World Energy Outlook 2018

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Today's energy context

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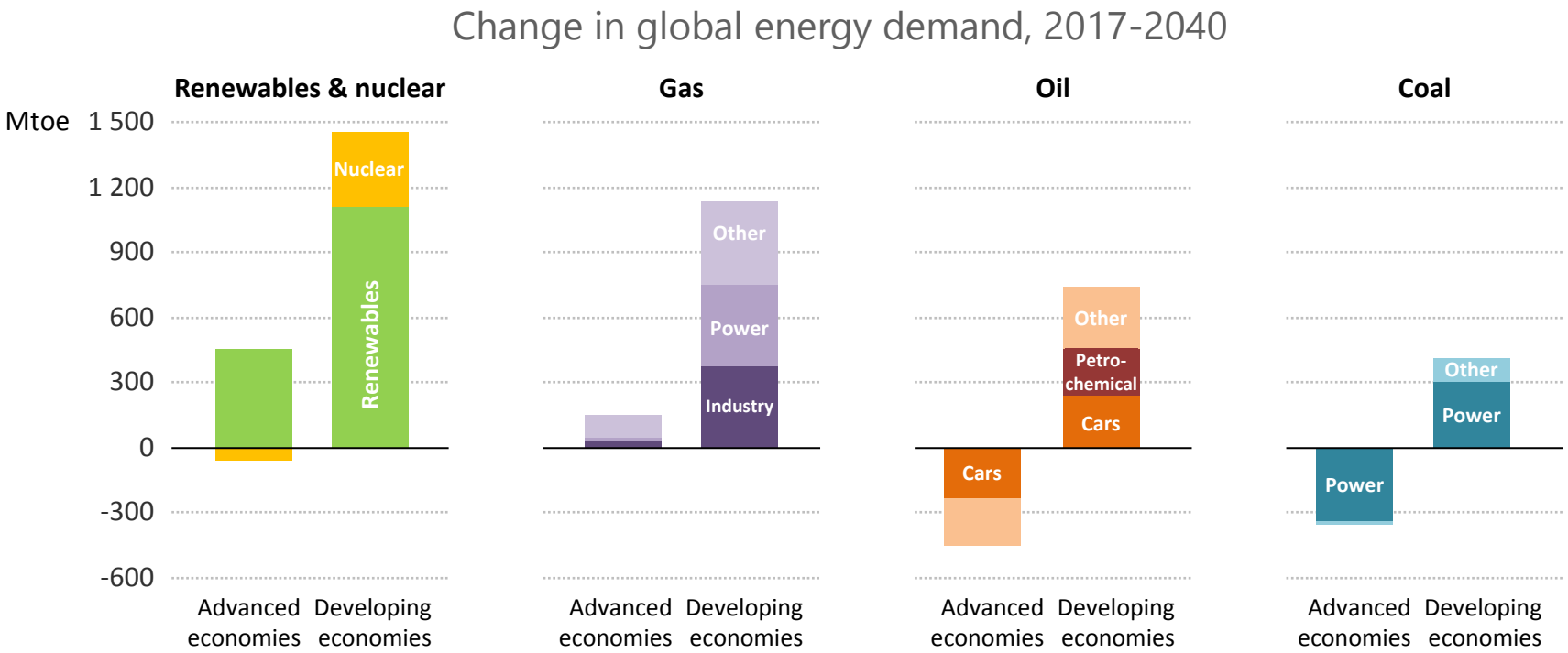
- Mixed signals about the pace & direction of change in global energy:
  - Oil markets are entering a period of renewed uncertainty & volatility
  - Natural gas is on the rise: China's rapid demand growth is erasing talk of a 'gas glut'
  - Solar PV has the momentum while other key technologies & efficiency policies need a push
  - Our assessment points to energy-related CO_2 emissions reaching a historic high in 2018
  - For the first time, the global population without access to electricity fell below 1 billion
- Electricity is carrying great expectations, but questions remain over the extent of its reach in meeting demand & how the power systems of the future will operate
- Policy makers need well-grounded insights about different possible futures & how they come about.

