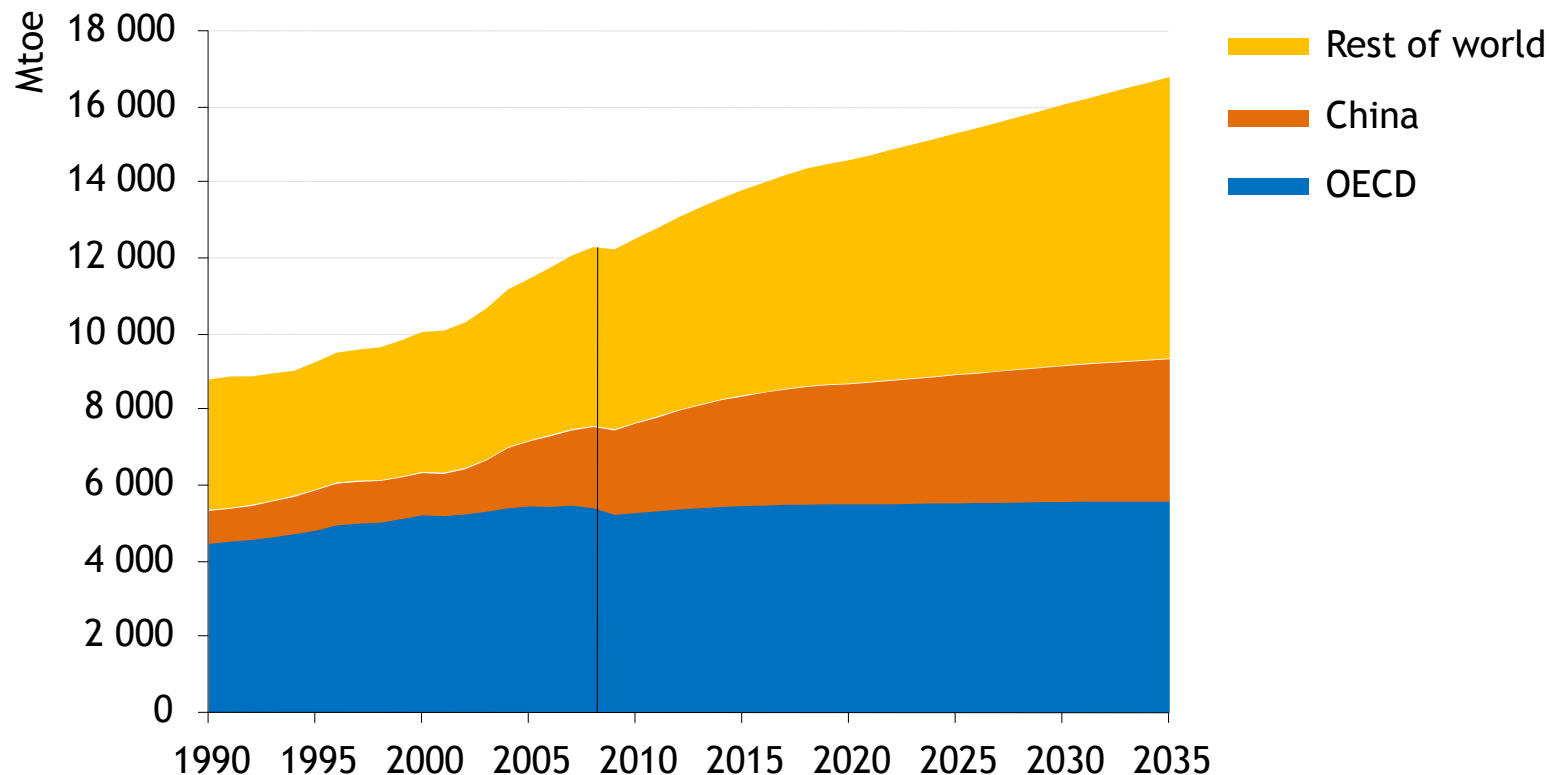




***World Energy Outlook 2010
and
Renewables***

Recent policy commitments, if implemented, would make a difference

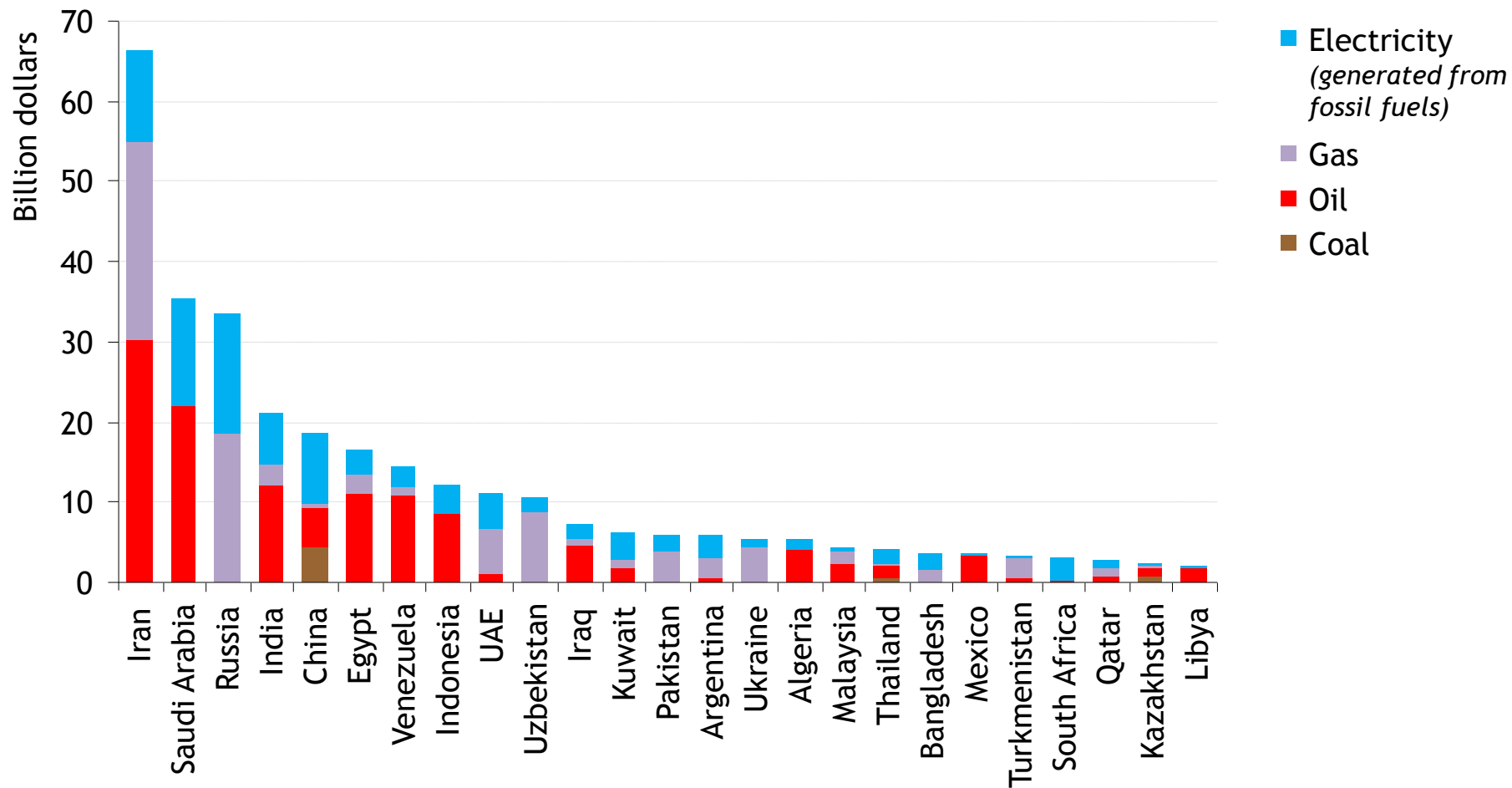
World primary energy demand by region in the New Policies Scenario



