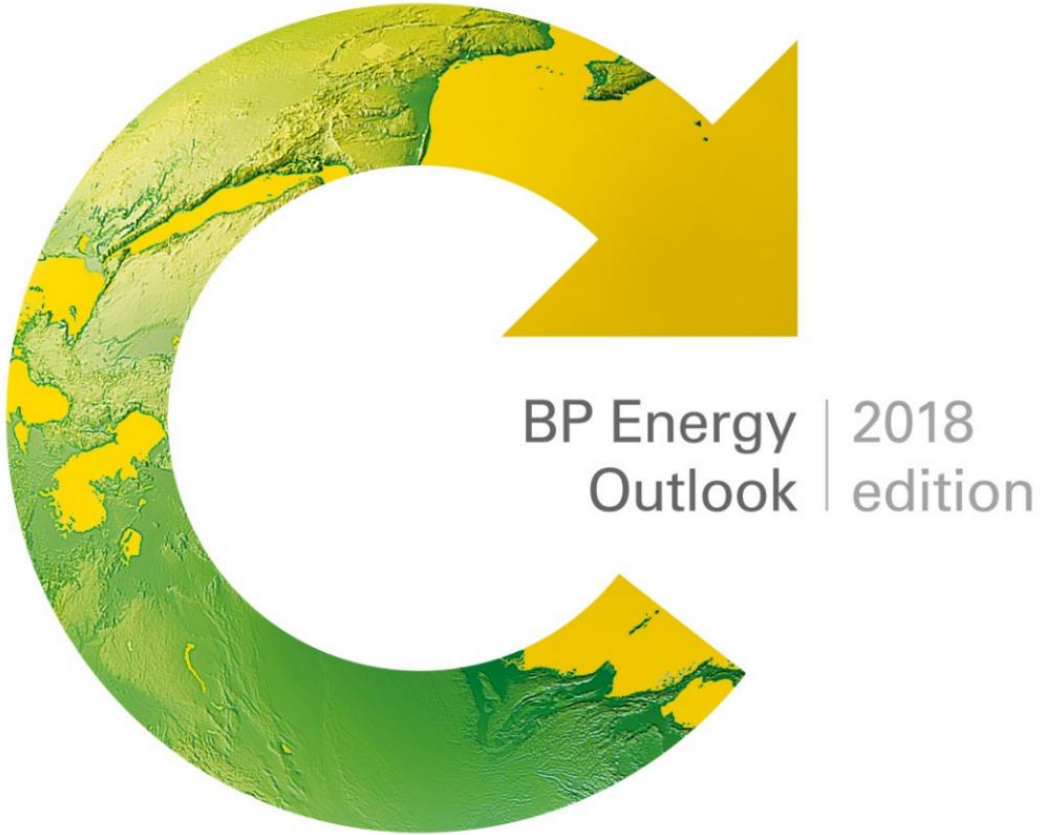
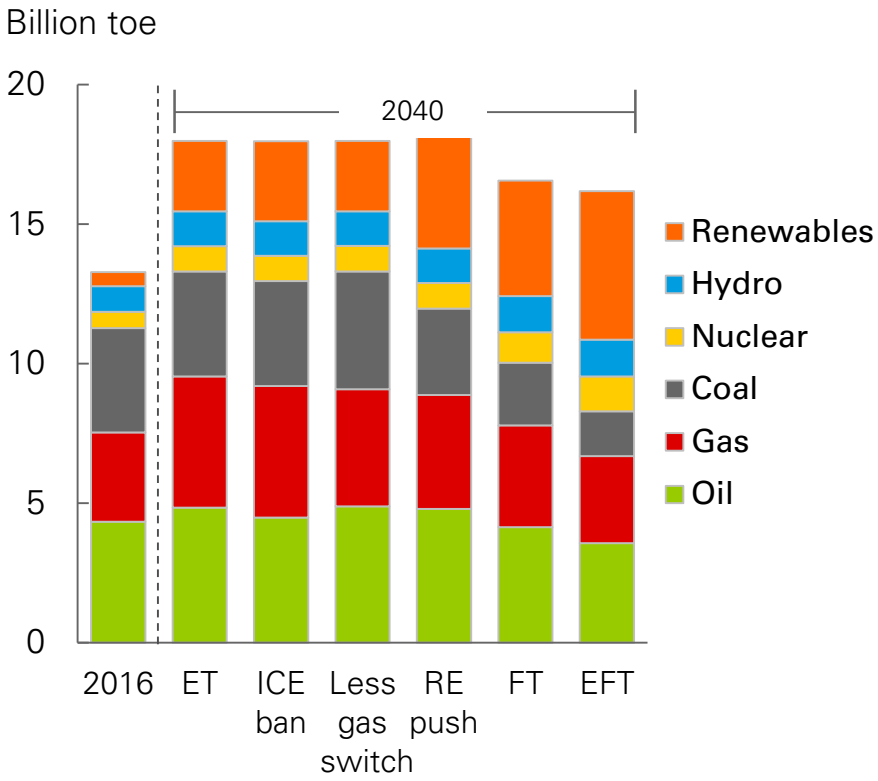
BP Energy Outlook
2018 edition



