

World Energy Outlook 2018

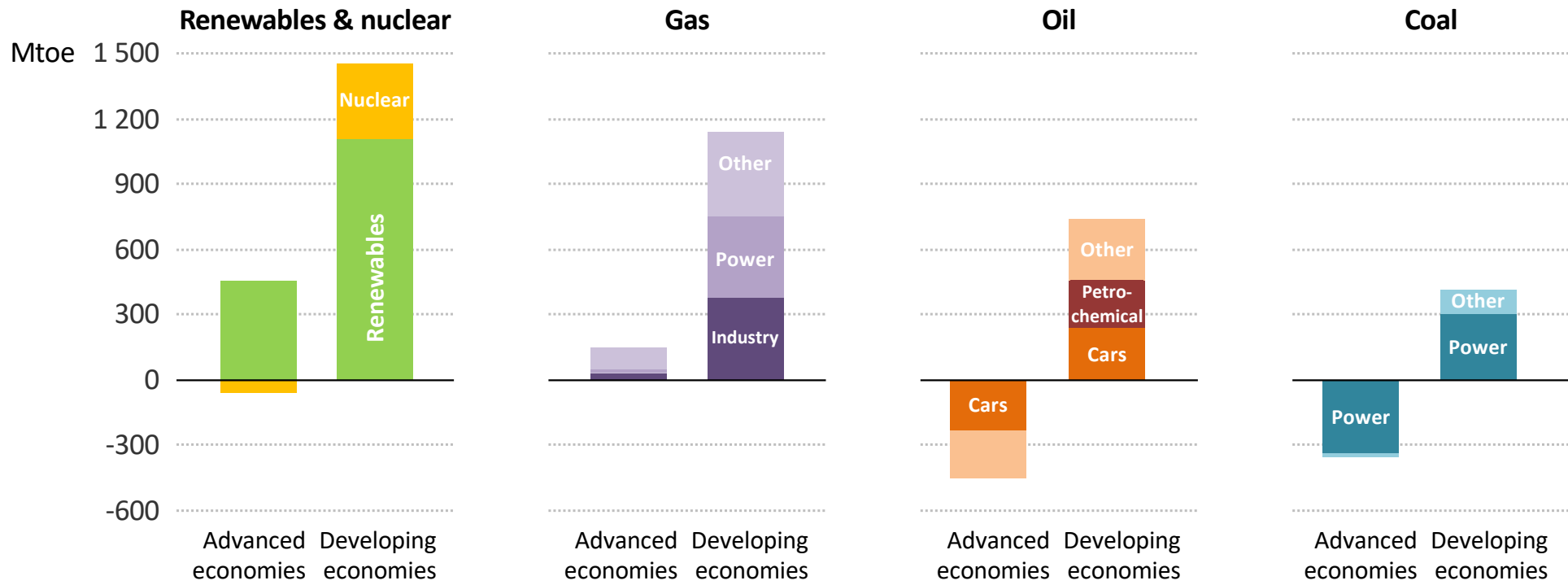


9th IEA-IEF-OPEC Symposium
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27 February 2019