Global energy use grows by 36%, with non-OECD countries – led by China, where demand surges by 75% – accounting for almost all of the increase

Fossil-fuel subsidies are distorting price signals

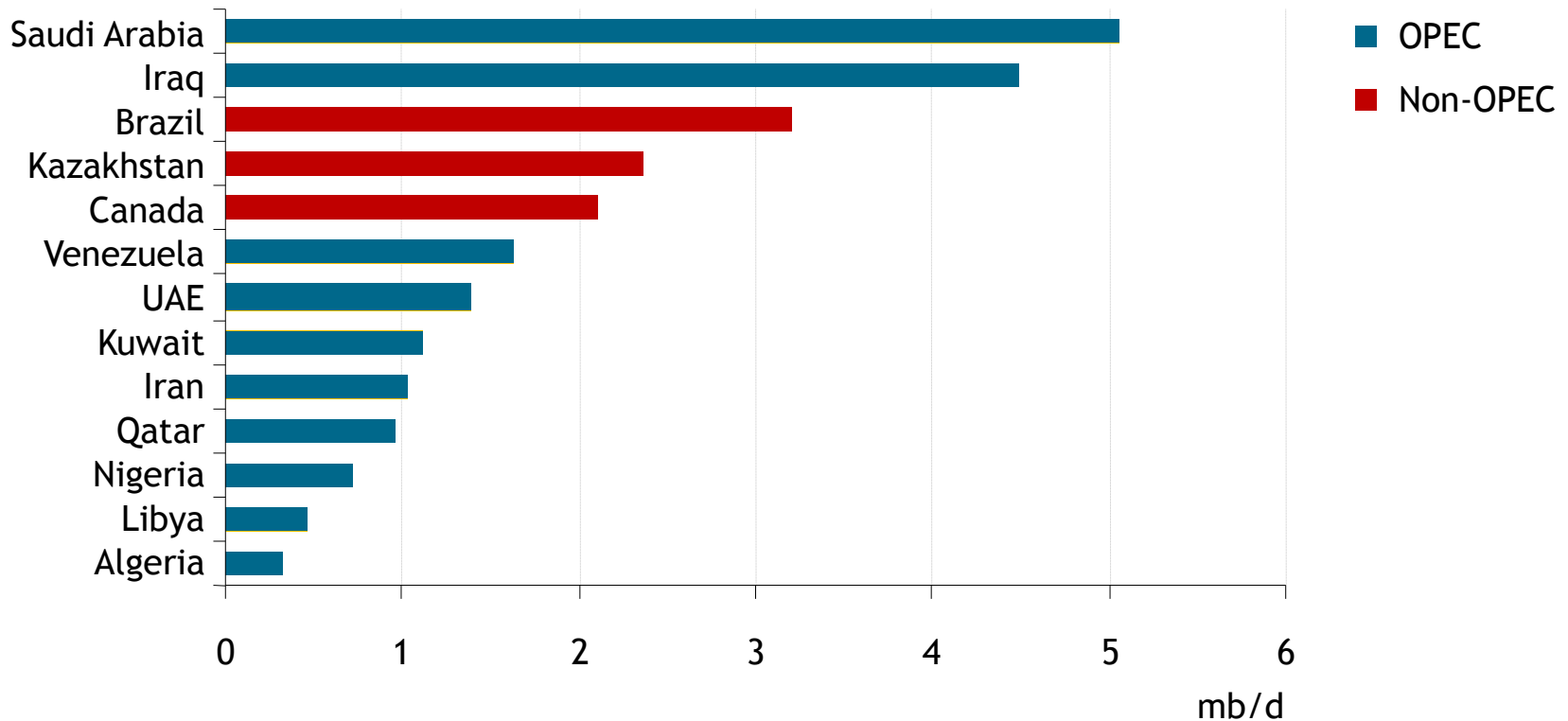
Economic value of fossil-fuel consumption subsidies by country, 2009



Fossil-fuel consumption subsidies amounted to \$312 billion in 2009, down from \$558 billion in 2008, with the bulk of the fall due to lower international prices

More oil from fewer producers

Incremental oil production by key country in the New Policies Scenario, 2009-2035