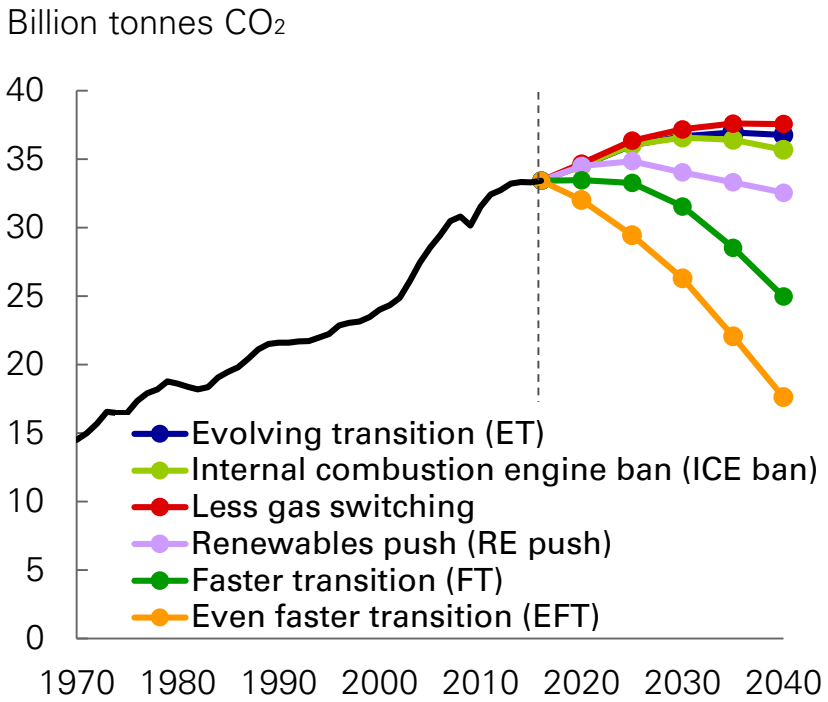
Mark Finley
General Manager

Alternative scenarios

Primary energy consumption by fuel

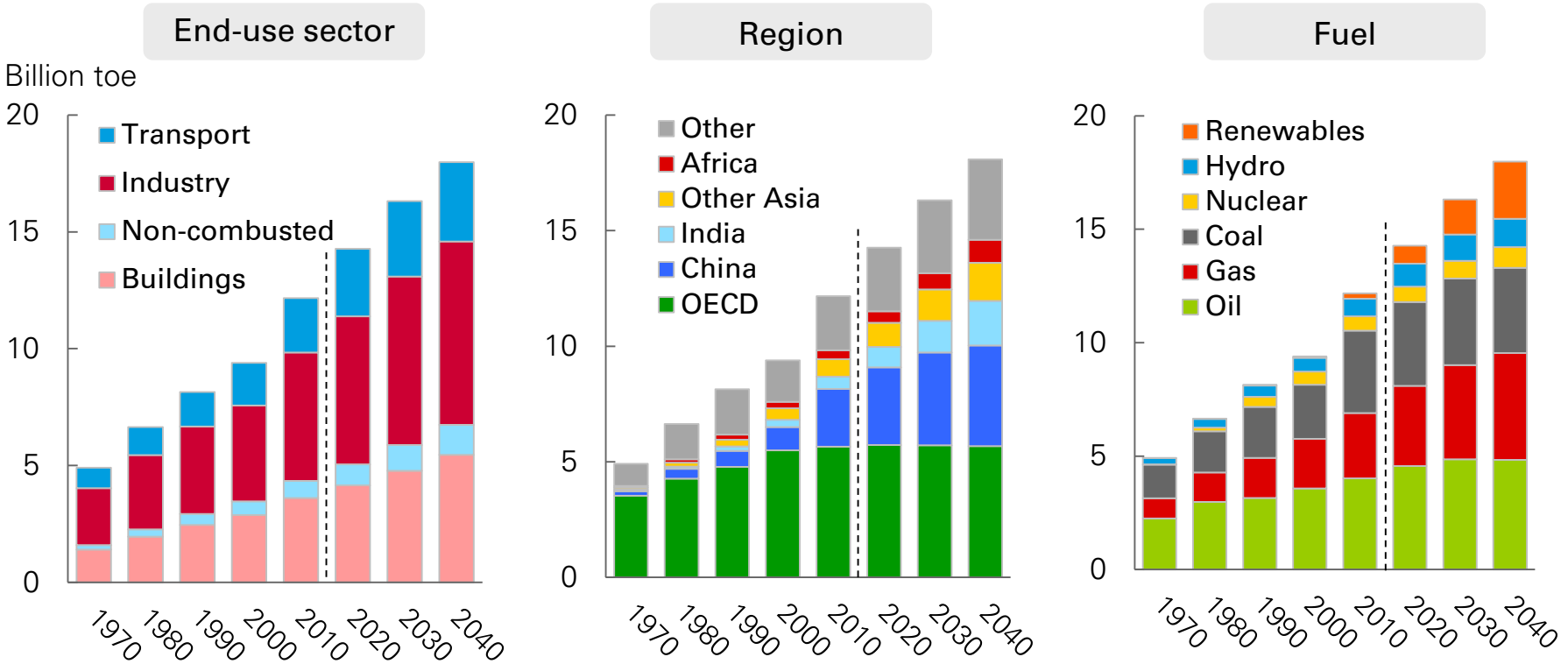


Carbon emissions



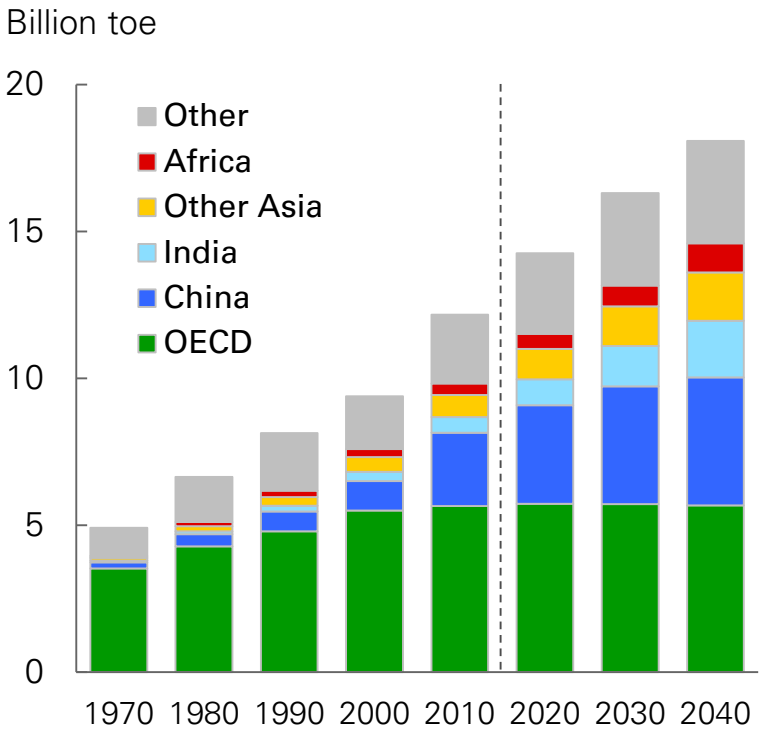
Three windows on the energy transition

Primary energy demand

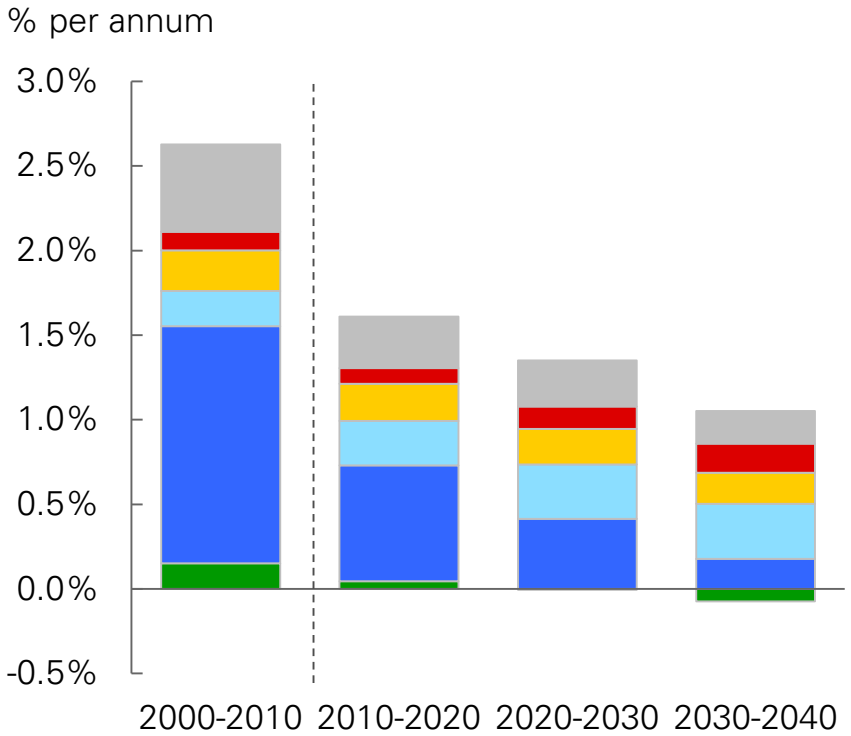


Regional energy demand

Primary energy consumption by region



Primary energy growth and regional contributions



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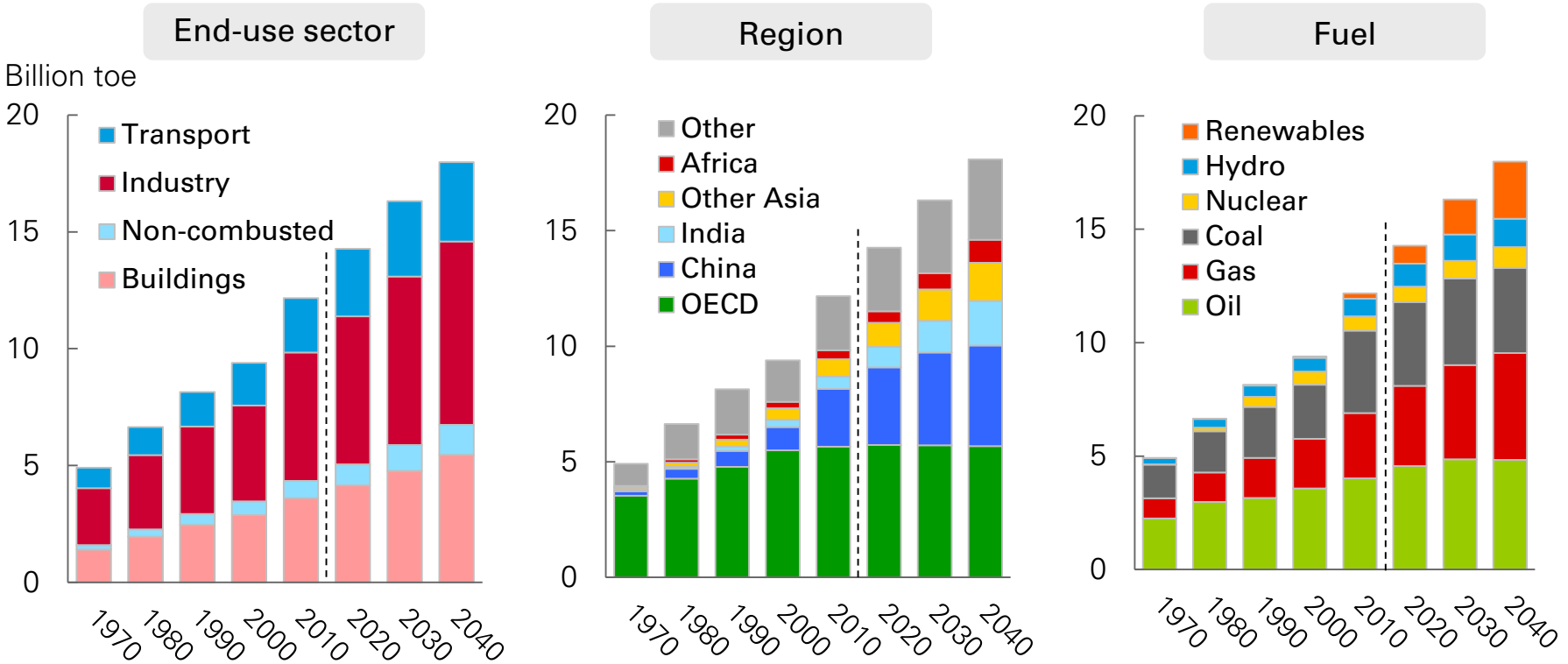
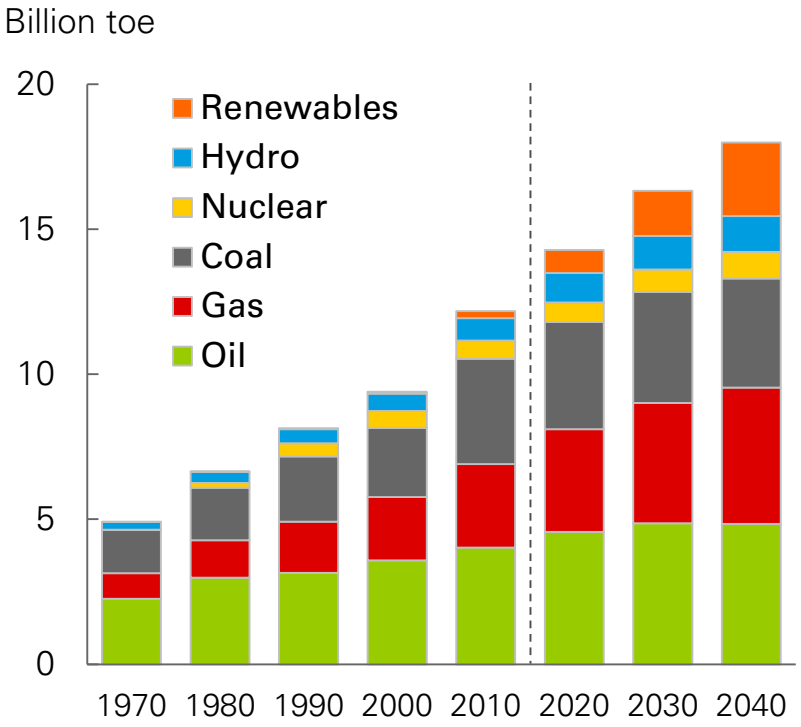
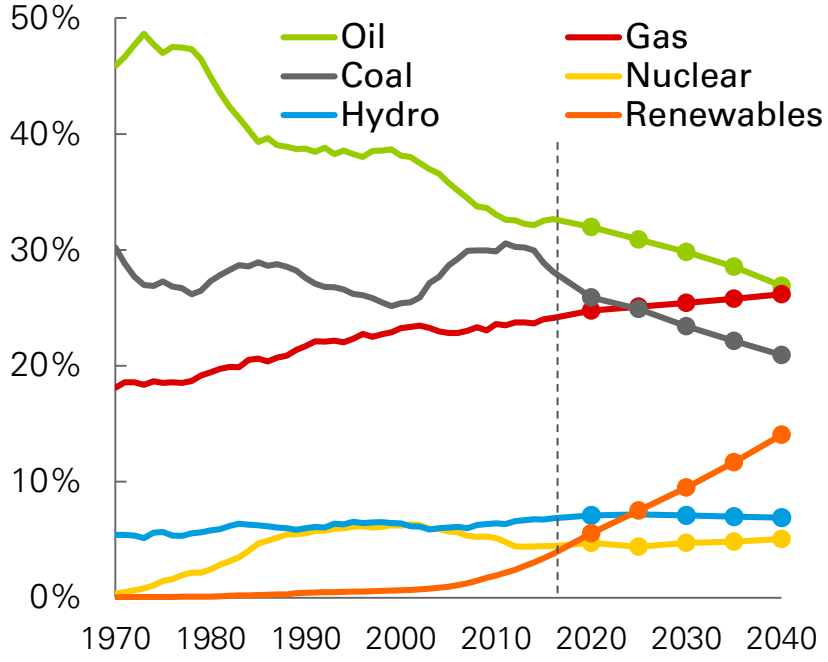


Global energy by fuel

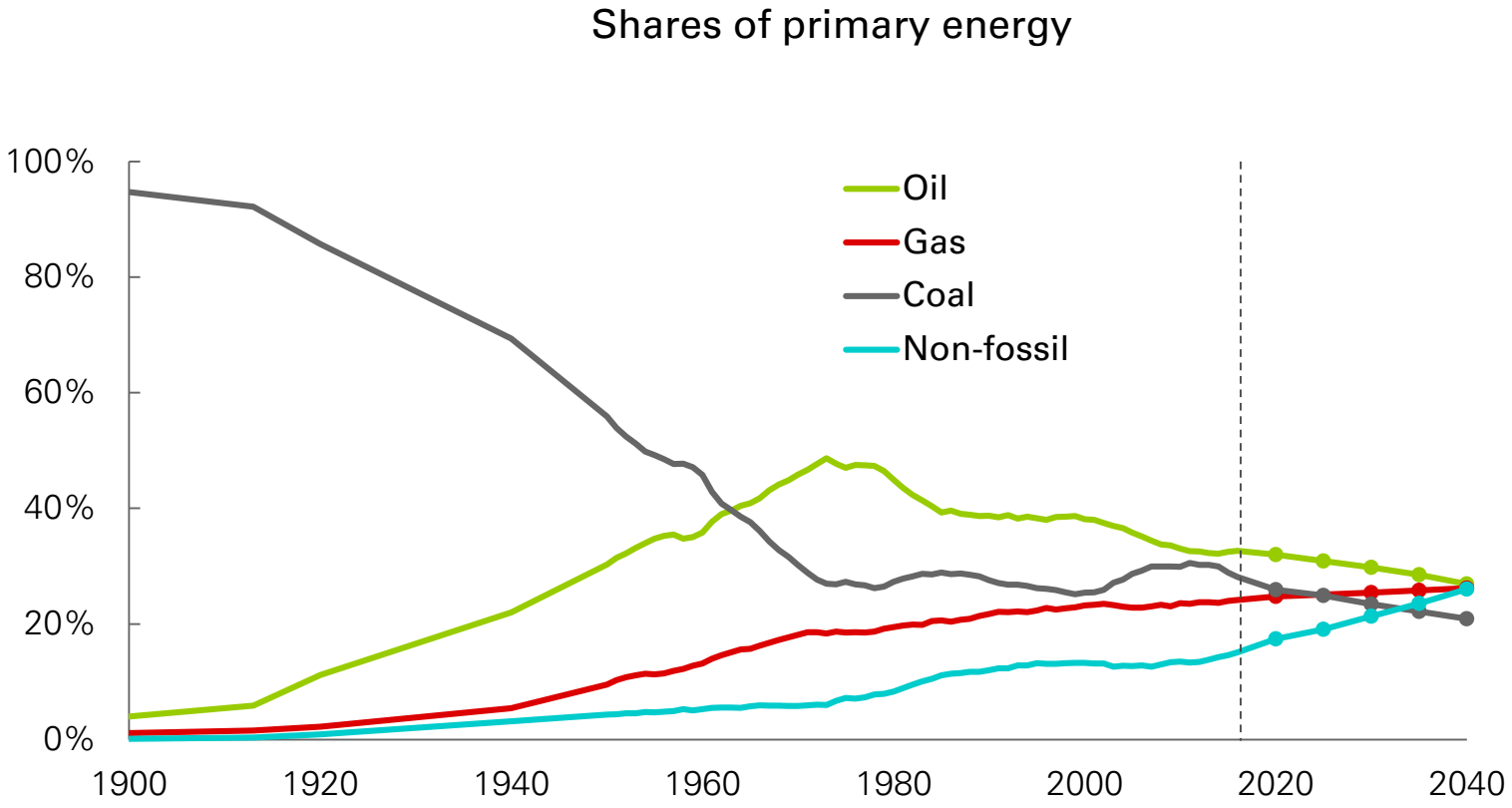
Primary energy consumption by fuel



Shares of primary energy



Diversified fuel mix



Five key questions

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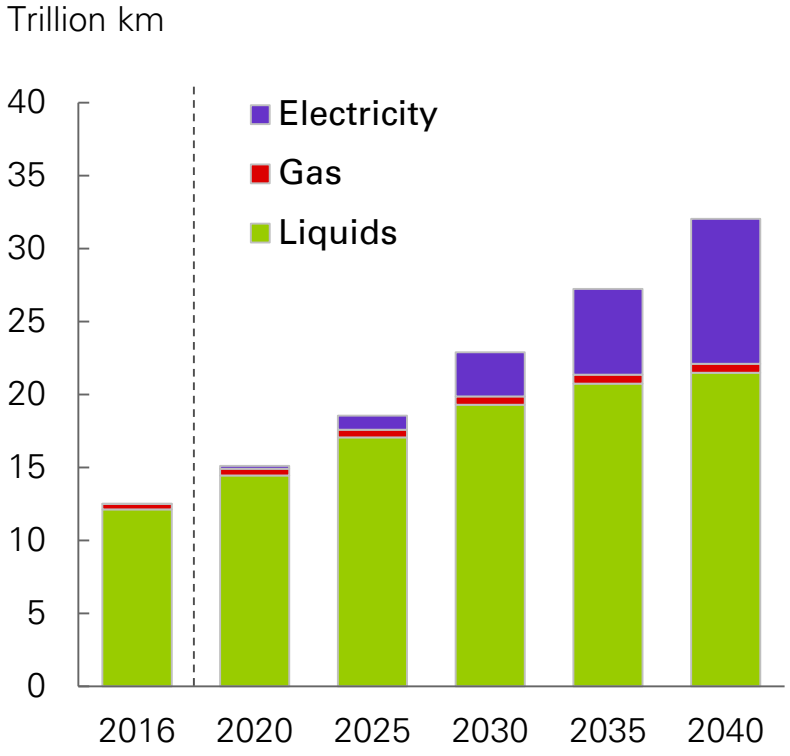
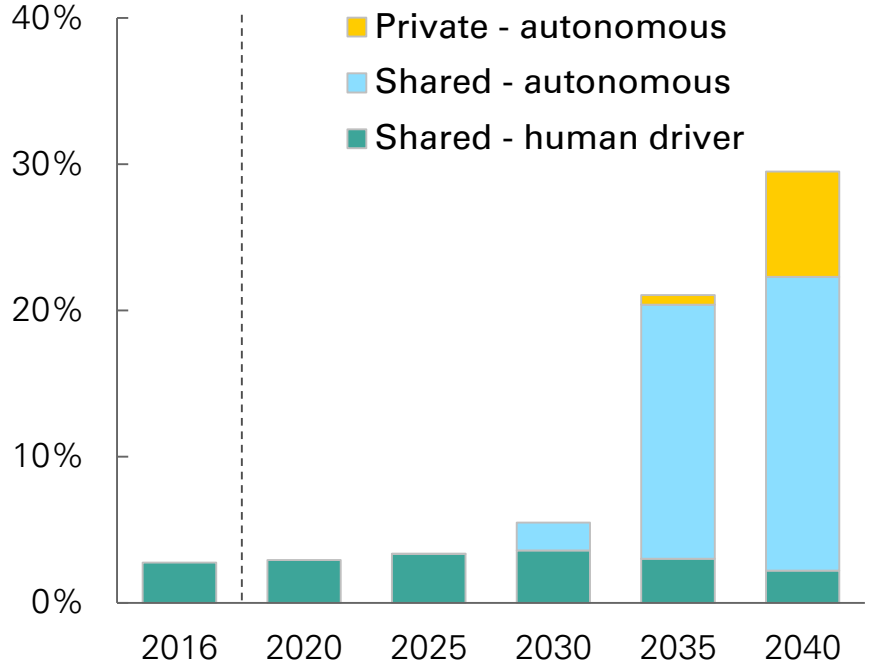
Electric cars, shared mobility and autonomy

