



World Energy Outlook 2016

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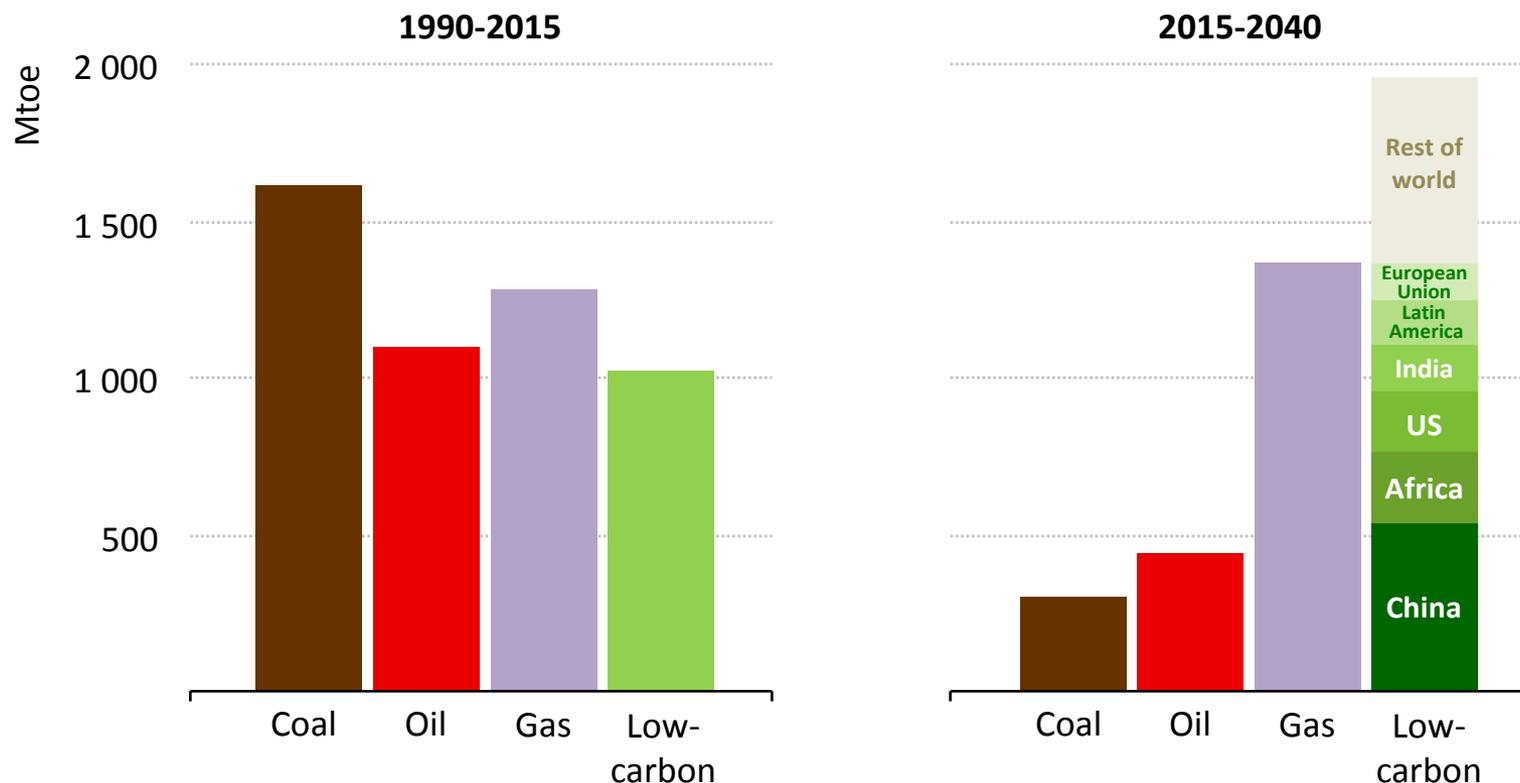
■ Key points of orientation:

- *Middle East share of oil production at highest level in 40yrs*
- *Transformation in gas markets deepening with a 30% rise in LNG*
- *Additions of renewable capacity in the power sector higher in 2015 than coal, gas, oil and nuclear combined*
- *Energy sector in the spotlight as the Paris Agreement enters into force*
- *Billions remain without basic energy services*

■ **There is no single story about the future of global energy; policies will determine where we go from here**

