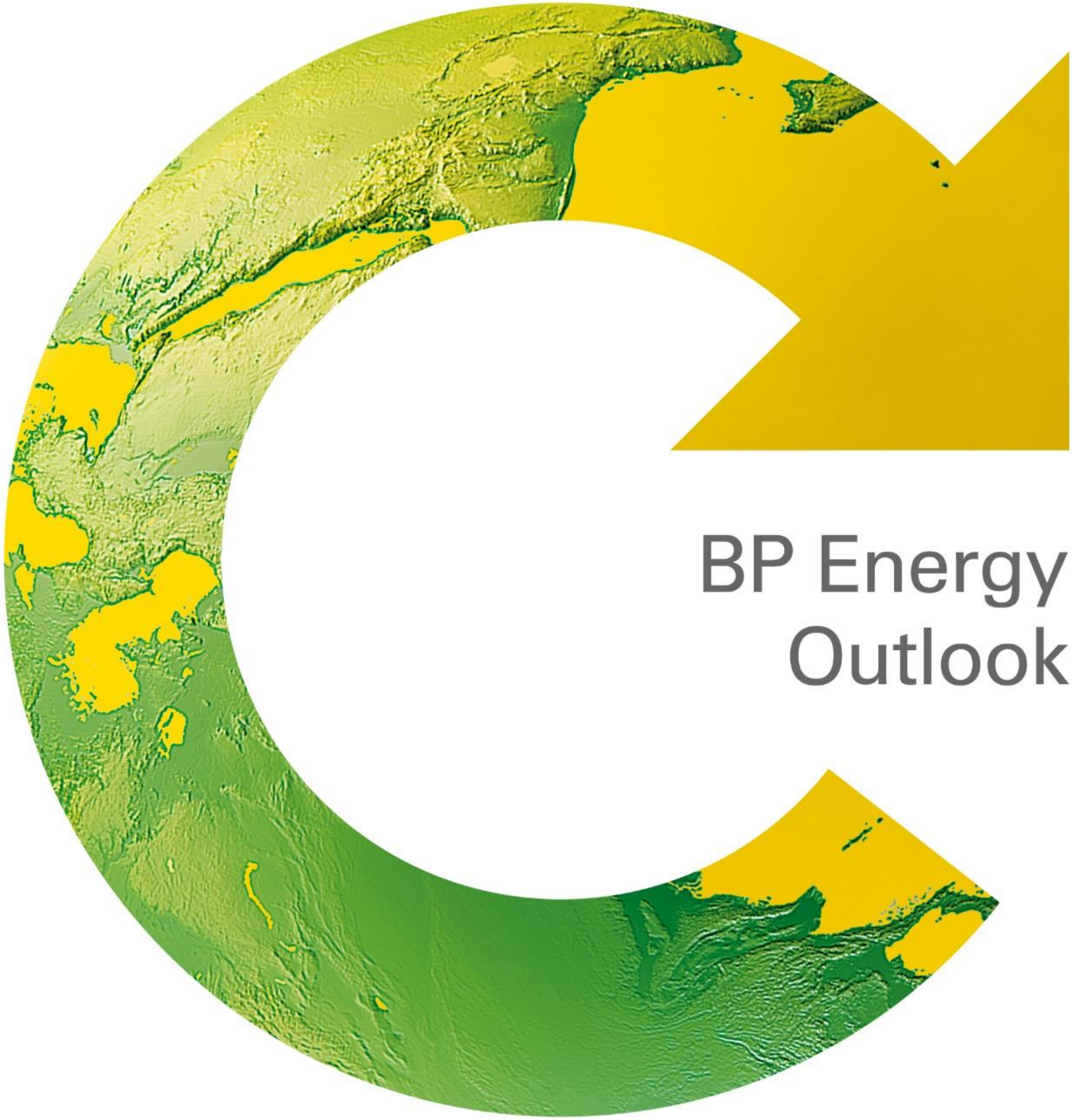


BP Energy Outlook | 2018 edition

BP energy economics

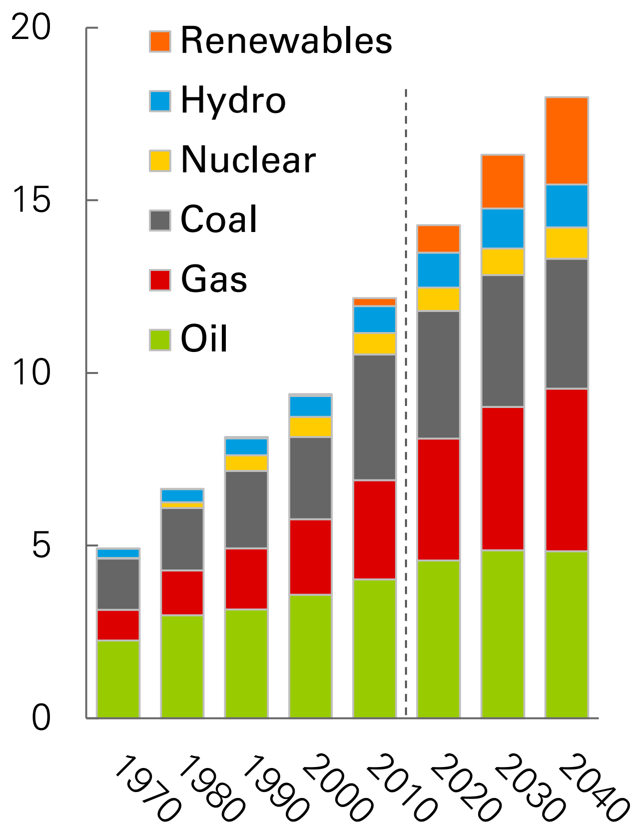
bp.com/energyoutlook

#BPstats

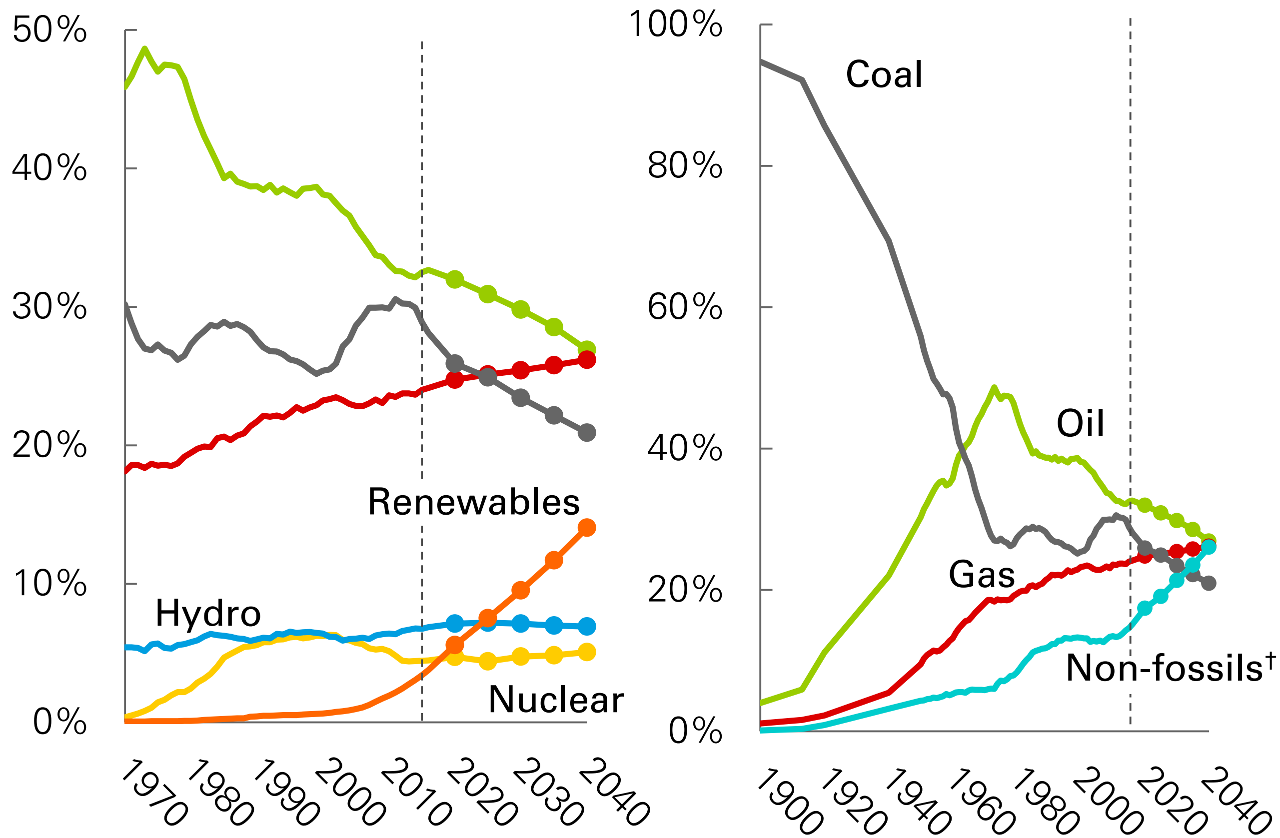
The transition to a lower carbon fuel mix continues