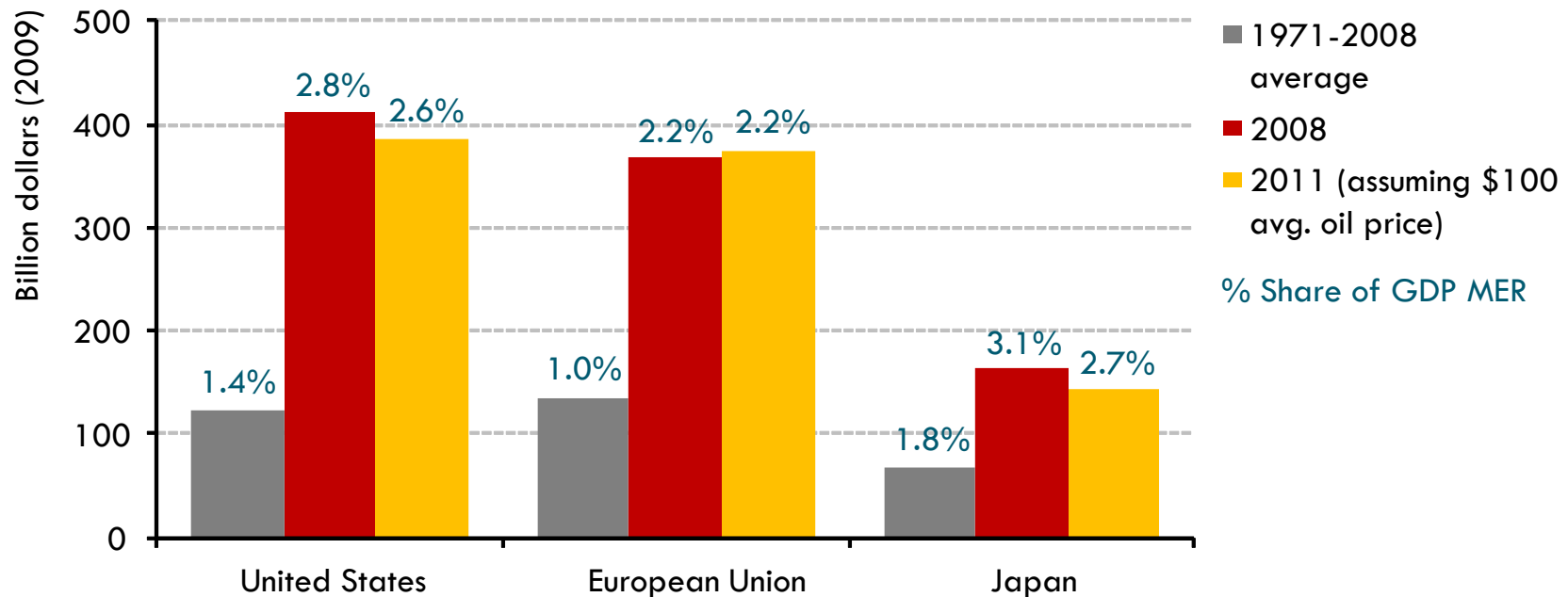
Production rises most in Saudi Arabia & Iraq, helping to push OPEC's market share from 41% today to 52% by 2035, a level last seen prior to the first oil shock of 1973-1974

A golden age for gas?

- Gas is set to play a key role in meeting the world's energy needs
 - > *demand rises by 44% to 2035, led by China & Middle East*
- Unconventional gas accounts for 35% of the increase in global supply to 2035, with new non-US producers emerging
- Asian LNG demand recovered quickly from economic crisis and set to be a key driver
- Growing pressure on “strict” oil-price indexation, notably in Europe
- Stronger demand for gas, can stand in the way of growth in new renewable, coal and nuclear power capacity

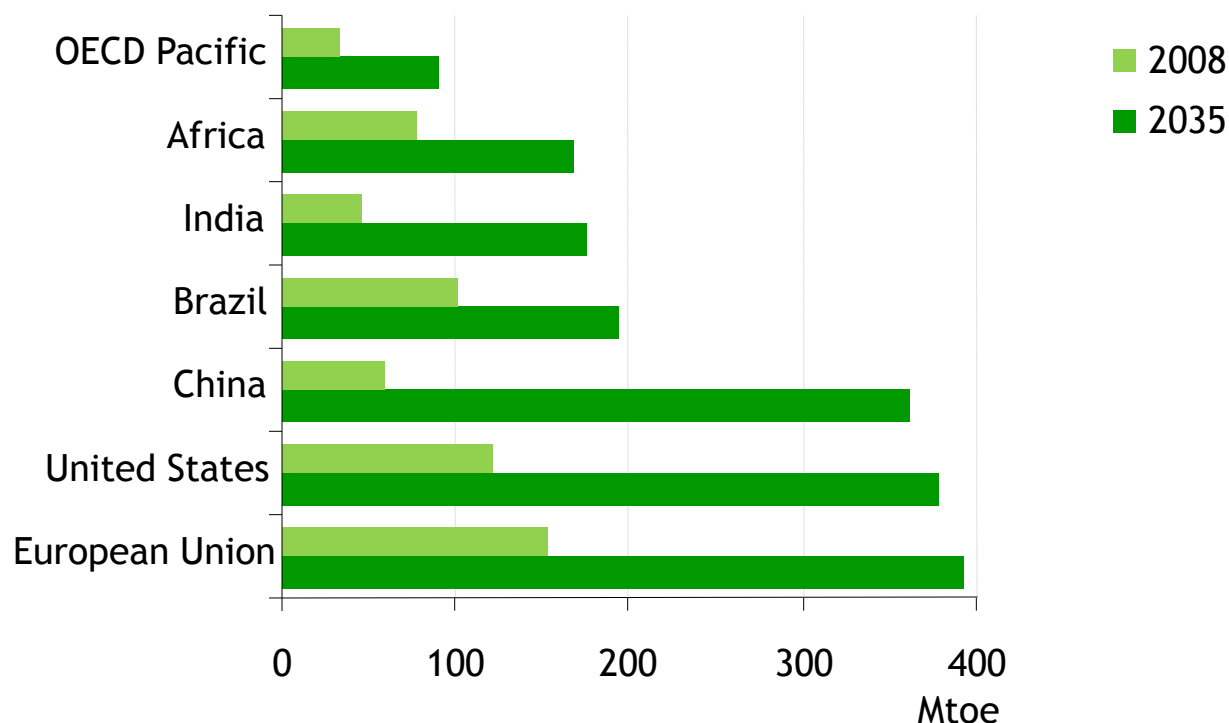
The implications of rising oil prices on the economy

Annual expenditure on net imports of oil



High oil prices are a key risk to derail the fragile economic recovery among developed nations – both consumers and producers suffer under such a scenario

