

Global energy trends and their implications for Asia

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Dr. Fatih BIROL
IEA Chief Economist
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The context: fresh challenges add to already worrying trends

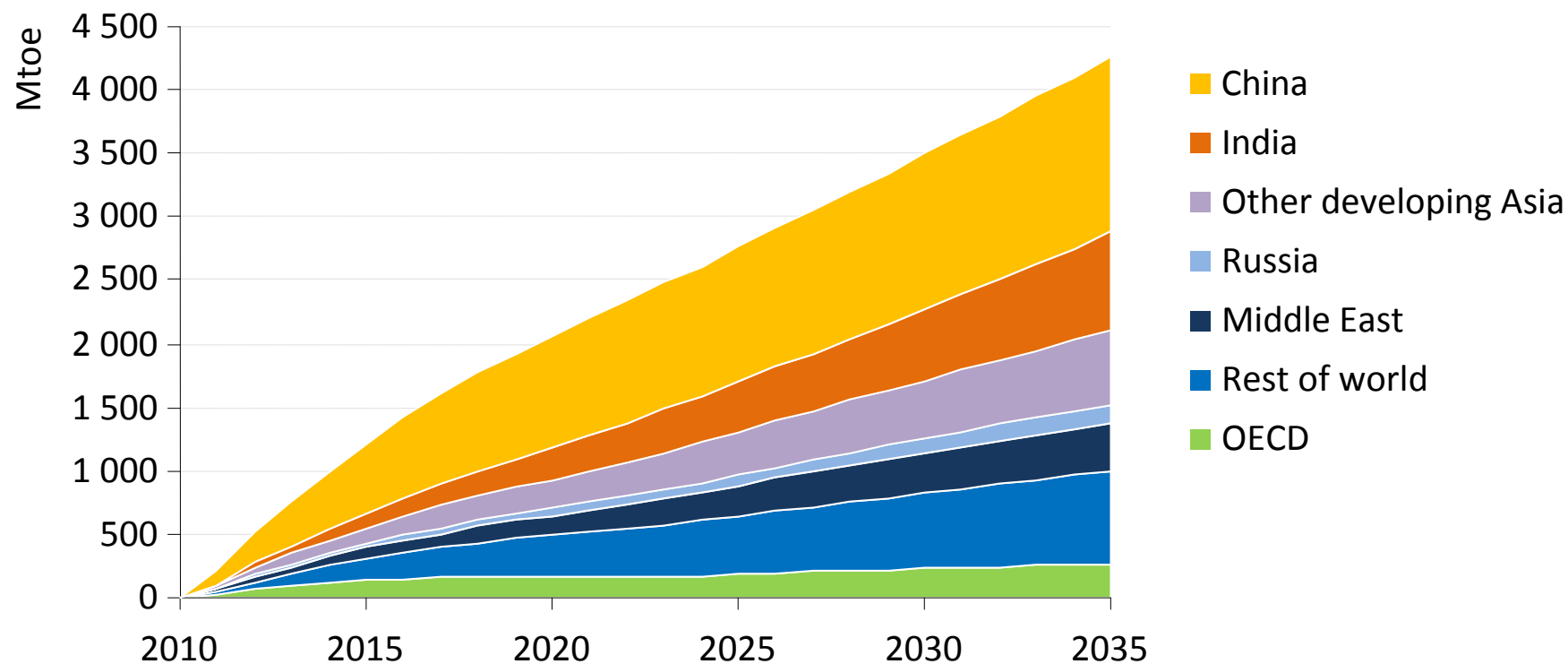
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- **Economic concerns have diverted attention from energy policy and limited the means of intervention**
- **Post-Fukushima, nuclear is facing uncertainty**
- **MENA turmoil raised questions about region's investment plans**
- **Some key trends are pointing in worrying directions:**
 - *CO₂ emissions rebounded to a record high*
 - *energy efficiency of global economy worsened for 2nd straight year*
 - *spending on oil imports is near record highs*

Emerging economies continue to drive global energy demand

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Growth in primary energy demand in the New Policies Scenario