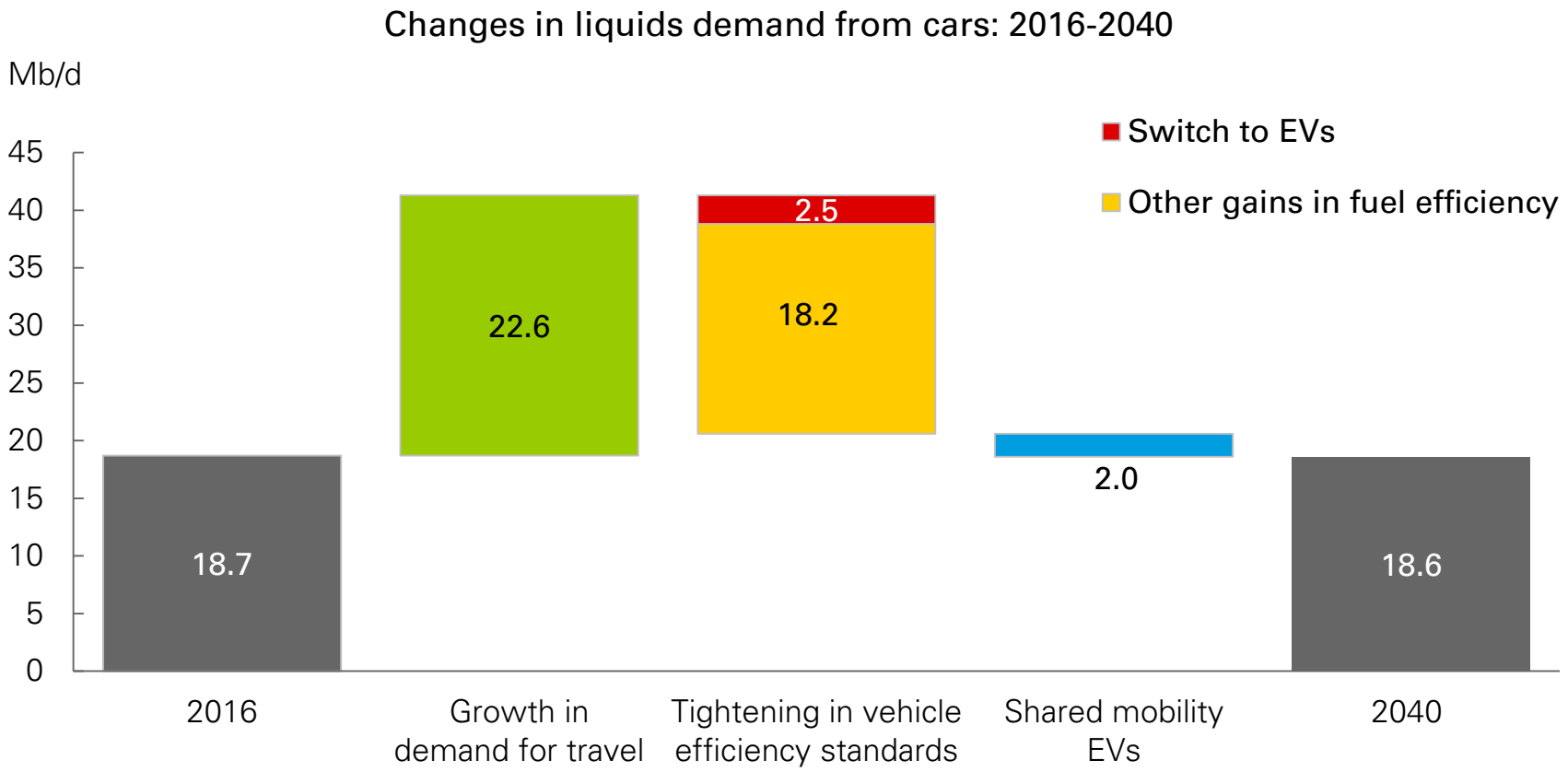
Car kilometres by fuel type



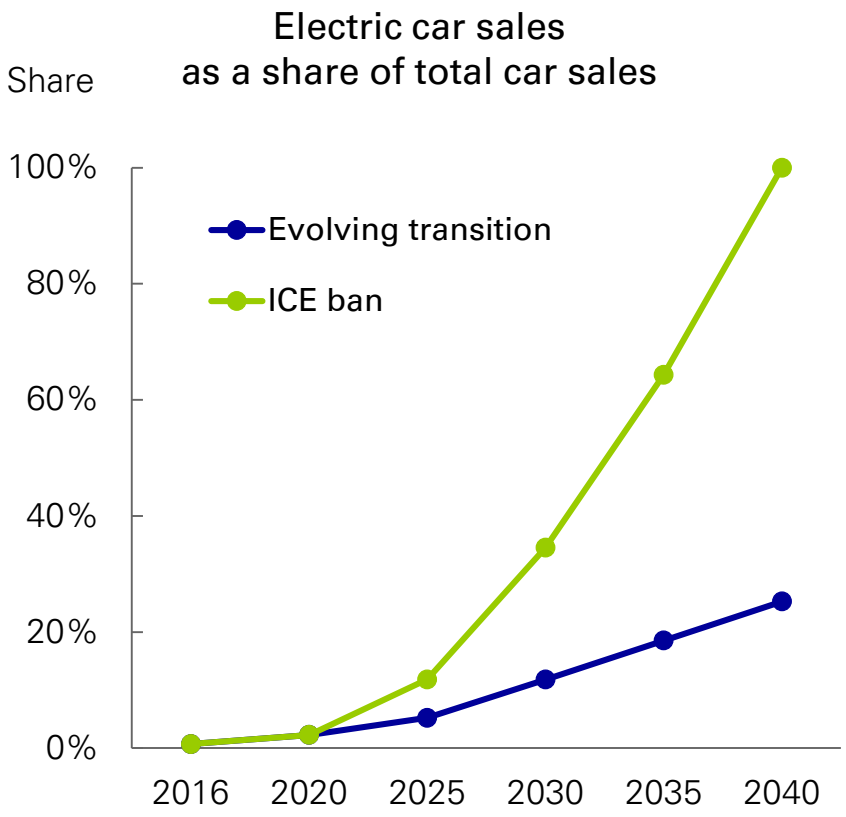
New mobility share of Vkm

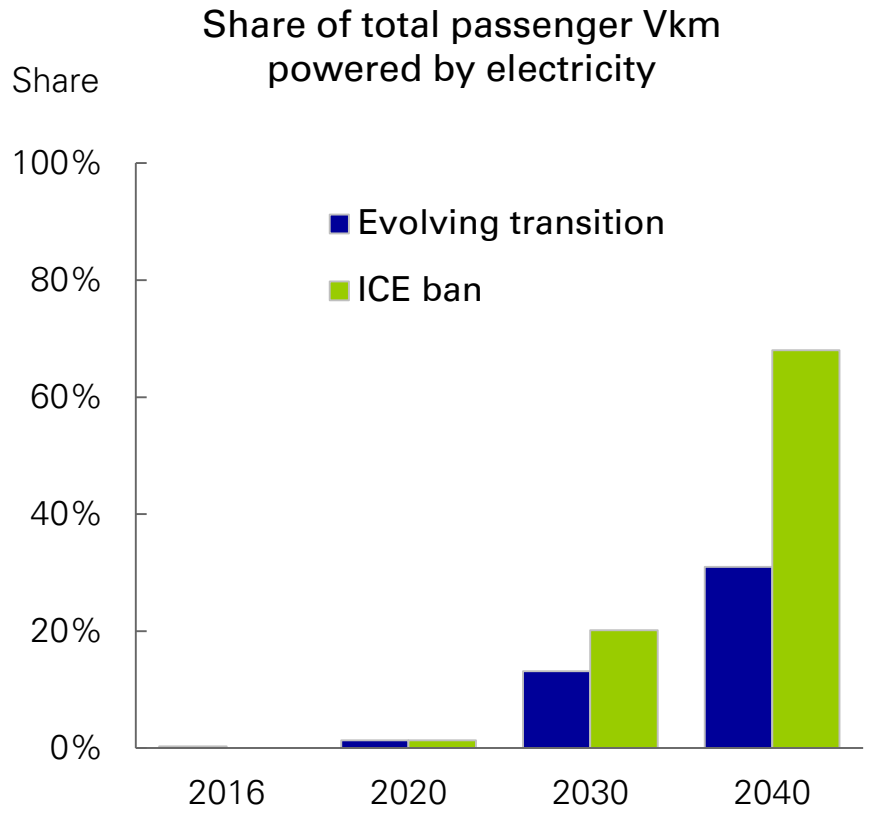


Liquid fuel demand from passenger cars

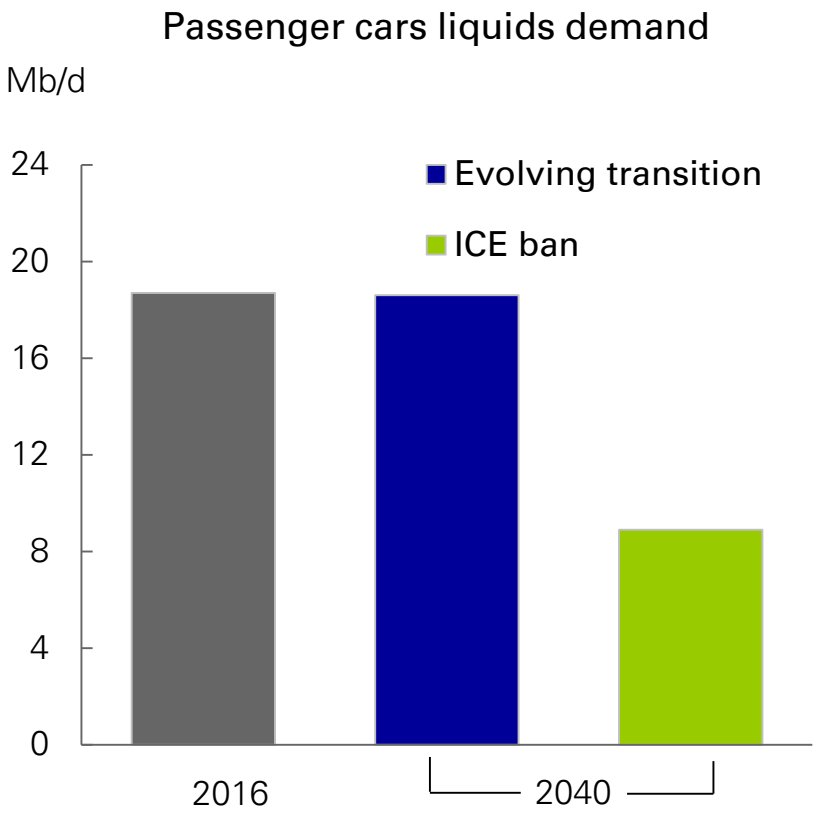


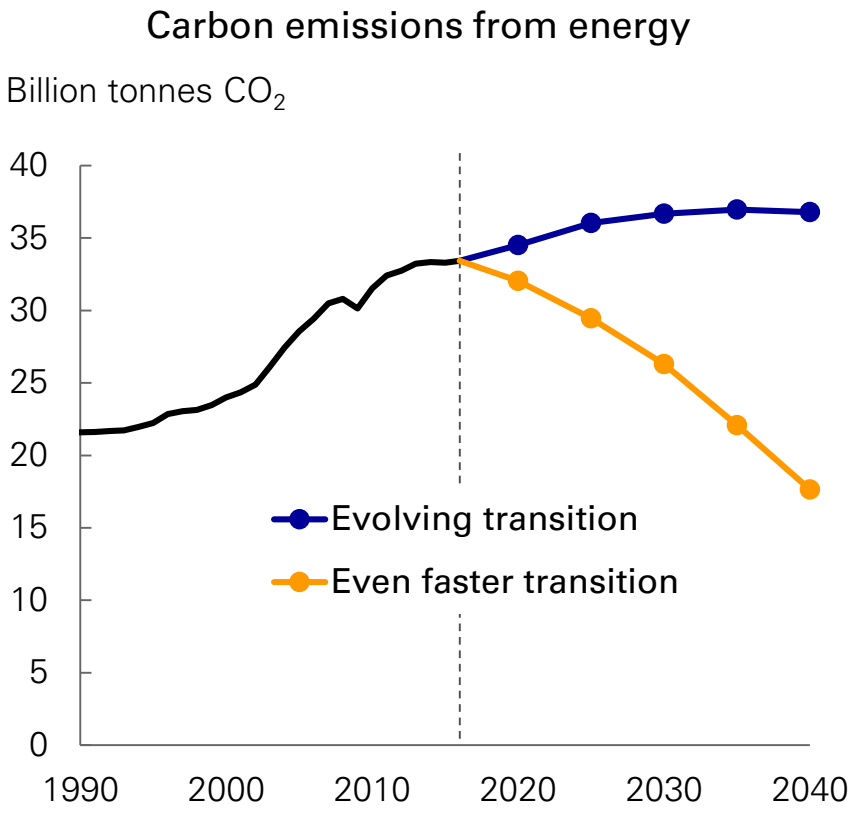
Global ban on internal-combustion engine (ICE) cars