A new 'fuel' in pole position

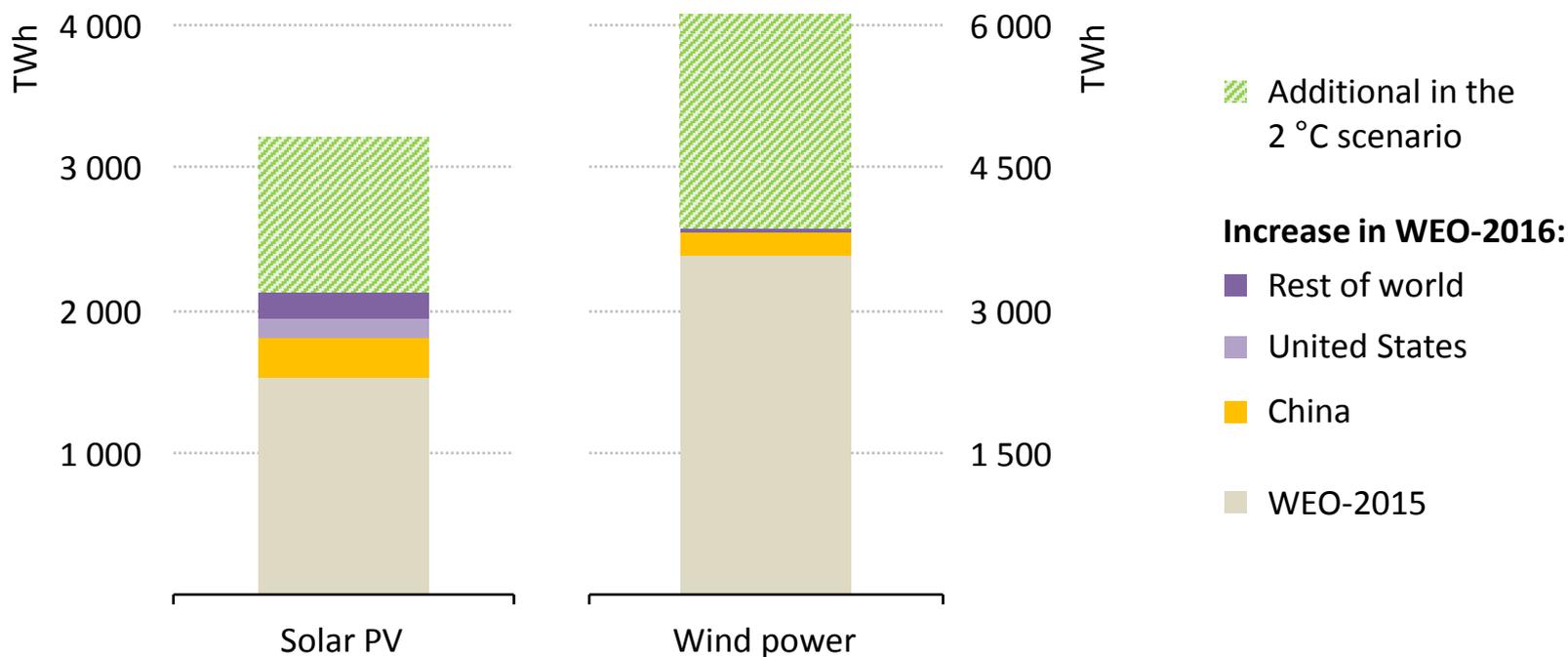
Change in total primary energy demand



Low-carbon fuels & technologies, mostly renewables, supply nearly half of the increase in energy demand to 2040