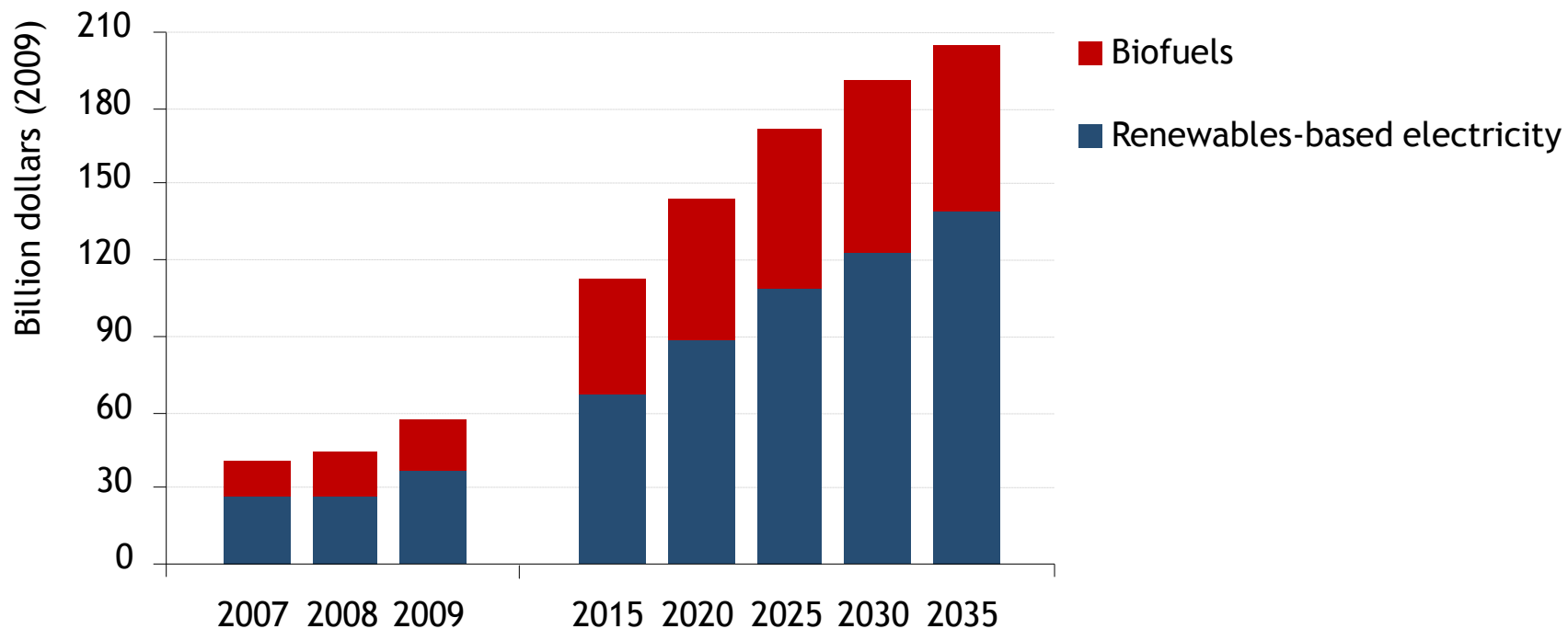
Renewable primary energy demand in the New Policies Scenario



The use of renewable energy triples between 2008 & 2035, driven by the power sector where their share in electricity supply rises from 19% in 2008 to 32% in 2035

....but only if there is enough government support

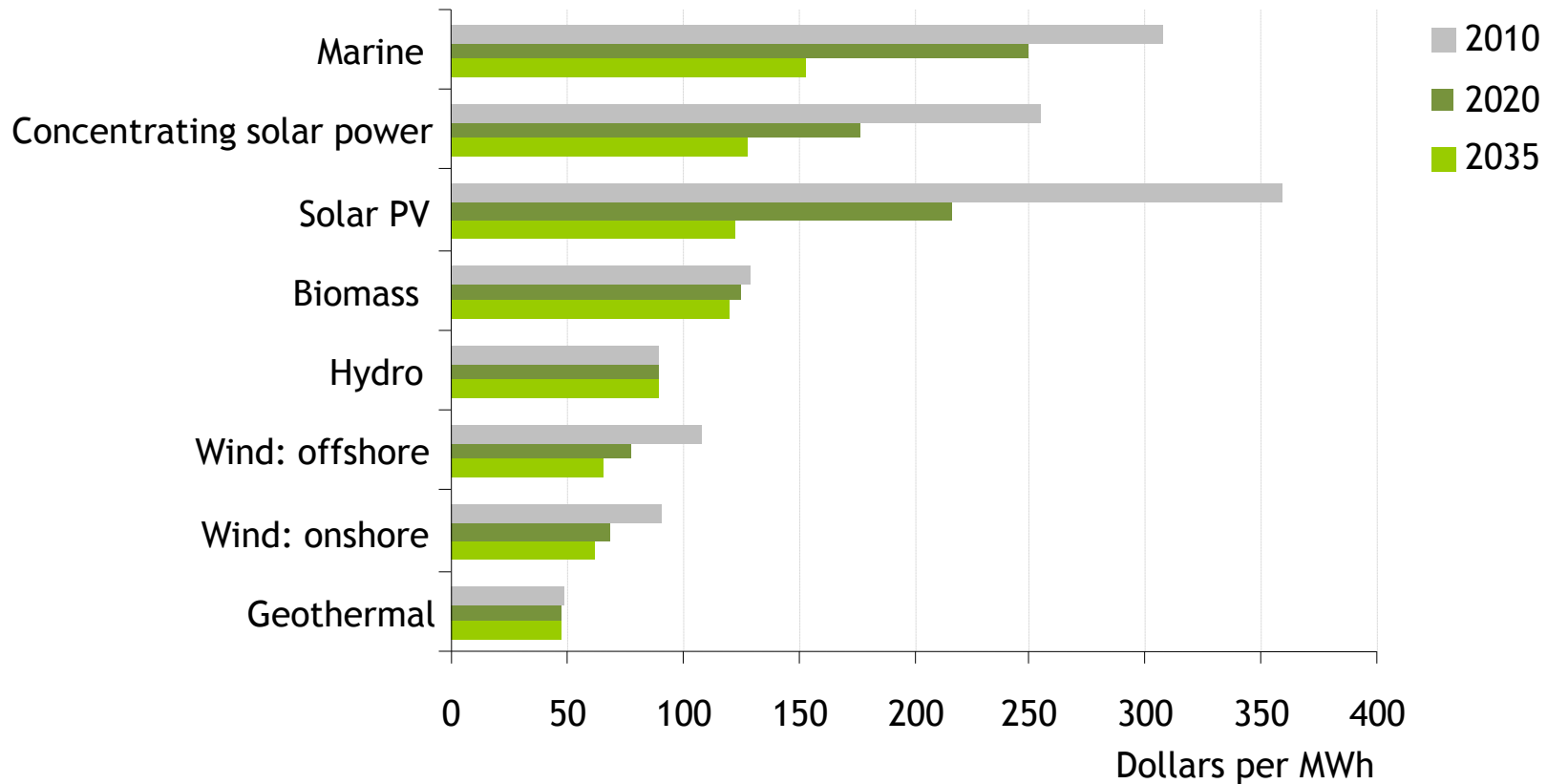
Annual global support for renewables in the New Policies Scenario