Impact of ICE ban





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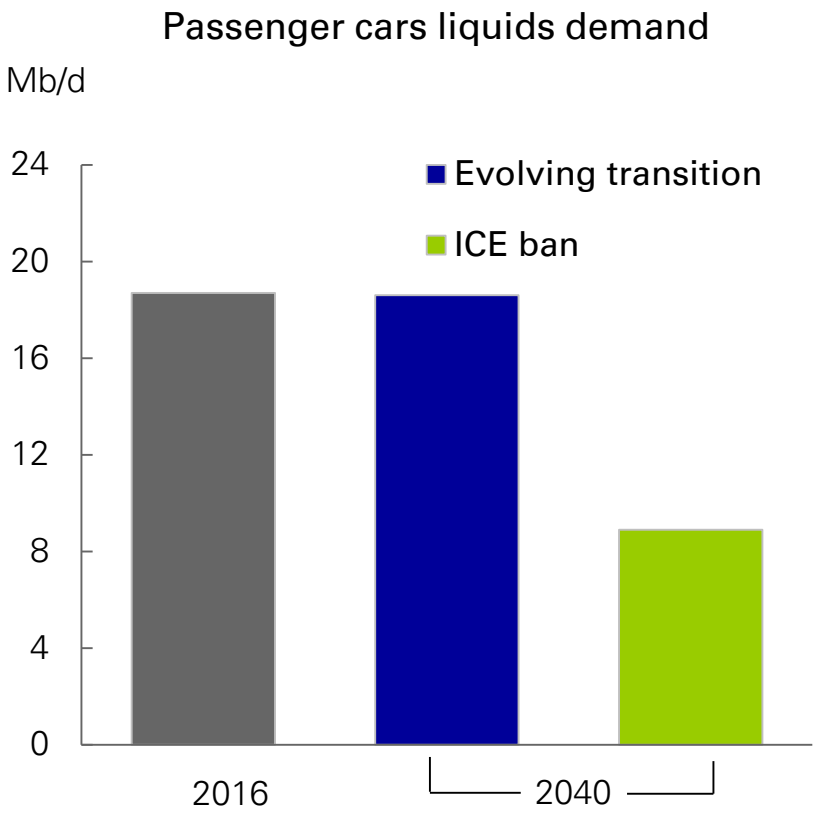

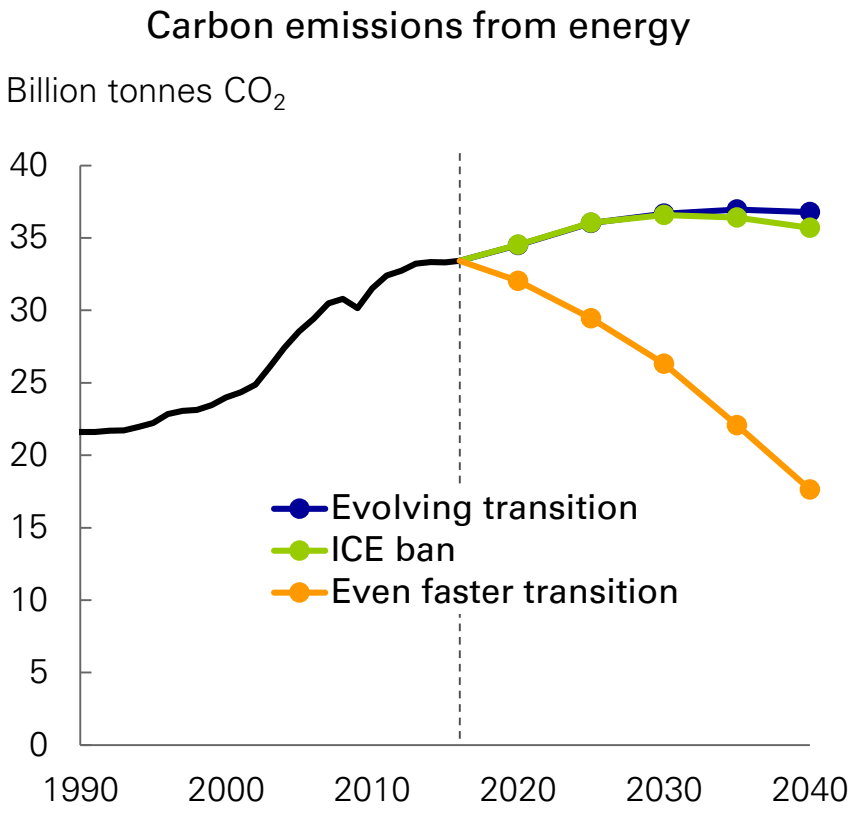

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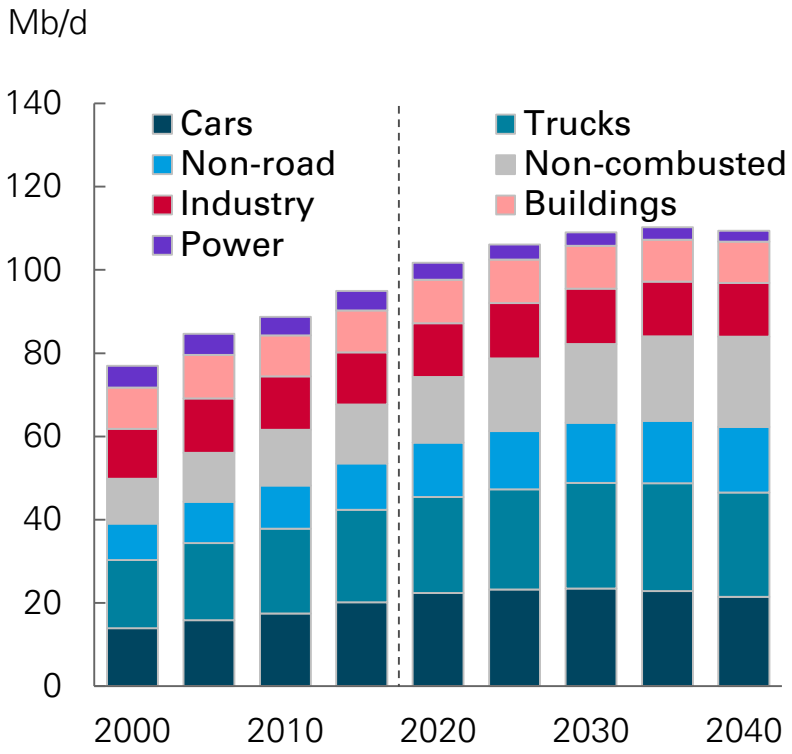
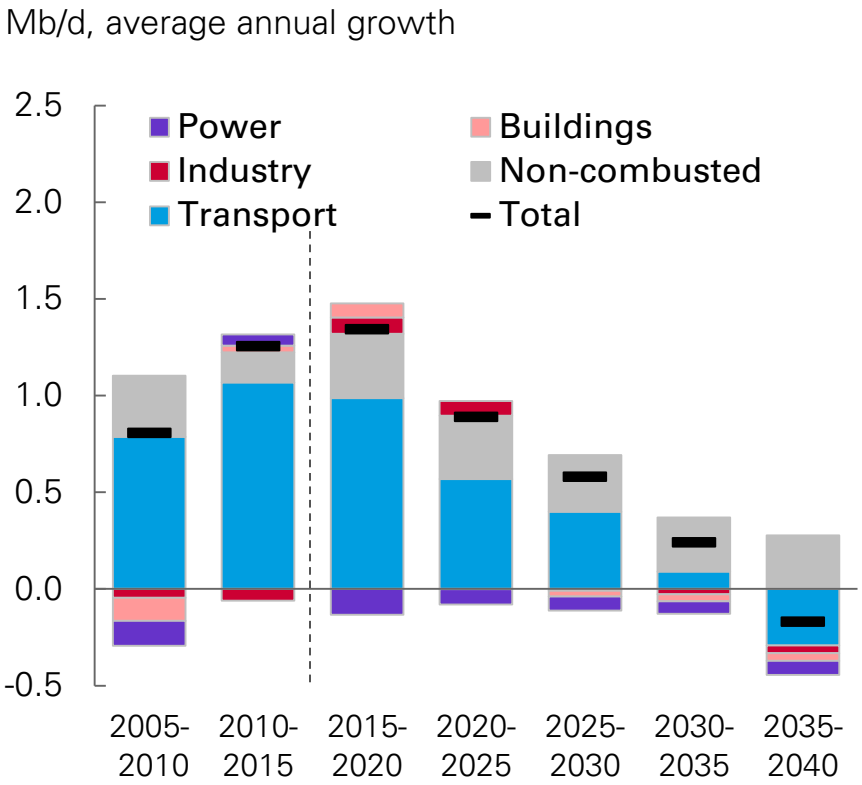
Demand for oil and other liquid fuels

Liquids demand



Liquids demand growth



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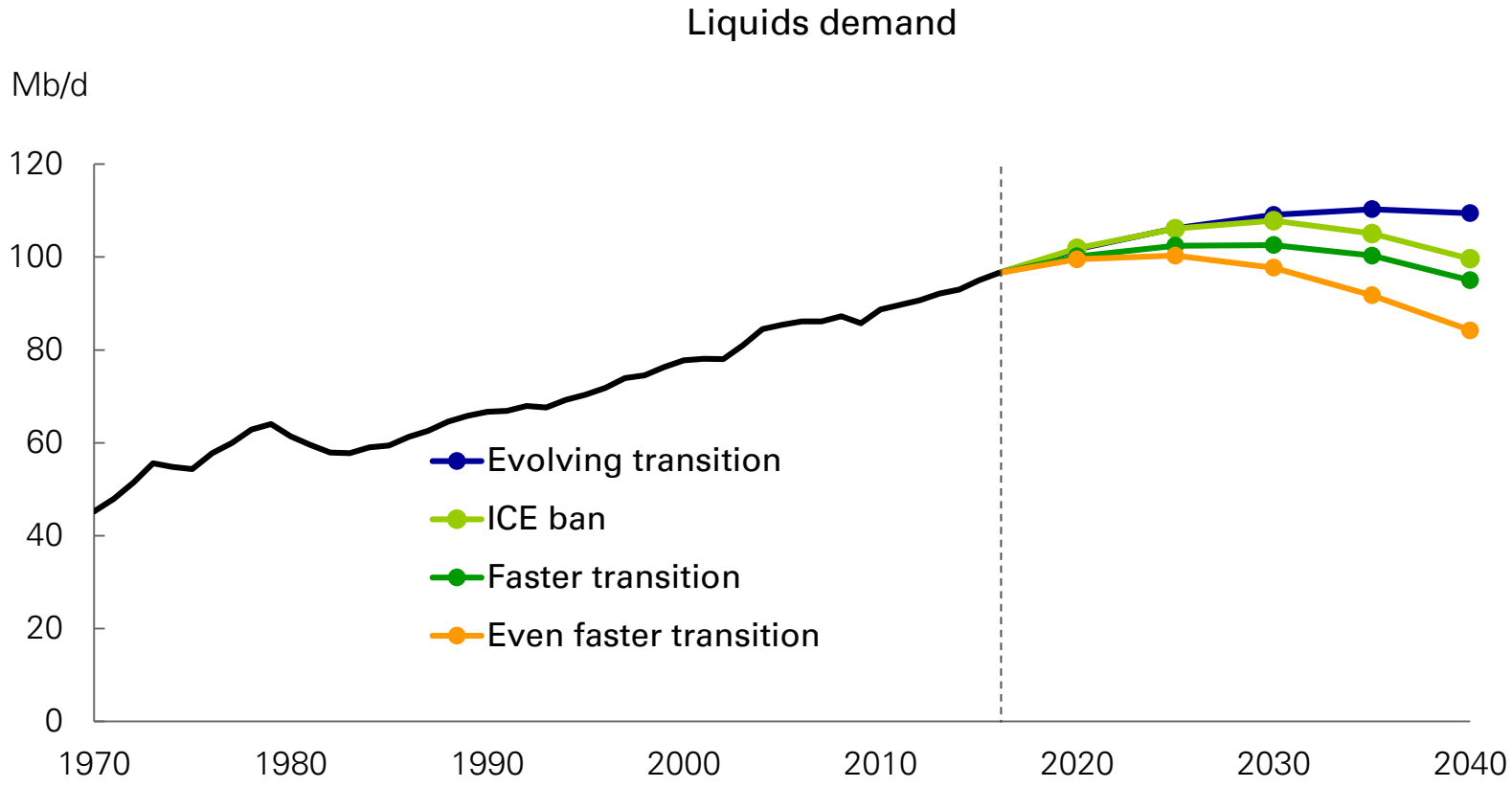