Greater policy support boosts prospects for solar PV and wind

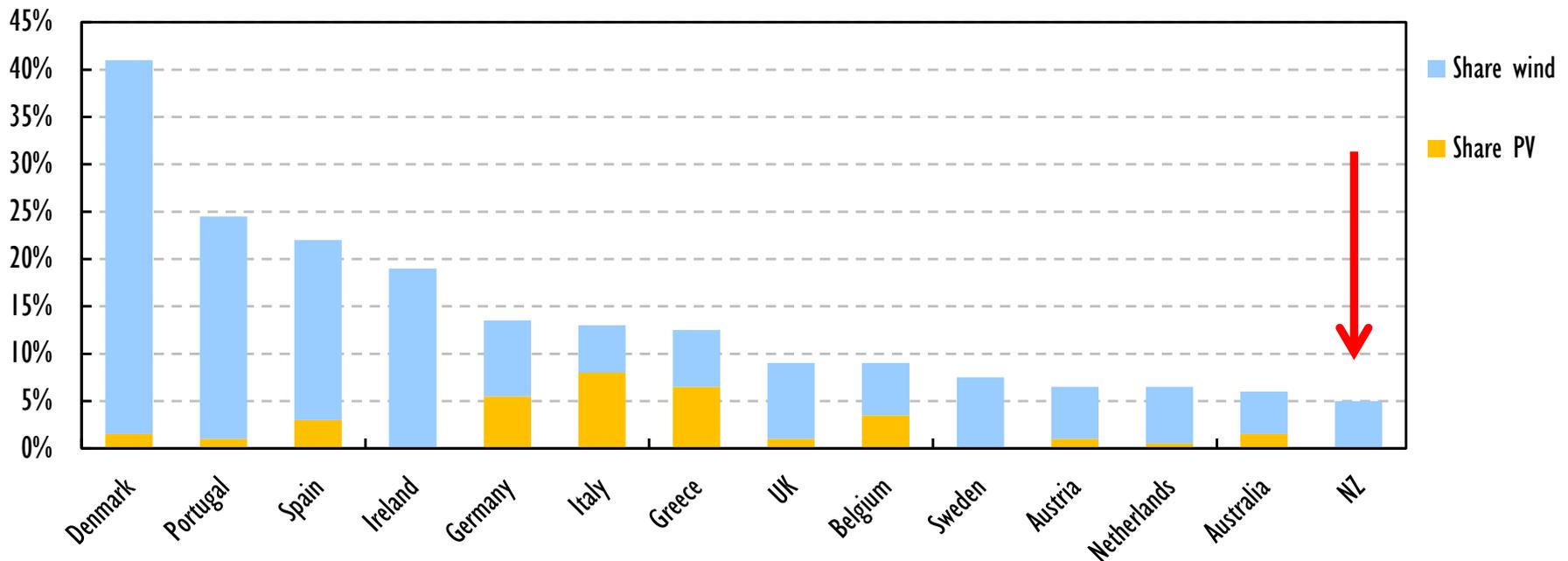
Solar PV and wind generation, 2040



Stronger policies on solar PV and wind help renewables make up 37% of electricity generation in 2040 in our main scenario – & nearly 60% in the 2 °C scenario

System integration of renewables

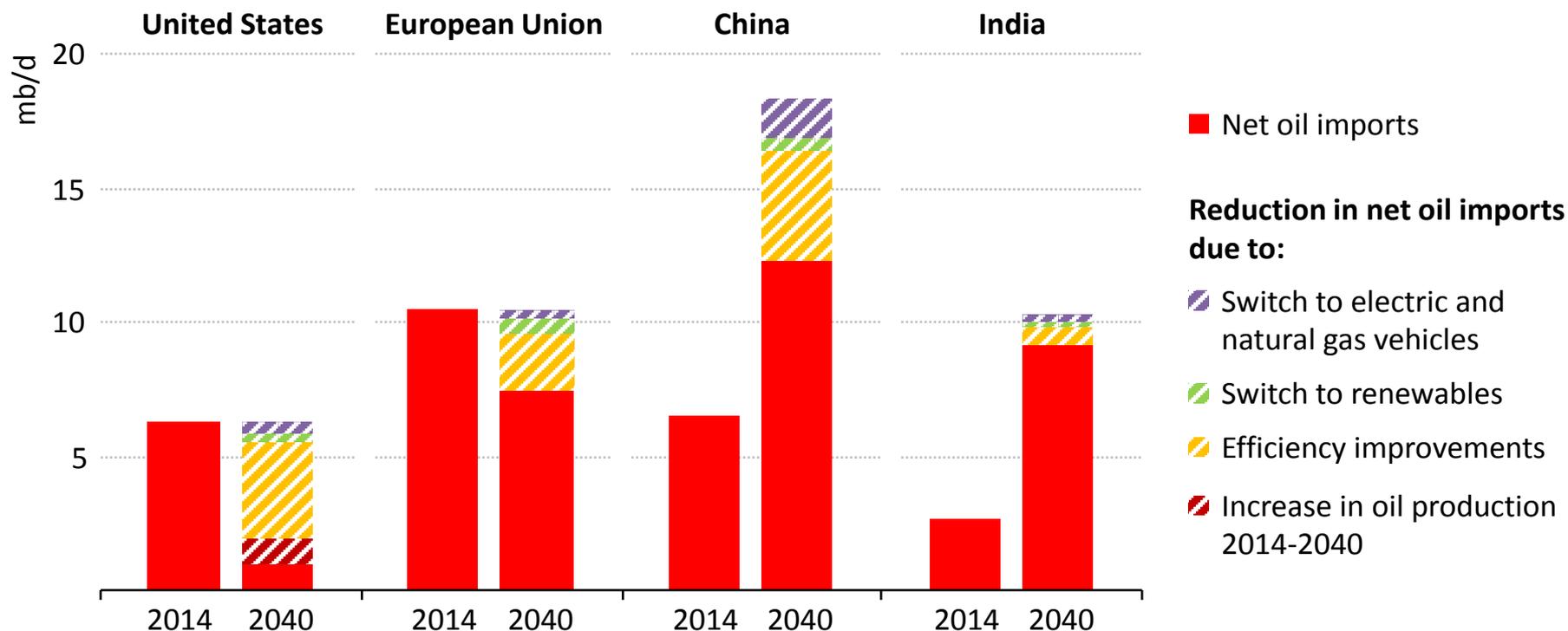
High shares of variable renewables require an energy system focus