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

Efficiency is key to mitigating rises in oil demand in cars

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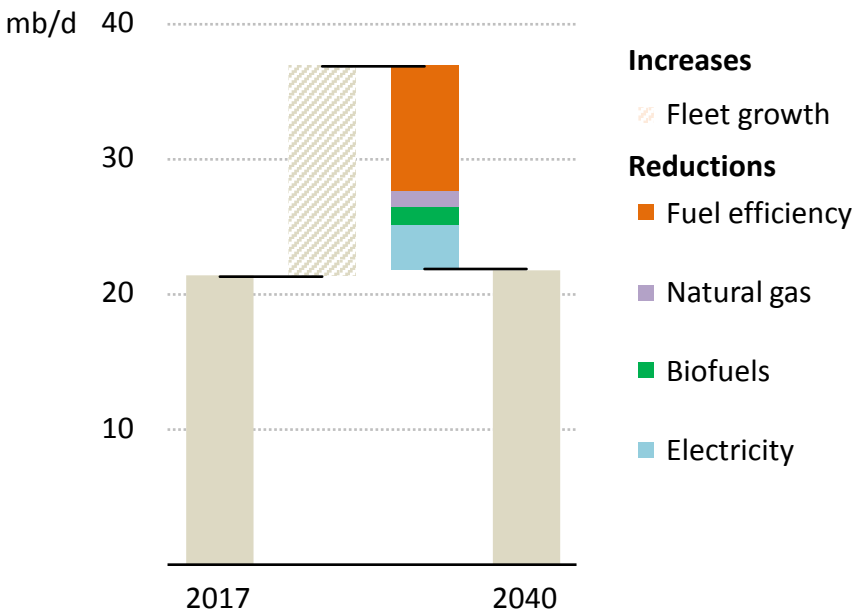
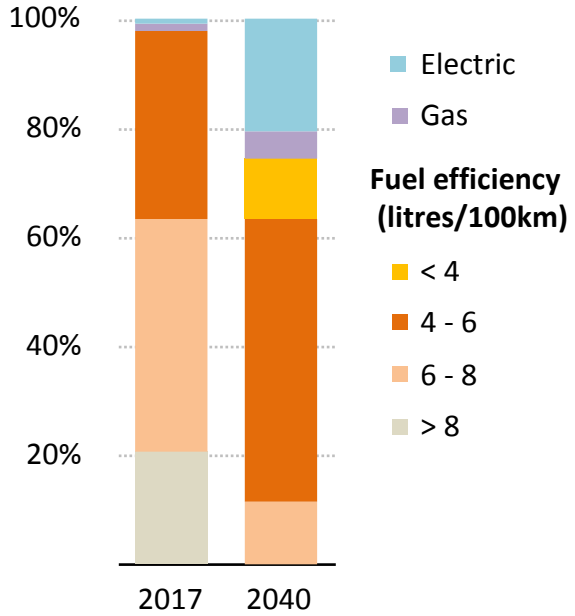
Change in global oil demand for cars



Global car sales



Energy efficiency is the key mechanism that curbs oil consumption in cars.
By 2040 there are no cars sold that have an efficiency worse than 6.5 litres/100 km.