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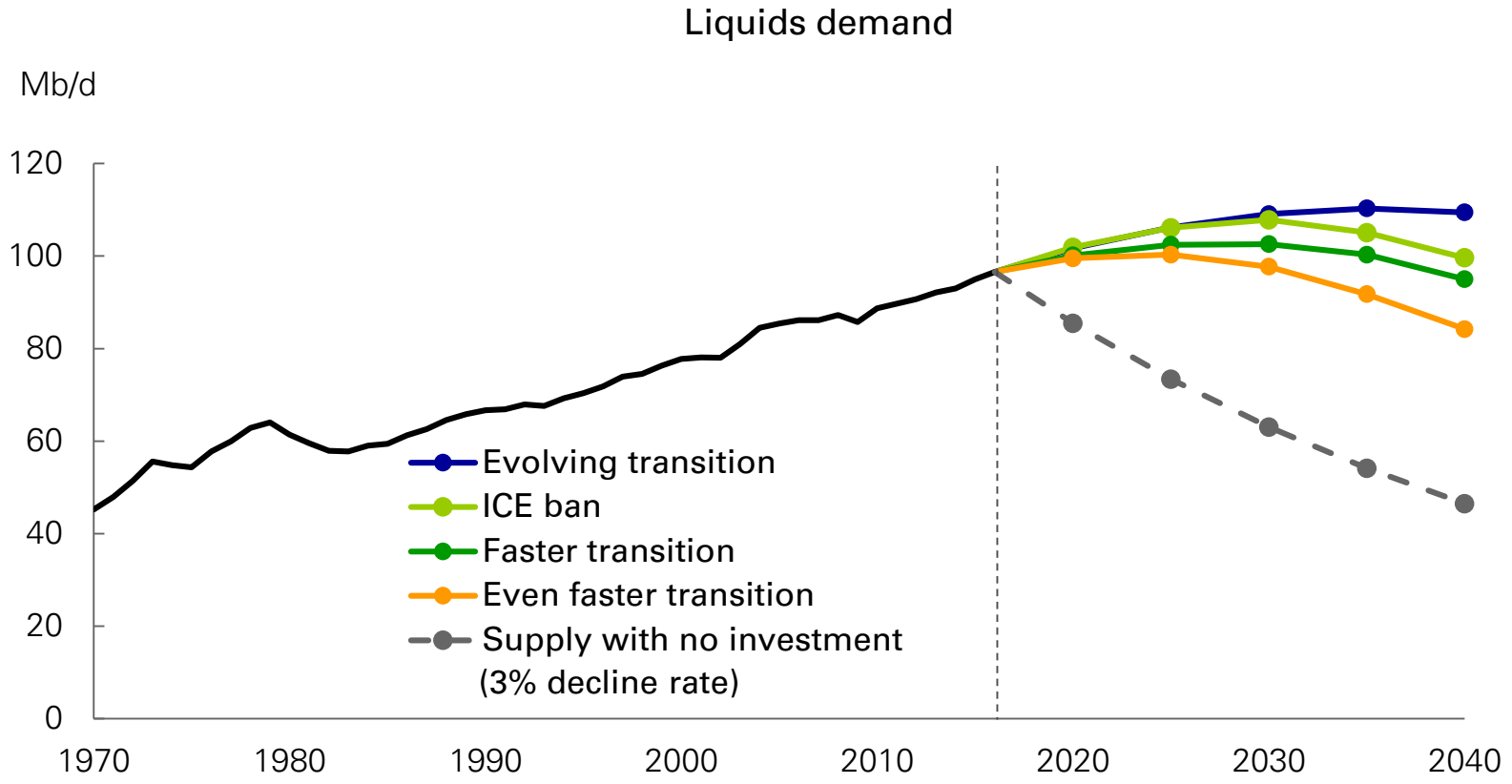
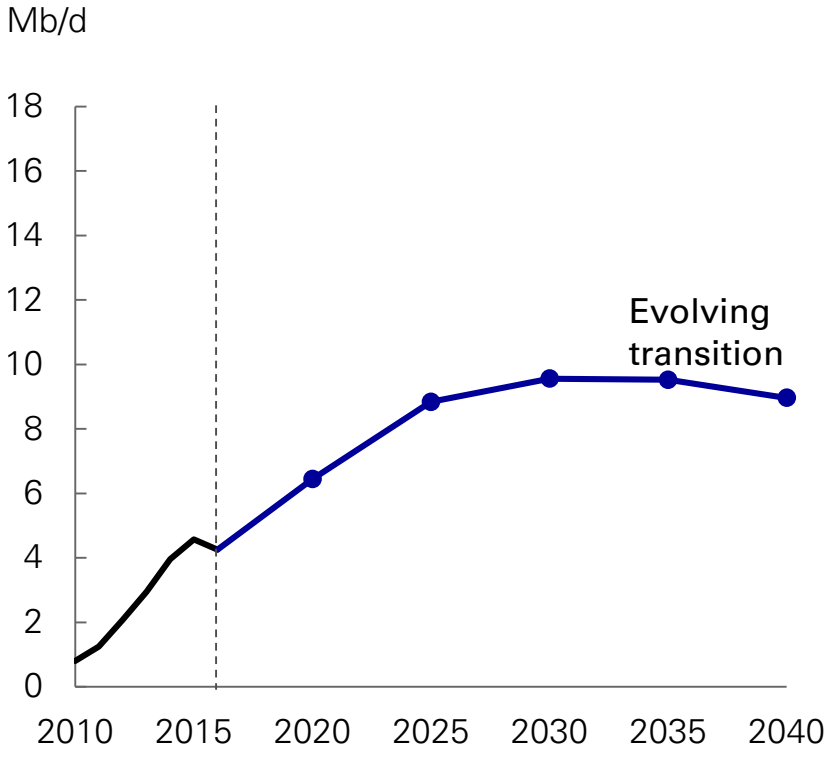
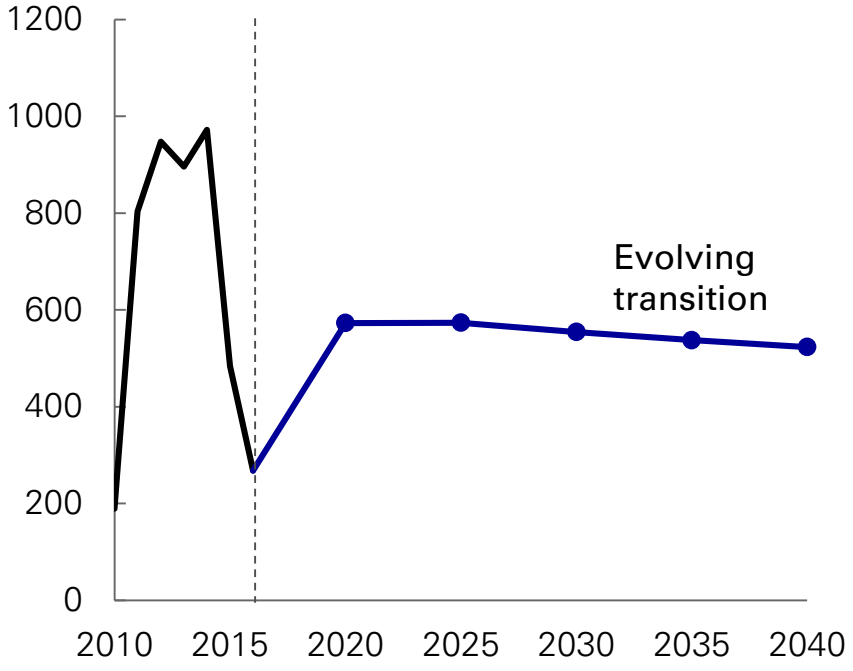


US tight oil: alternative scenarios

US tight oil production

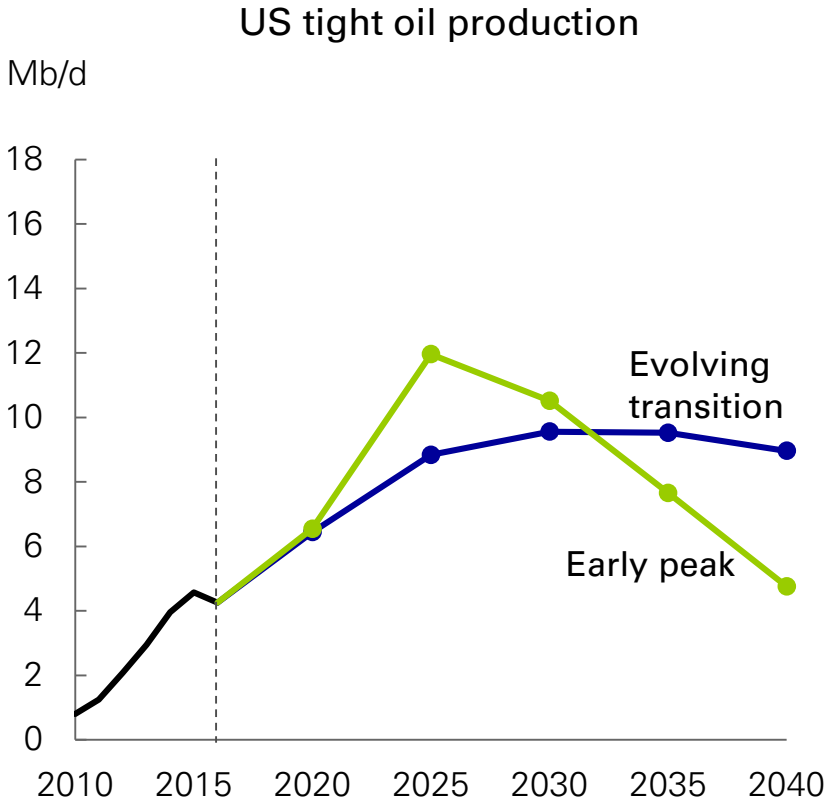


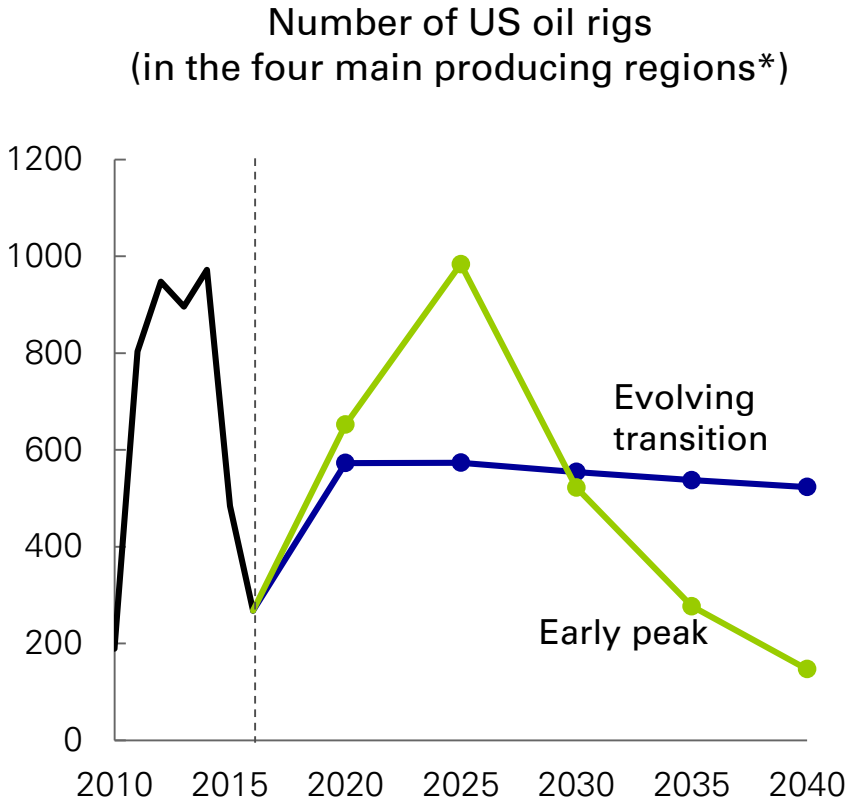
Number of US oil rigs
(in the four main producing regions*)



*Permian, Eagle Ford, Bakken and Niobrara

US tight oil: alternative scenarios





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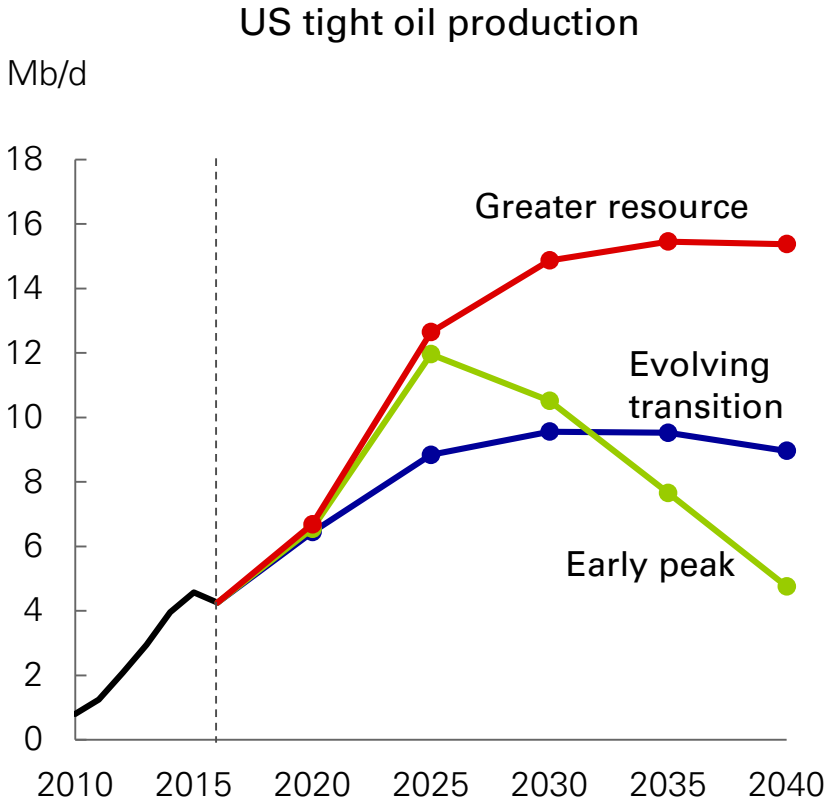