Primary energy consumption by fuel

Billion toe



Shares of primary energy

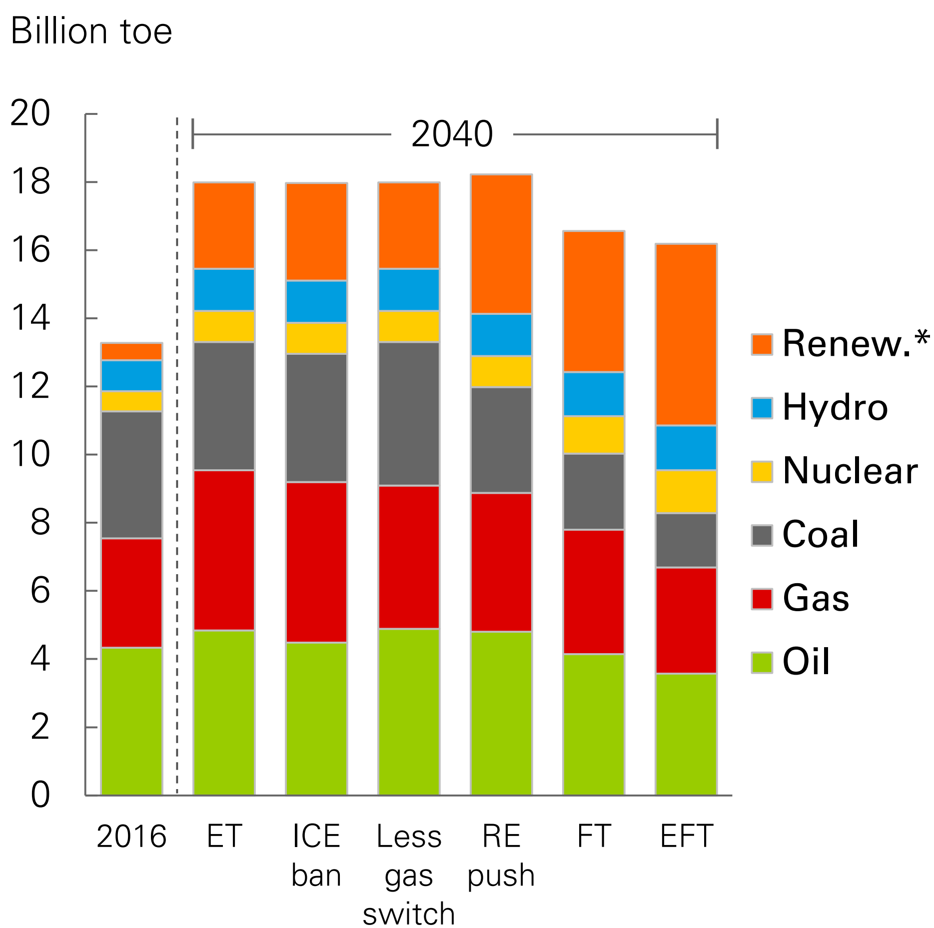


† Non-fossils includes renewables, nuclear and hydro

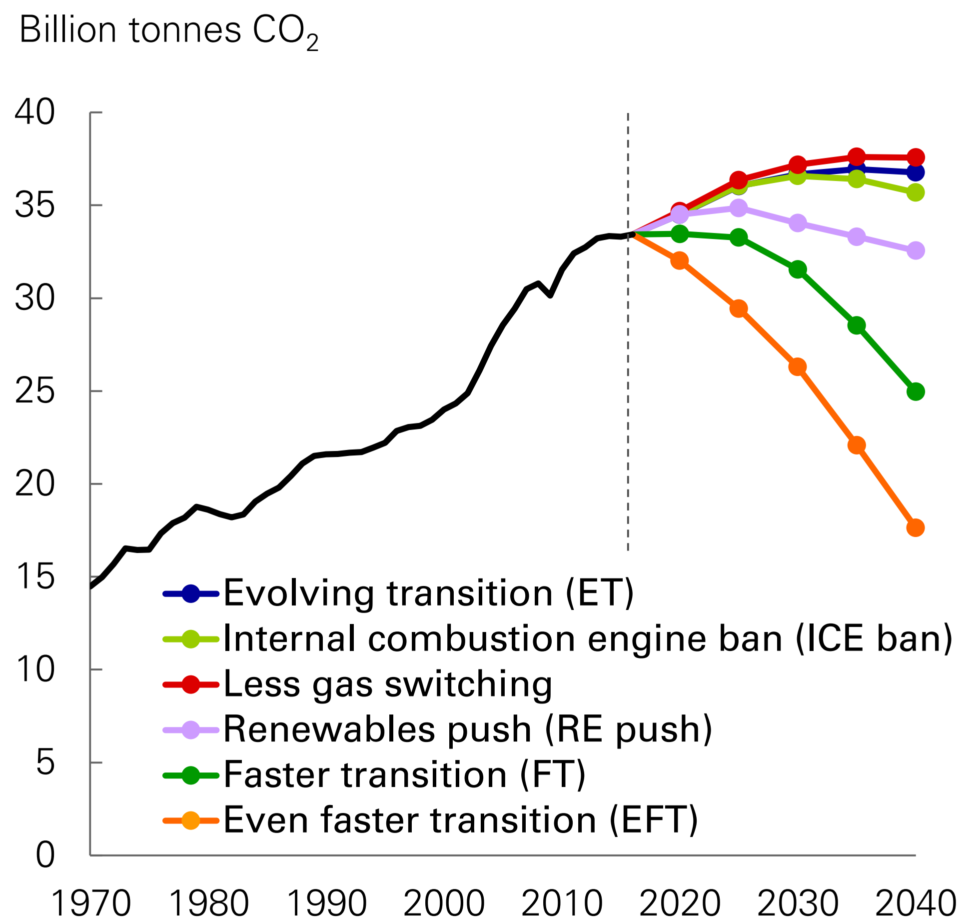
© BP p.l.c. 2018

The Energy Outlook considers a range of scenarios

Primary energy consumption by fuel



Carbon emissions

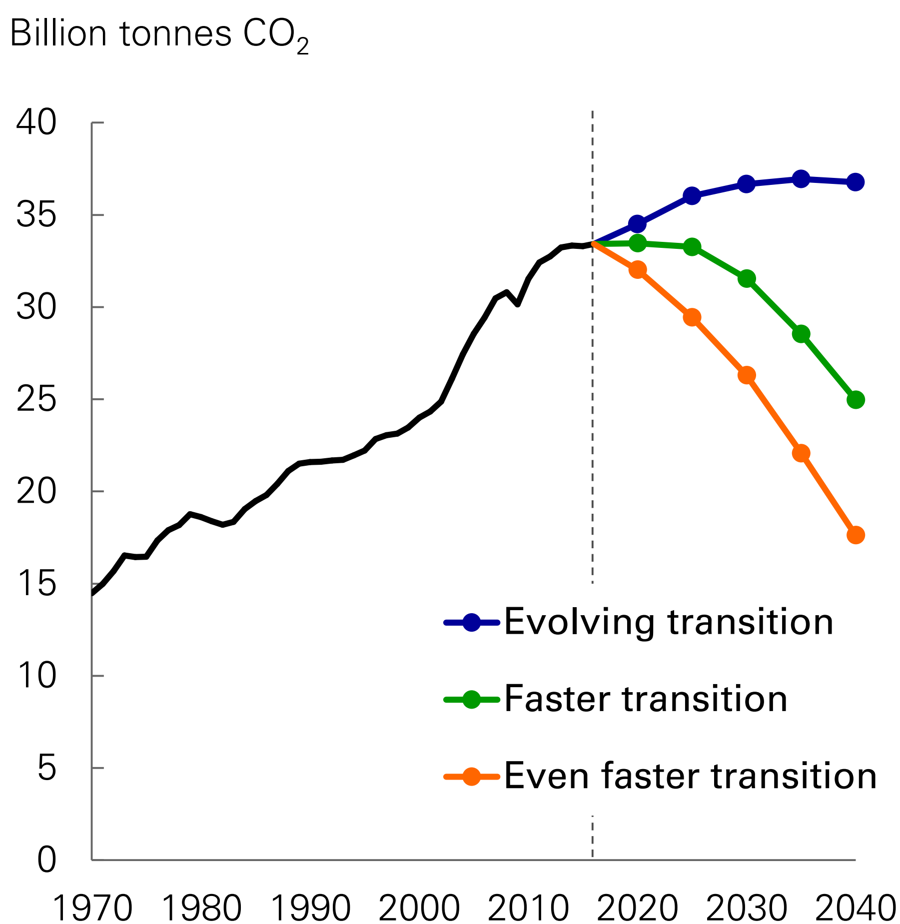


*Renewables includes wind, solar, geothermal, biomass, and biofuels
For full list of data definitions see p122