With declining cost of variable renewables, the growth is set to continue. However, system size and geography can make integration challenging.

A suite of tools to address energy security

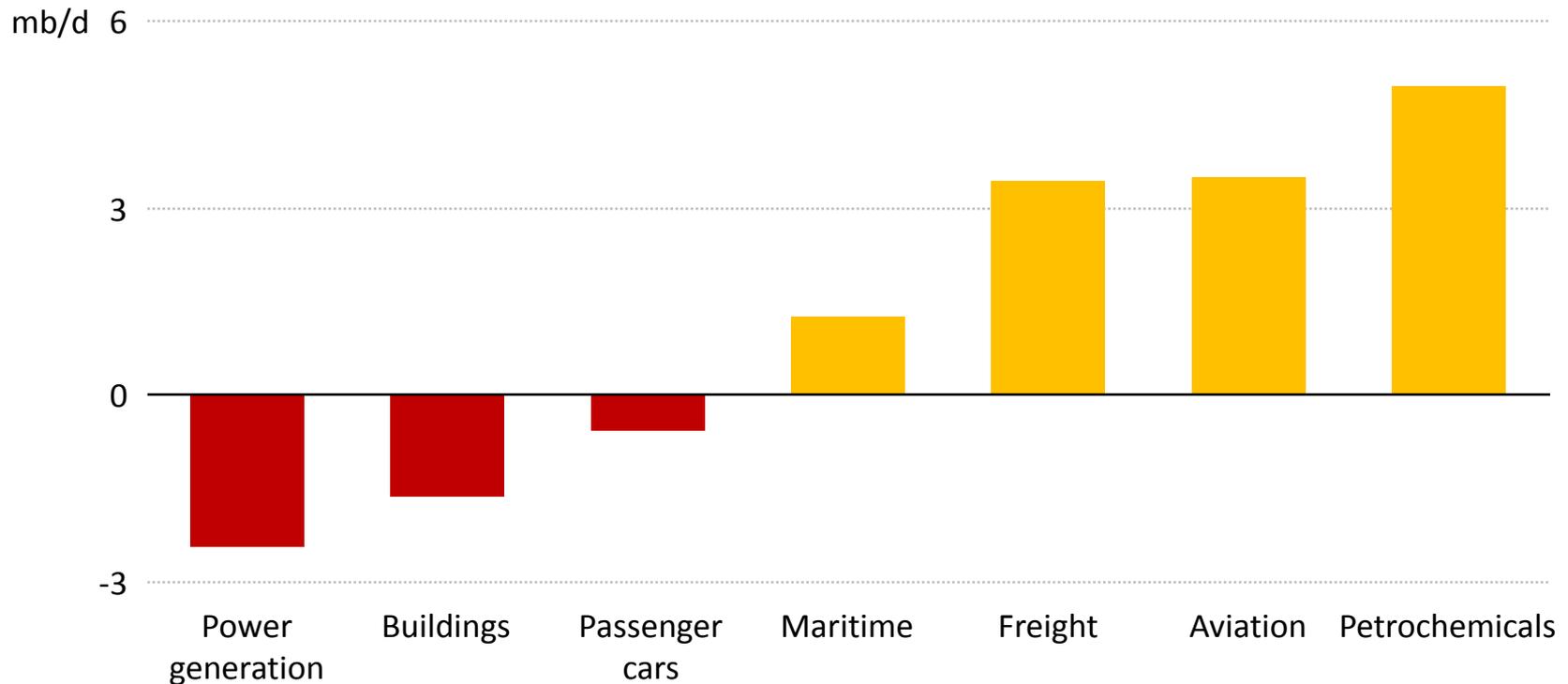
Net oil imports