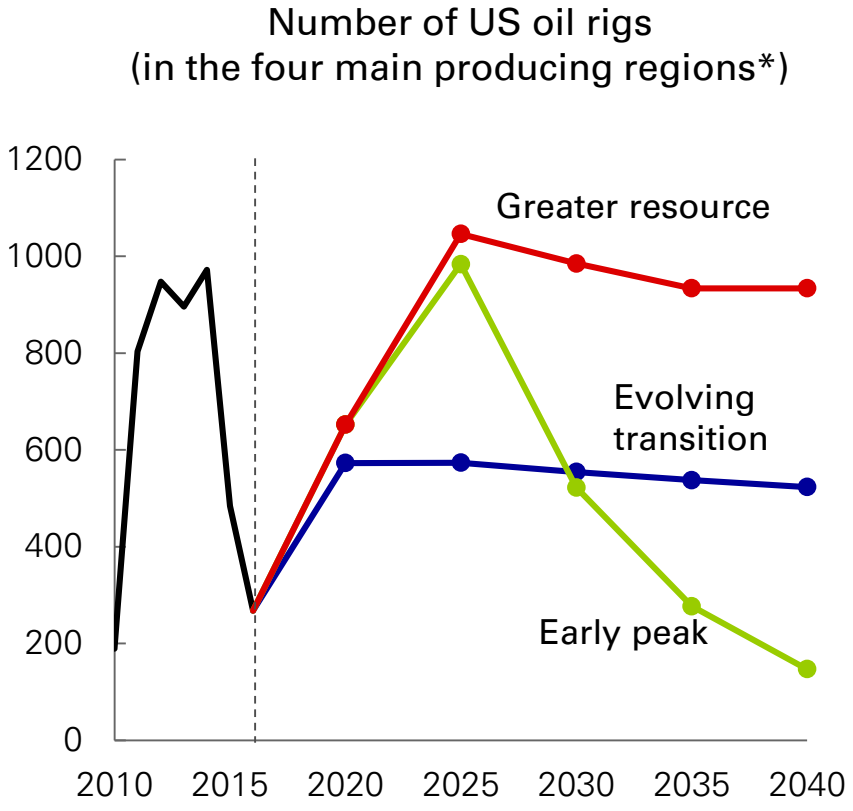

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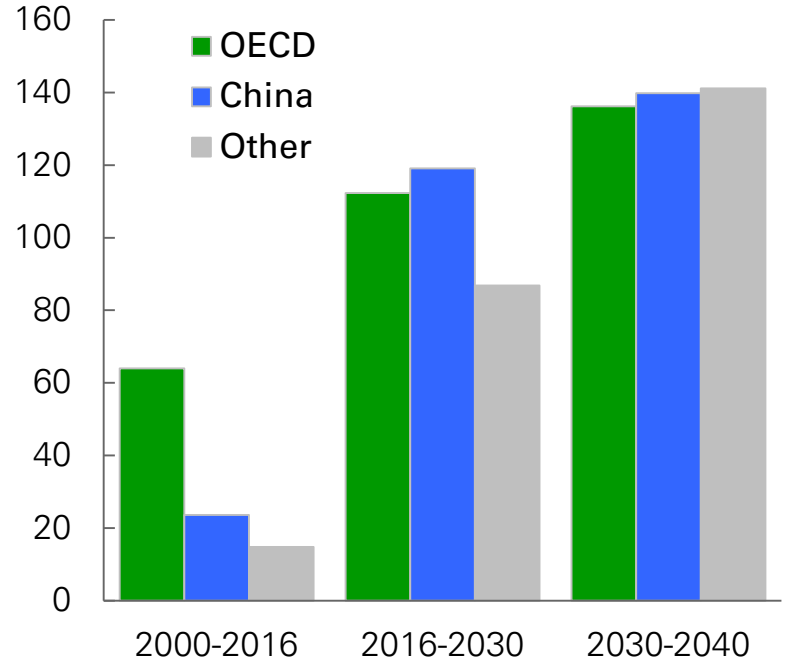
Rapid growth in renewable energy

