World Energy Outlook 2018

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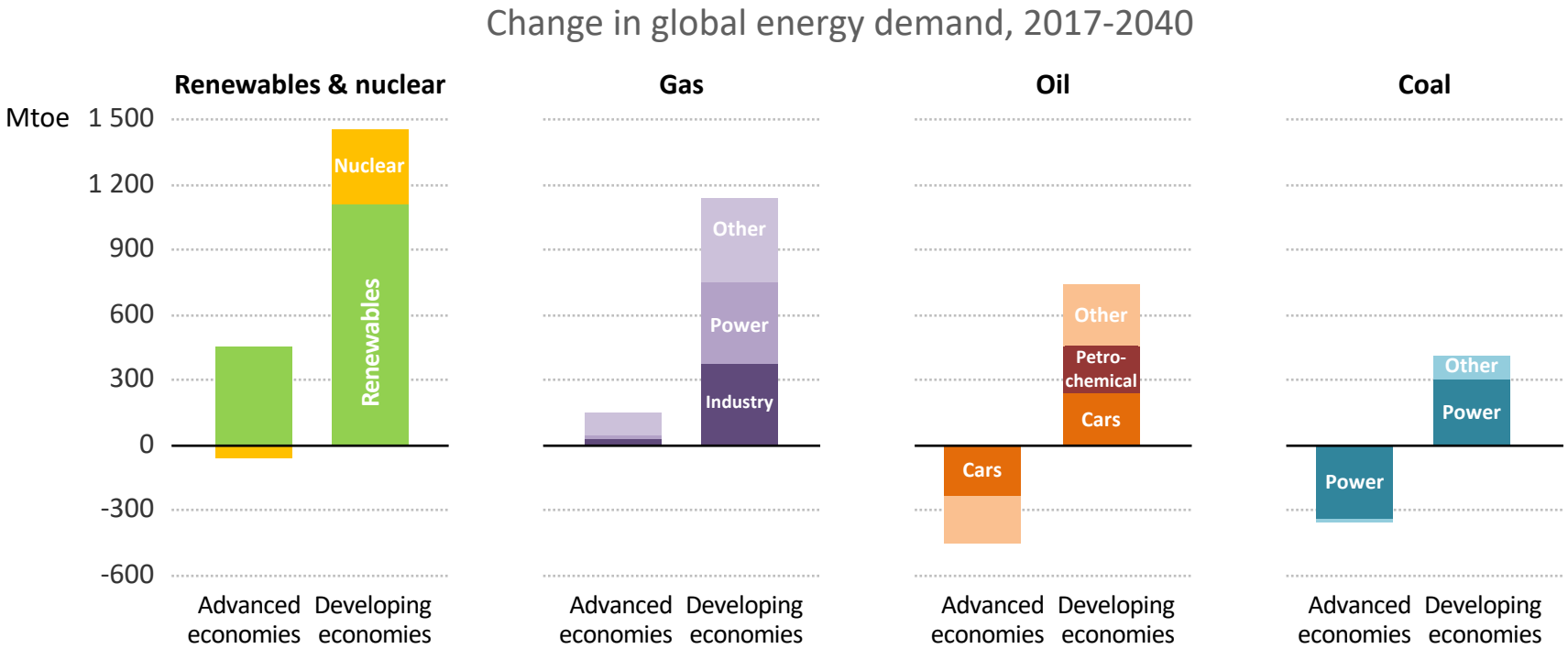
22 November 2018