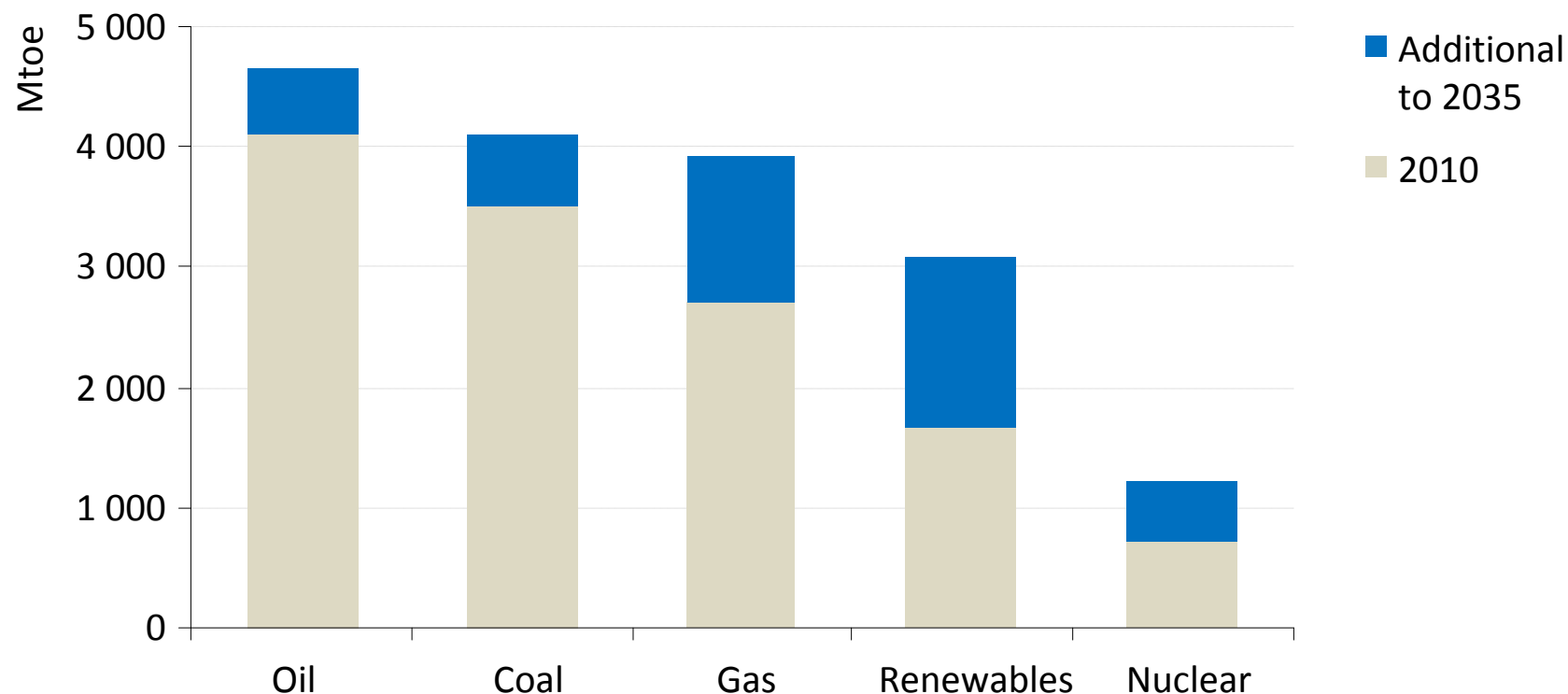


Global energy demand increases by one-third from 2010 to 2035, with China & India accounting for 50% of the growth