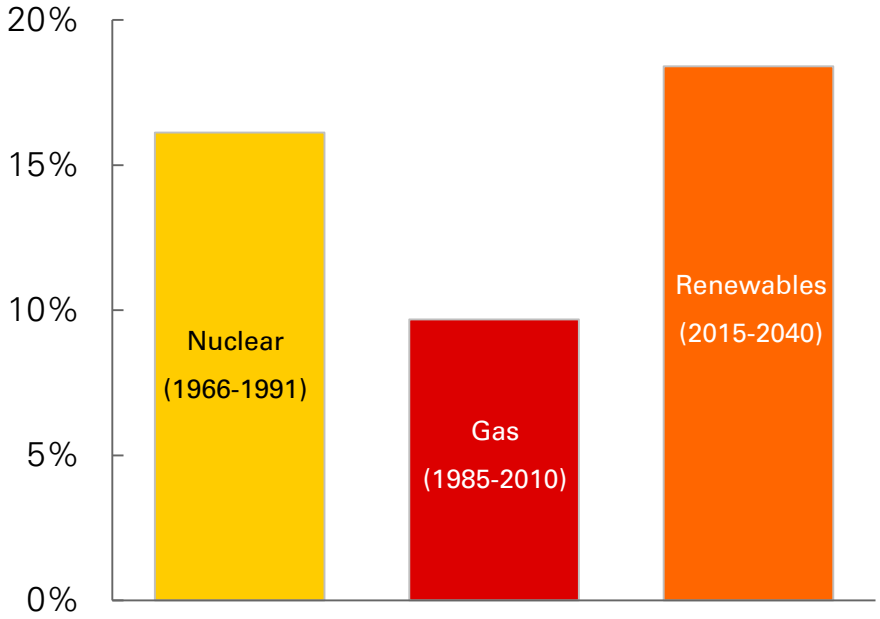
Growth of renewable power

TWh, average annual growth

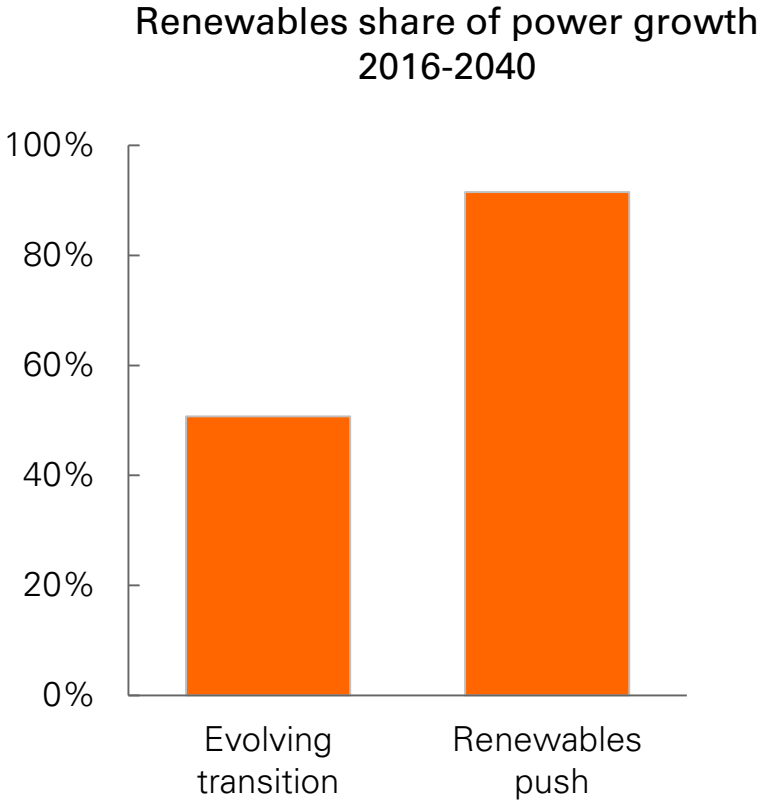


Pace of power market penetration

Largest gains in market share over 25 years, %pts

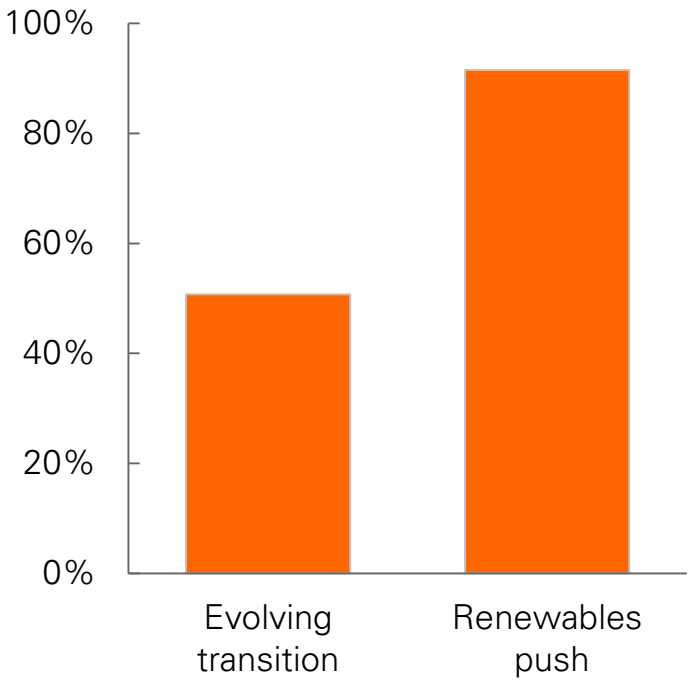


‘Renewables push’ scenario

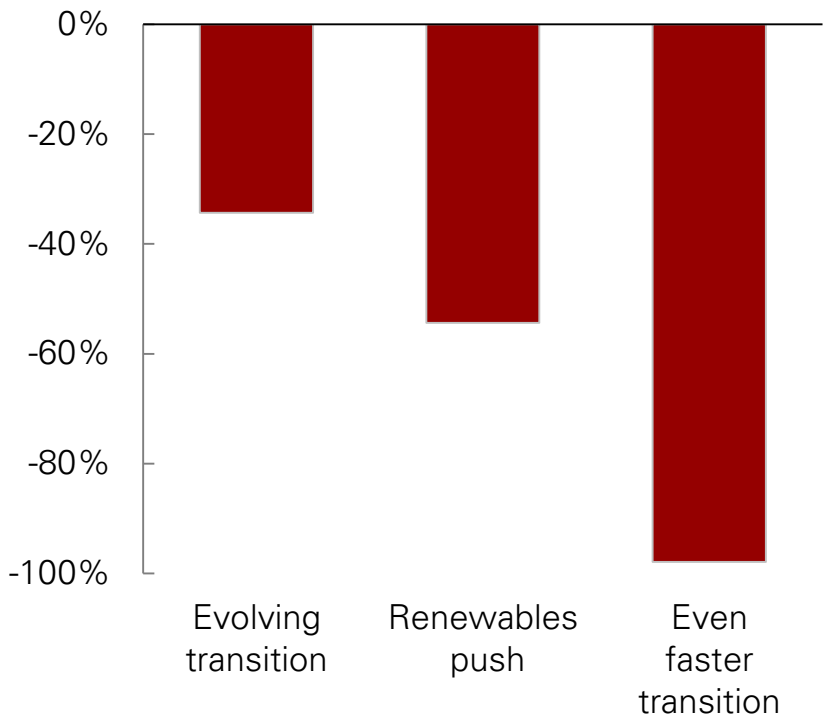


‘Renewables push’ scenario

Renewables share of power growth
2016-2040



Change in carbon intensity of power
2016-2040



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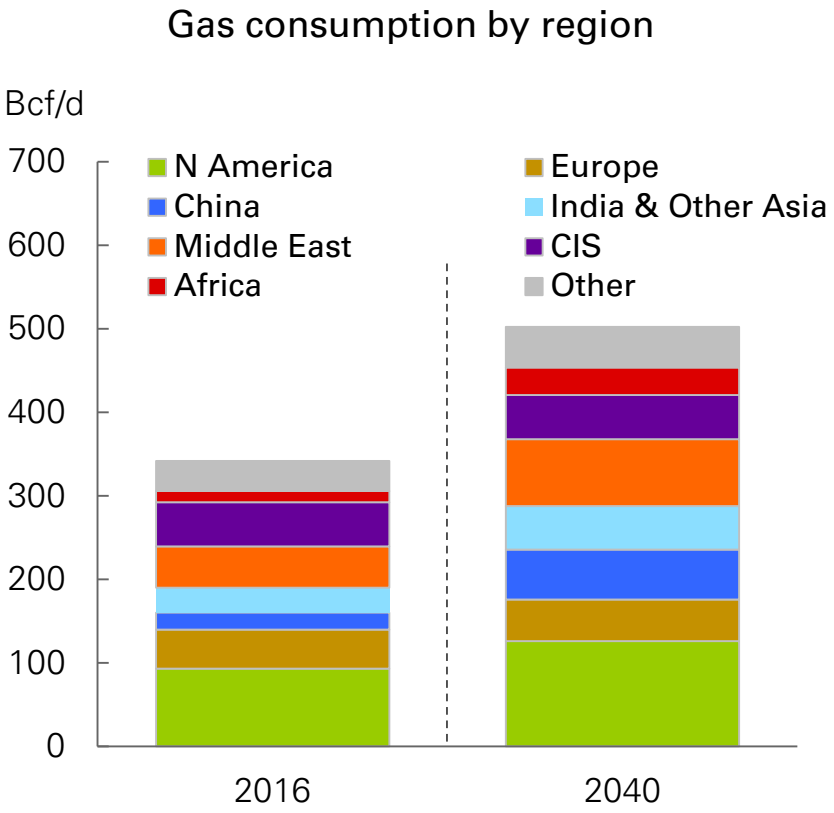
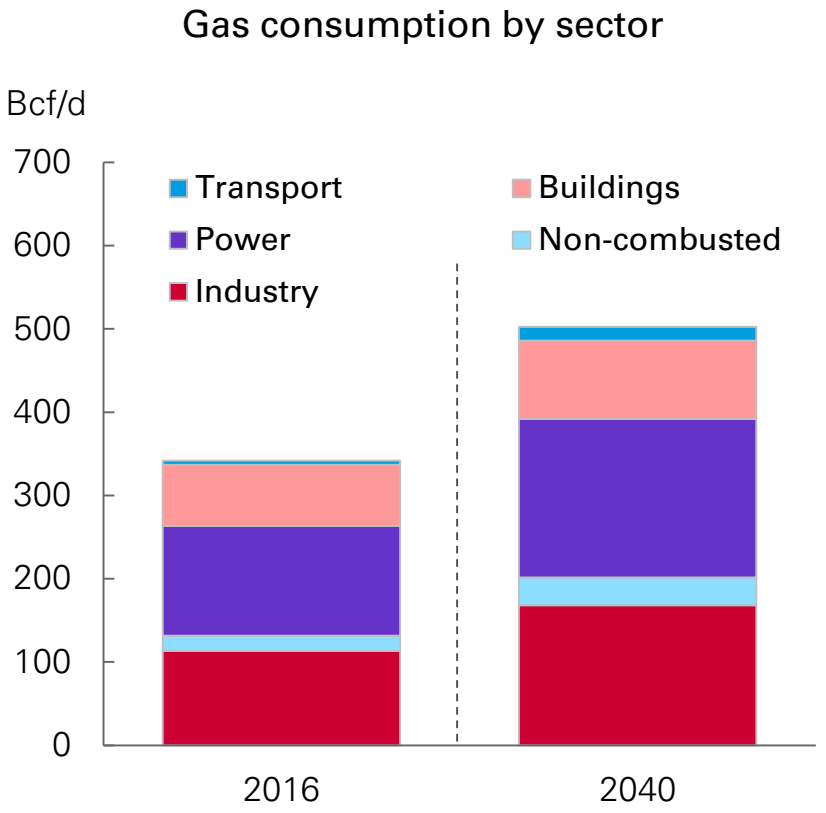
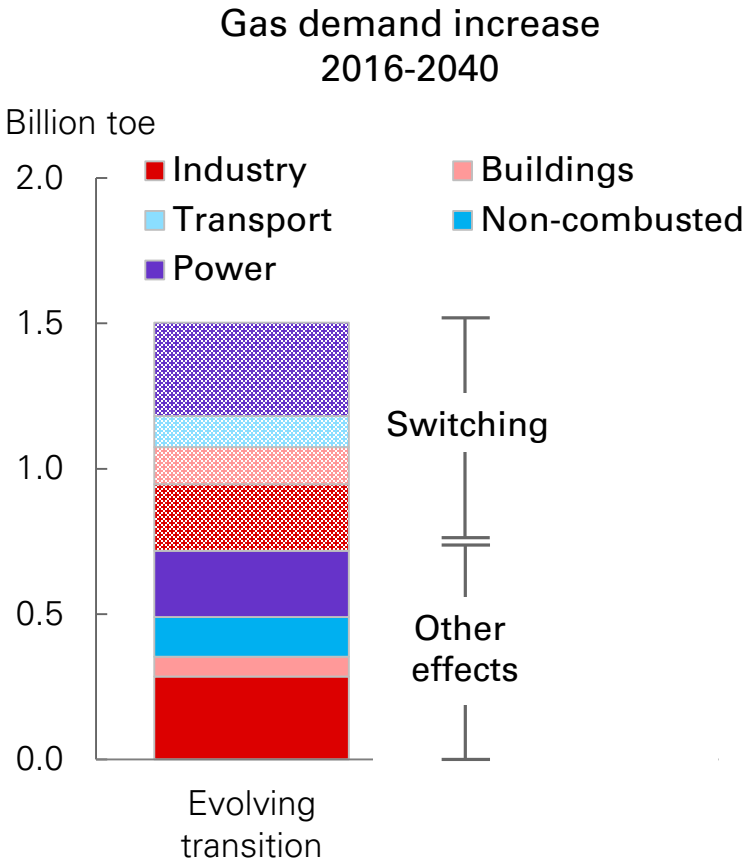
Growth in natural gas demand





Possible risks to the outlook for natural gas



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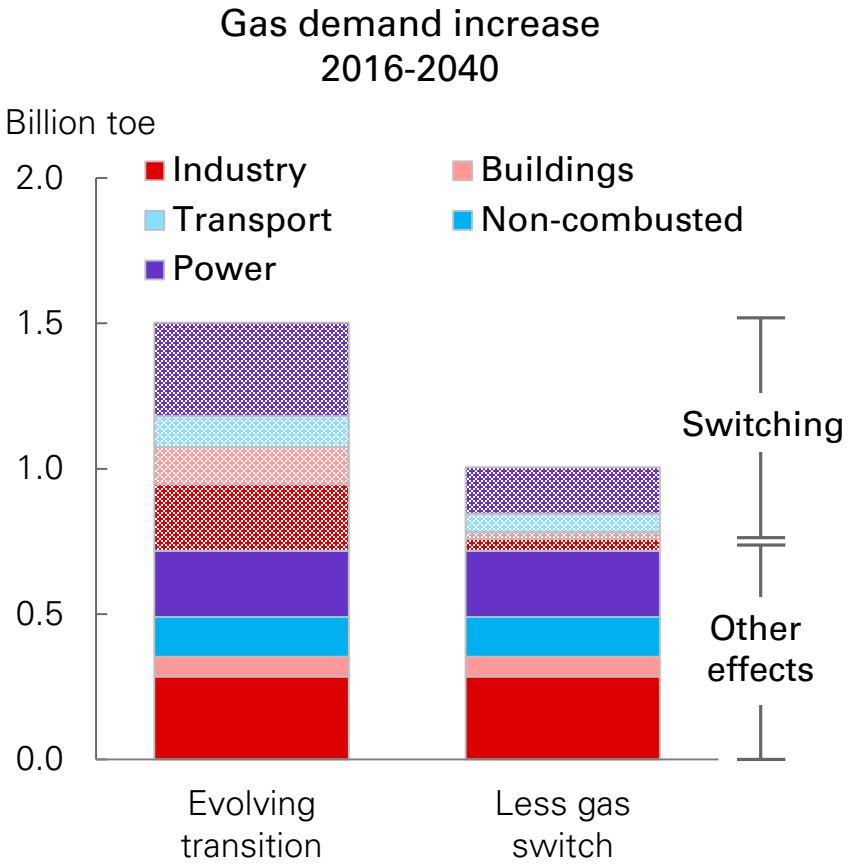
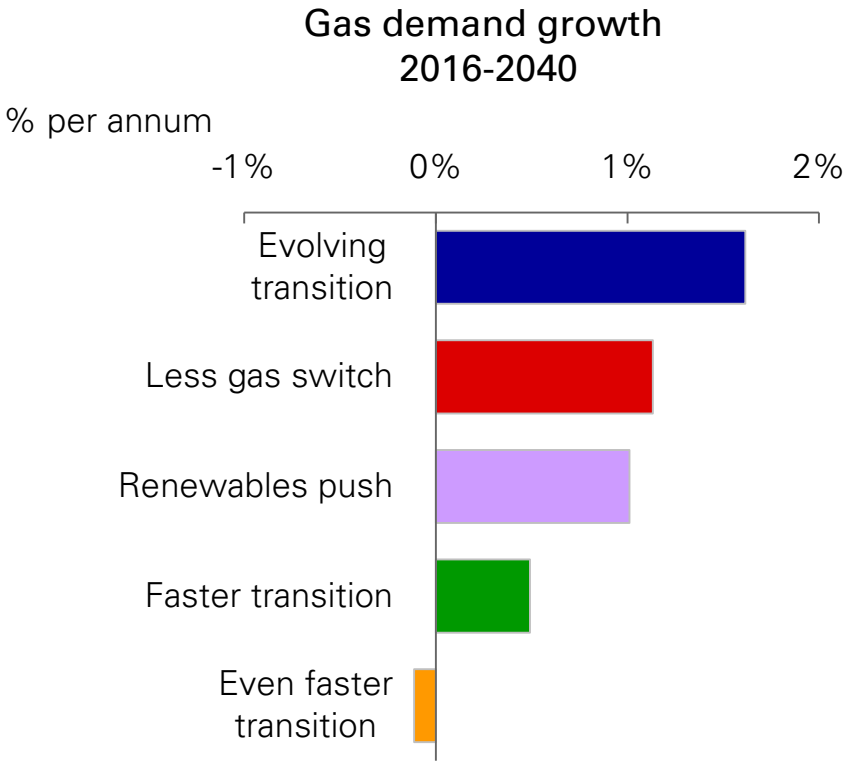
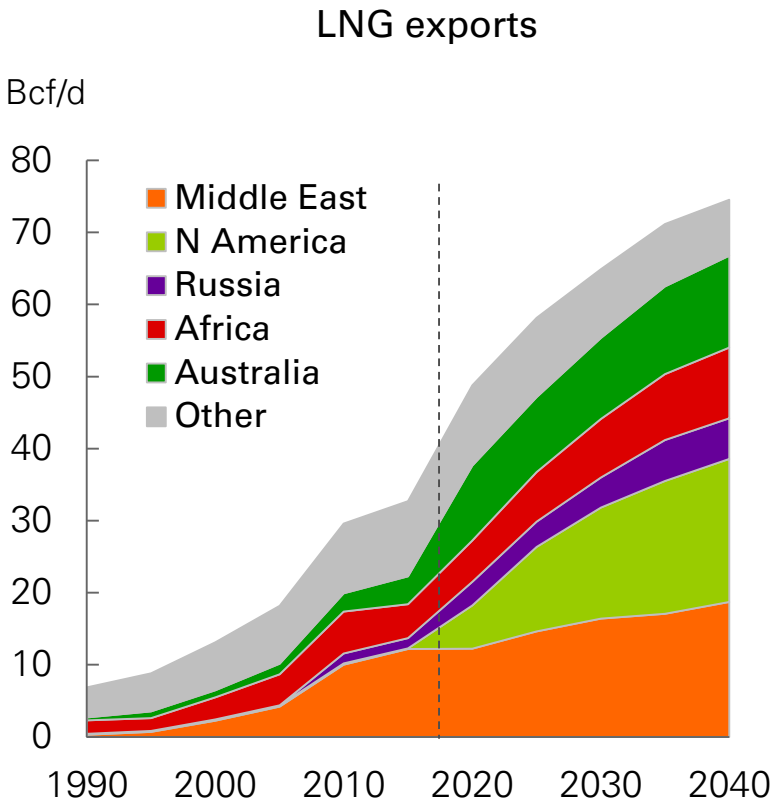
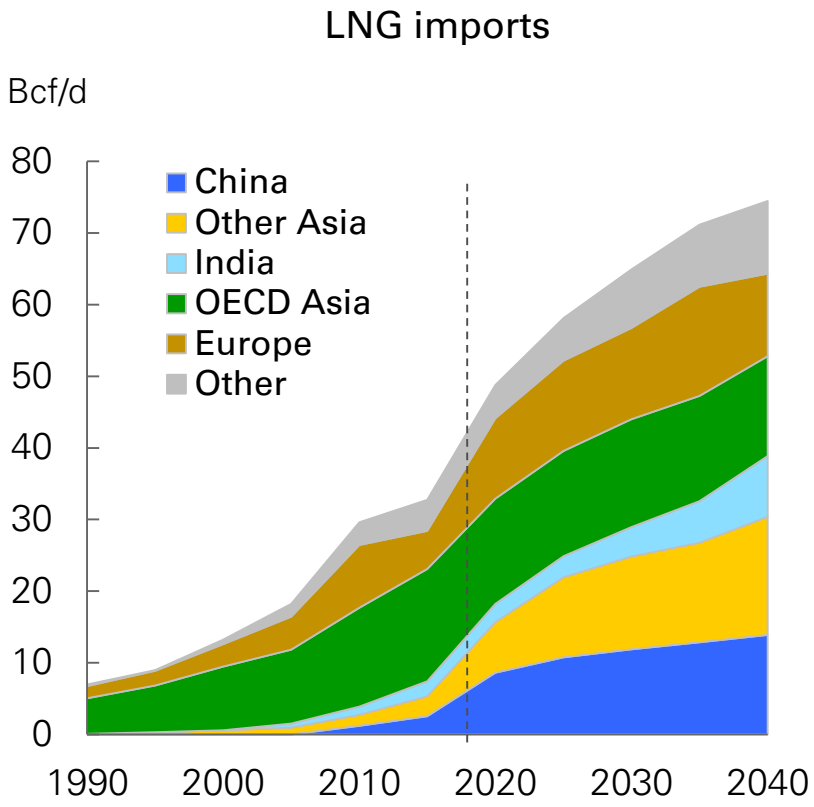