Our energy destiny rests with governments

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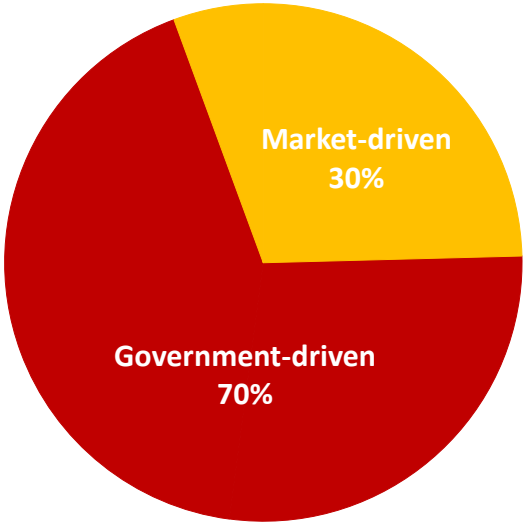
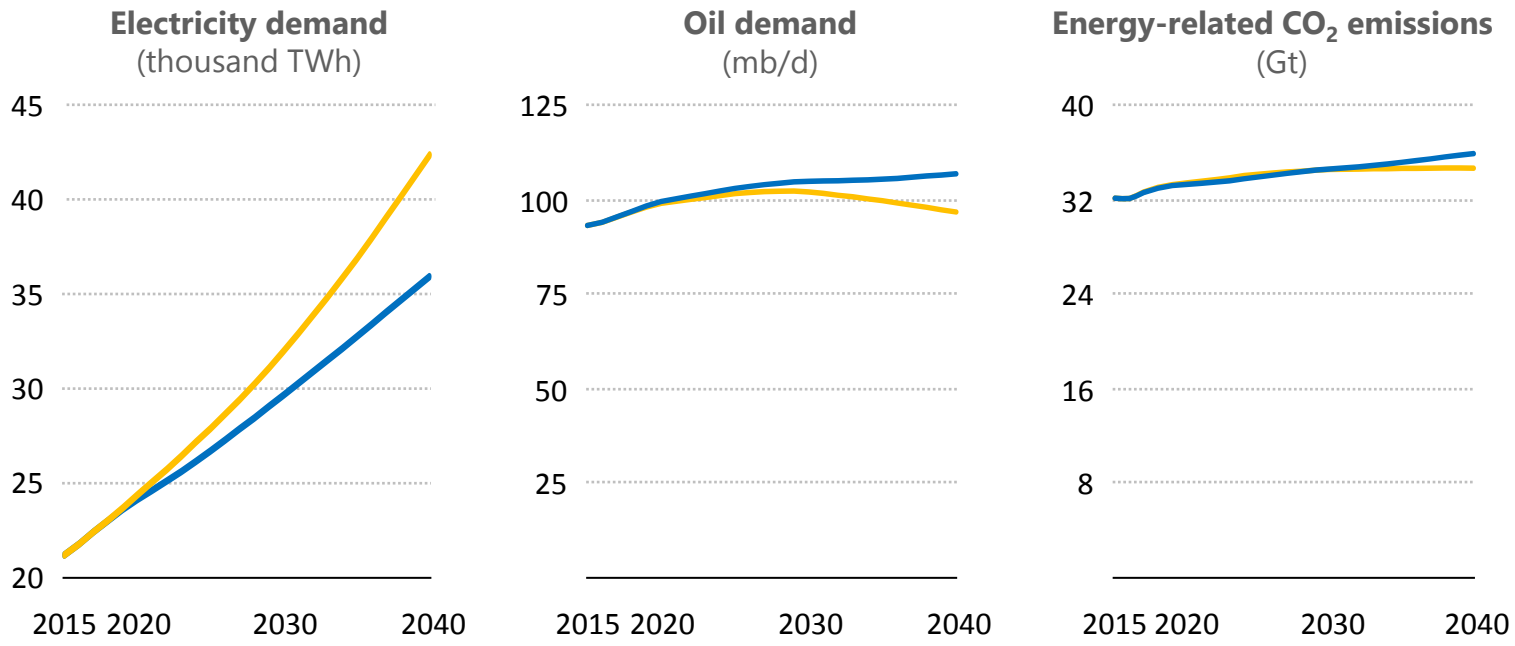
Total investment in energy supply to 2040:
$42.3 trillion



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

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

What if transport is electric?

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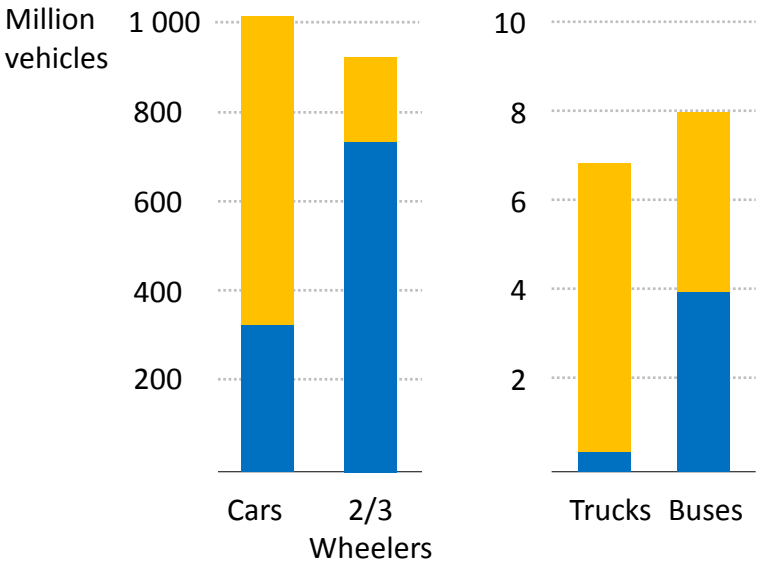
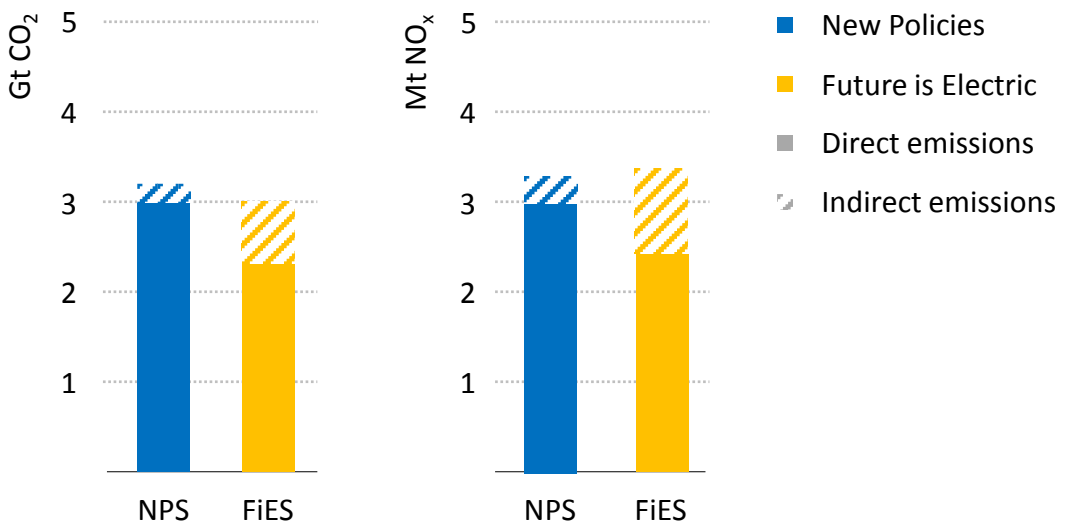
Electric vehicle fleet in 2040