Natural gas & renewables become increasingly important

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World primary energy demand

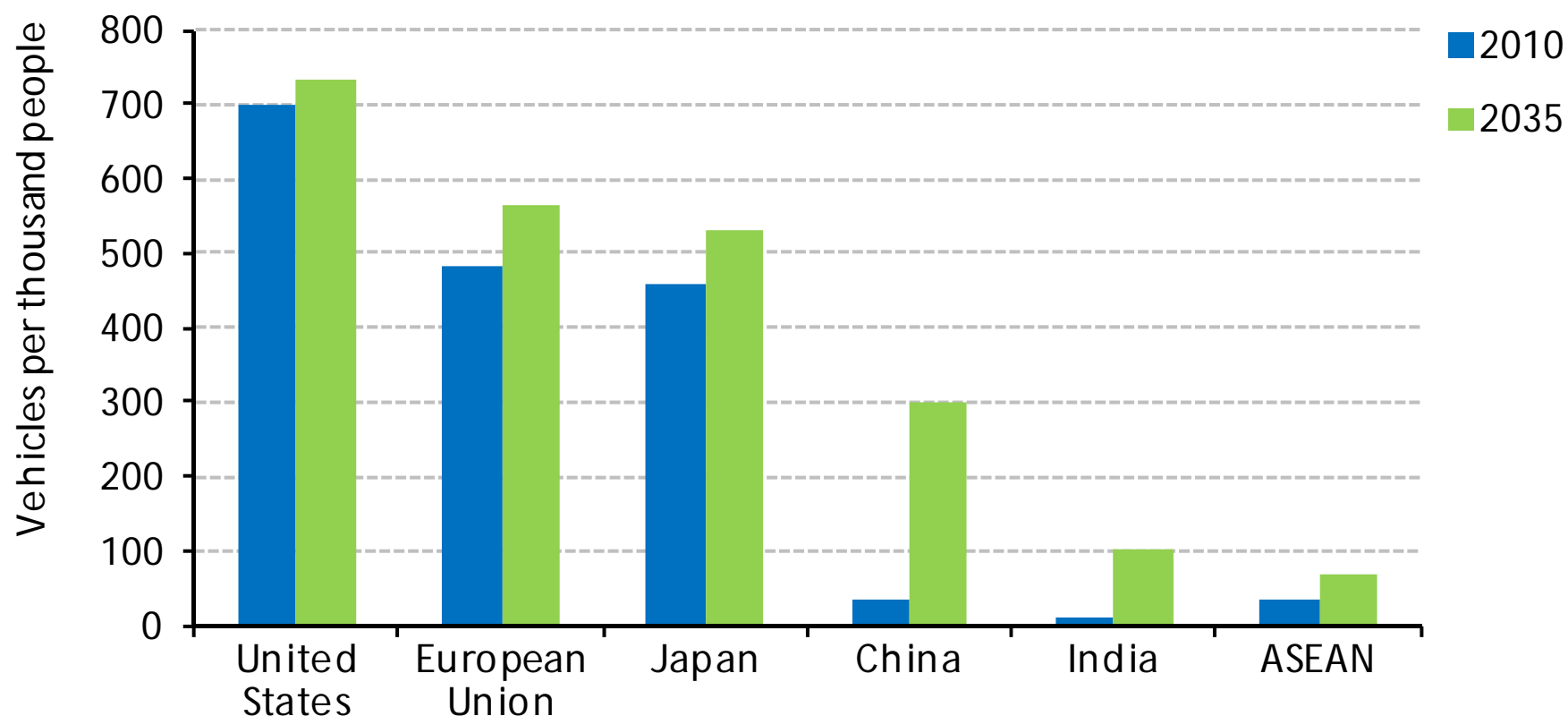


Renewables & natural gas collectively meet almost two-thirds of incremental energy demand in 2010-2035

*Oil demand is driven higher
by soaring car ownership*

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Vehicles per 1000 people in selected markets