Fuelling the demand for energy

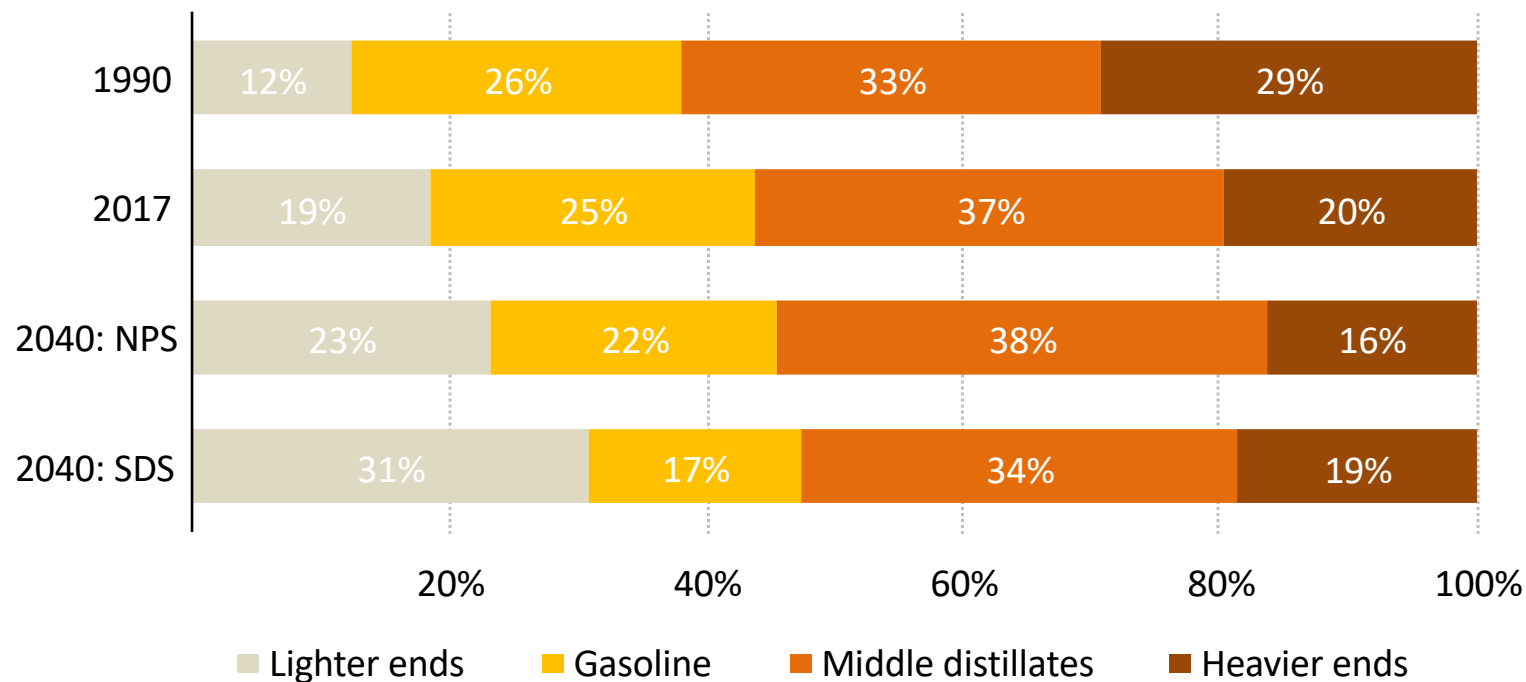
Change in global energy demand, 2017-2040



The increase in demand would be twice as large without continued improvements in energy efficiency, a powerful tool to address energy security & sustainability concerns