The energy transition provides instruments to address traditional energy security concerns, while shifting attention to electricity supply

No peak yet in sight, but a slowdown in growth for oil demand

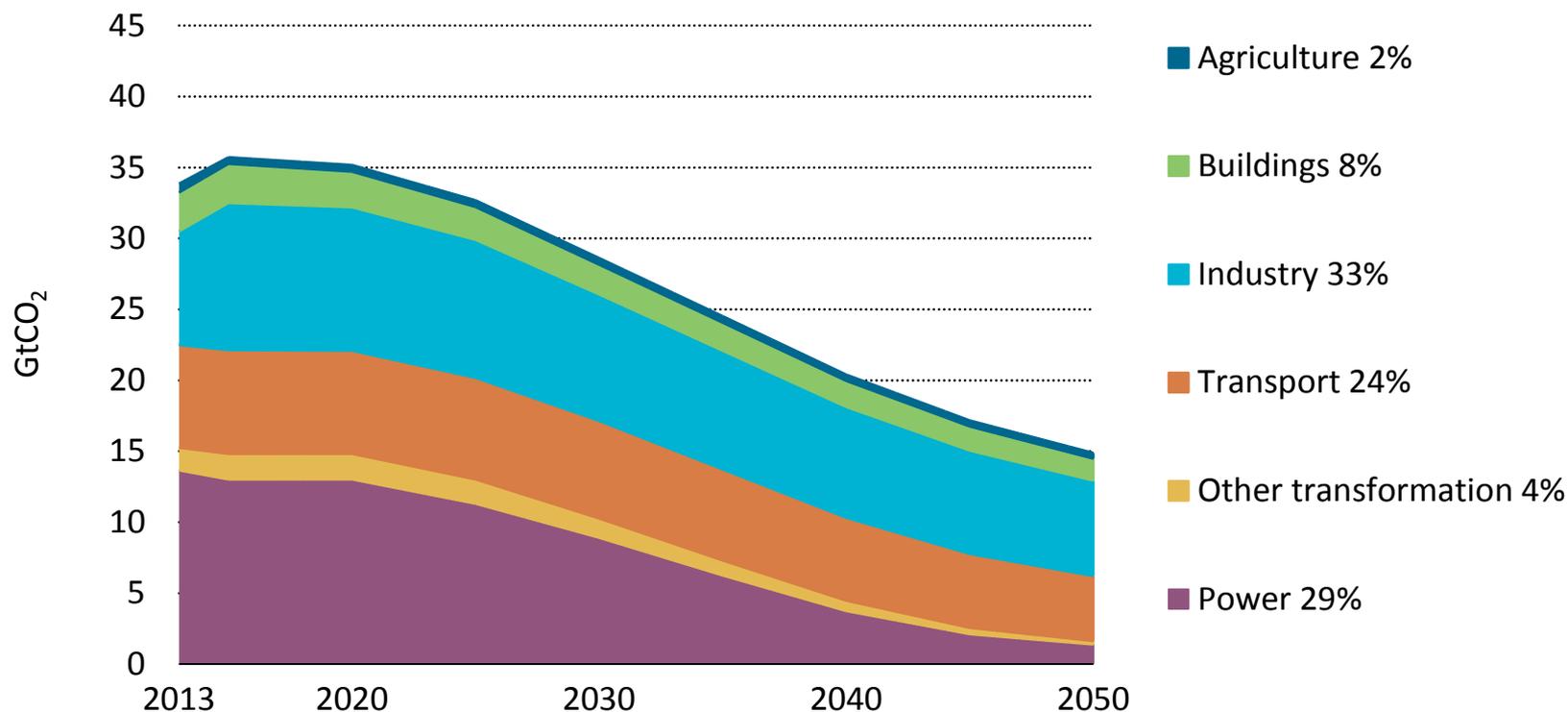
Change in oil demand by sector, 2015-2040



