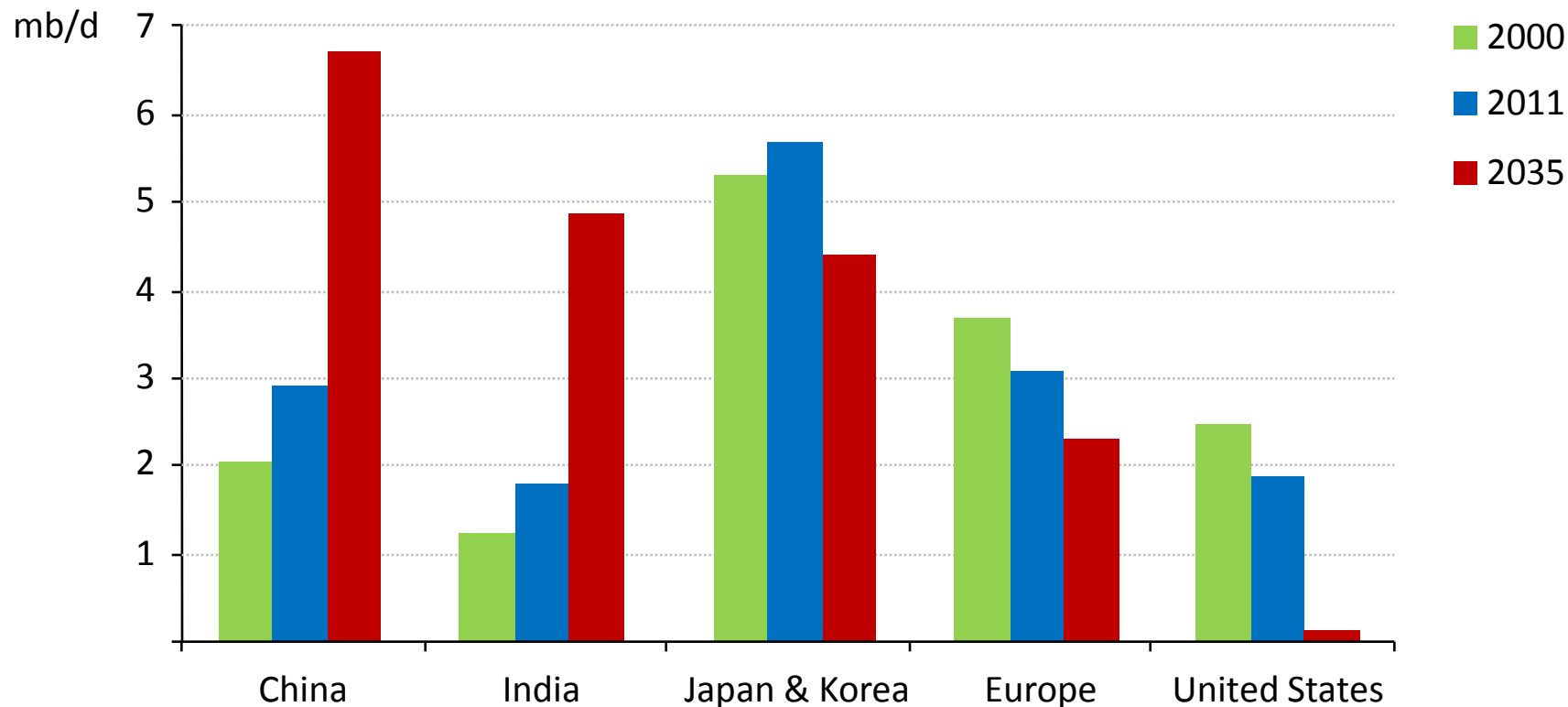


***Iraq accounts for 45% of the growth in global production to 2035;
by the 2030s it becomes the second-largest global oil exporter, overtaking Russia***

Middle East oil to Asia: a new silk road

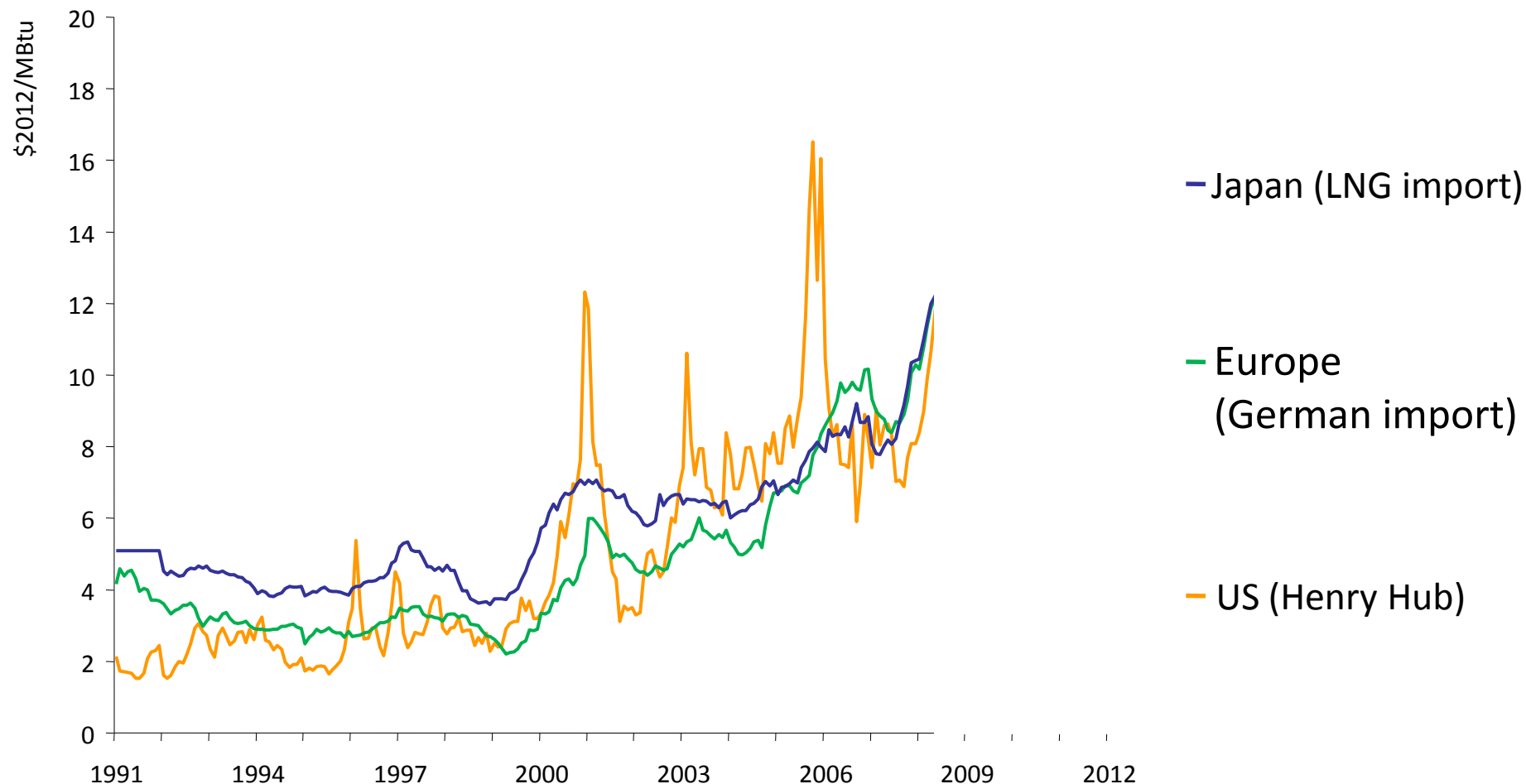
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Middle East oil export by destination