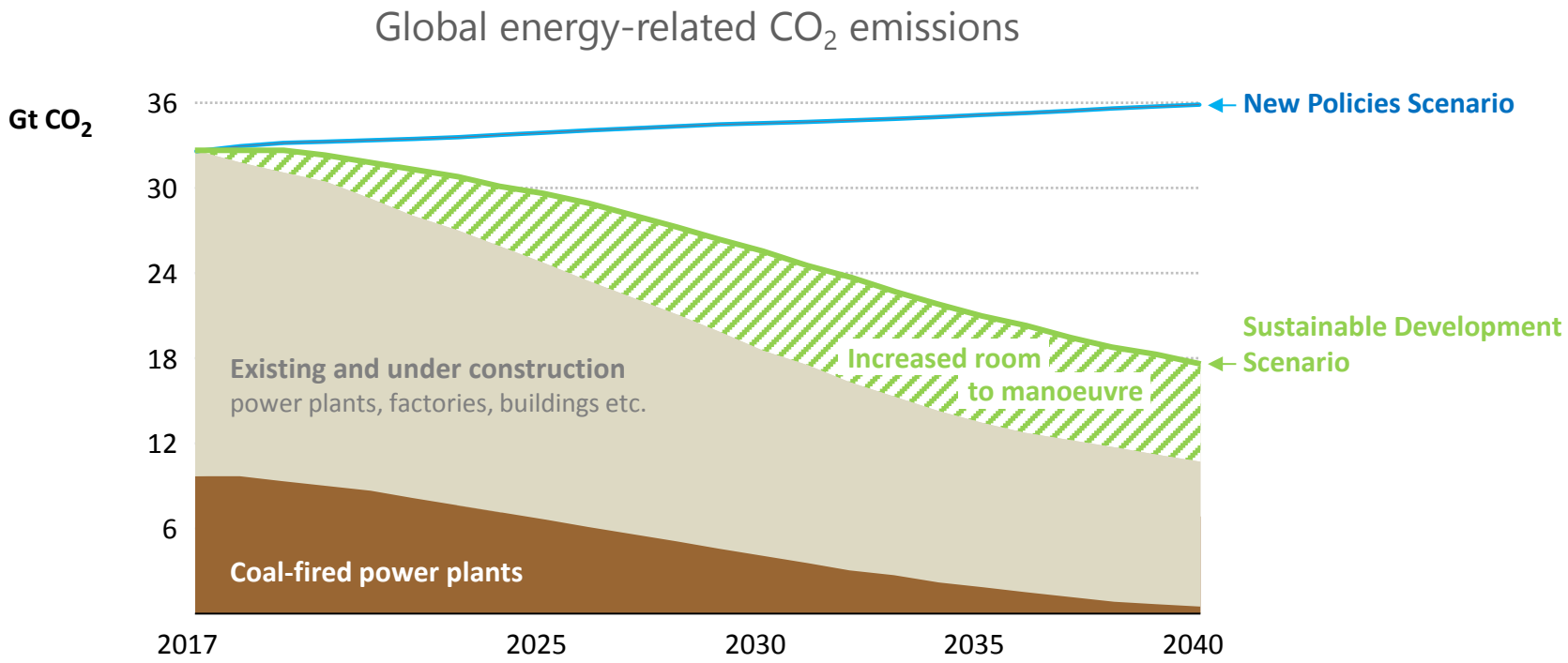


Road transport emissions



Further electrification of transport needs to go hand in hand with cleaner electricity generation to reduce CO_2 and NO_X emissions

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

Conclusions

- 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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