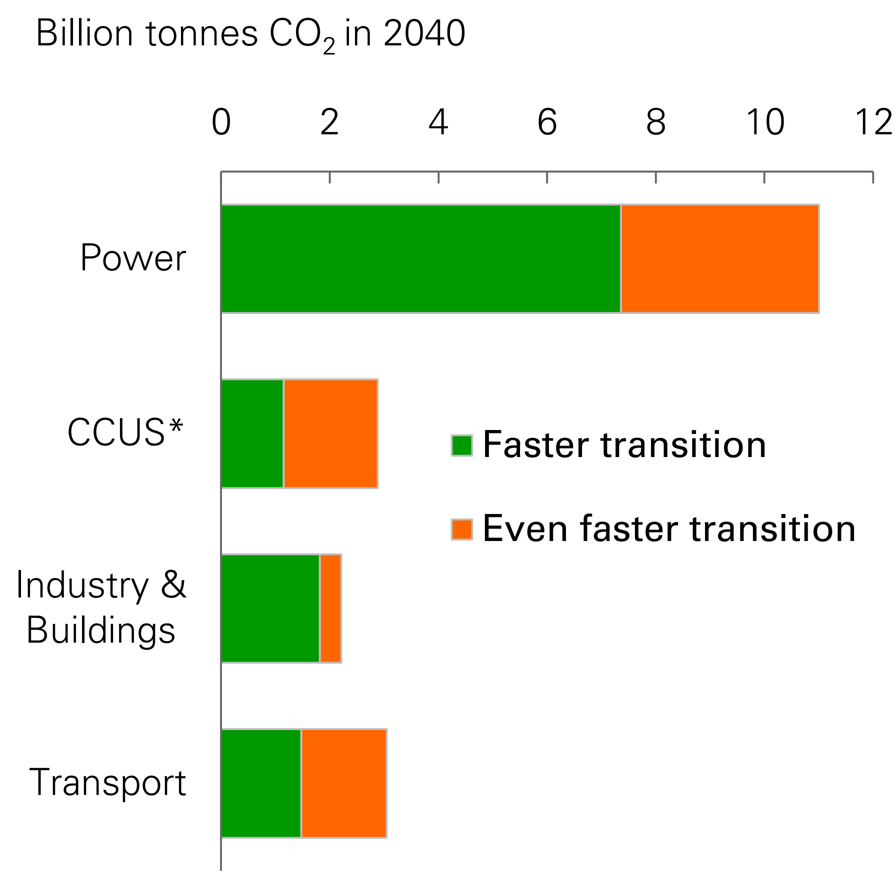
© BP p.l.c. 2018

Carbon emissions continue to grow in the ET scenario

Carbon emissions



Reductions versus ET scenario

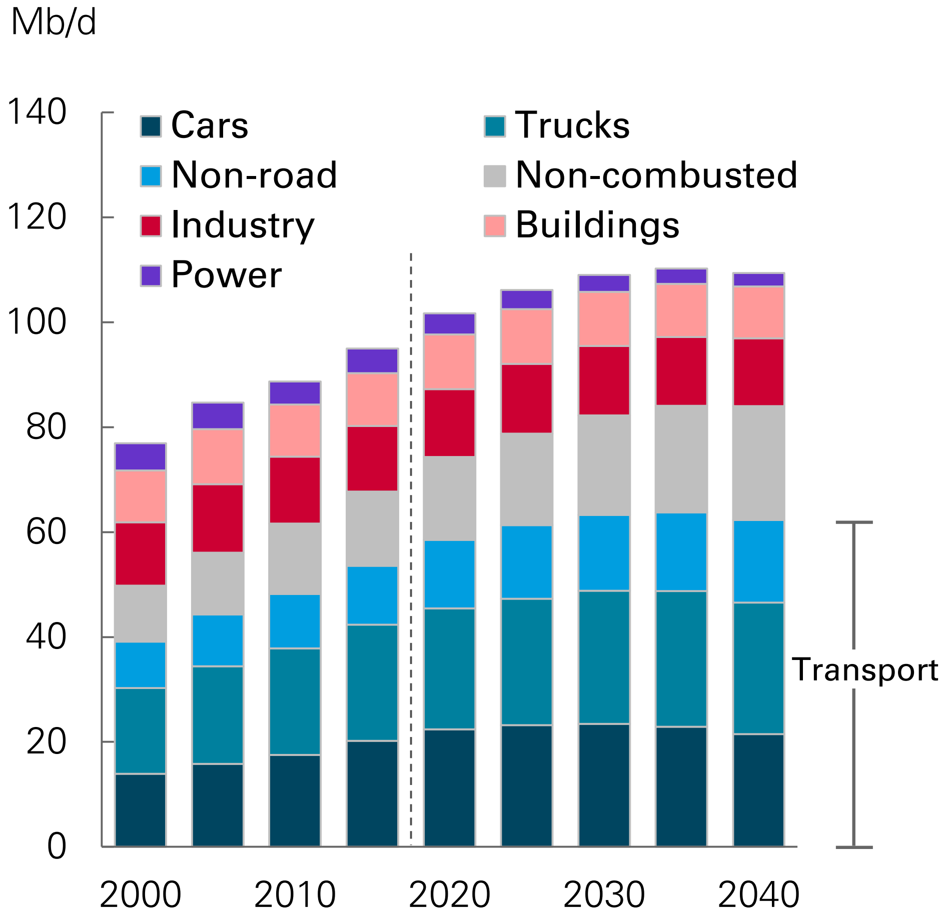


*Carbon capture use and storage

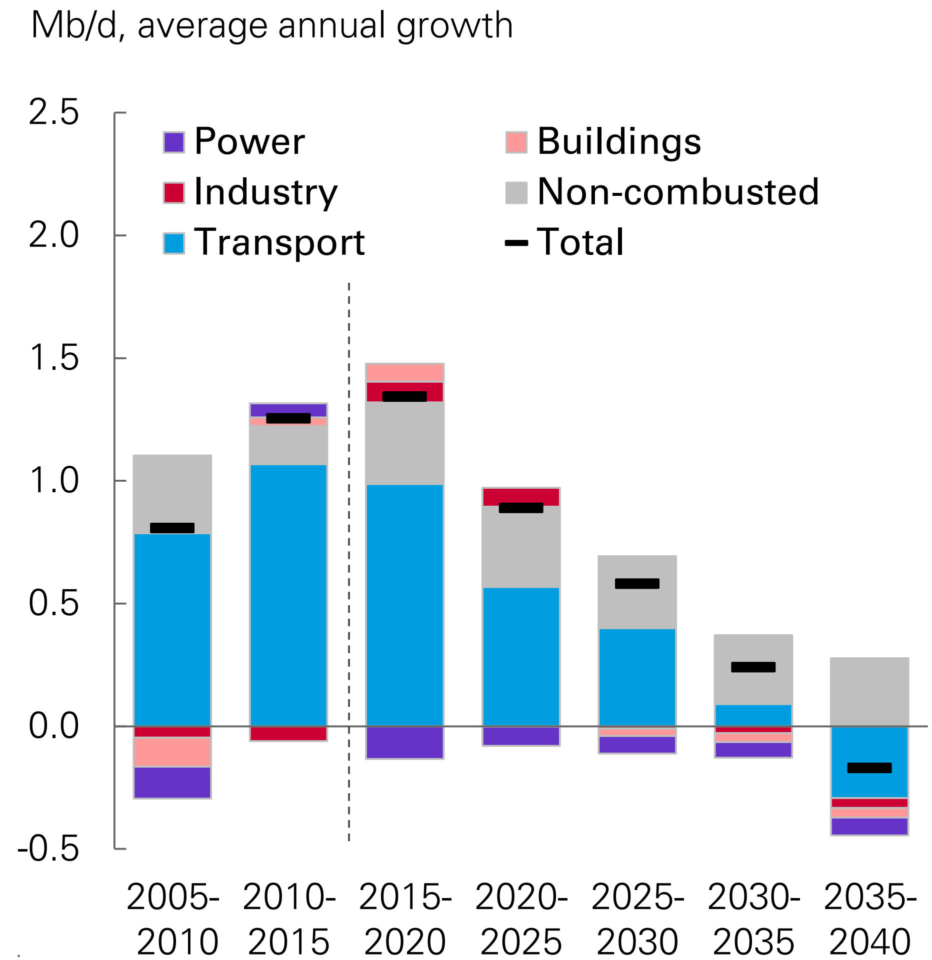
© BP p.l.c. 2018

Liquids demand grows materially over the Outlook…

Liquids demand



Liquids demand growth

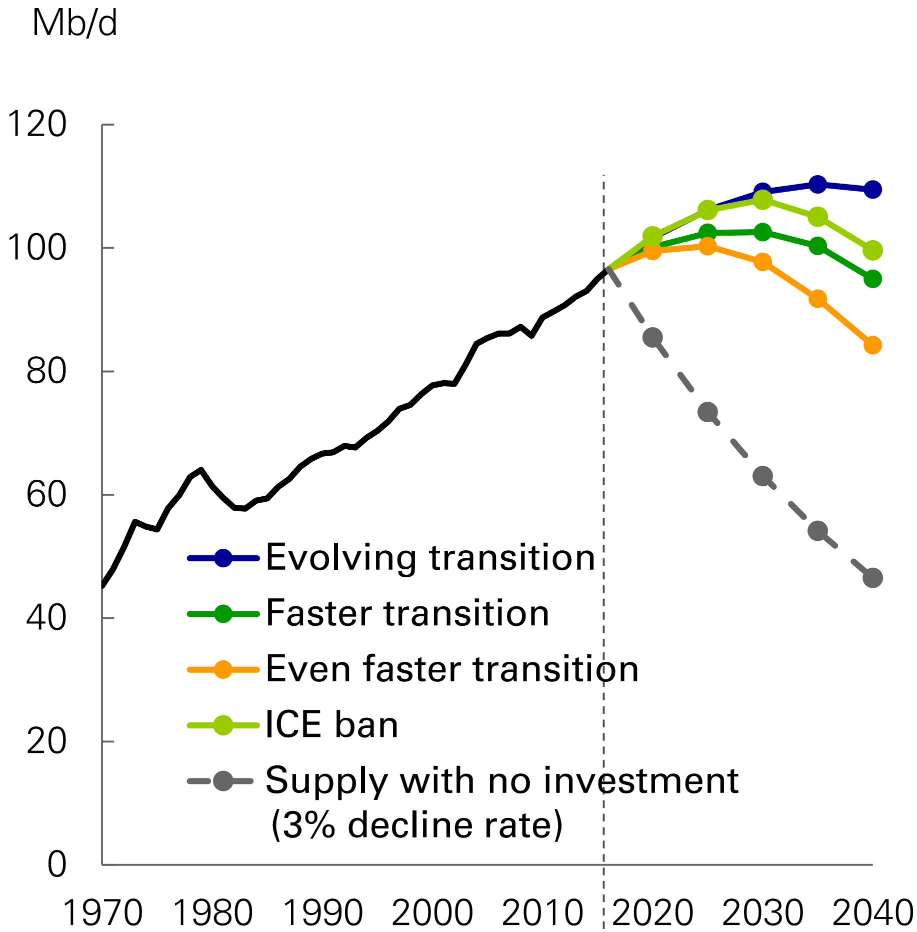


Cars include 2- and 3- wheelers. Trucks include most SUVs in North America.
Non-road includes aviation, marine and rail