By 2035, almost 90% of Middle Eastern oil exports go to Asia; North America's emergence as a net exporter accelerates the eastward shift in trade

Regional gas price have diverged substantially in recent years



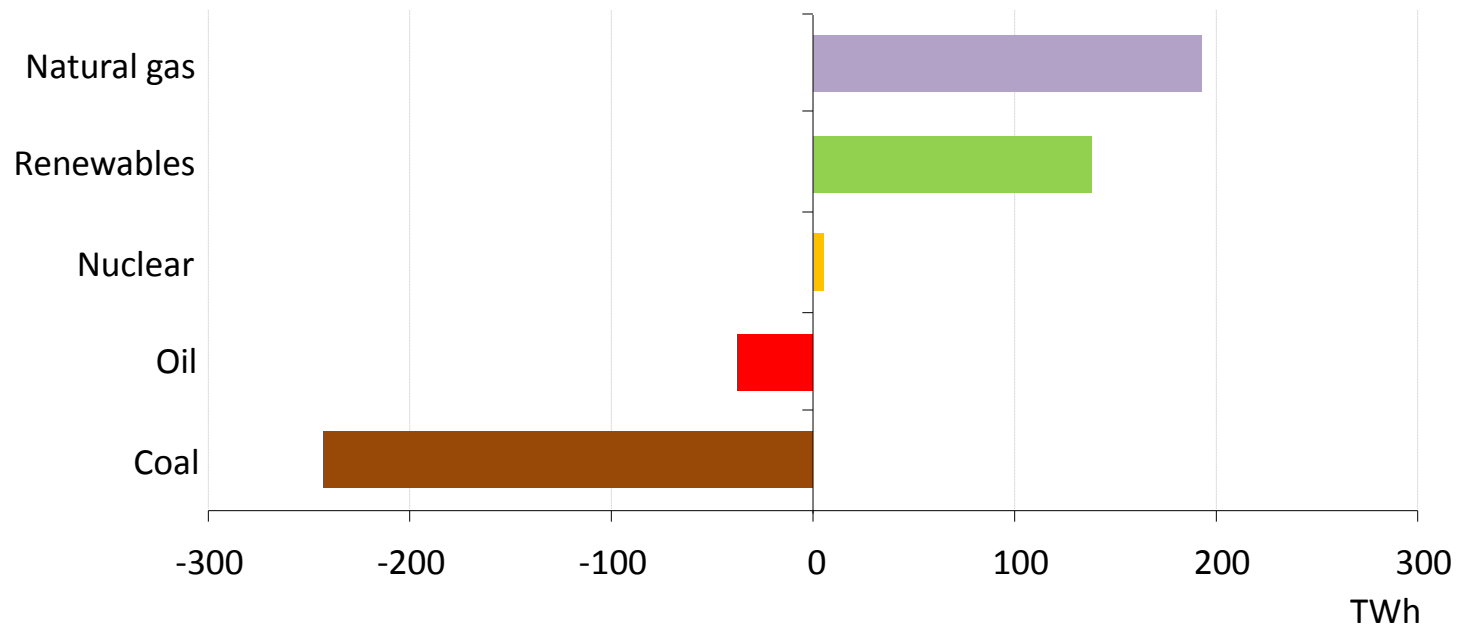
Today, gas market conditions differ considerably across regions.

It follows that the regional implications of any “Golden Age” for gas will also differ.

The falling price of gas in the United States has already changed the fuel mix

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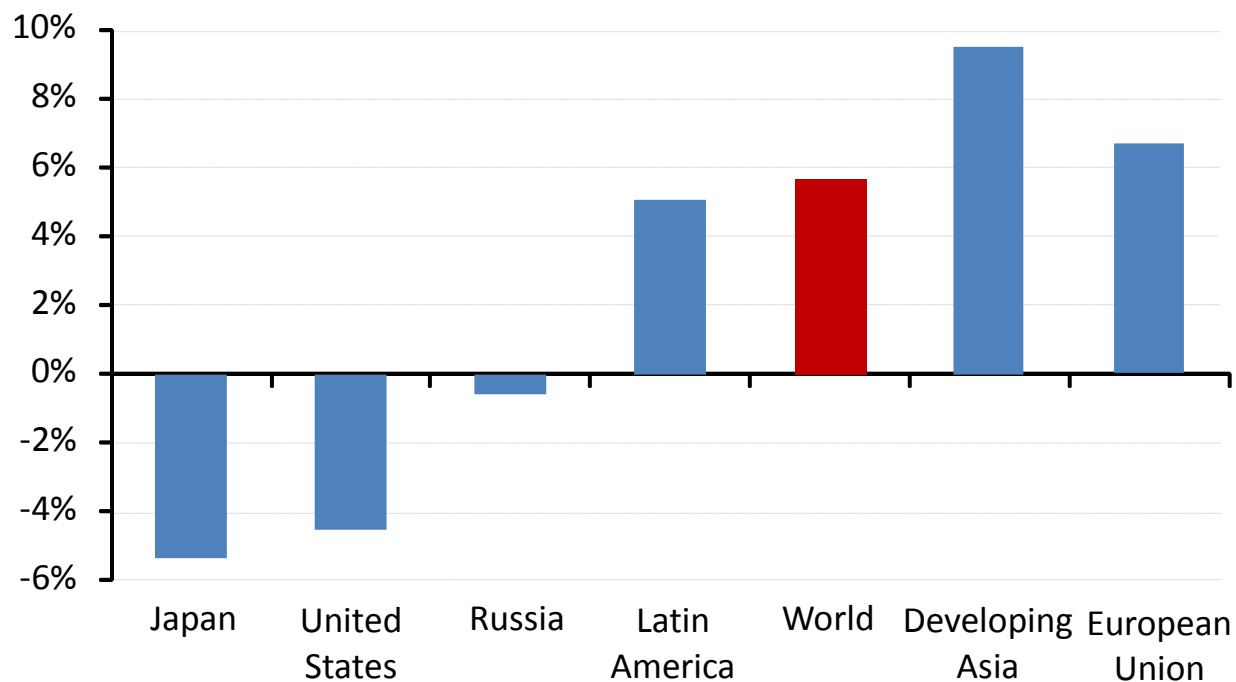
US electricity generation growth, 2006-2011