Government support remains the key driver – rising from \$57 billion in 2009 to \$205 billion in 2035 – but higher fossil-fuel prices & declining investment costs also spur growth

The cost of renewables continues to fall

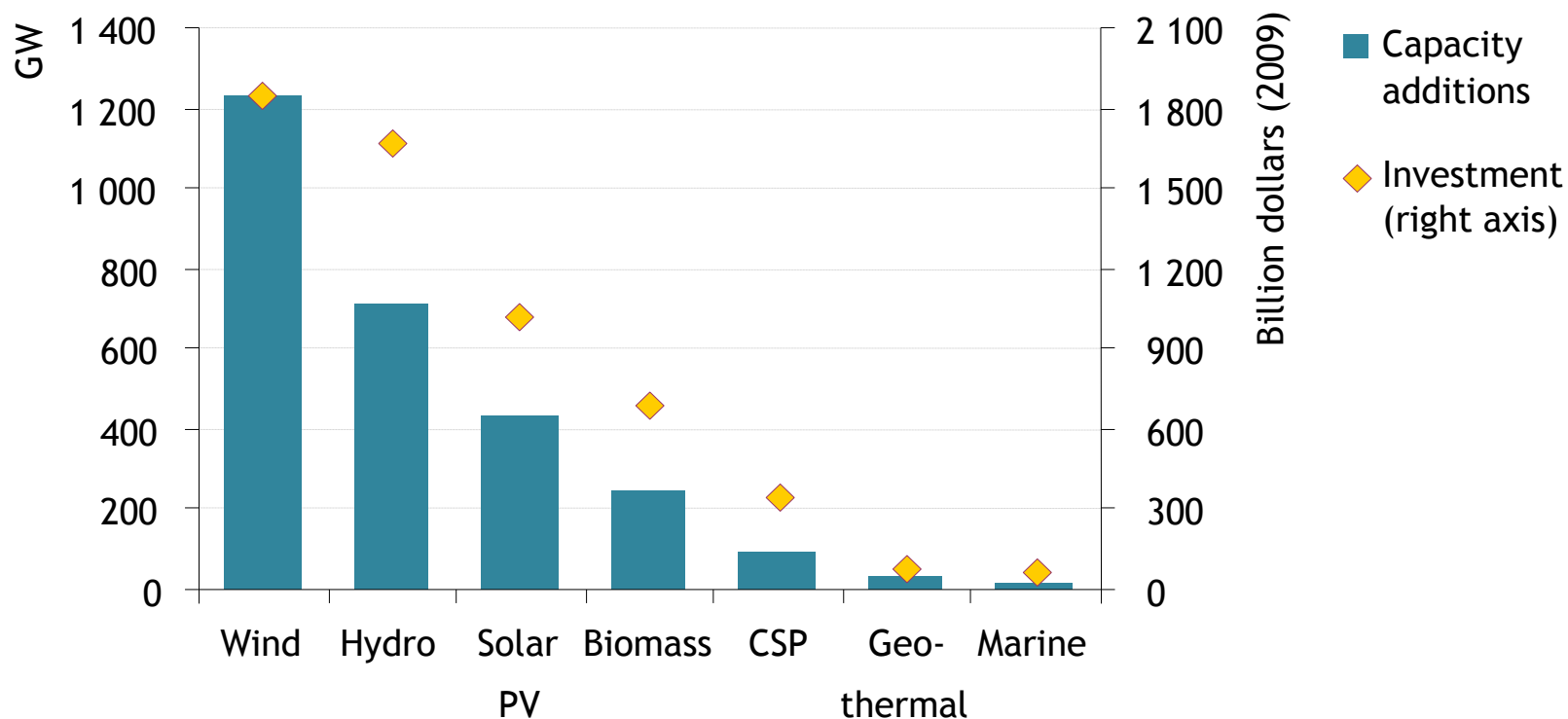
Electricity generating costs of renewables in the New Policies Scenario



On average, the cost of onshore wind power is cut by a third between 2010 and 2035; the cost of PV is cut by two-thirds

How much investment goes into renewables?

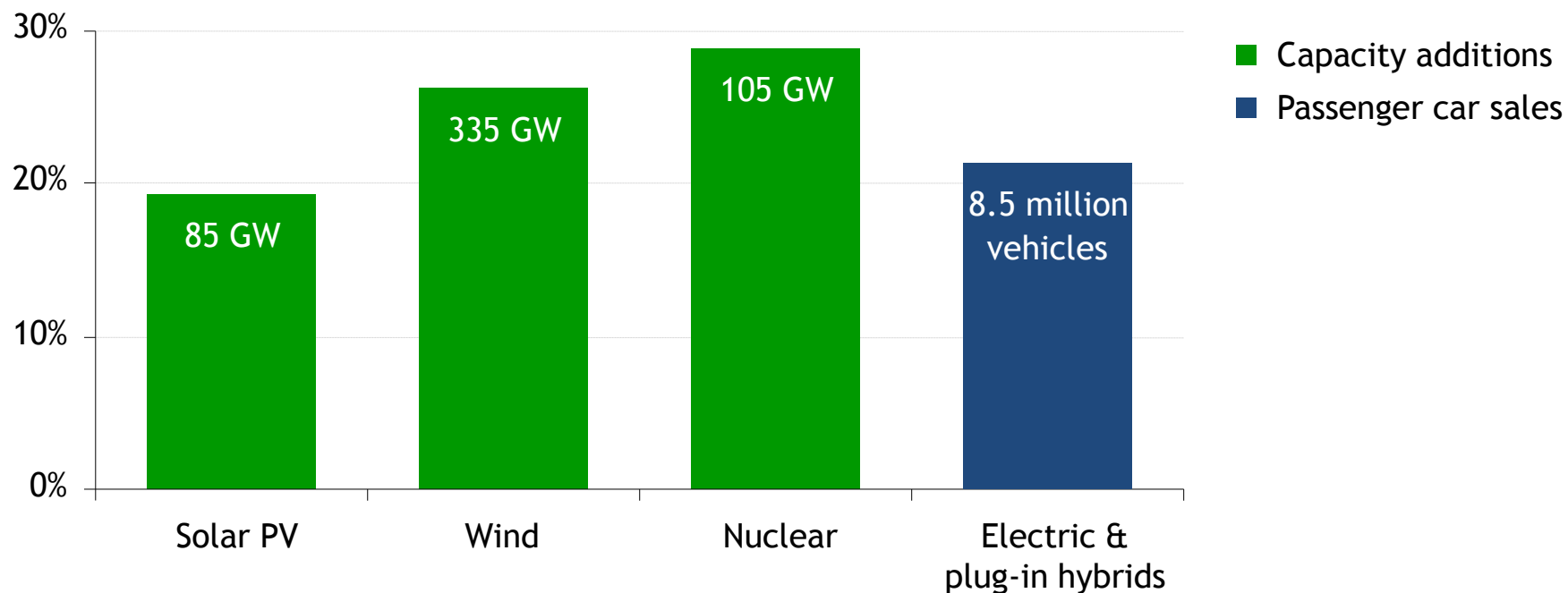
Capacity additions and investment in renewables in the New Policies Scenario, 2010-2035