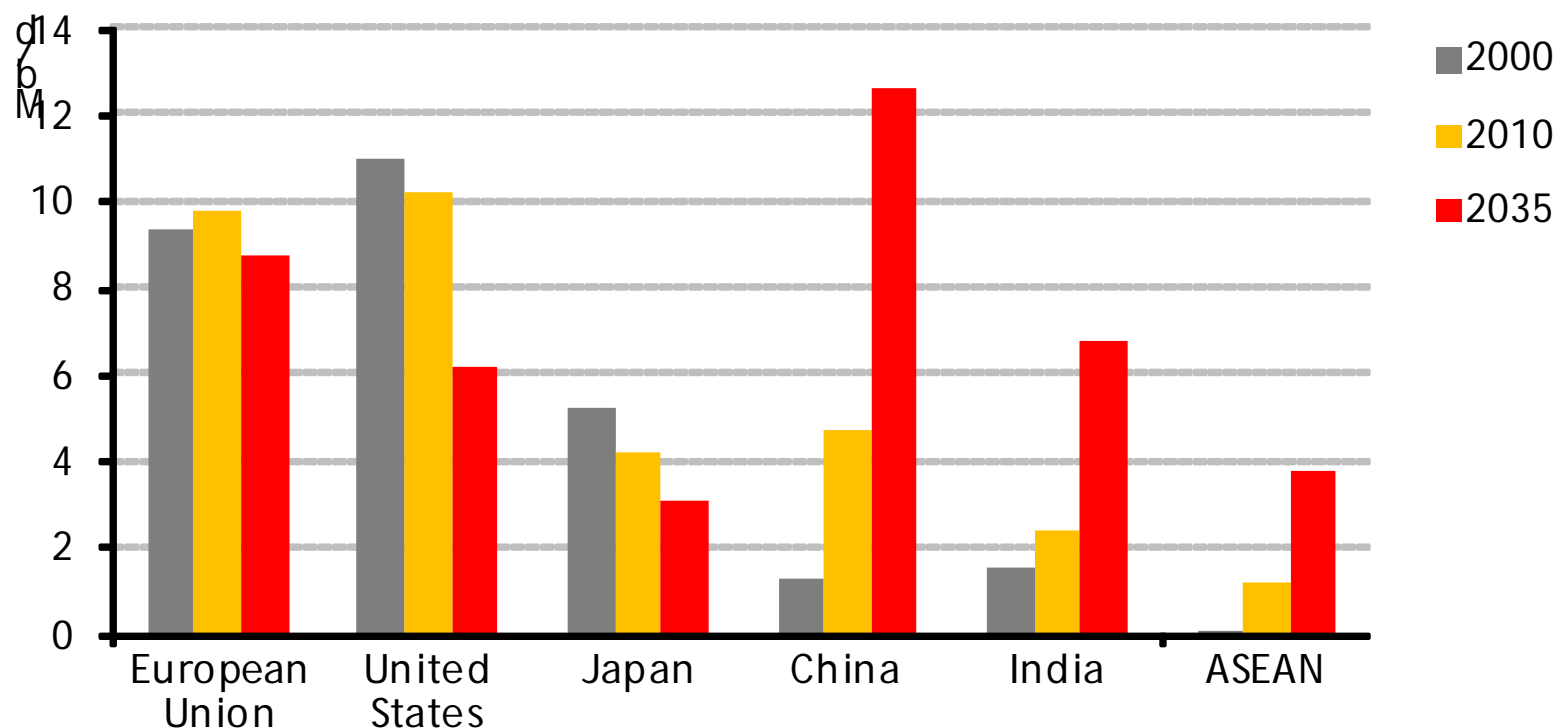


The passenger vehicle fleet doubles to 1.7 billion in 2035; most cars are sold outside the OECD by 2020, making non-OECD policies key to global oil demand