Over the past 5 years, natural gas & renewables were the leading sources of incremental electricity generation in the United States

Coal gained considerable ground in Europe

Growth in world coal demand, 2011

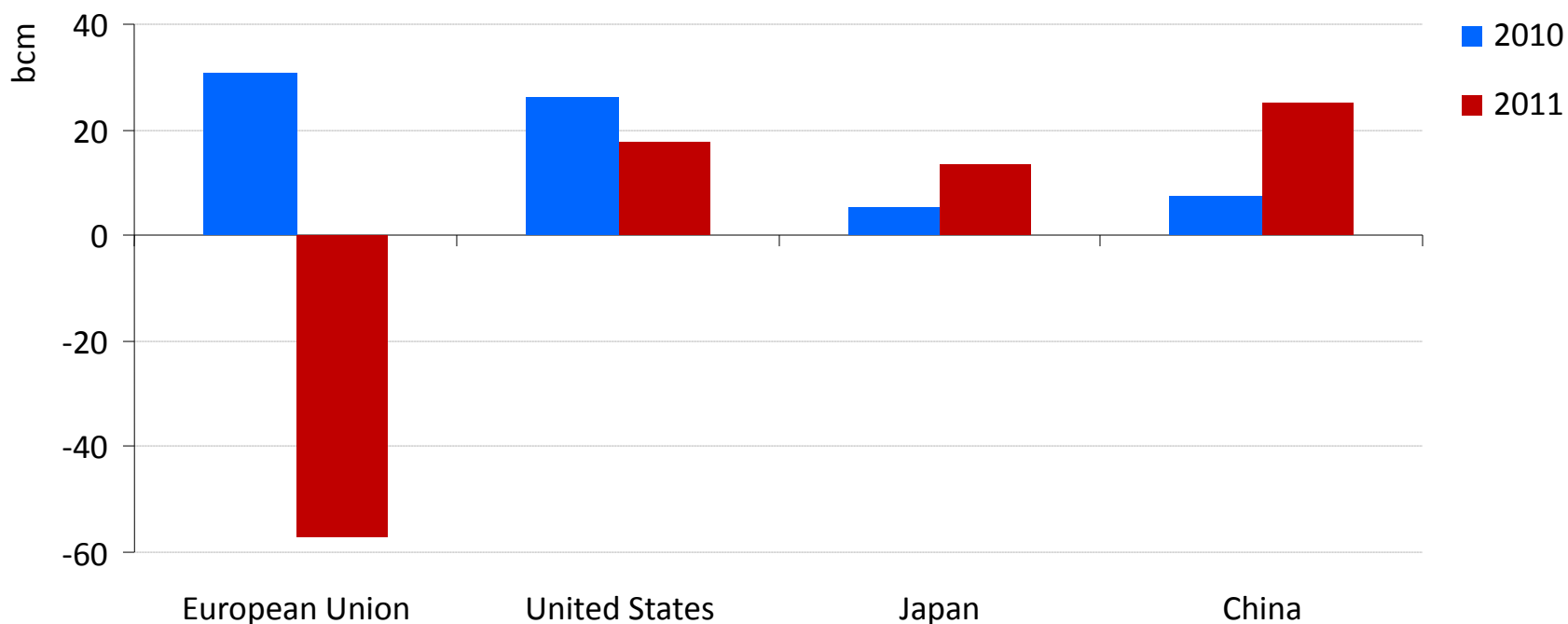


Unconventional gas is already having an effect on Europe, and will continue to do so regardless of Europe's unconventional gas production

European gas followed a different track

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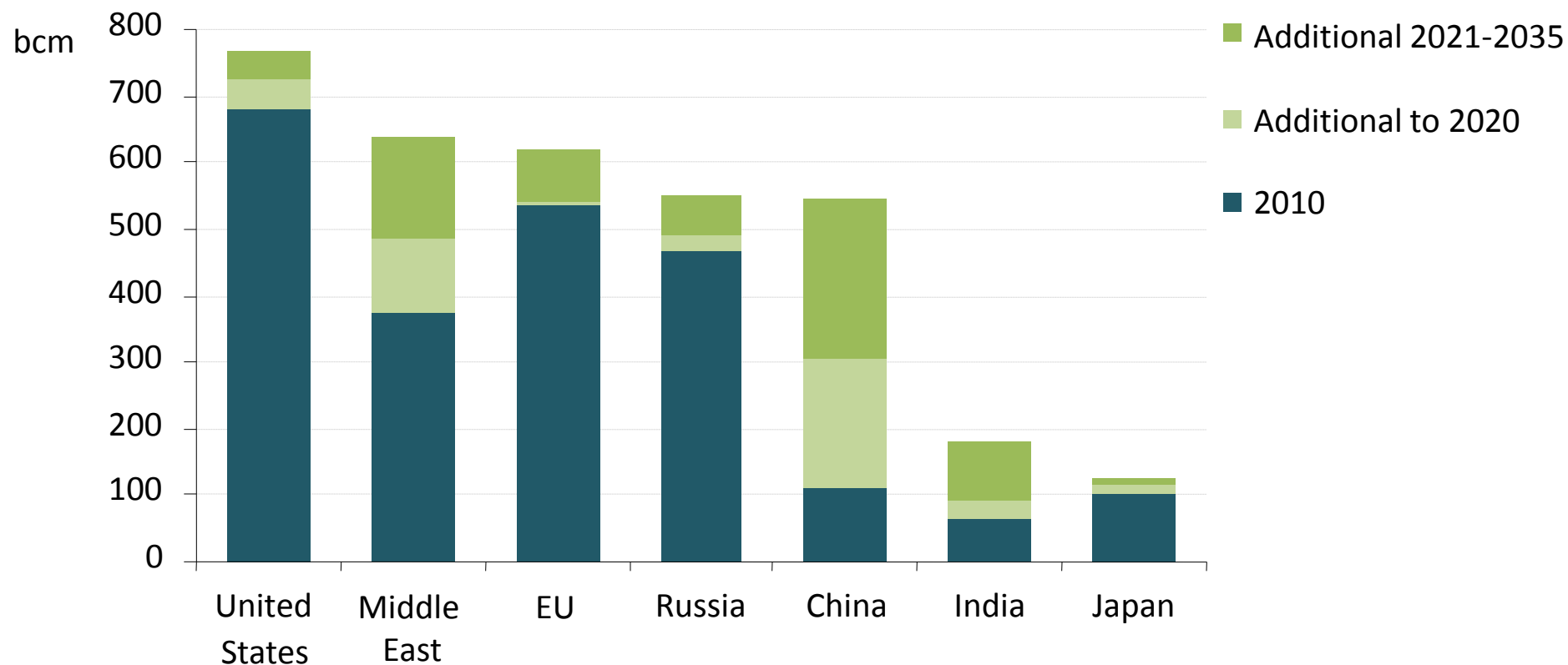
Year-on-year change in gas demand (bcm)