Fuelling the demand for energy



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

Flexibility: the cornerstone of tomorrow's power systems

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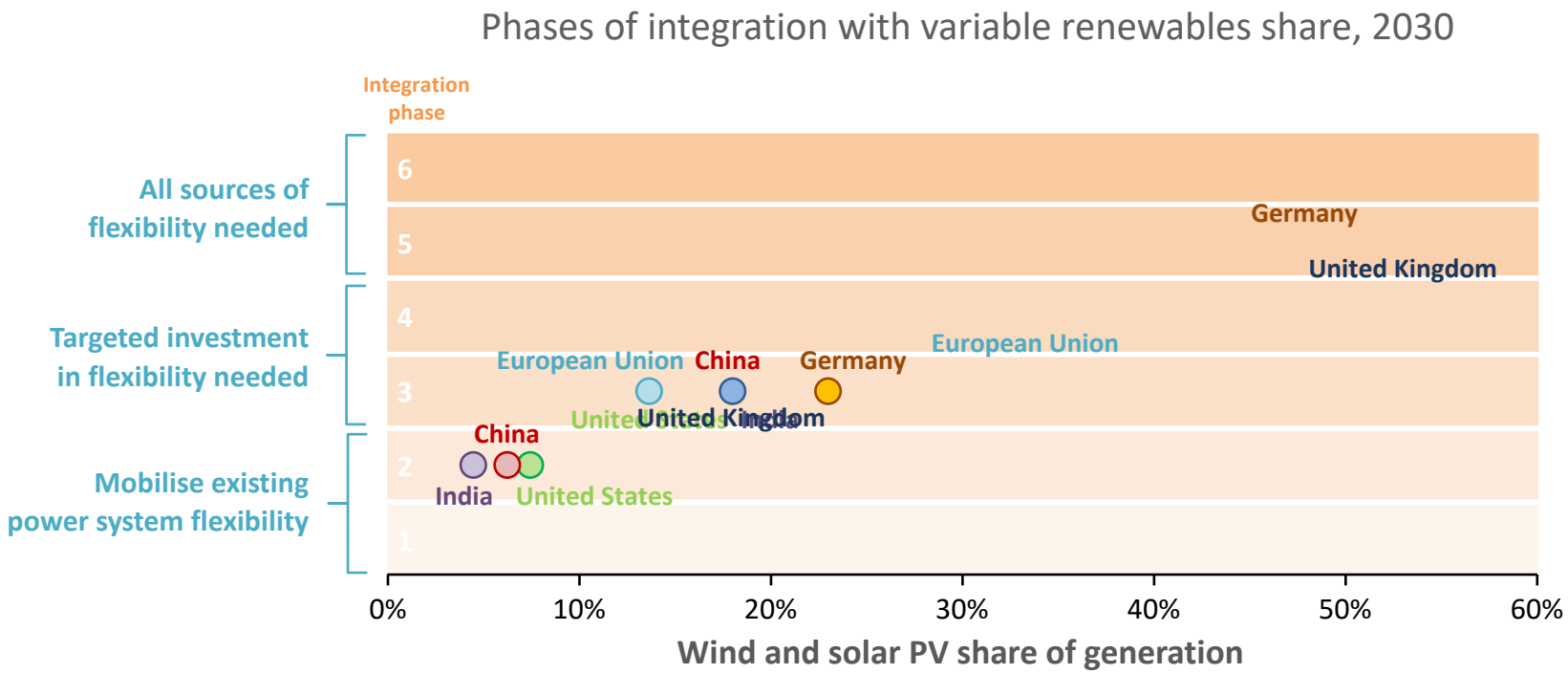
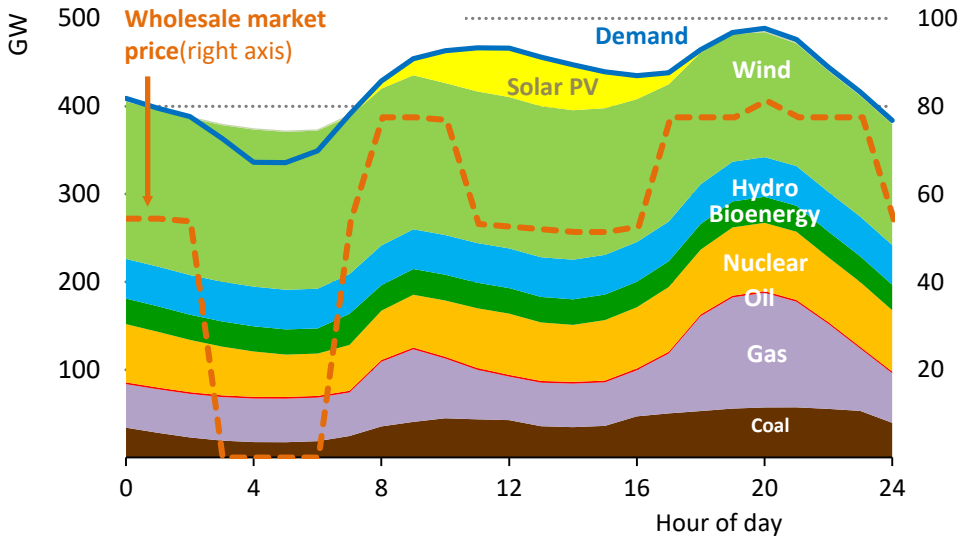