Changing oil import needs are set to shift concerns about oil security

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Net imports of oil

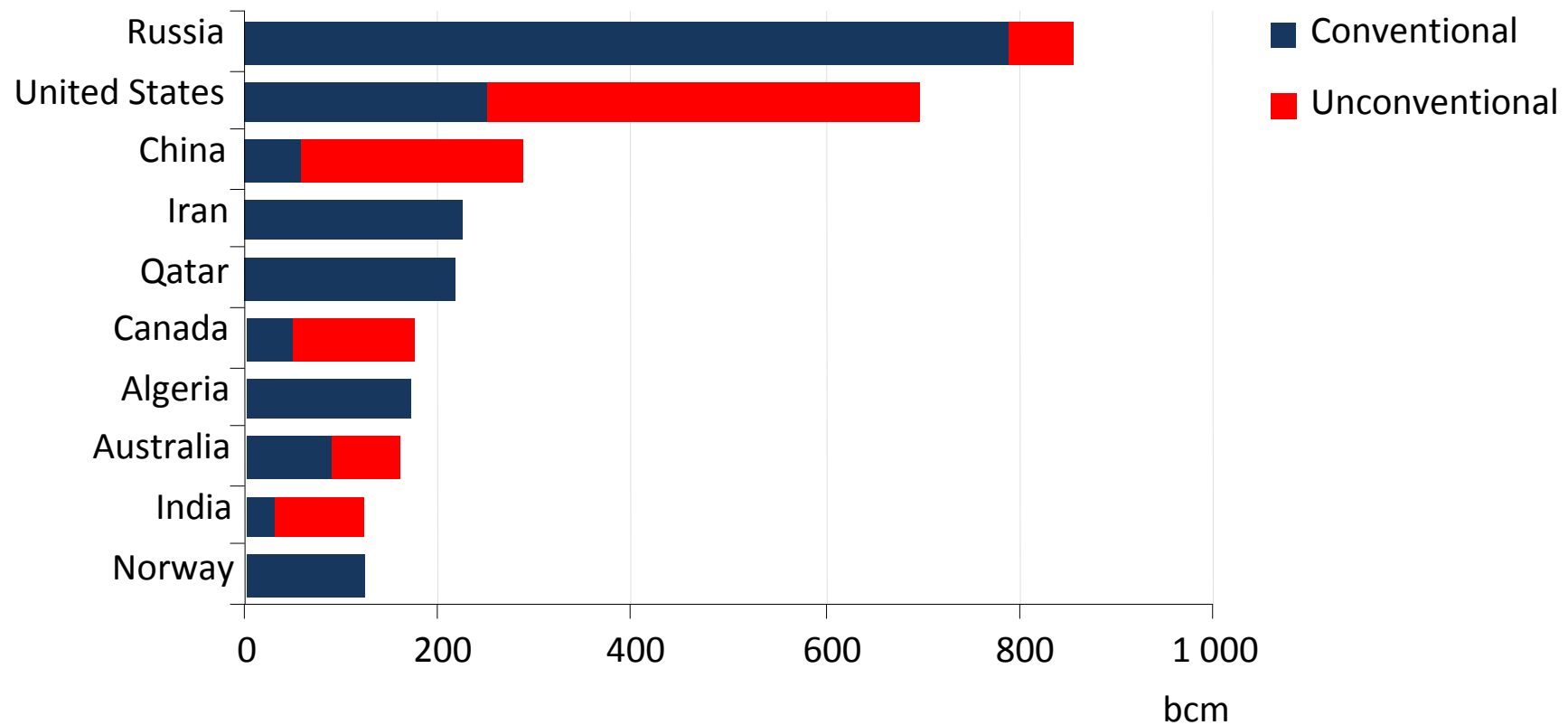


US oil imports drop due to rising domestic output & improved transport efficiency: EU imports overtake those of the US around 2015; China becomes the largest importer around 2020

Golden prospects for natural gas

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Largest natural gas producers in 2035

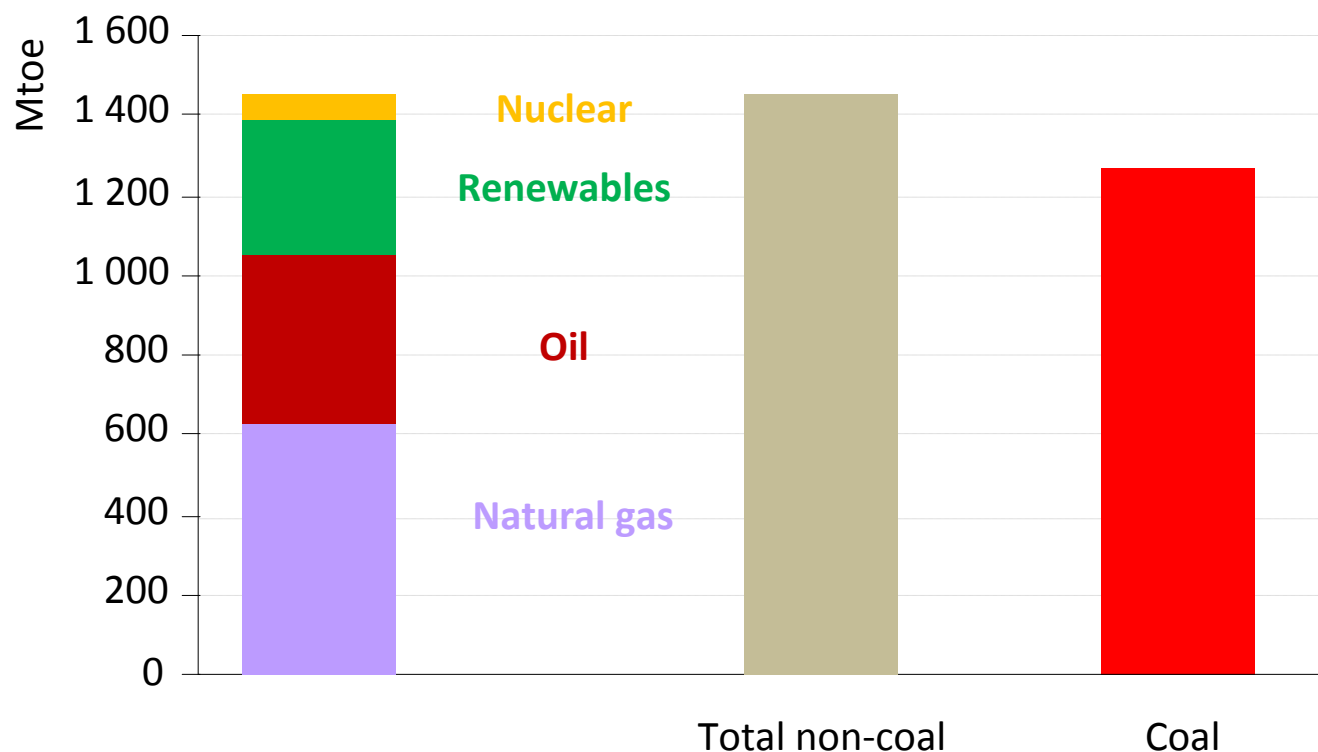


Unconventional natural gas supplies 40% of the 1.7 tcm increase in global supply, but best practices are essential to successfully address environmental challenges

Coal won the energy race in the first decade of the 21st century

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Growth in global energy demand, 2000–2010