European natural gas demand fell by almost 11% in 2011, returning to levels last seen in 2000, while demand in China & Japan rose sharply

Gas grows strongly to 2035, expanding fastest in emerging markets

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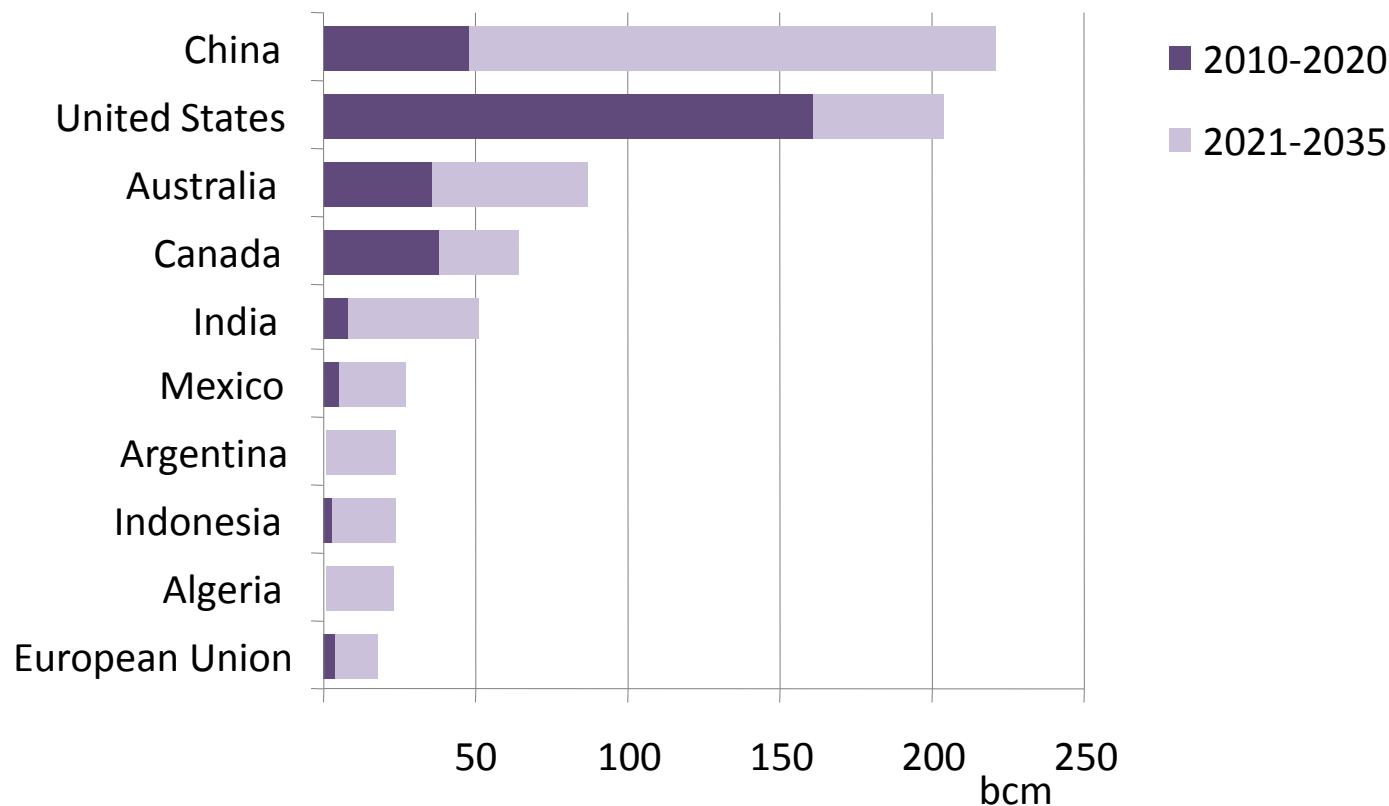


***Gas is the fastest-growing fossil fuel in our New Policies Scenario.
It is also the only fossil fuel that grows in all three of our main scenarios.***

On the supply side, the unconventional gas revolution takes time to spread

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Growth in unconventional gas production