The \$5.7 trillion that is invested worldwide in renewables-based generation in the New Policies Scenario would deliver 2 800 GW of renewables capacity in 2010-2035

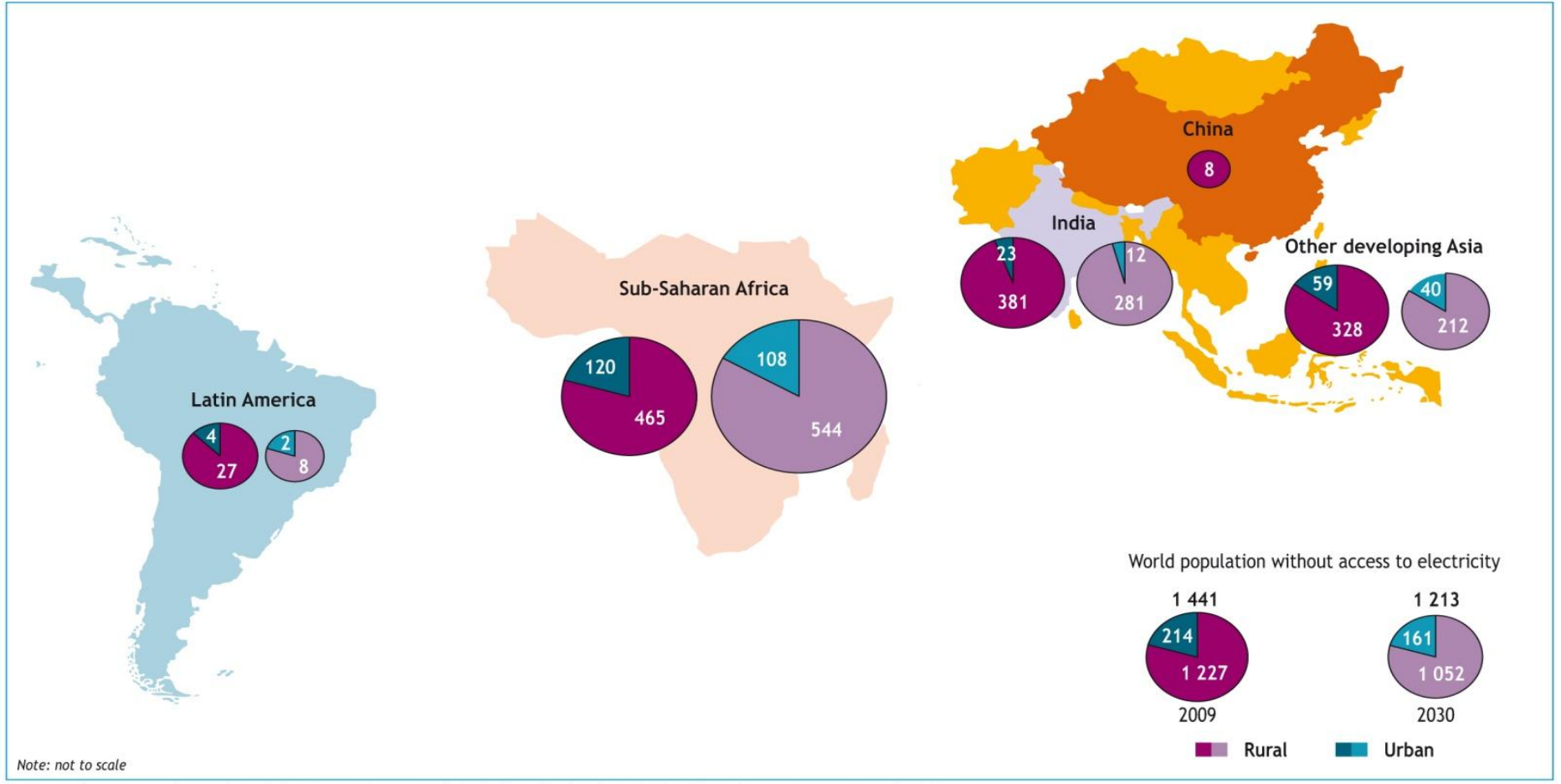
China becomes the market leader in low-carbon technologies

China's share of cumulative global additions to 2035 for selected technologies



Given the sheer scale of China's market, its push to expand the role of low-carbon energy technologies is poised to play a key role in driving down costs, to the benefit of all countries

Number of people without access to electricity (million)



The boundaries and names shown and the designations used on maps included in this publication do not imply official endorsement or acceptance by the IEA.