The global car fleet doubles, but efficiency gains, biofuels & electric cars reduce oil demand for passenger cars; growth elsewhere pushes total demand higher

The next frontier of decarbonisation

Energy- and process-related CO₂ emissions by sector in the 2DS

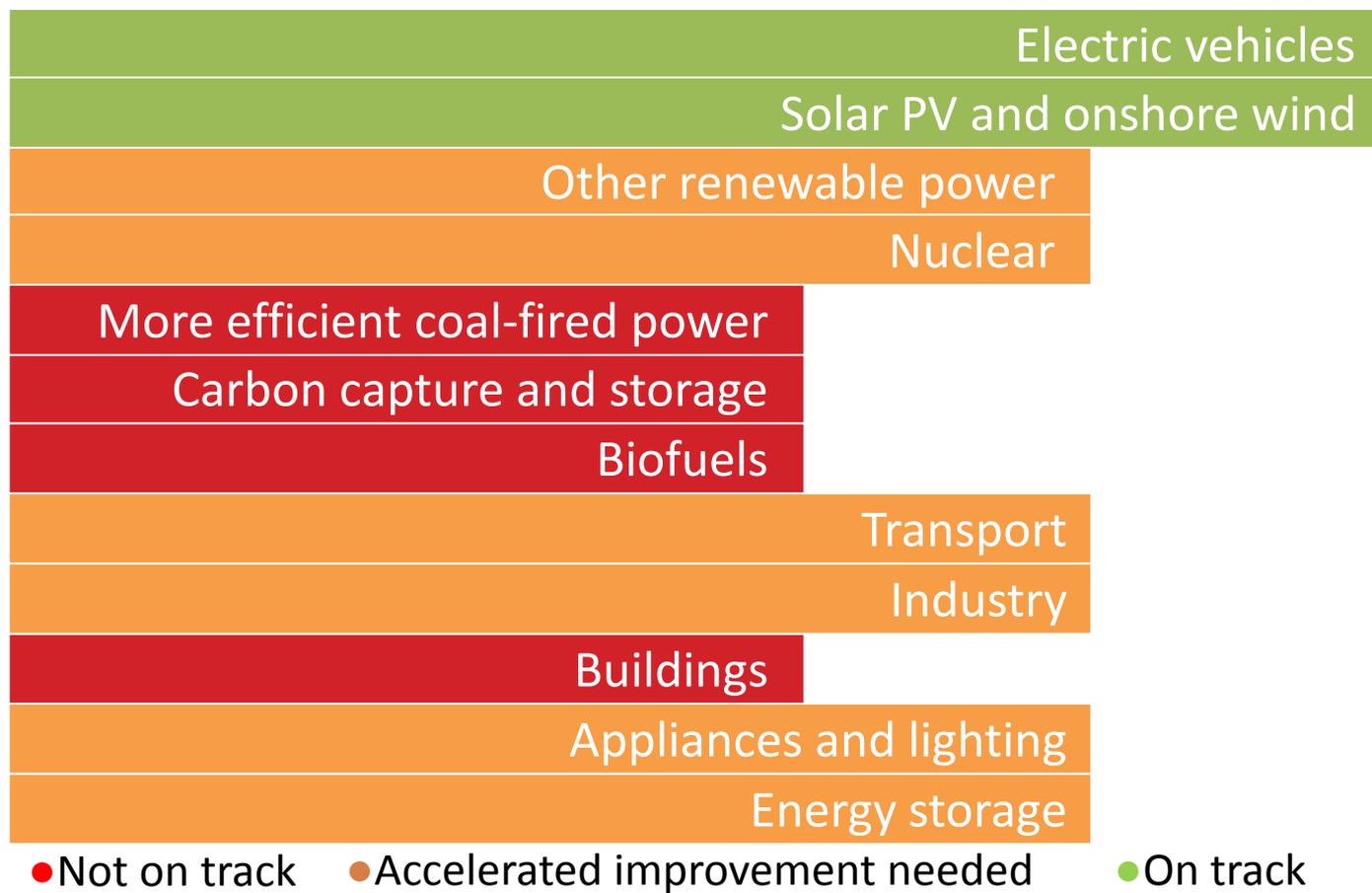


Source: IEA, Energy Technology Perspectives, 2016

Industry and transport account for 75% of the remaining emissions in the 2DS in 2050.