Shifting product demand towards lighter products

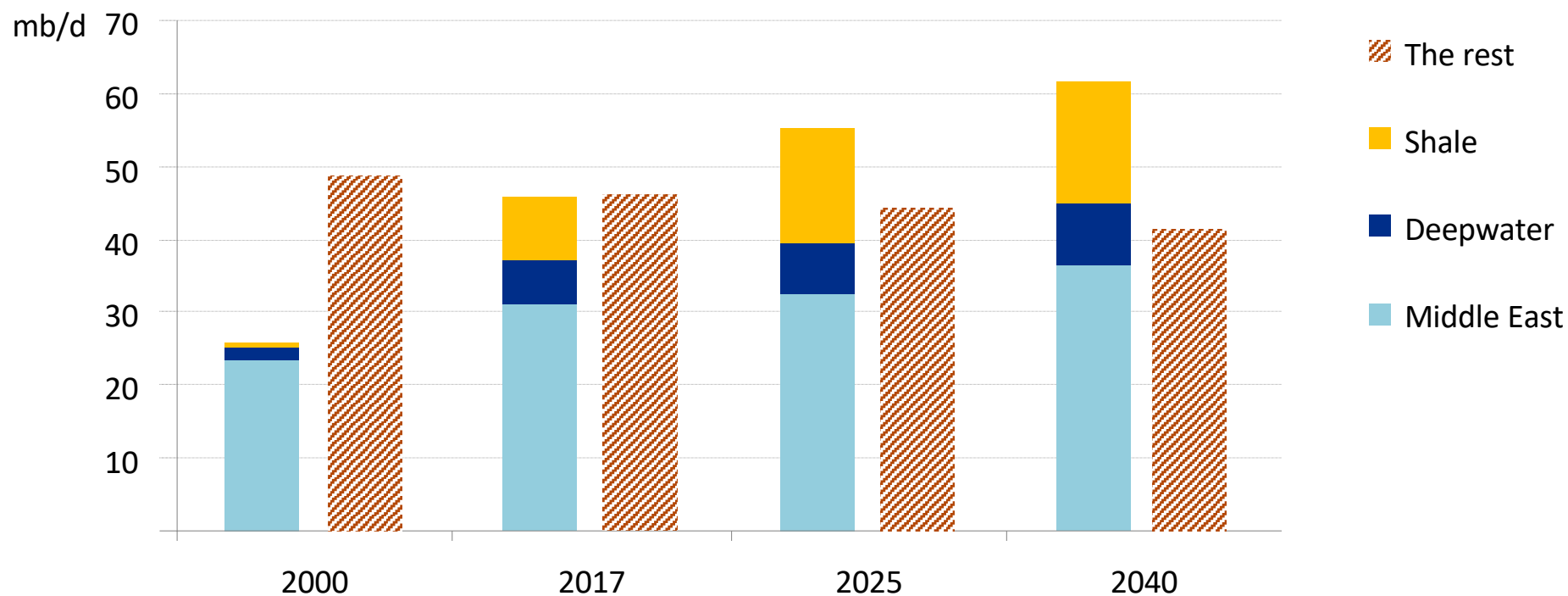
Change in the composition of global oil product demand



The past challenge for refiners has been reducing the “bottom of the barrel”, but the future challenge comes from increasing yields of the “top of the barrel” products