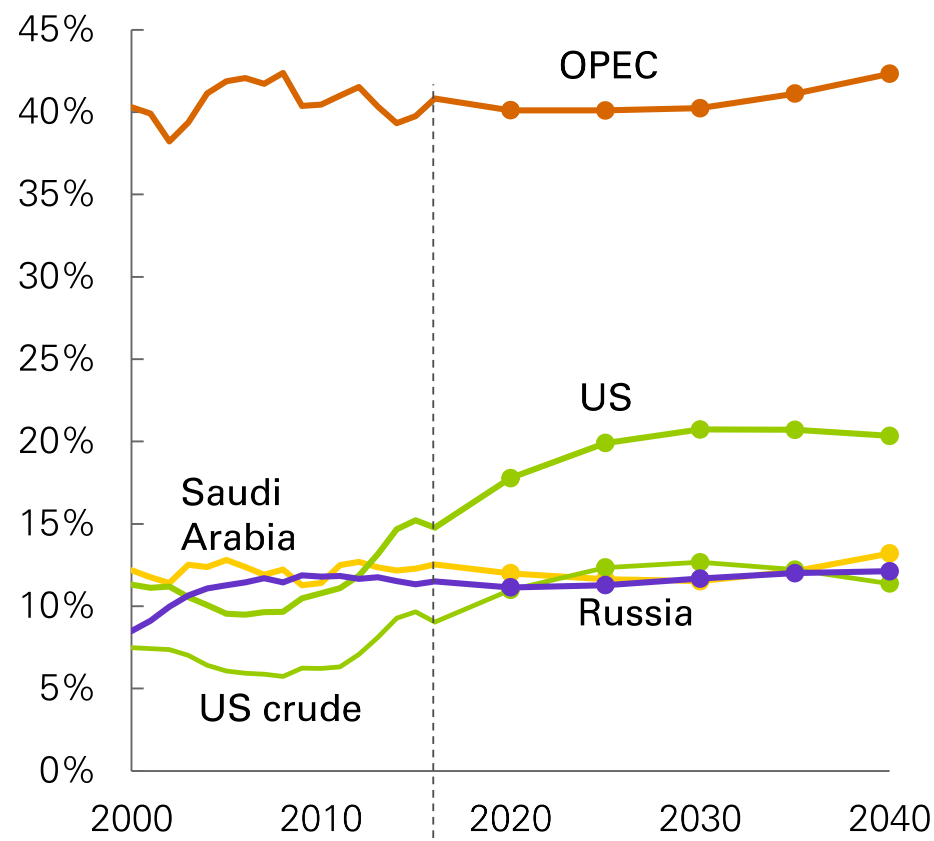
© BP p.l.c. 2018

Global liquids supply growth is led by low-cost producers

Demand and supply of liquid fuels



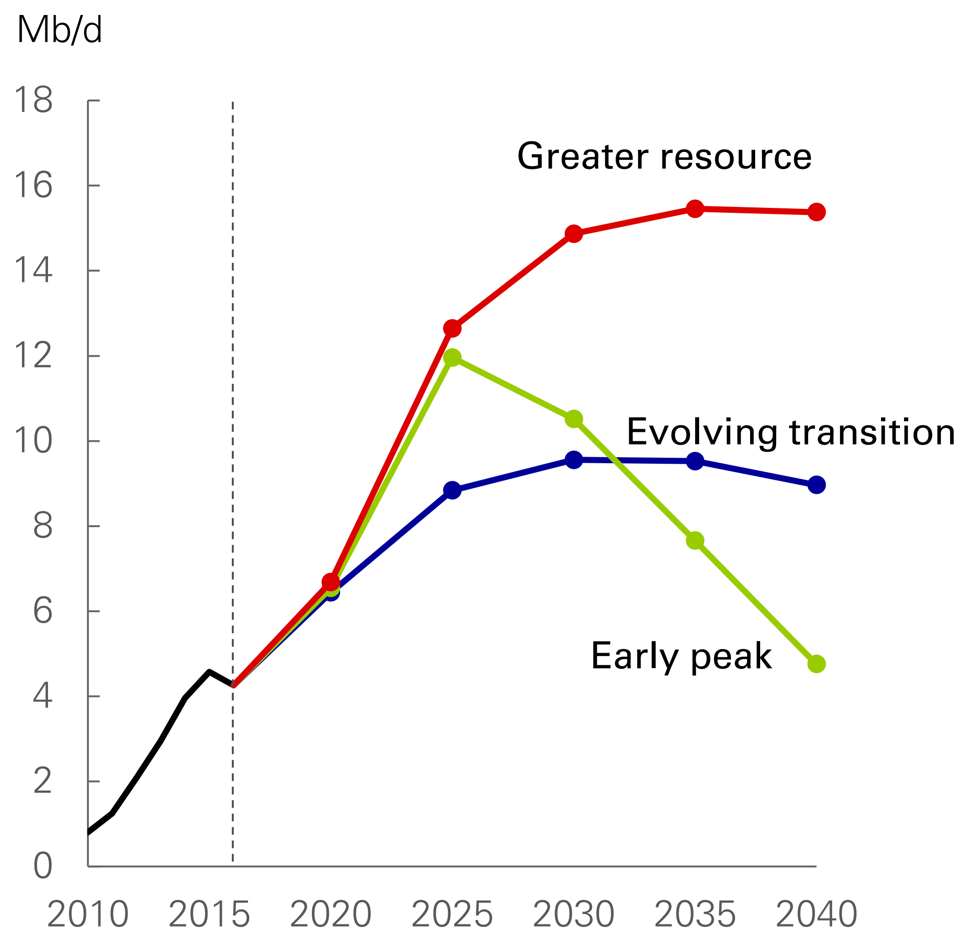
Share of world liquids supply



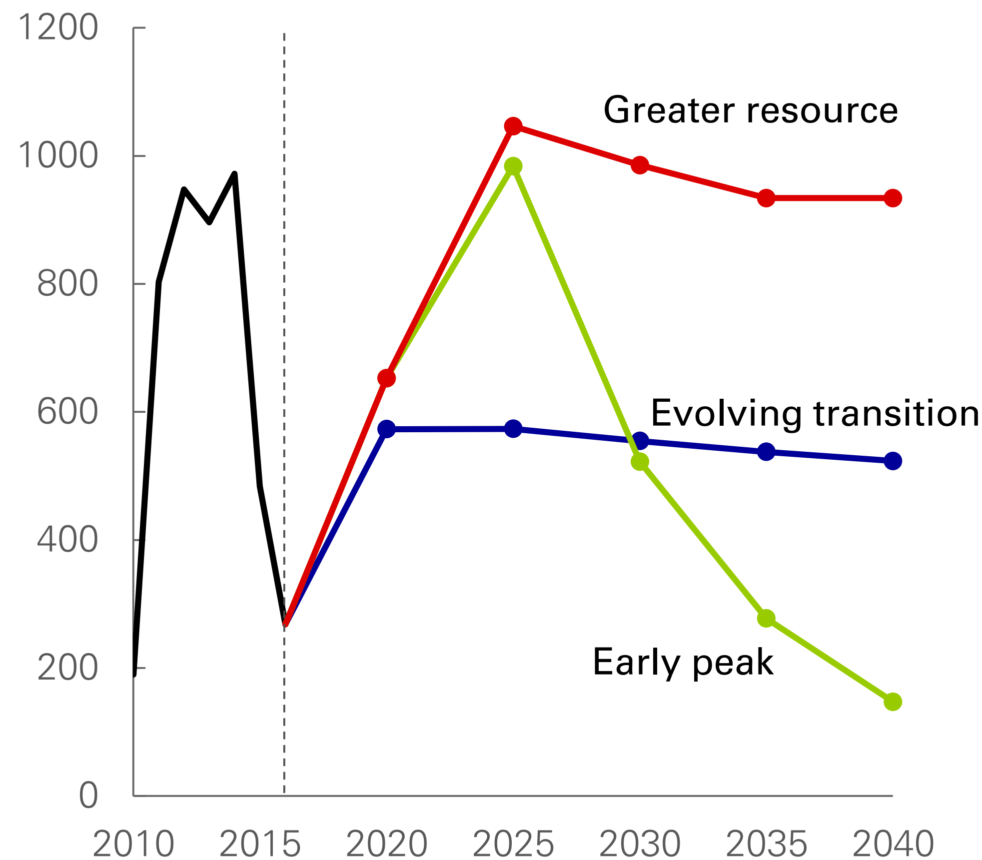
© BP p.l.c. 2018

Alternative scenario: US tight oil could grow more rapidly

US tight oil



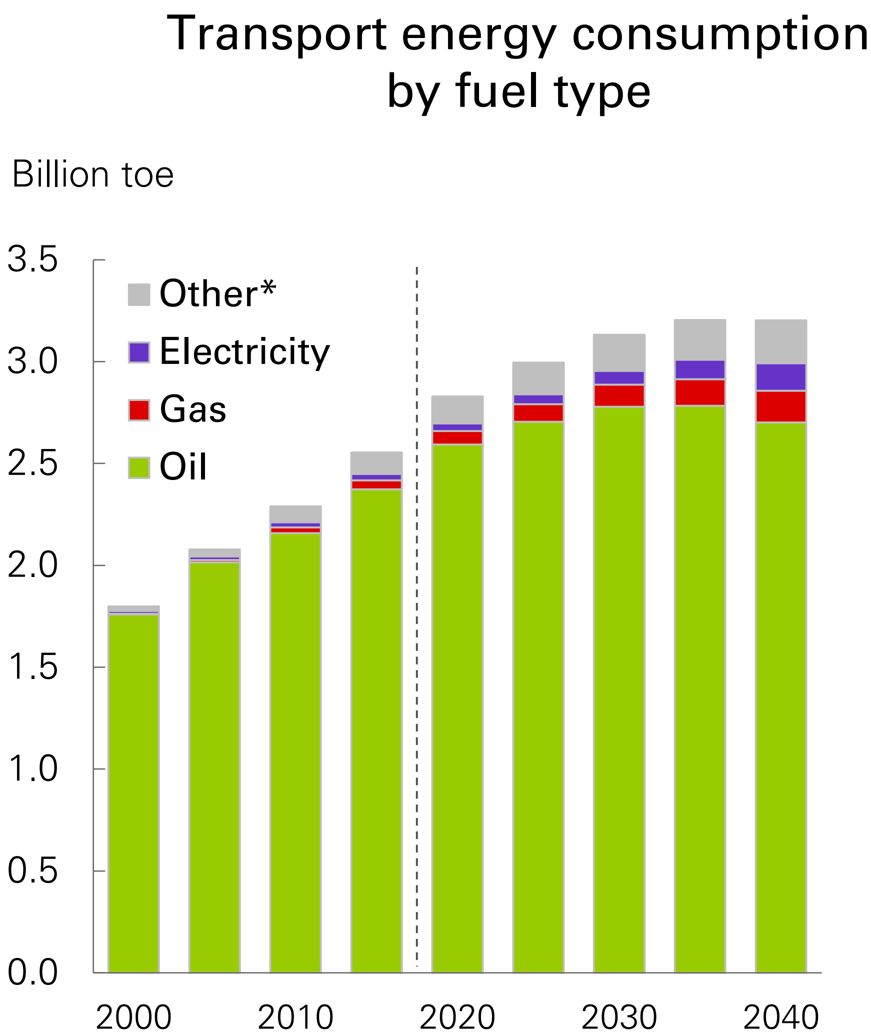
Number of US oil rigs*

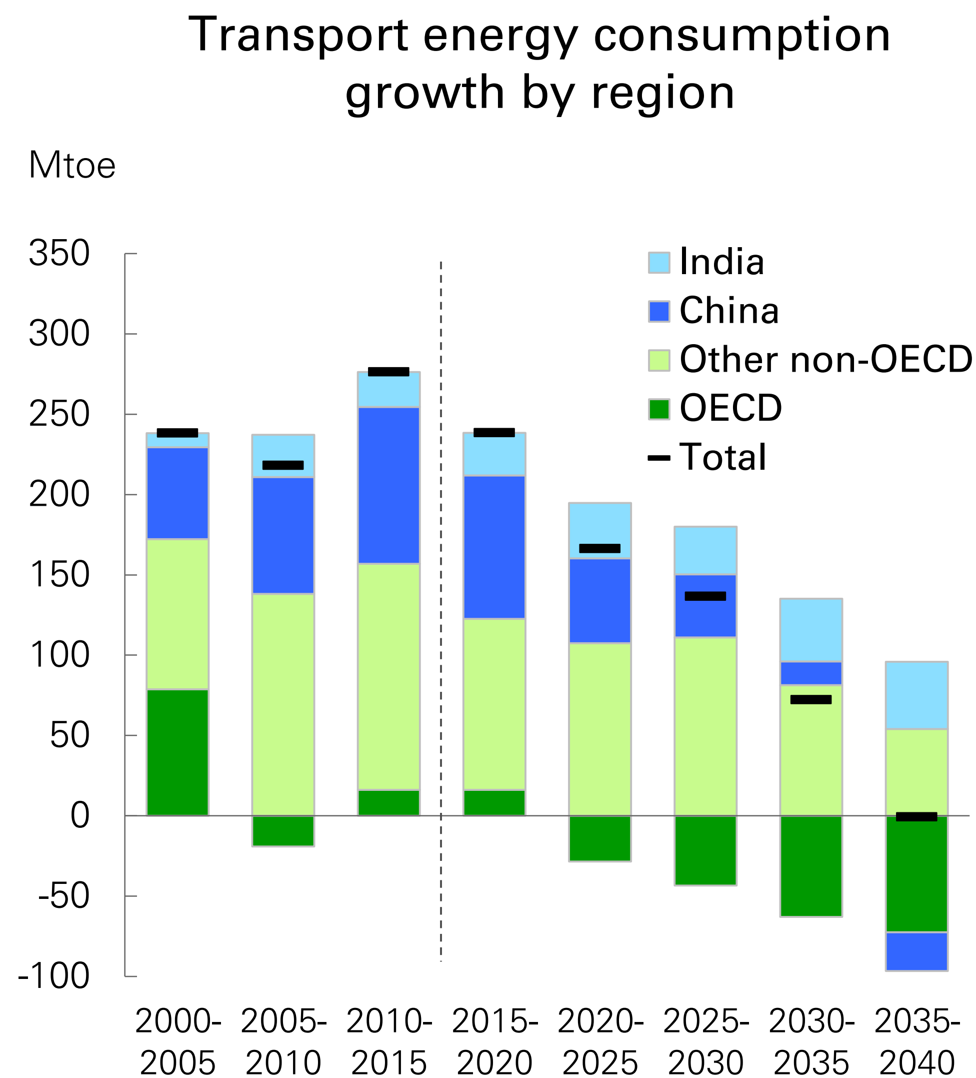