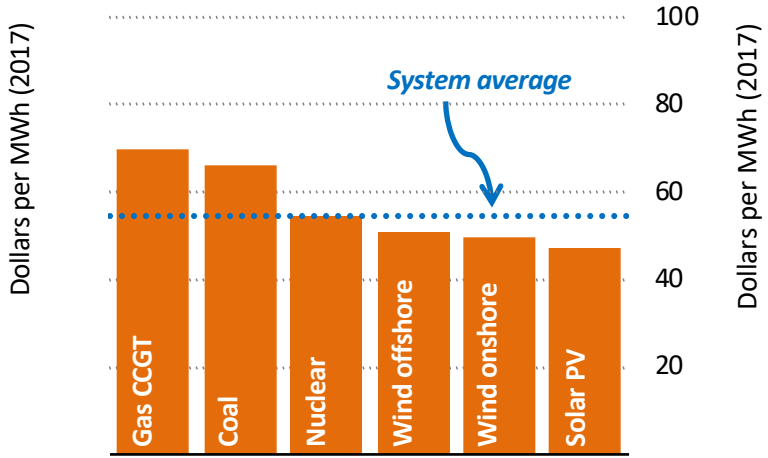
Higher shares of variable renewables raise flexibility needs and call for reforms to deliver investment in power plants, grids & energy storage, and unlock demand-side response