Supply growth relies on shale, deepwater & the Middle East

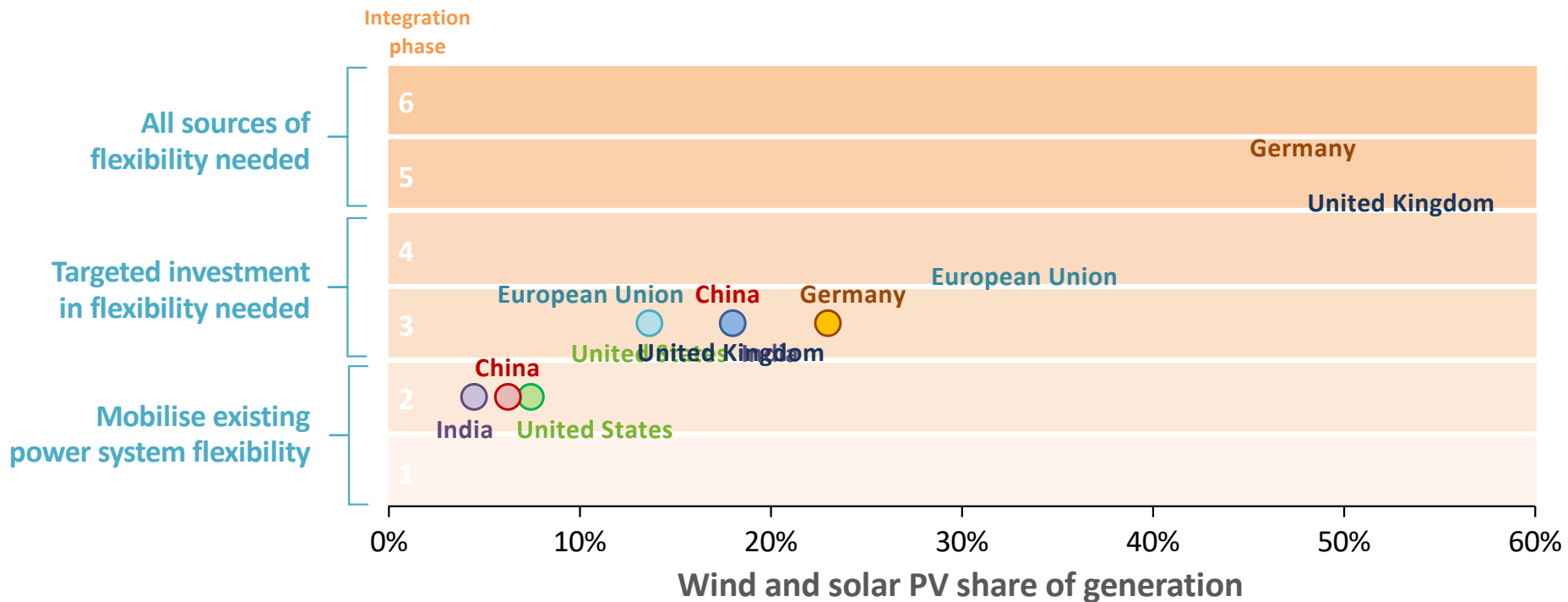
Composition of global oil production



Investment & growth on the supply side concentrated in a handful of areas: US shale dominates the near term, but the Middle East & deepwater production play vital roles

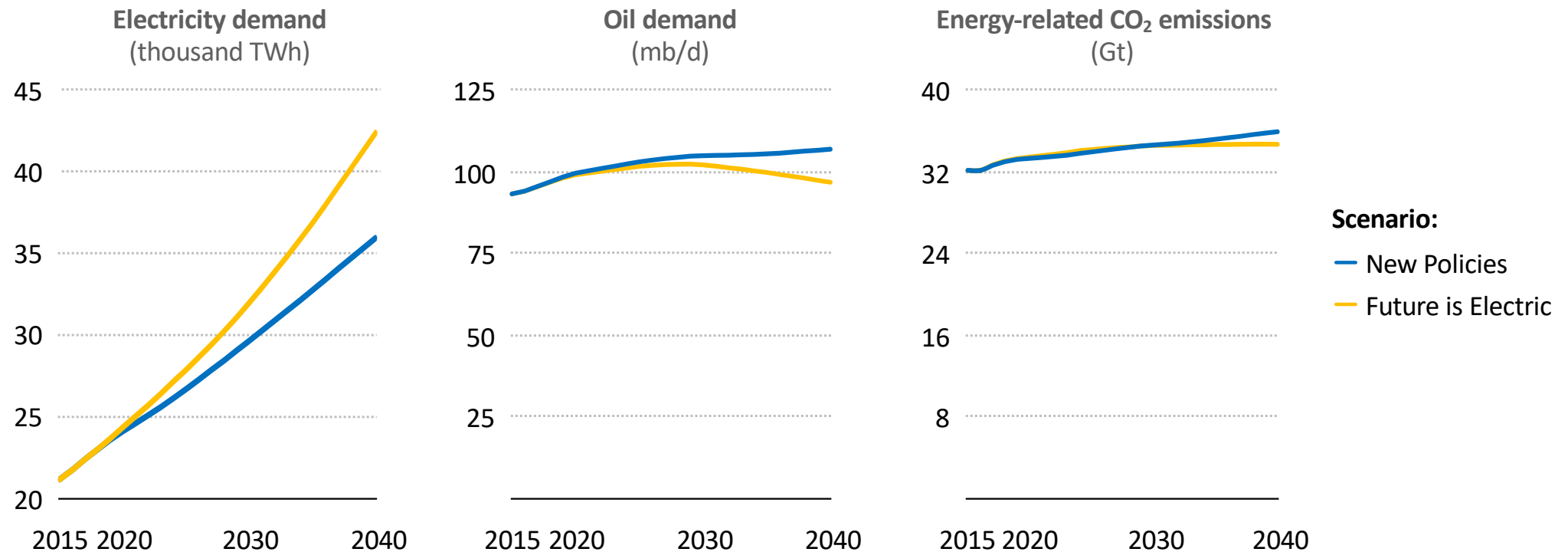
Flexibility: the cornerstone of tomorrow's power systems