*In the four main producing regions: Permian, Eagle Ford, Bakken and Niobrara

© BP p.l.c. 2018

Transport demand continues to be dominated by oil



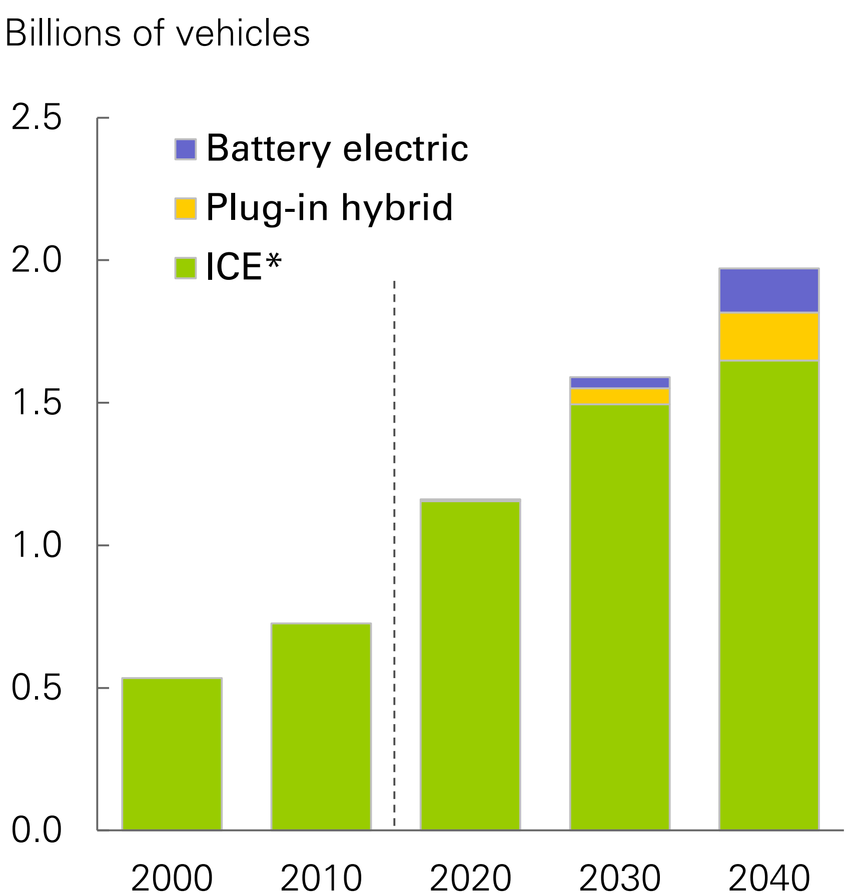


*Other includes biofuels, gas-to-liquids, coal-to-liquids, hydrogen

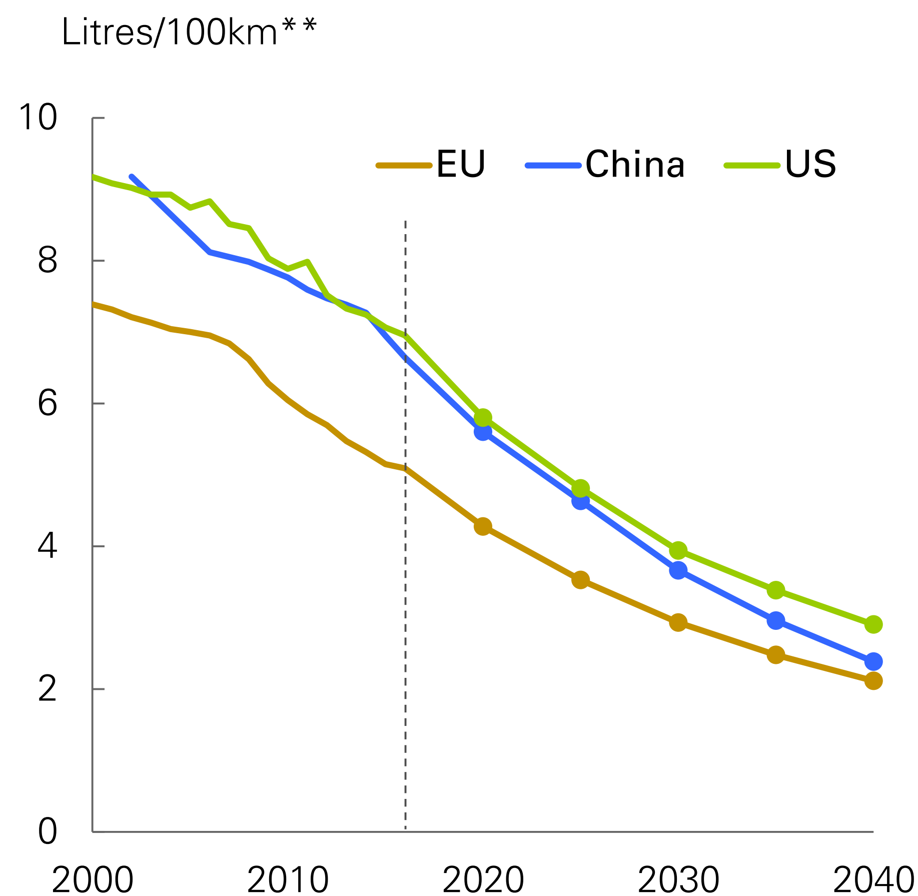
© BP p.l.c. 2018

The passenger car parc grows substantially

Passenger car parc by type



Fuel economy of new cars



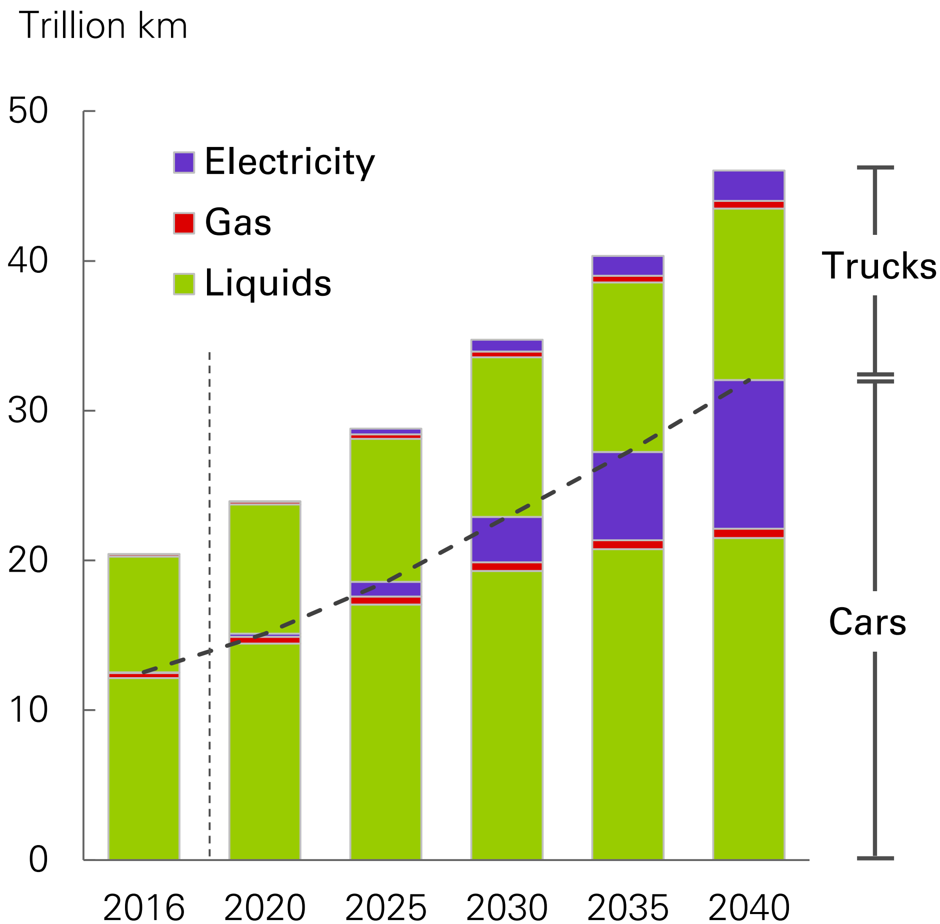
*ICE vehicles includes hybrid vehicles which do not plug into the power grid