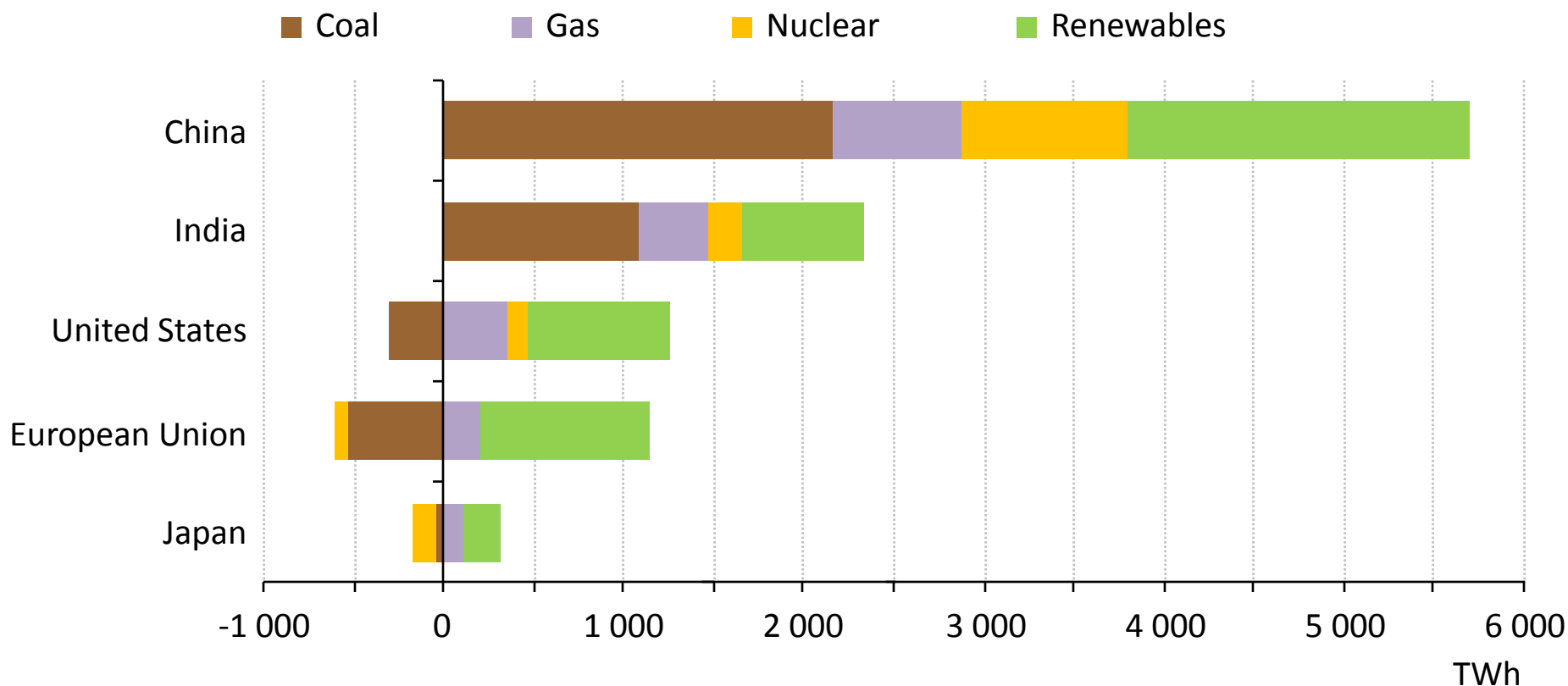


Outside the United States, 80% of anticipated growth in unconventional gas production takes place after 2020

The power sector points to the diverse drivers for gas demand growth

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Change in power generation, 2010-2035

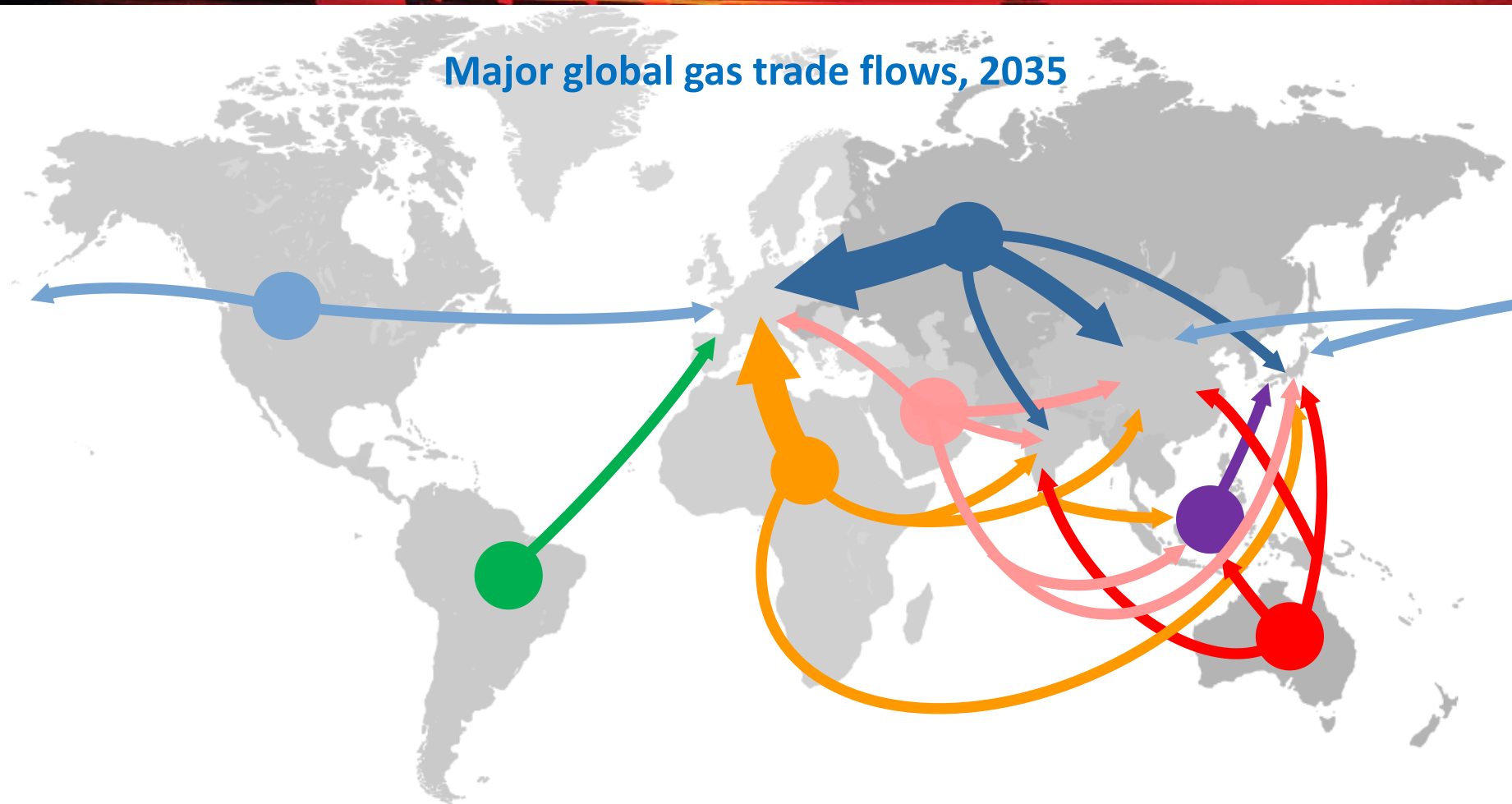


A mixture of factors leads to increased gas use: cheaper gas, nuclear phase-outs, a desire to diversify the fuel mix, and local and global environmental concerns