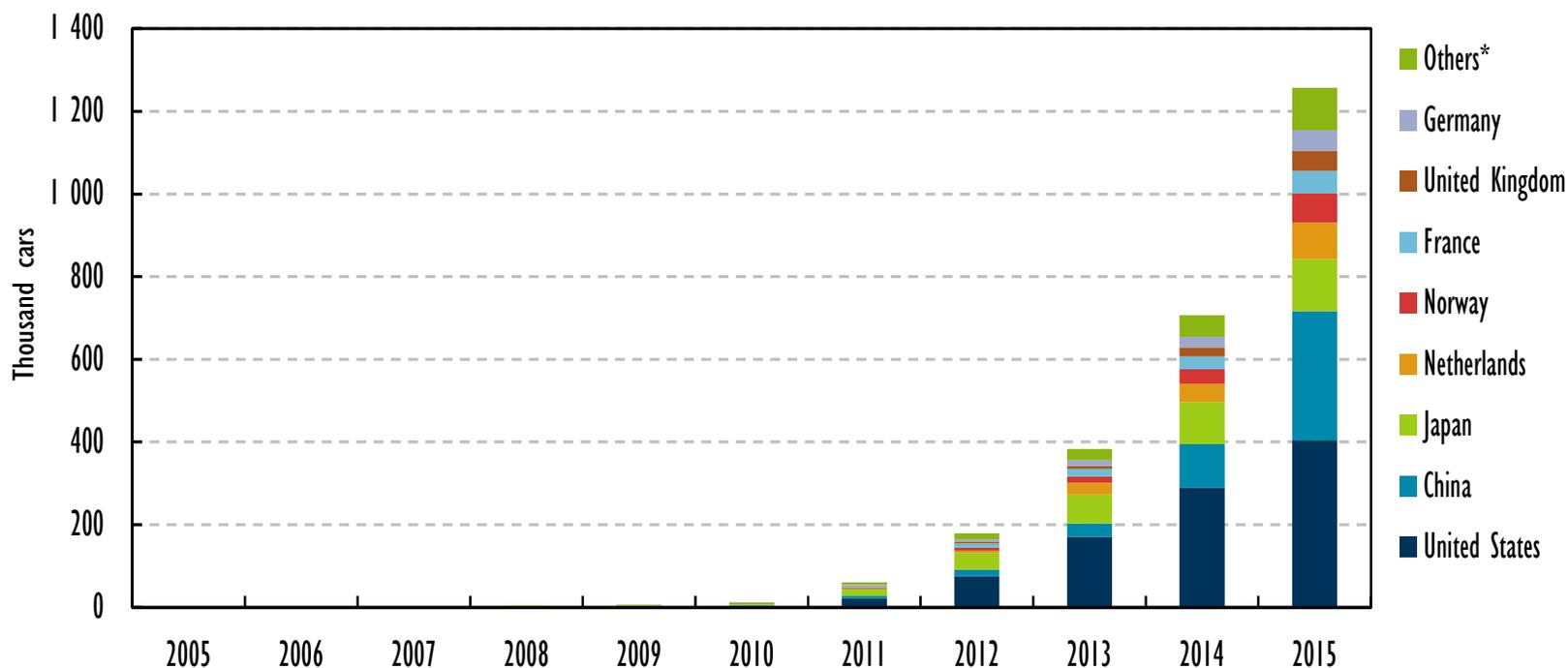
Progress in clean energy needs to accelerate

Technology Status today against 2DS targets



***Clean energy deployment is still behind what is required to meet the 2°C goal.
Progress on EVs, solar PV, and wind is promising.***

Electric vehicles become a reality globally



Source: IEA, Global EV Outlook, 2016

International best practise shows a feebate and fuel and vehicle taxation are effective drivers of EV roll-out.



- **Energy security remains a major concern but a range of tools available to strengthen security**
- **Potential vulnerabilities are growing with increasing volatility in commodity markets**
- **The next chapter in the rise of renewables requires policies to push their role in heat & transport & changes in power market design**
- **The Paris Agreement is a framework; its impact on energy depends on how its goals are translated into real government policy actions**
- **Digital technologies & electrification are opening up new challenges & opportunities across the energy system**