Coal accounted for nearly half of the increase in global energy use over the past decade, with the bulk of the growth coming from the power sector in emerging economies

Second thoughts on nuclear would have far-reaching consequences

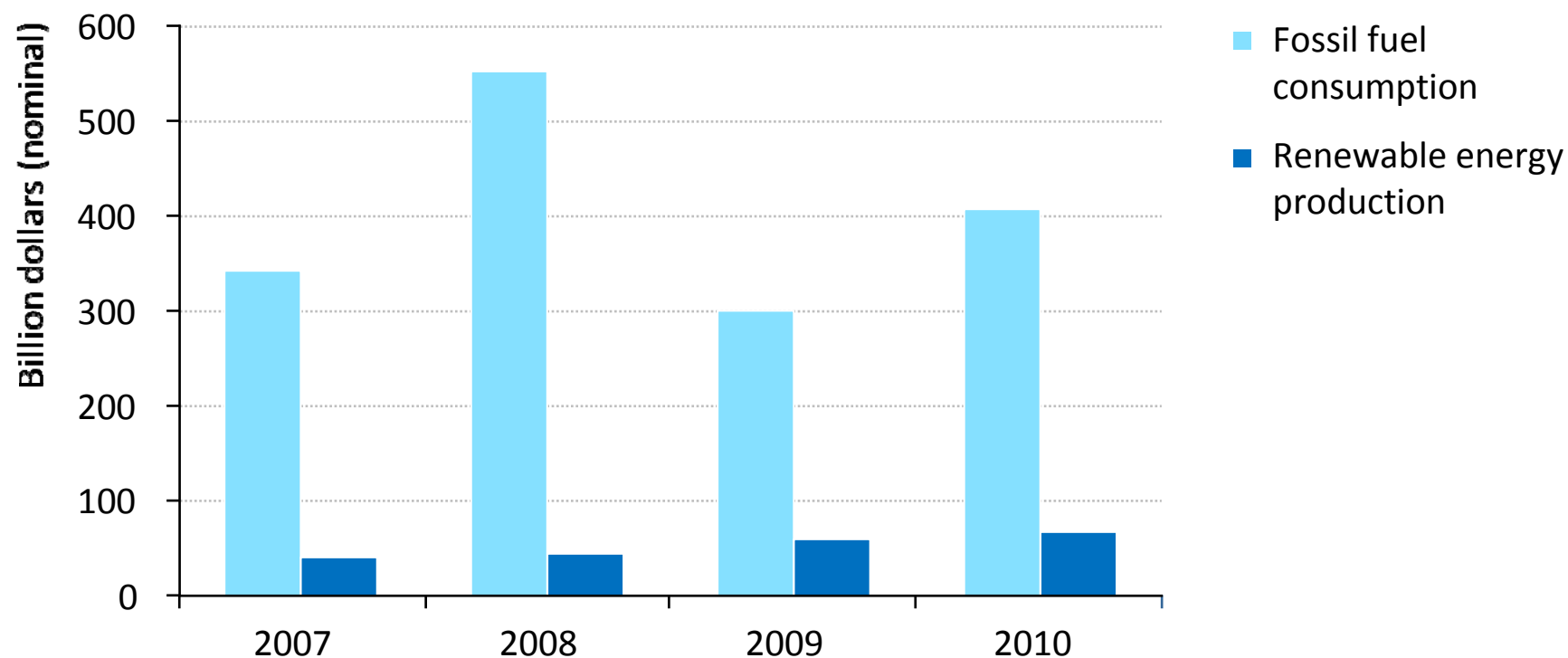
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- **“Low Nuclear Case” examines impact of nuclear component of future energy supply being cut in half**
- **Gives a boost to renewables, but increases import bills, reduces diversity & makes it harder to combat climate change**
- **By 2035, compared with the New Policies Scenario:**
 - *coal demand increases by twice Australia’s steam coal exports*
 - *natural gas demand increases by two-thirds Russia’s natural gas net exports*
 - *power- sector CO₂ emissions increase by 6.2%*
- **Biggest implications are for countries with limited energy resources that planned to rely on nuclear power**