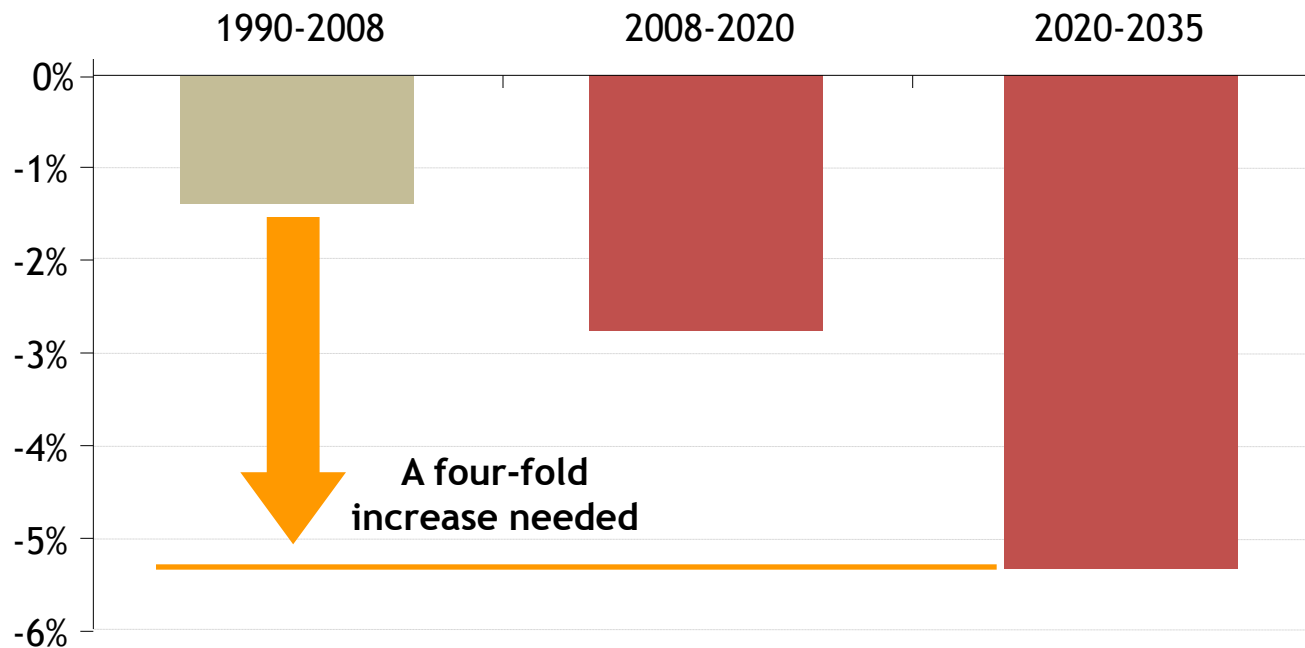
1.4 billion people lack access to electricity – achieving universal modern energy access requires investment of only \$36 billion per year over the next two decades

The 450 Scenario: *a roadmap from 3.5°C to 2°C*

- The 450 Scenario assumes vigorous implementation of Copenhagen Accord/ Cancun Agreement pledges to 2020 & much stronger action thereafter
- Cancun Agreement commits countries to reducing emissions - a step forward from Copenhagen – but much deeper cuts are needed in 2020 to meet goal of 2°C increase
- Countries emission reductions pledges result in an uncertainty of 3.9 Gt over the level of abatement pledged to 2020
- In the 450 Scenario energy-related CO₂ emissions peak before 2020

Achieving the 2°C goal will require rapid decarbonisation of global energy

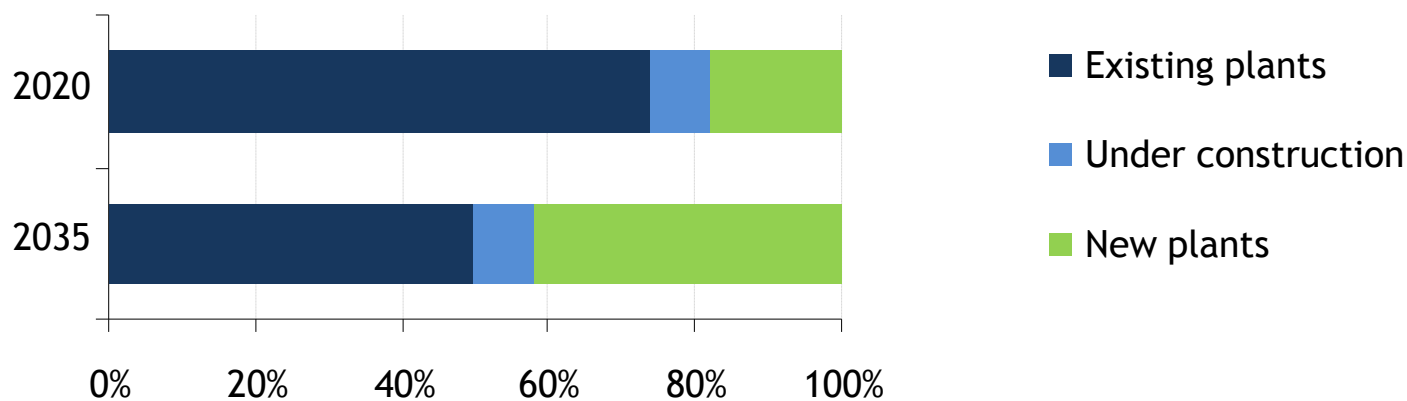
Average annual change in CO₂ intensity in the 450 scenario



Carbon intensity would have to fall at twice the rate of 1990-2008 in the period 2008-2020 & almost four times faster in 2020-2035