Phases of integration with variable renewables share, 2030



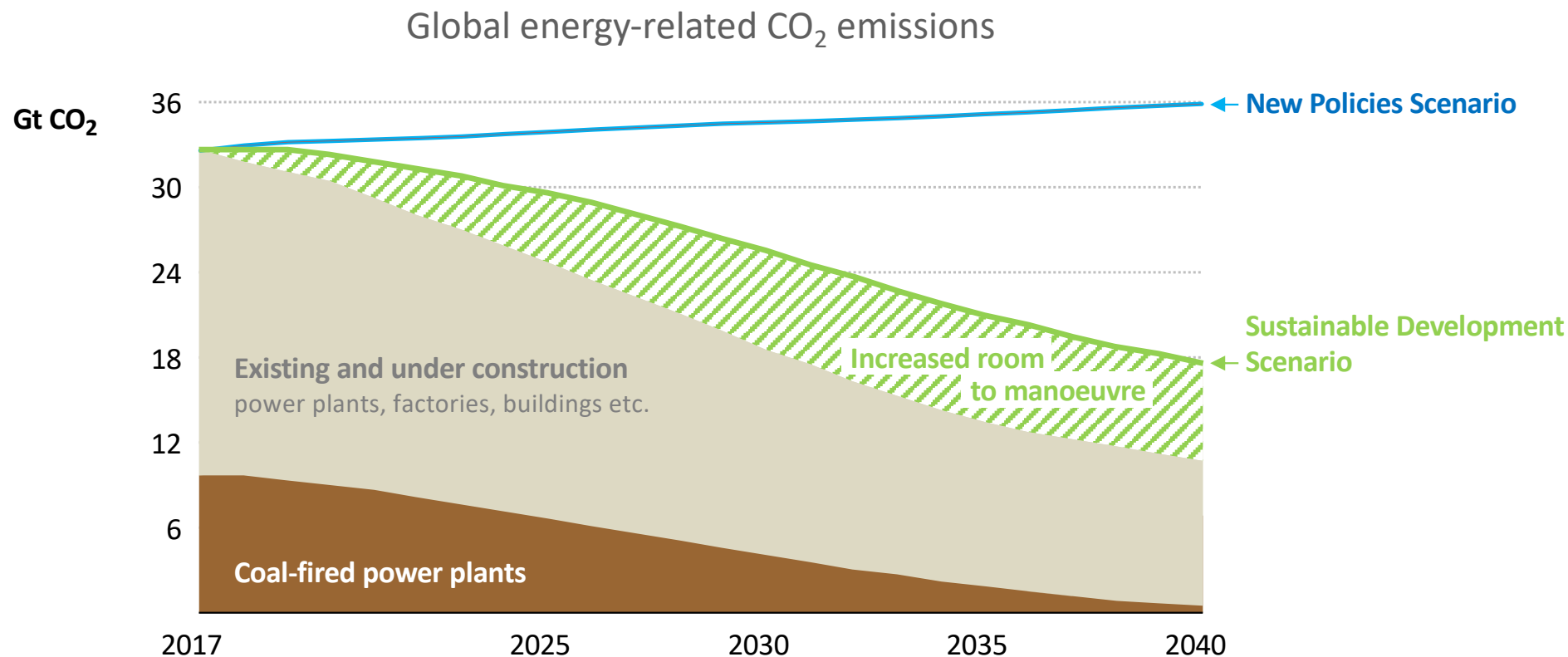
Higher shares of variable renewables raise flexibility needs and call for reforms to deliver investment in power plants, grids & energy storage, and unlock demand-side response

What if the future is electric?



Increased electrification leads to a peak in oil demand and voids 2 million air pollution-related premature deaths, but does not necessarily lead to large CO₂ emissions reductions

Can we unlock a different energy future?



Coal plants make up one-third of CO₂ emissions today and half are less than 15 years old; policies are needed to support CCUS, efficient operations and technology innovation

Conclusions

- Structural changes are set to have large impacts on oil use in passenger cars but other elements of demand – led by petrochemicals – remain robust
- A shift of demand towards lighter products could have profound implications for the business model of the refining industry and the pace of energy transitions
- The rapid growth of electricity brings huge opportunities; but market designs need to deliver both electricity and flexibility to keep the lights on
- There is no single solution to turn emissions around: renewables, efficiency & a host of innovative technologies, including storage, CCUS & hydrogen, are all required
- The future pathway for energy is open: governments will determine where our energy destiny lies