The shifting balance of supply and demand points to a more globalised market

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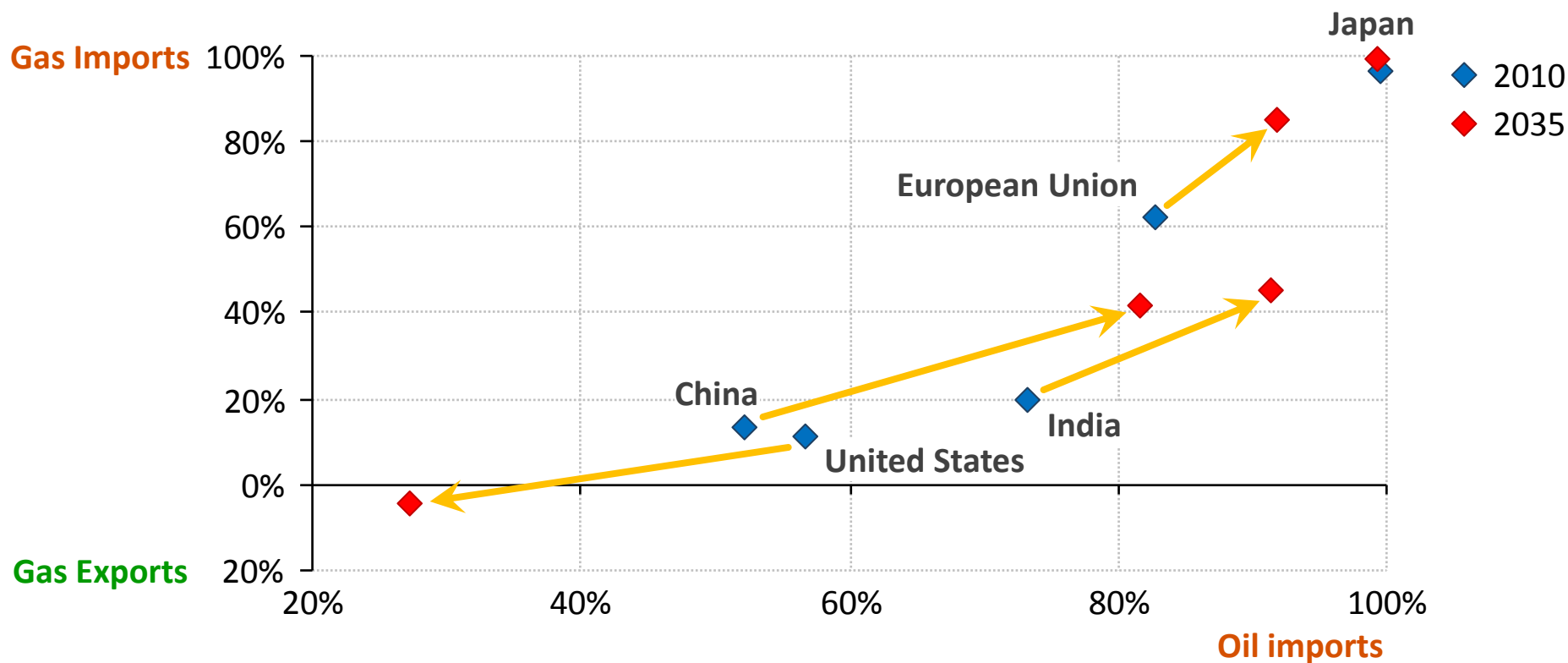
Major global gas trade flows, 2035



Rising supplies of unconventional gas & LNG help to diversify trade flows, putting pressure on conventional gas suppliers & oil-linked pricing mechanisms

Different trends in oil & gas import dependency

Net oil & gas import dependency in selected countries

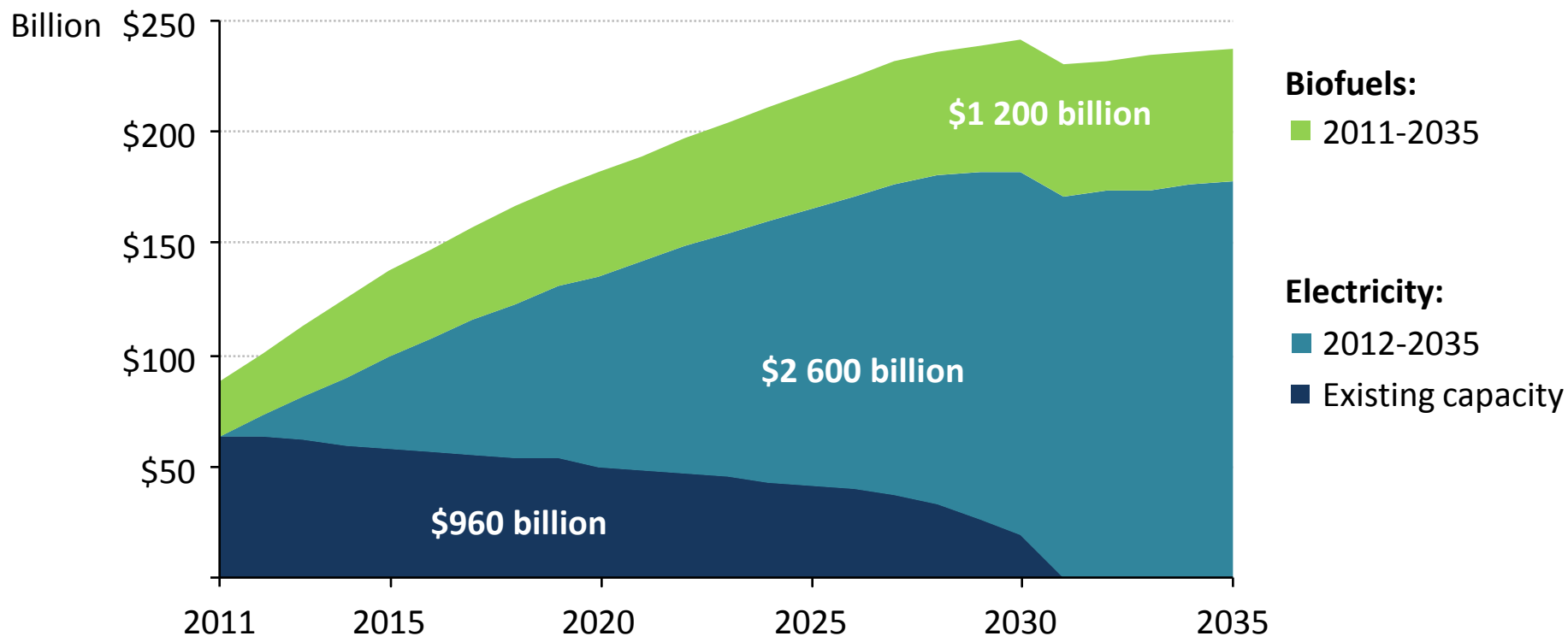


In the context of a more diversified global gas market, dependence on imported oil and gas rises in many countries, though the US swims against the tide