A step forward by incorporating value

Hourly mix & wholesale price for sample day in the EU, 2030

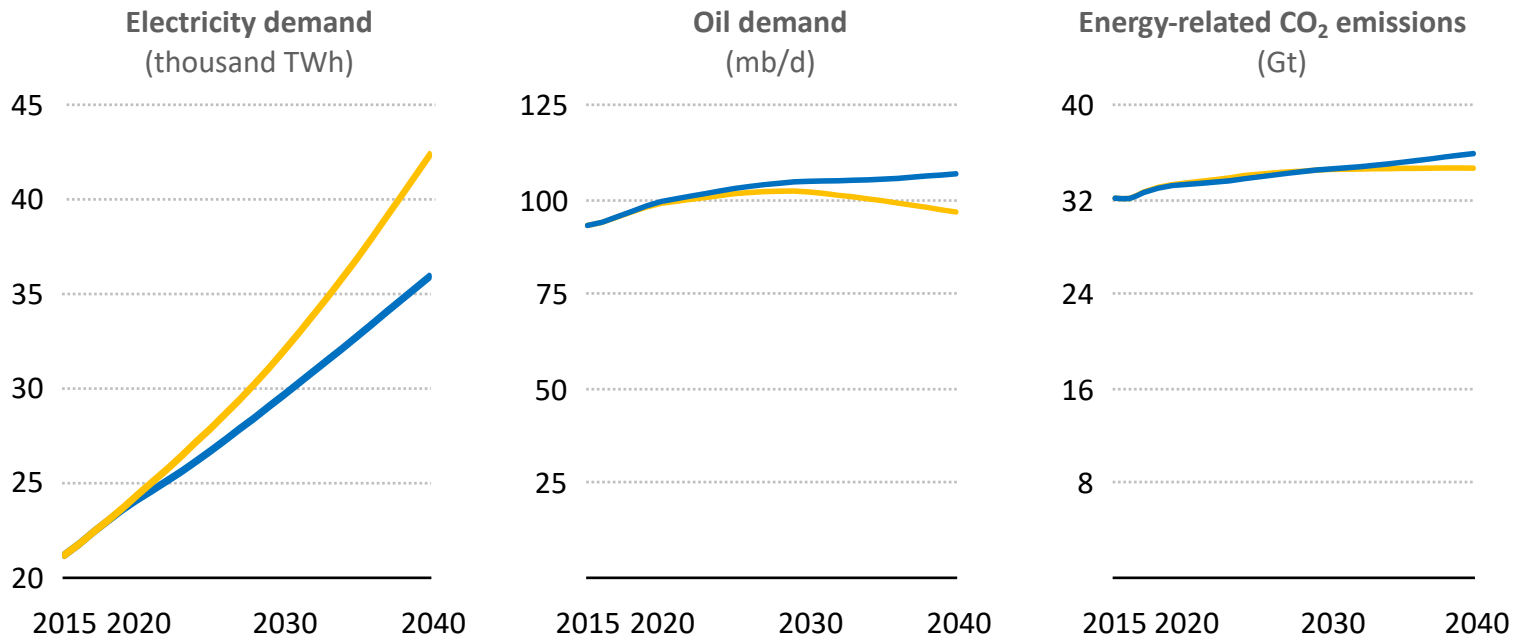


Annual average price received in the EU, 2030



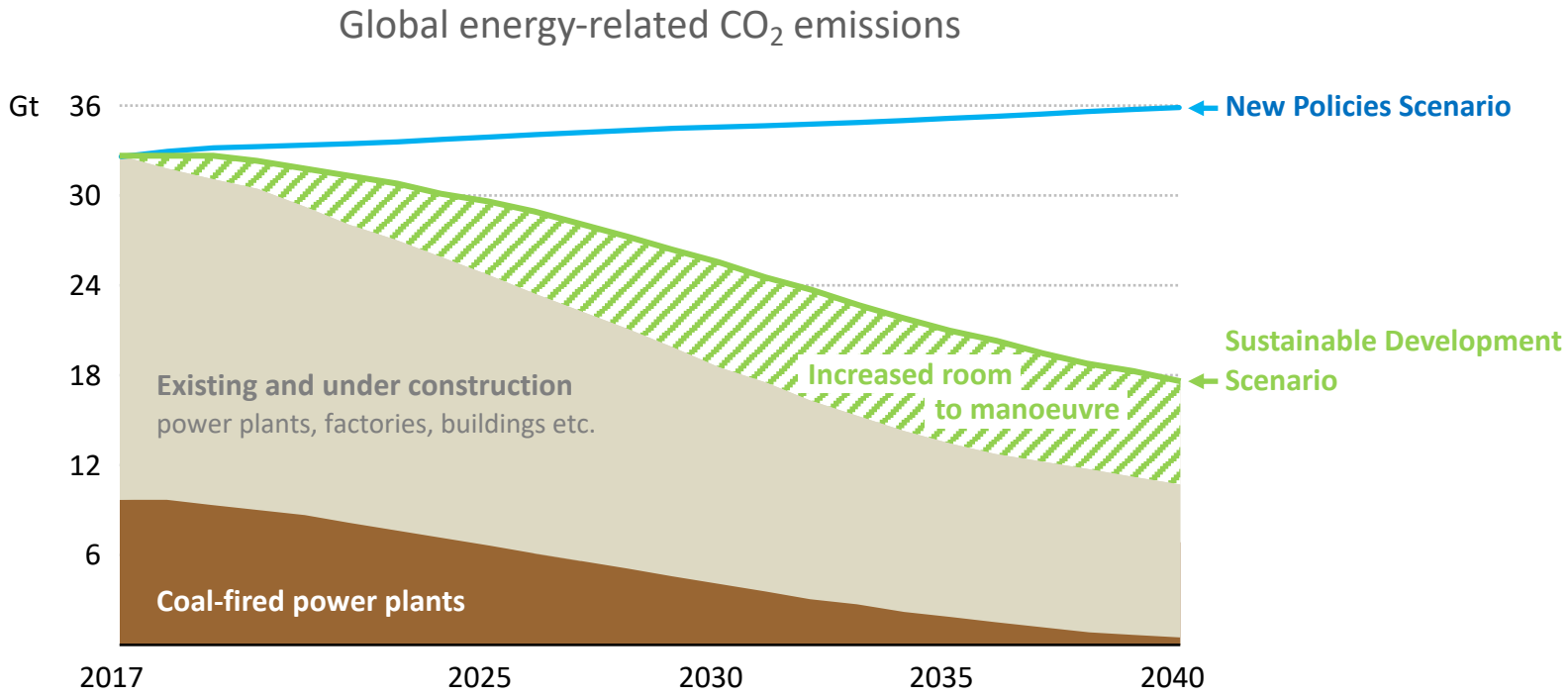
As the share of variable renewables rises, large hour-to-hour changes occur in output

What if the future is electric?