**Based on the NEDC (New European Drive Cycle), gasoline fuel

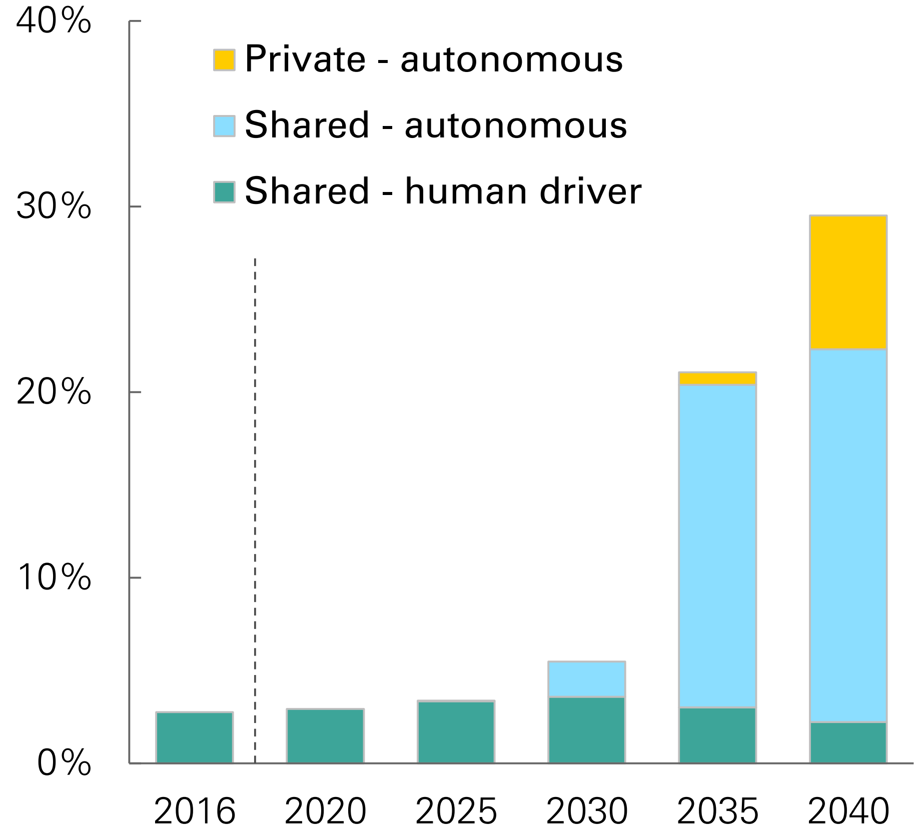
© BP p.l.c. 2018

Road transport will be affected by the mobility revolution

Vehicle kilometres (Vkm) by fuel type



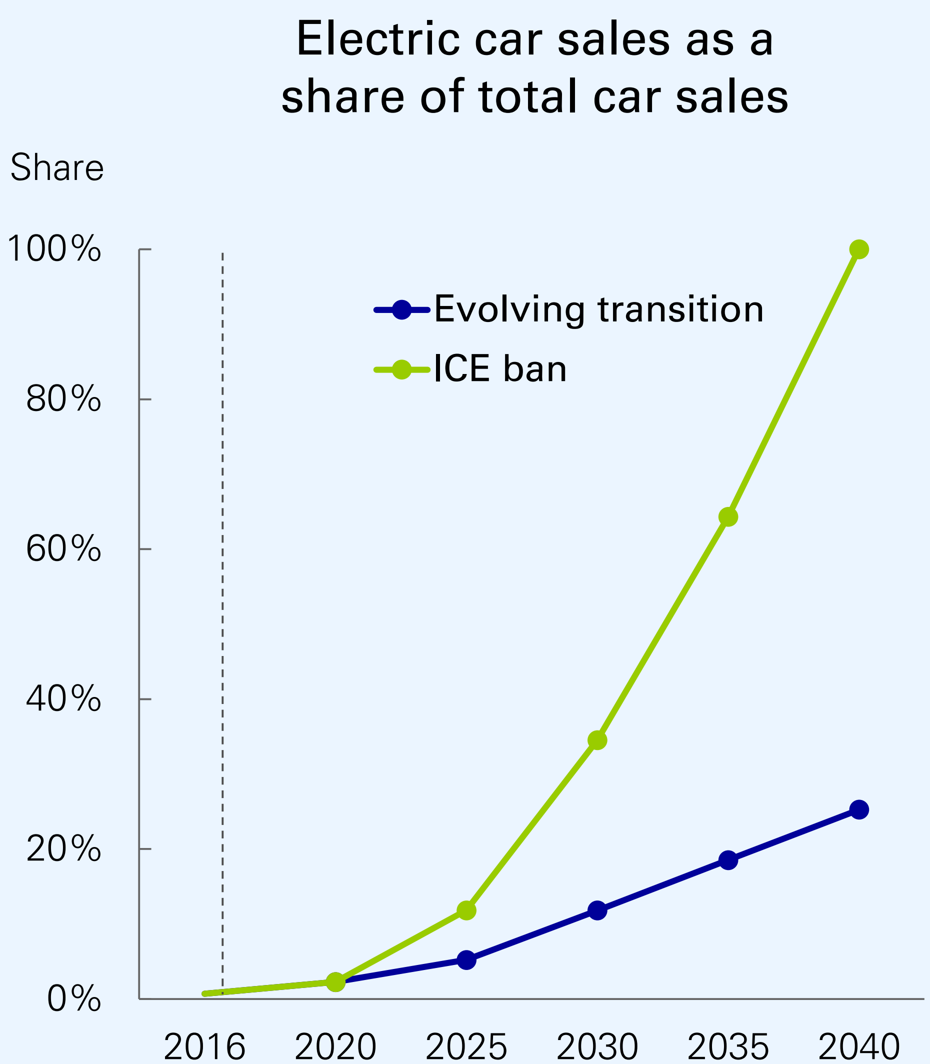
New mobility share of total Vkm