The multiple benefits of renewables come at a cost

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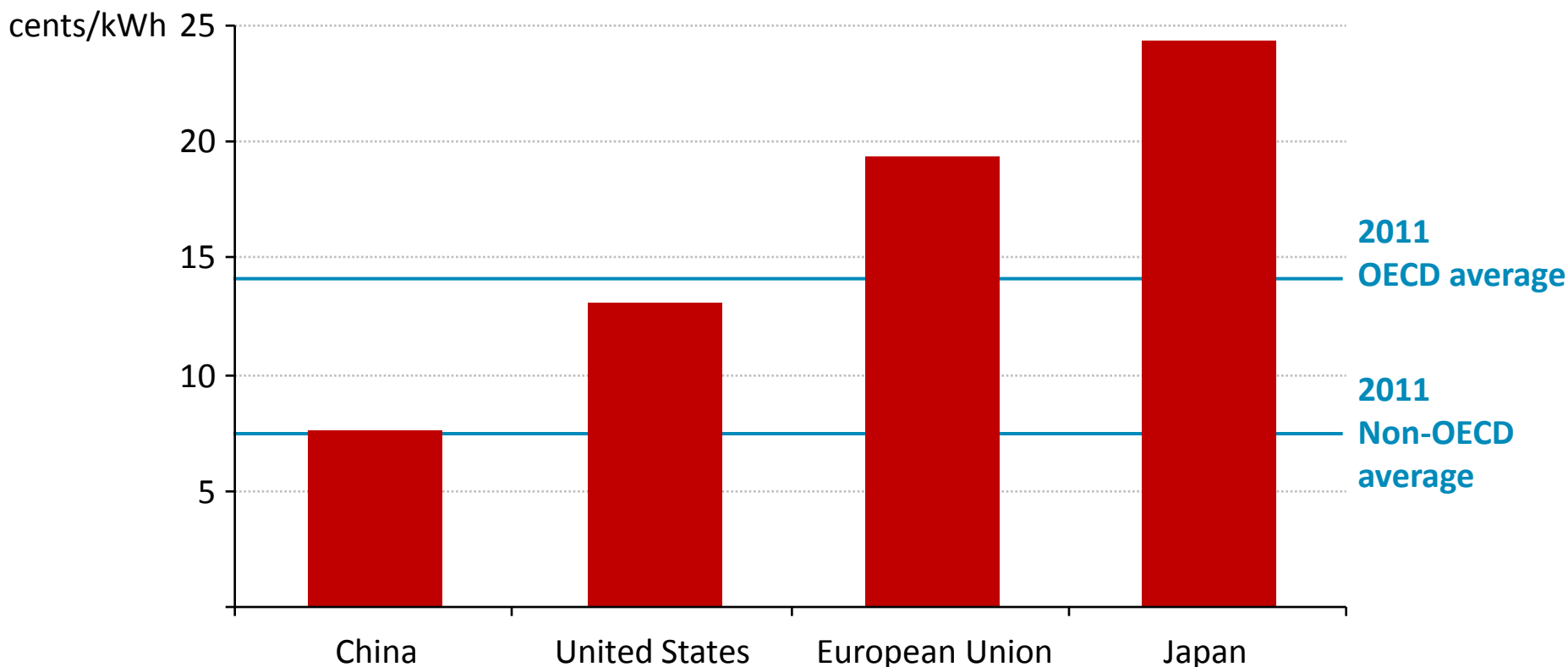
Global renewable energy subsidies



Renewable subsidies were \$88 billion in 2011; over half the \$4.8 trillion required to 2035 has been committed to existing projects or is needed to meet 2020 targets

Wide variations in the price of power

Average household electricity prices, 2035

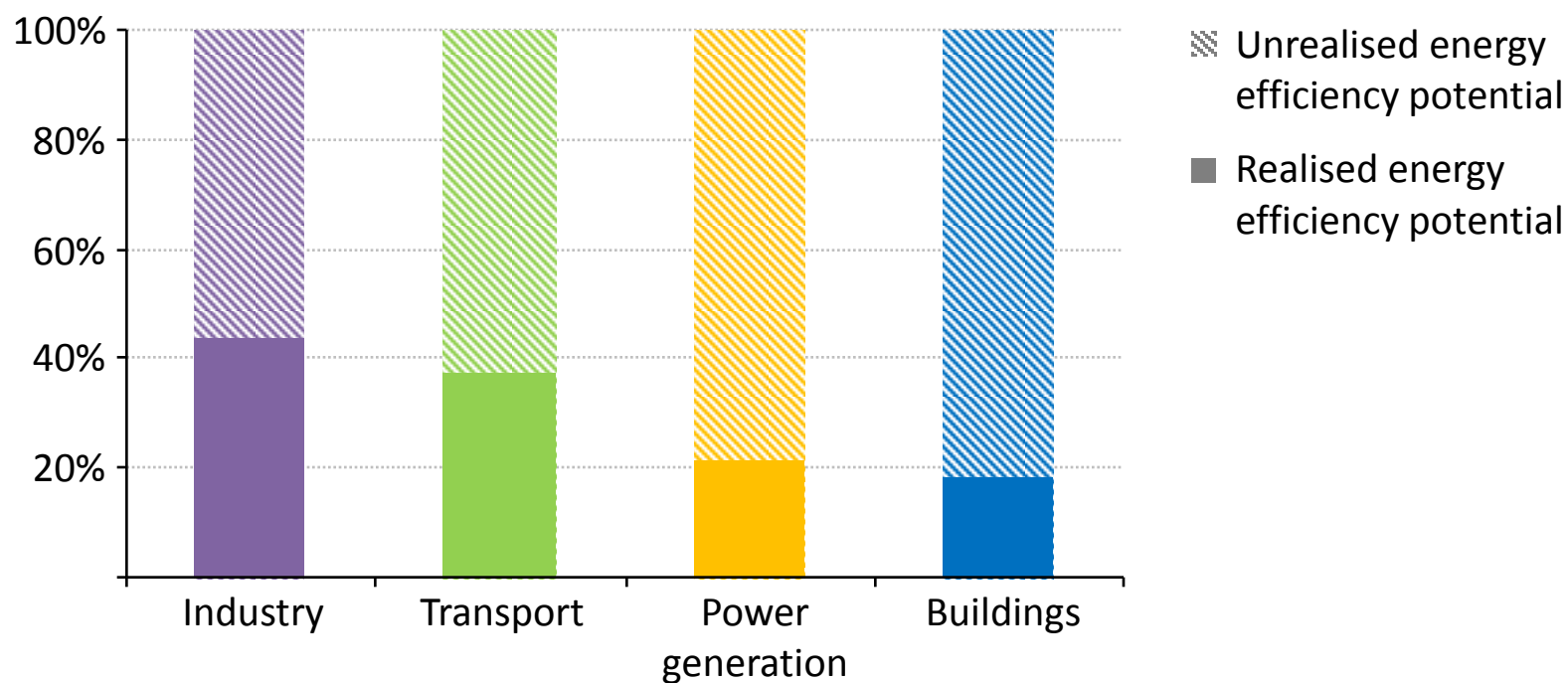


Electricity prices are set to increase with the highest prices persisting in the European Union & Japan, well above those in China & the United States

Energy efficiency: a huge opportunity going unrealised

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Energy efficiency potential used by sector in the New Policies Scenario