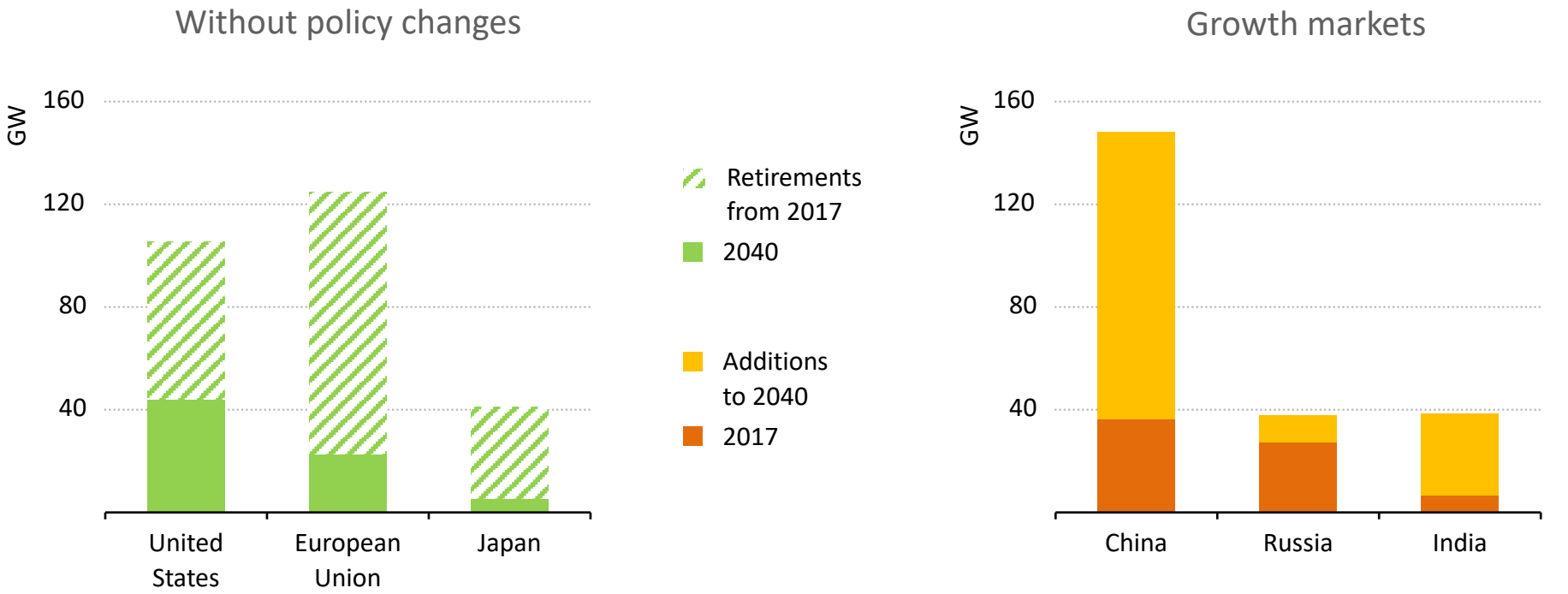
Increased electrification leads to a peak in oil demand, avoids 2 million air pollution-related premature deaths, but does not necessarily lead to large CO_2 emissions reductions

Can we unlock a different energy future?



Coal plants make up one-third of CO_2 emissions today and half are less than 15 years old; policies are needed to support CCUS, efficient operations and technology innovation

Two directions for nuclear power



The contribution of nuclear power could decline substantially in leading markets, while large growth is coming, as China takes first position within a decade

Our energy destiny rests with governments

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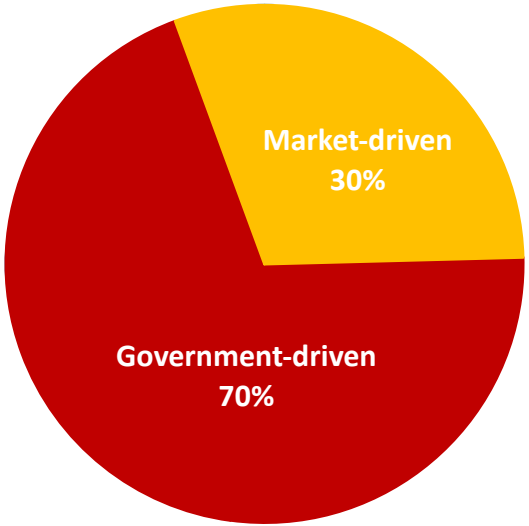
Total investment in energy supply



More than 70% of the $2 trillion required each year in energy supply investment either comes from state-directed entities or receives a full or partial revenue guarantee

Conclusions

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- The links between energy & geopolitics are strengthening & becoming more complex, a major factor in the outlook for energy security
- A mismatch between robust oil demand in the near term & a shortfall in new projects risks a sharp tightening of oil markets in the 2020s
- 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

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