LNG continues to grow





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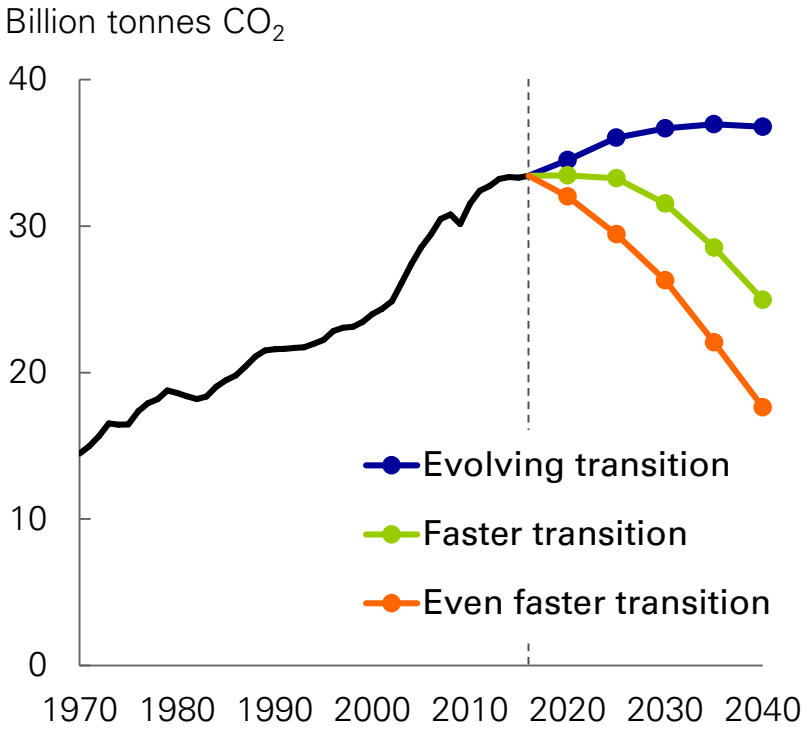
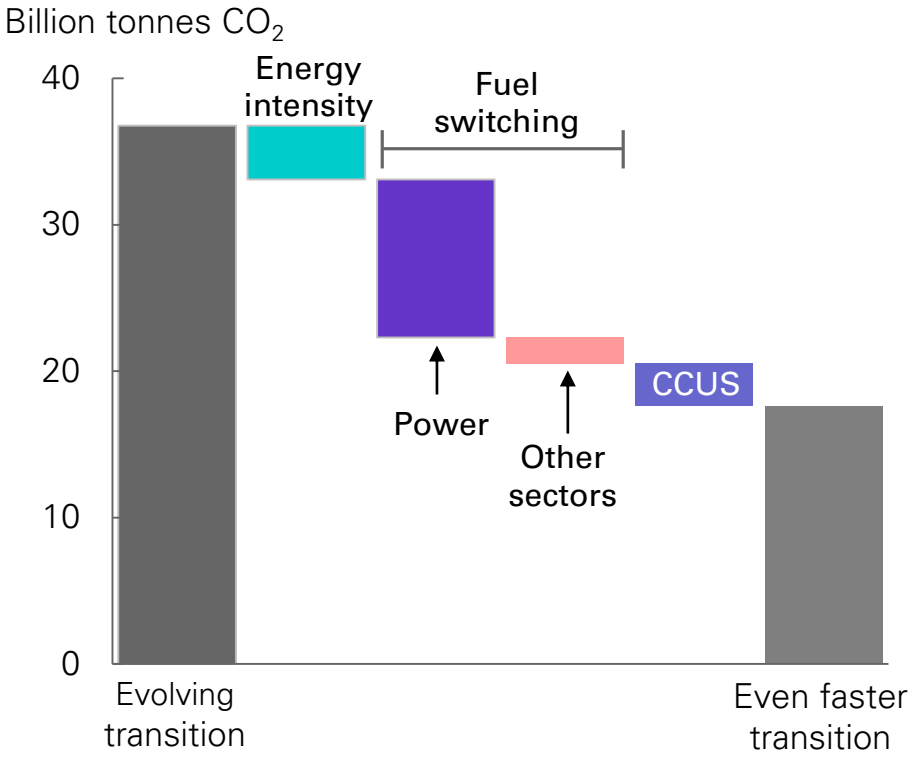
Carbon emissions continue to rise in the ET scenario

Carbon emissions

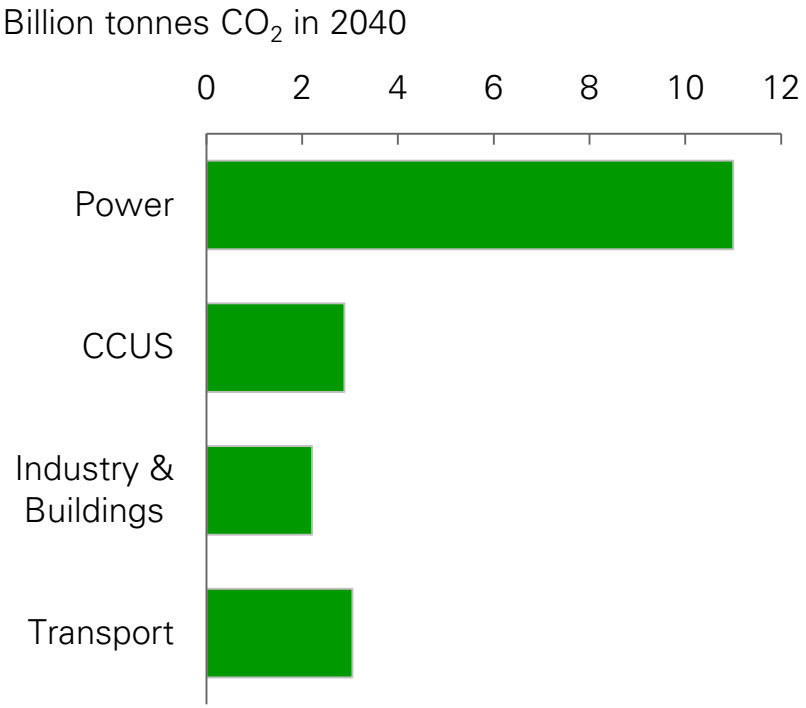


Carbon emissions in 2040: EFT versus ET scenario

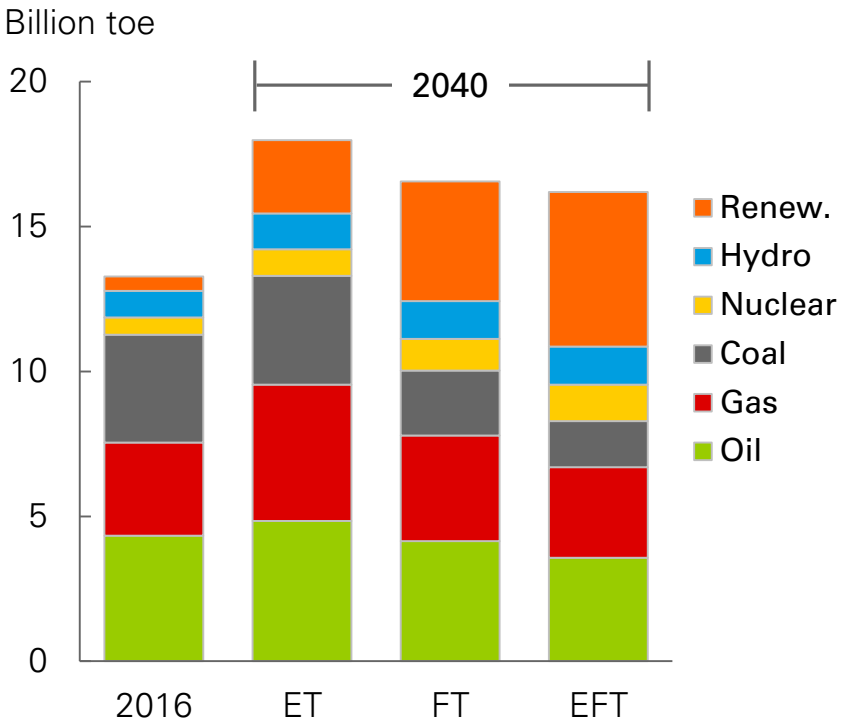


Impact of faster transition on global energy system

Reductions in carbon emissions: EFT versus ET scenario



Primary energy consumption under different scenarios



Conclusion

- Some aspects of energy transition seem relatively likely:
  - global energy demand continues to grow – driven by increasing prosperity
  - slower growth as we learn to do more with less
  - increasing abundance and diversification of energy supplies
  - renewable energy growing in importance
  - oil and gas continue to play a central role in the global energy system

- Other aspects remain far more uncertain:
  - impact of EVs and autonomy in reshaping transport sector
  - role of natural gas and renewables in lower carbon transition
  - how will we achieve a more decisive break from past to achieve sharp fall in carbon emissions?

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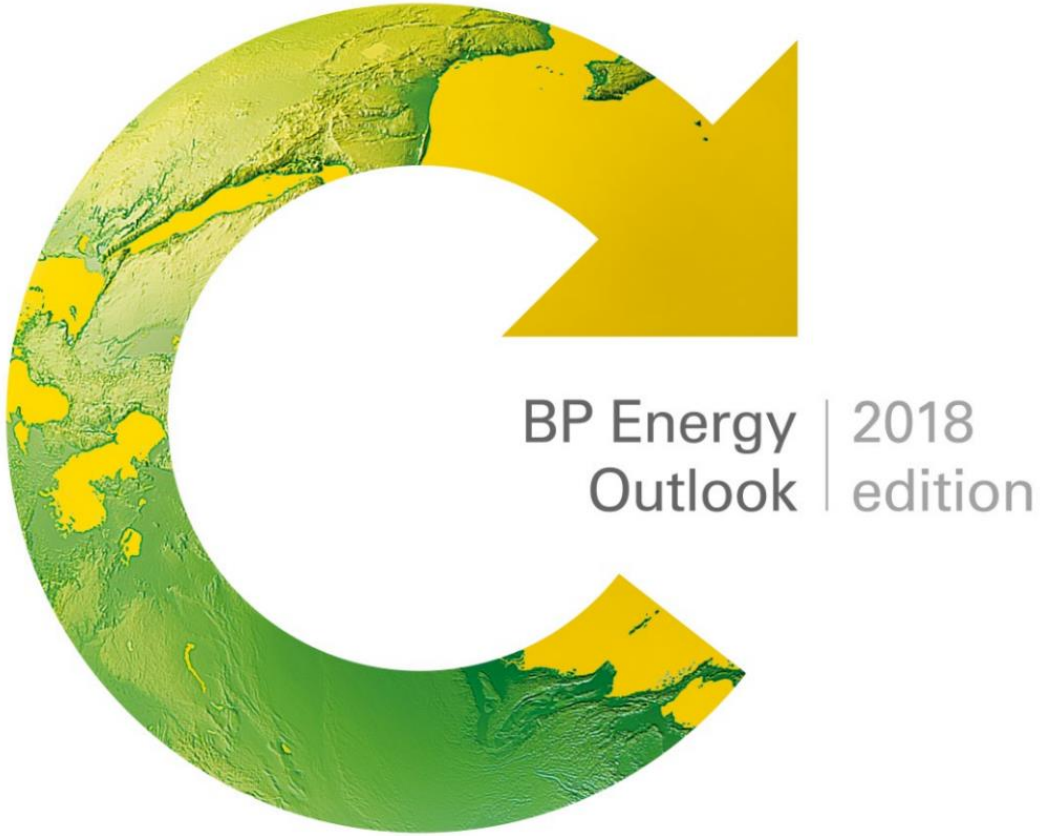
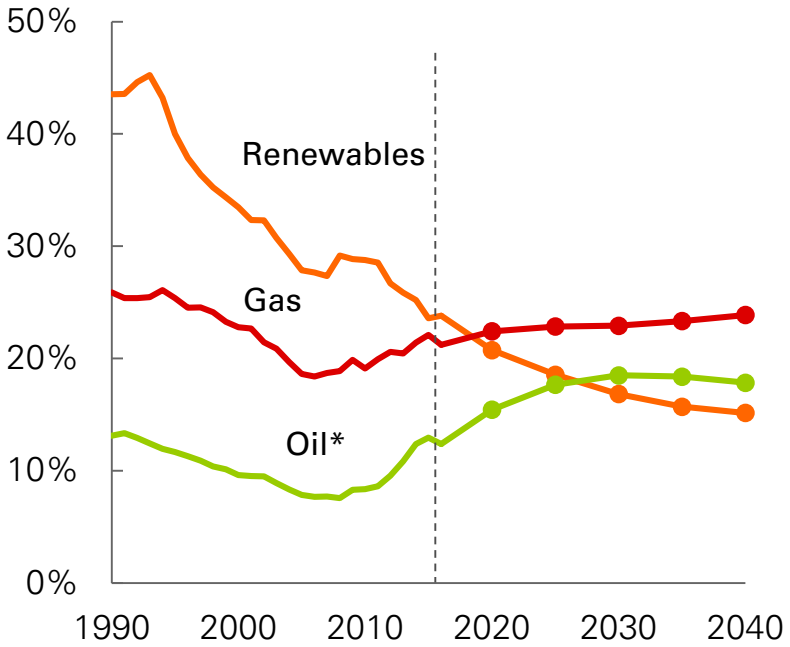


Mark Finley
General manager

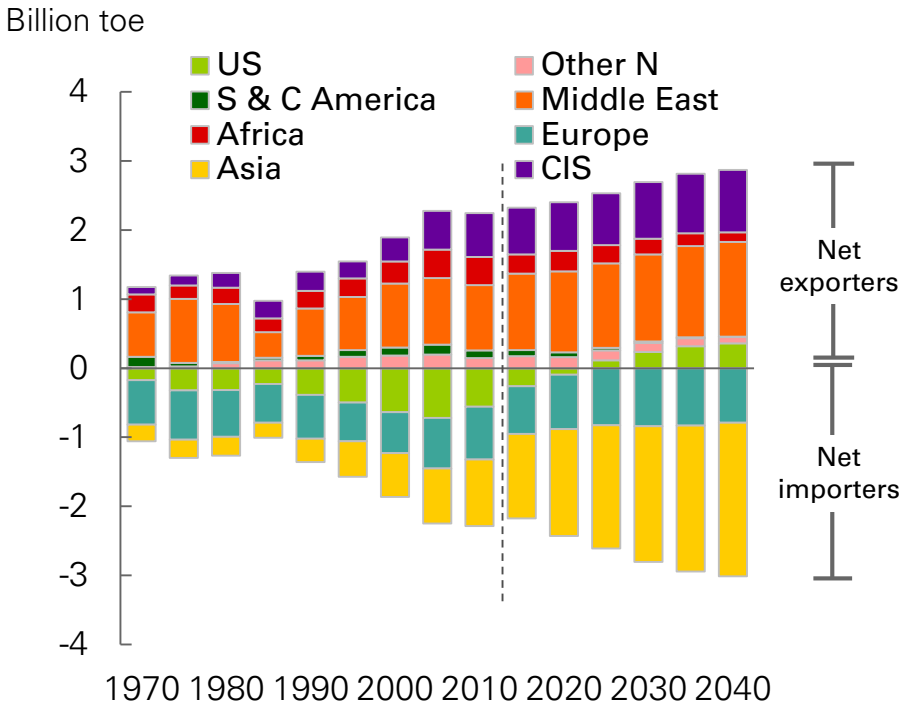
The role of US in global energy markets

US shares of global production



* Includes crude and NGLs

Regional oil/gas imbalances



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