The effect of “lock-in” in global power generation

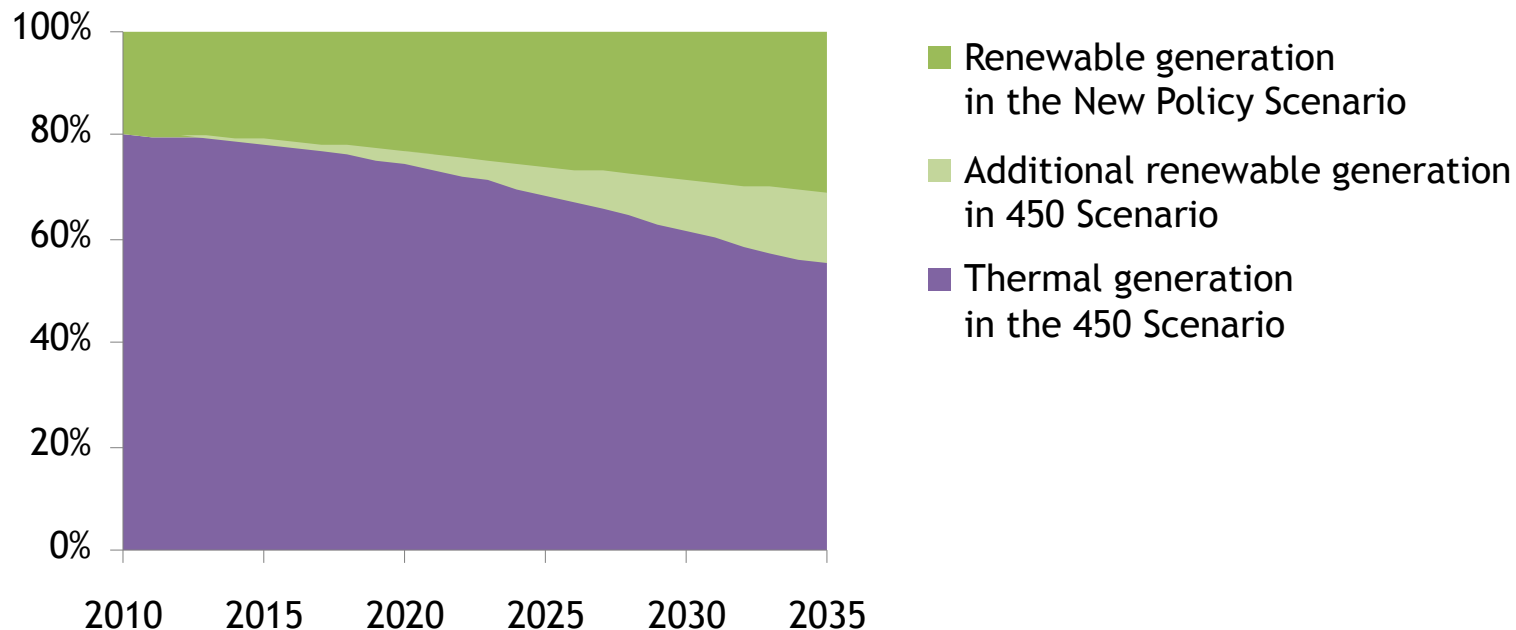
Percentage of global CO₂ emissions from fossil-fuel fired power plants in 2020 and 2035 in the New Policies Scenario



More than 80% of the 2020 global power generation emissions are “locked-in” due to plants already existing or under construction and around 60% in 2035

A fundamental change is needed in power generation

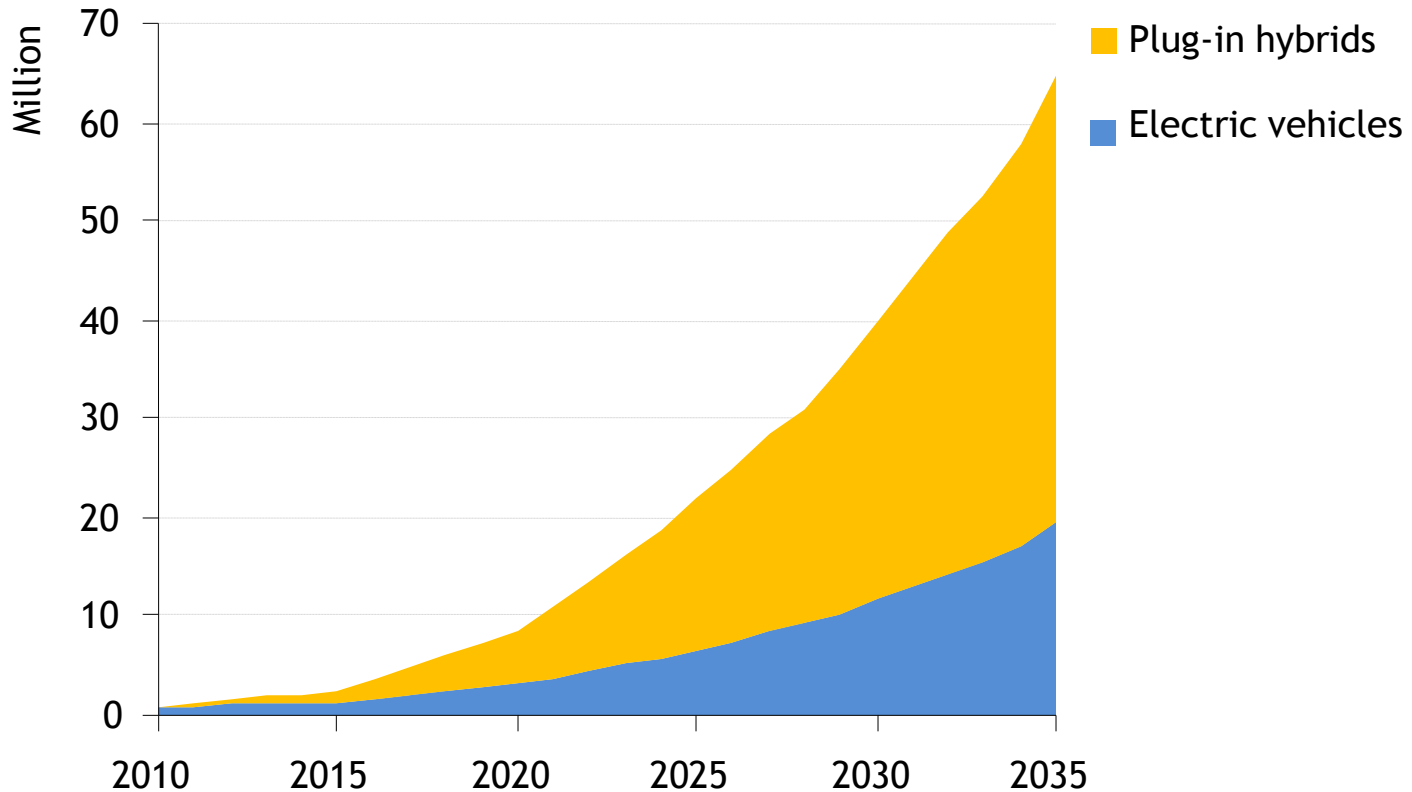
Share of world electricity generation by type and scenario



Renewable technologies account for 45% of global power generation by 2035 in the 450 Scenario, a more than three-fold increase on today

... and also in transport

Sales of plug-in hybrid and electric vehicles in the 450 Scenario



Plug-in hybrids & electric vehicles reach 39% of new sales by 2035, making a big contribution to emissions abatement – China becomes the top advanced car manufacturer

- Recently announced policies can make a difference - *but they fall well short of what is needed for a secure & sustainable energy future*
- Most renewables are not yet competitive – *costs are falling but support will need to continue to 2035*
- Most renewable technologies are capital-intensive – *access to finance will be crucial, particularly in developing countries*
- A global gas glut could lower gas and electricity prices – *the gas market's evolution can affect the prospects of renewables*
- A global agreement on GHG emissions would provide a great boost for renewables – *carbon markets are an important component of support*