The majority of energy subsidies still go to fossil fuels

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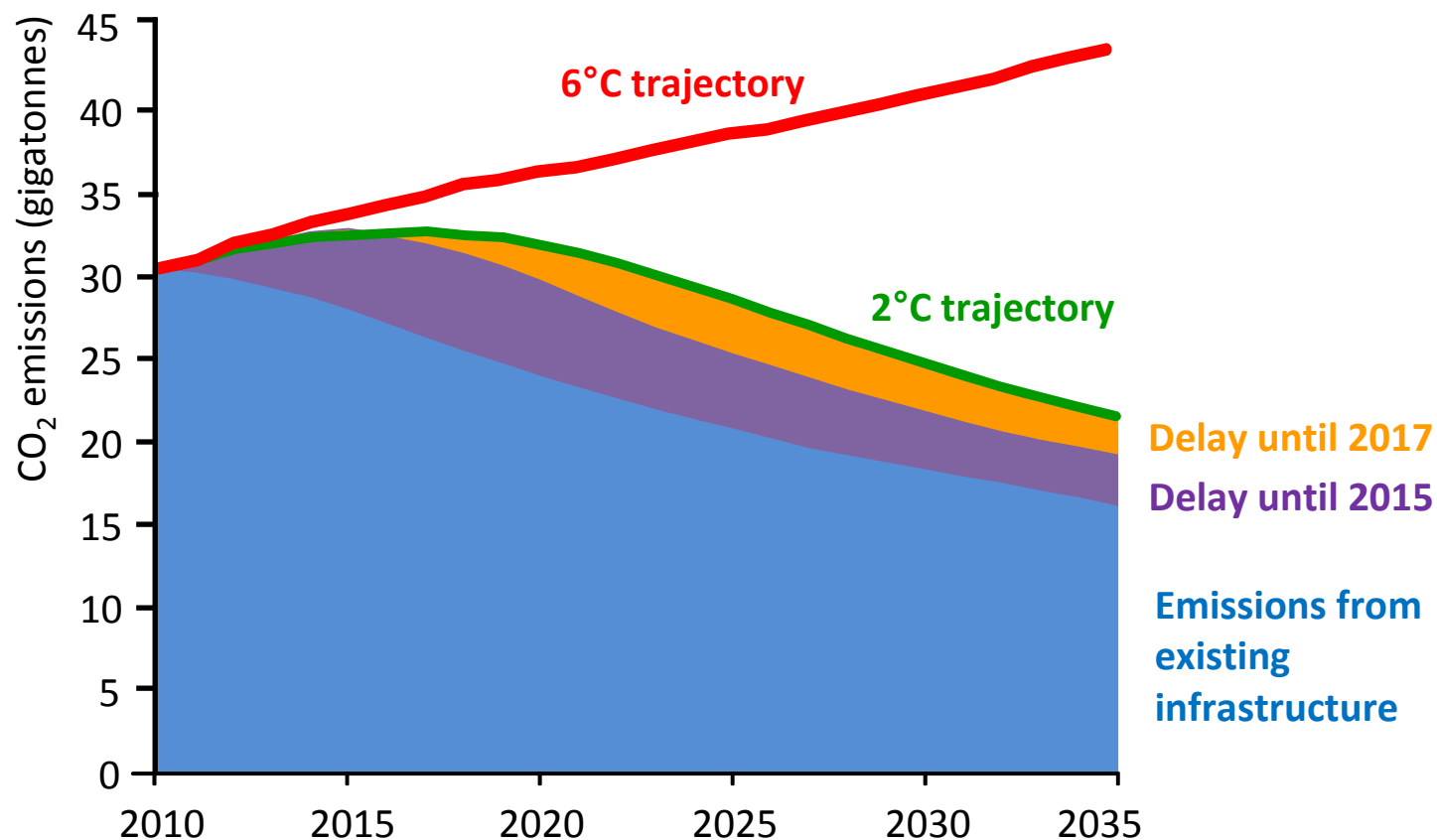
World subsidies to fossil fuels consumption & renewable energy



Fossil-fuels subsidies amounted to \$409 billion in 2010 – down from the peak of \$550 billion in 2008 but still much larger than subsidies to renewables, which reached \$66 billion in 2010