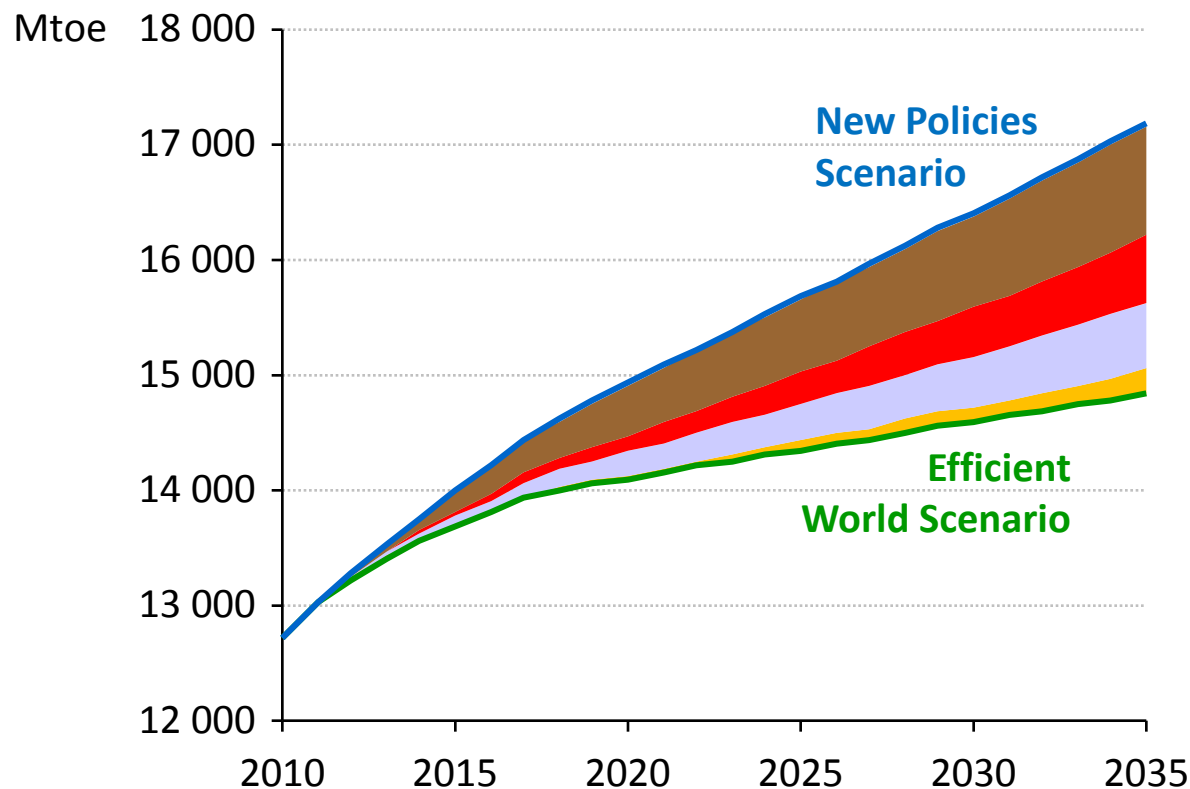


Two-thirds of the economic potential to improve energy efficiency remains untapped in the period to 2035

The Efficient World Scenario: a blueprint for an efficient world

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Total primary energy demand

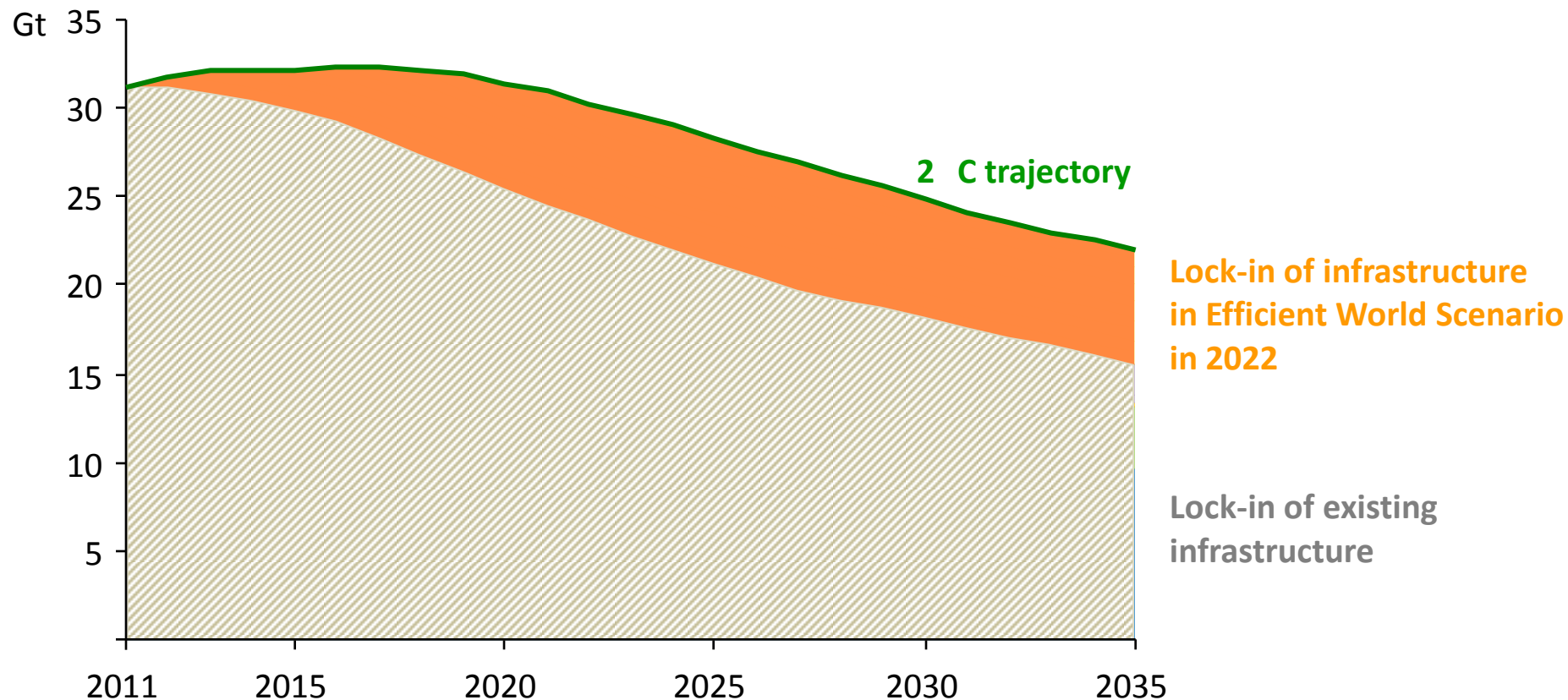


Reduction in 2035	
Coal	1 350 Mtce
Oil	12.7 mb/d
Gas	680 bcm
Others	250 Mtoe

***Economically viable efficiency measures can halve energy demand growth to 2035;
oil demand savings equal the current production of Russia & Norway***

The Efficient World Scenario delays carbon lock-in

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Energy efficiency can delay “lock-in” of CO₂ emissions permitted under a 2 °C trajectory – which is set to happen in 2017 – until 2022, buying five extra years

Foundations of energy system shifting

- Policy makers face critical choices in reconciling energy, environmental & economic objectives
- Changing outlook for energy production & use may redefine global economic & geopolitical balances
- Iraq set to play a pivotal role in global oil markets
- As climate change slips off policy radar, the “lock-in” point moves closer & the costs of inaction rise
- The gains promised by energy efficiency are within reach & are essential to underpin a more secure & sustainable energy system