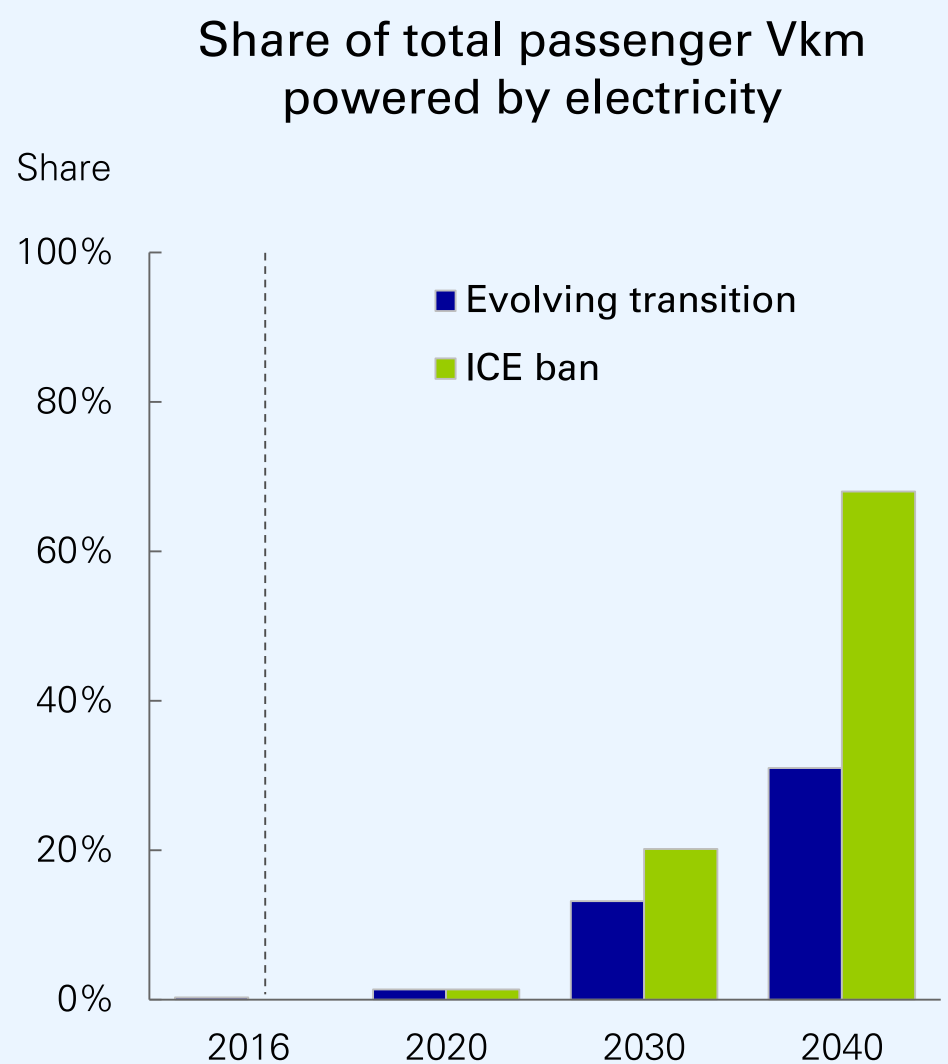


Cars excludes 2- and 3- wheelers

© BP p.l.c. 2018

Alternative scenario: impact of faster growth in electric cars

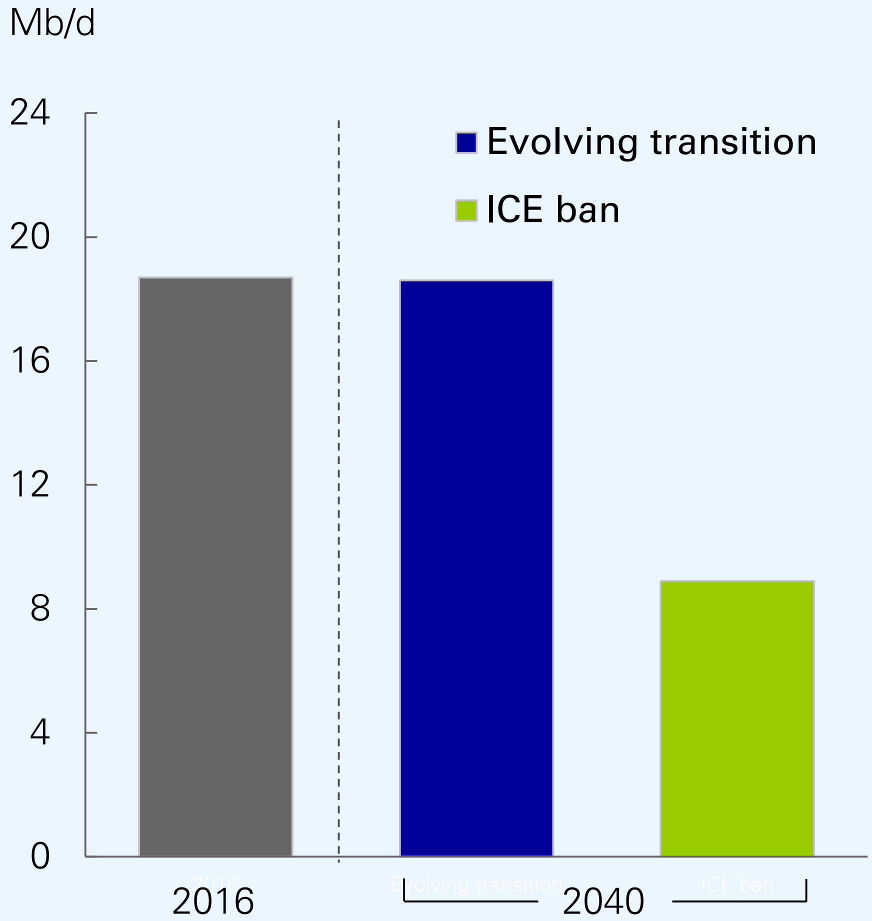




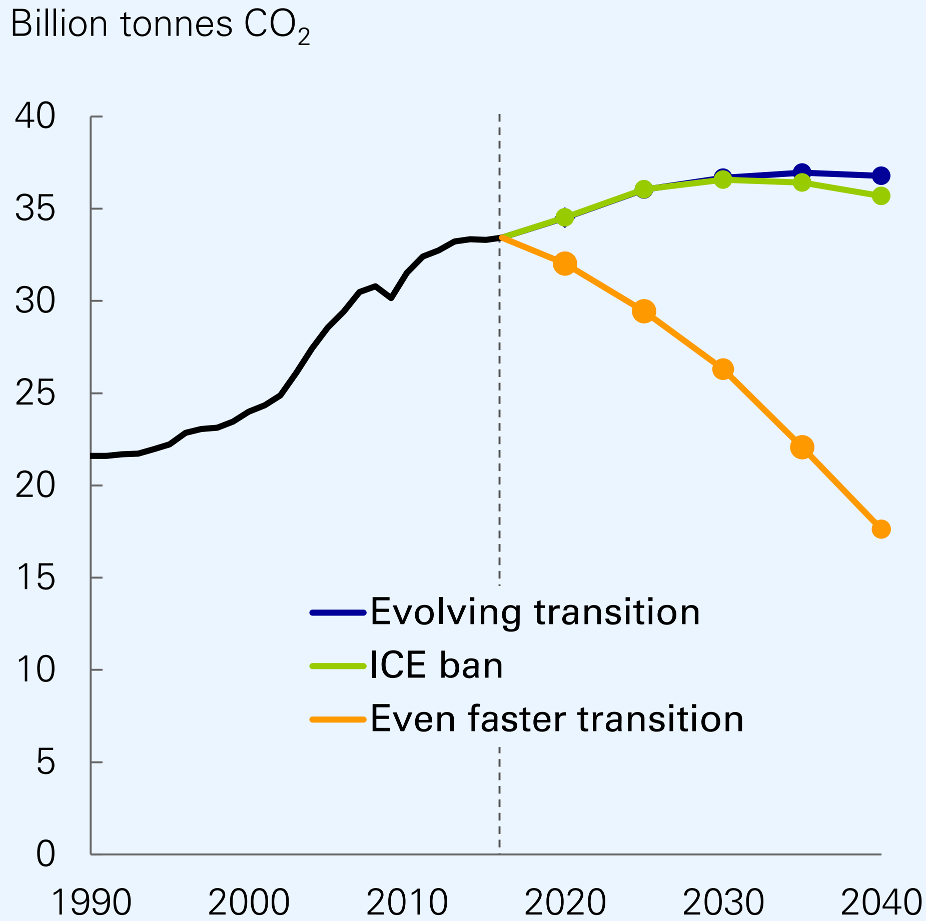
© BP p.l.c. 2018

The ICE ban has a limited impact on both liquid fuel demand...