*The door to 2°C is closing,
but will we be “locked-in” ?*

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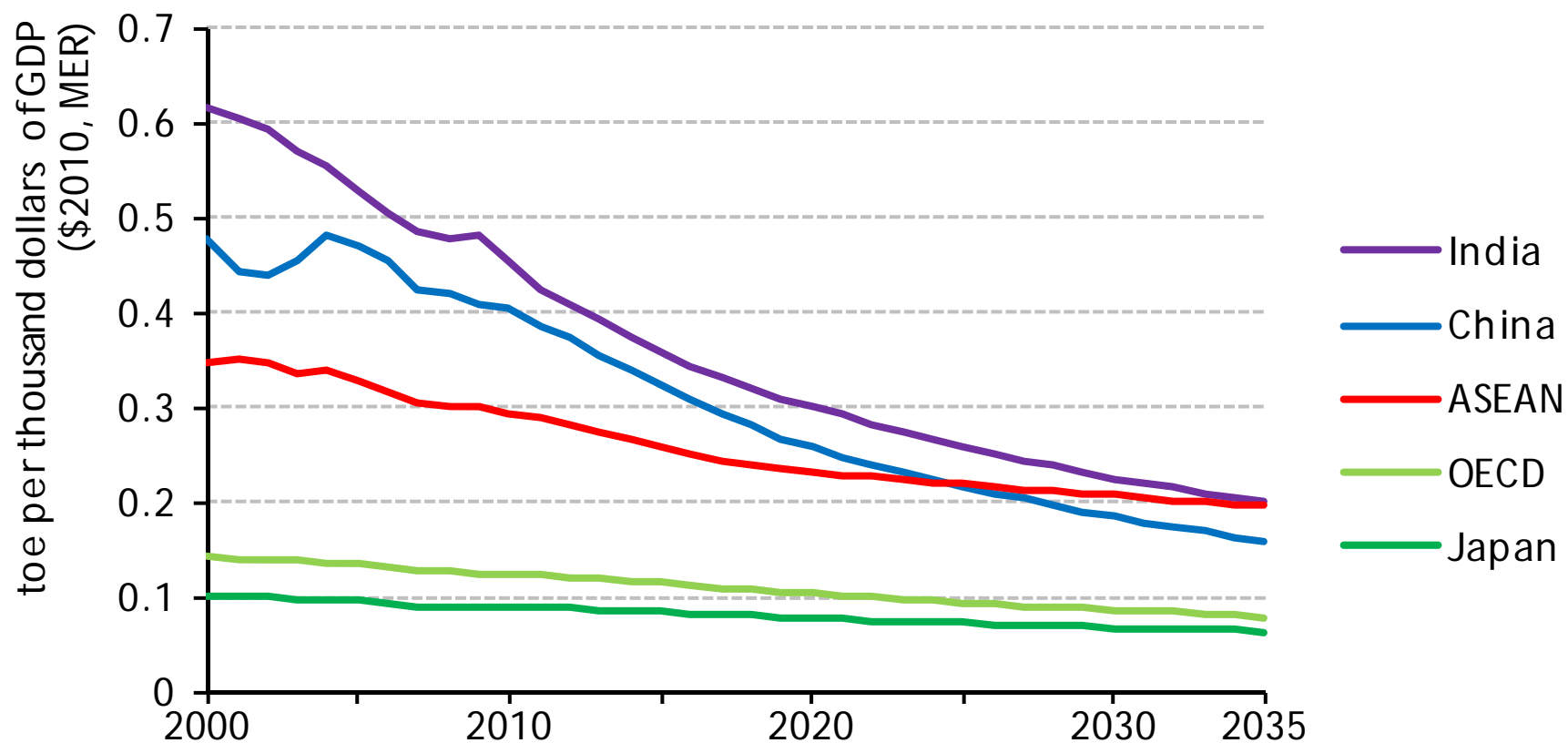


Without further action, by 2017 all CO₂ emissions permitted in the 450 Scenario will be “locked-in” by existing power plants, factories, buildings, etc

Significant potential remains to improve energy efficiency in Asia

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Projected energy intensity in the New Policies Scenario



The policies that are assumed to be introduced in the New Policies have a significant impact on the rate of decline in energy intensity throughout Asia

- **As the fastest growing region, policy making in Asia will be a key determinant of global energy trends**
- **The cost of oil imports & supply security will become growing strategic challenges**
- **Ongoing efforts needed to improve energy efficiency, and increase deployment of clean coal, renewables, nuclear, etc..**
- **As a leader in efficient & low carbon technologies, Japan has an opportunity to work with its neighbors to find win-win solutions**
- **Japan's response to Fukushima will provide lessons globally**
 - *Nuclear safety, energy efficiency measures, smart city recovery plans, etc*

***If we don't change direction soon,
we'll end up where we're heading***

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- **In a world full of uncertainty, one thing is sure:
rising incomes & population will push energy needs higher**
- **Oil supply diversity is diminishing, while new options
are opening up for natural gas**
- **Coal – the “forgotten fuel” – has underpinned growth, but its
future will be shaped by uptake of efficient power plants & CCS**
- **Any big shift away from nuclear power would increase import
bills, threaten energy security & make it harder to combat climate**
 - *regional/international collaboration on safety is now more crucial than
ever*
- **Despite steps in the right direction, the door to 2°C is closing**