Passenger cars liquids demand



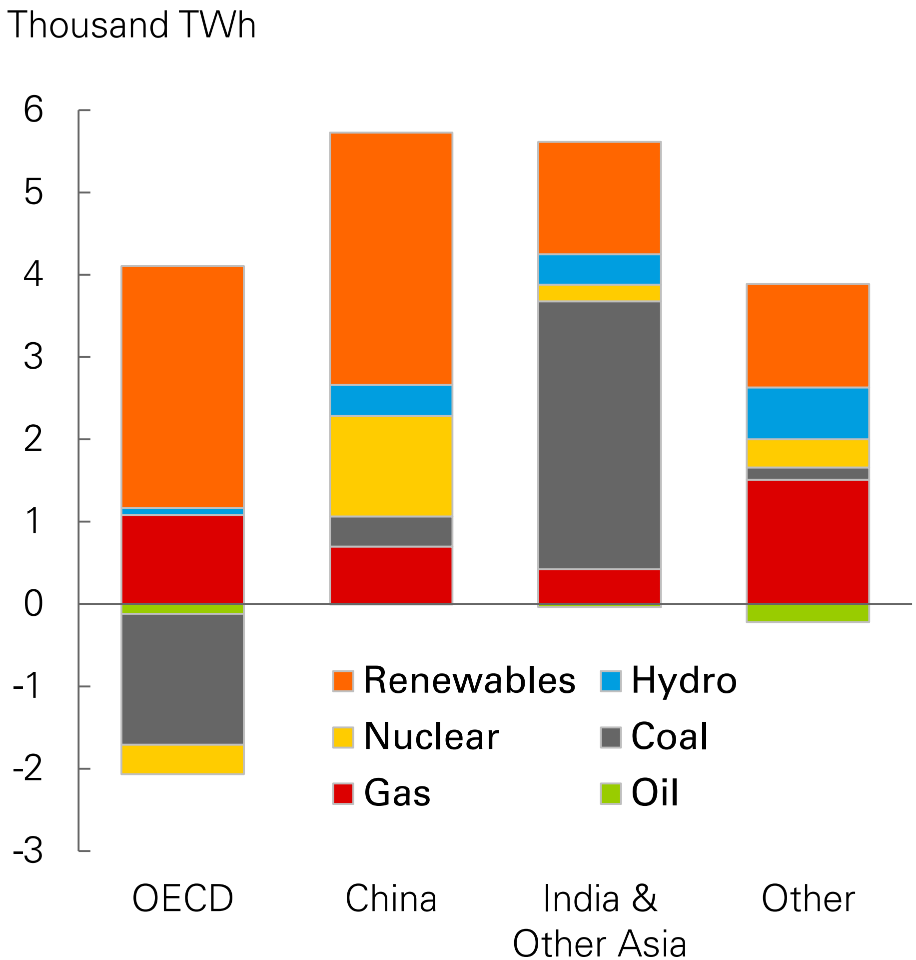
Carbon emissions from energy



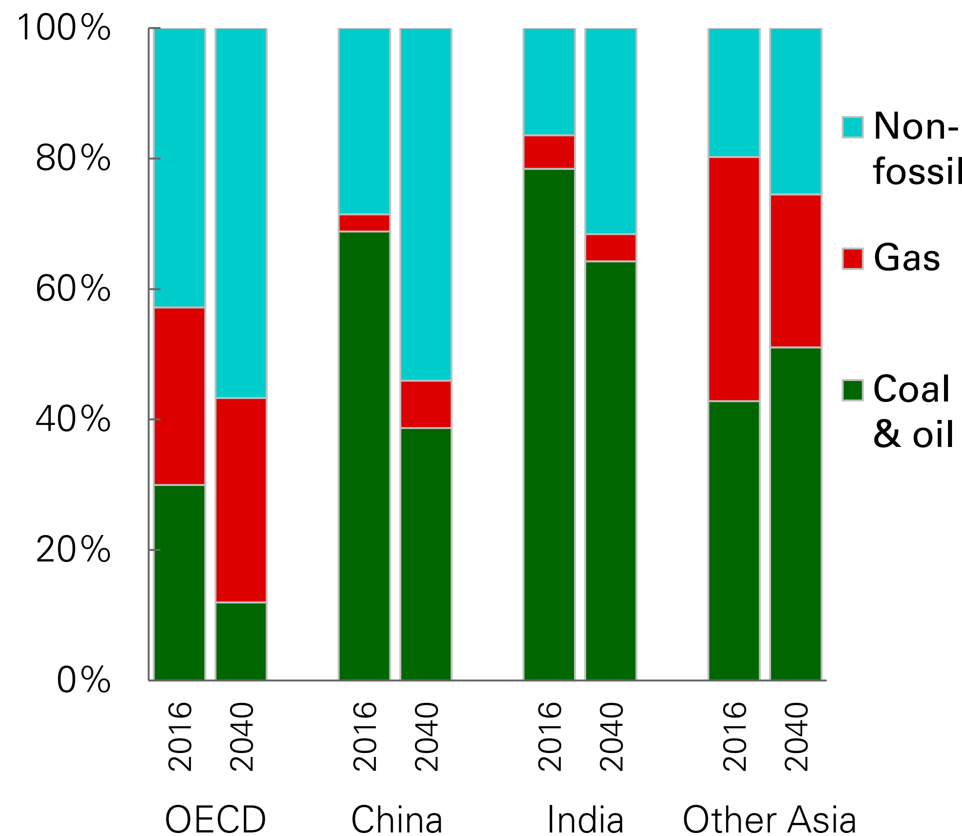
© BP p.l.c. 2018

The increasing share of renewables is led by China and OECD

Growth of power generation, 2016-2040



Shares of power generation, 2016 and 2040

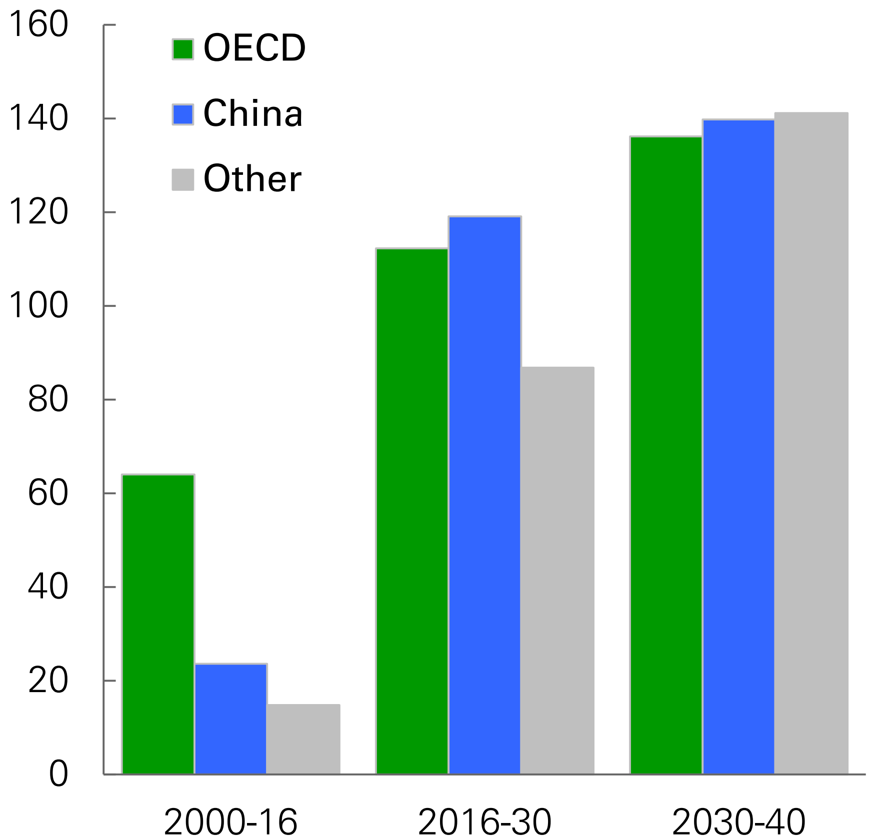


© BP p.l.c. 2018

Renewables are the largest source of energy growth

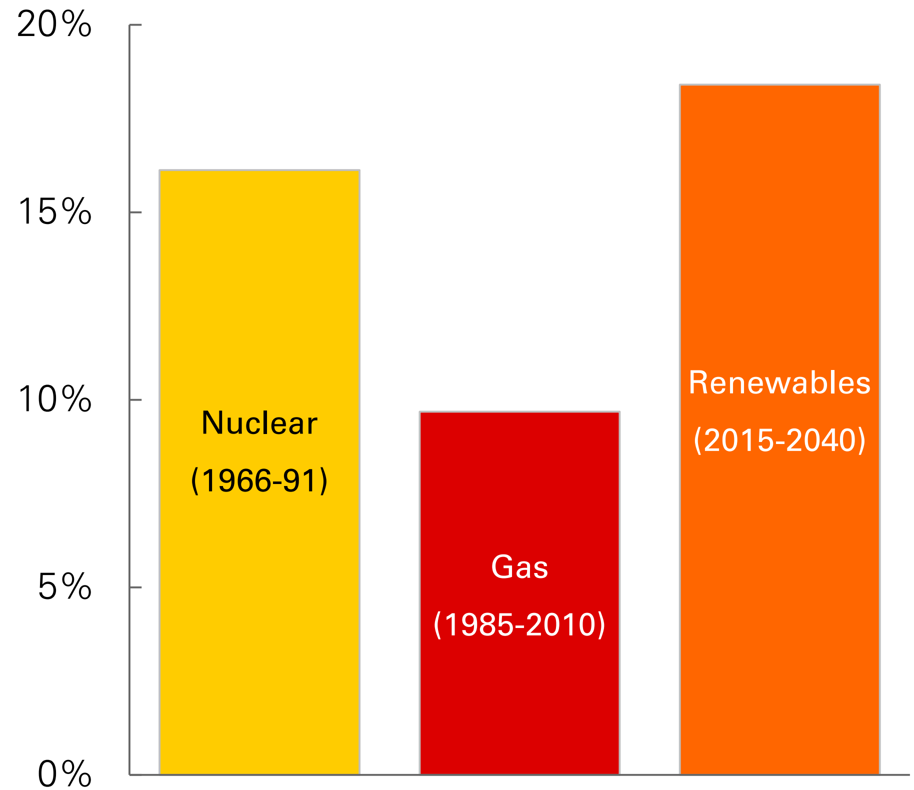
Growth of renewable power

TWh, average annual growth



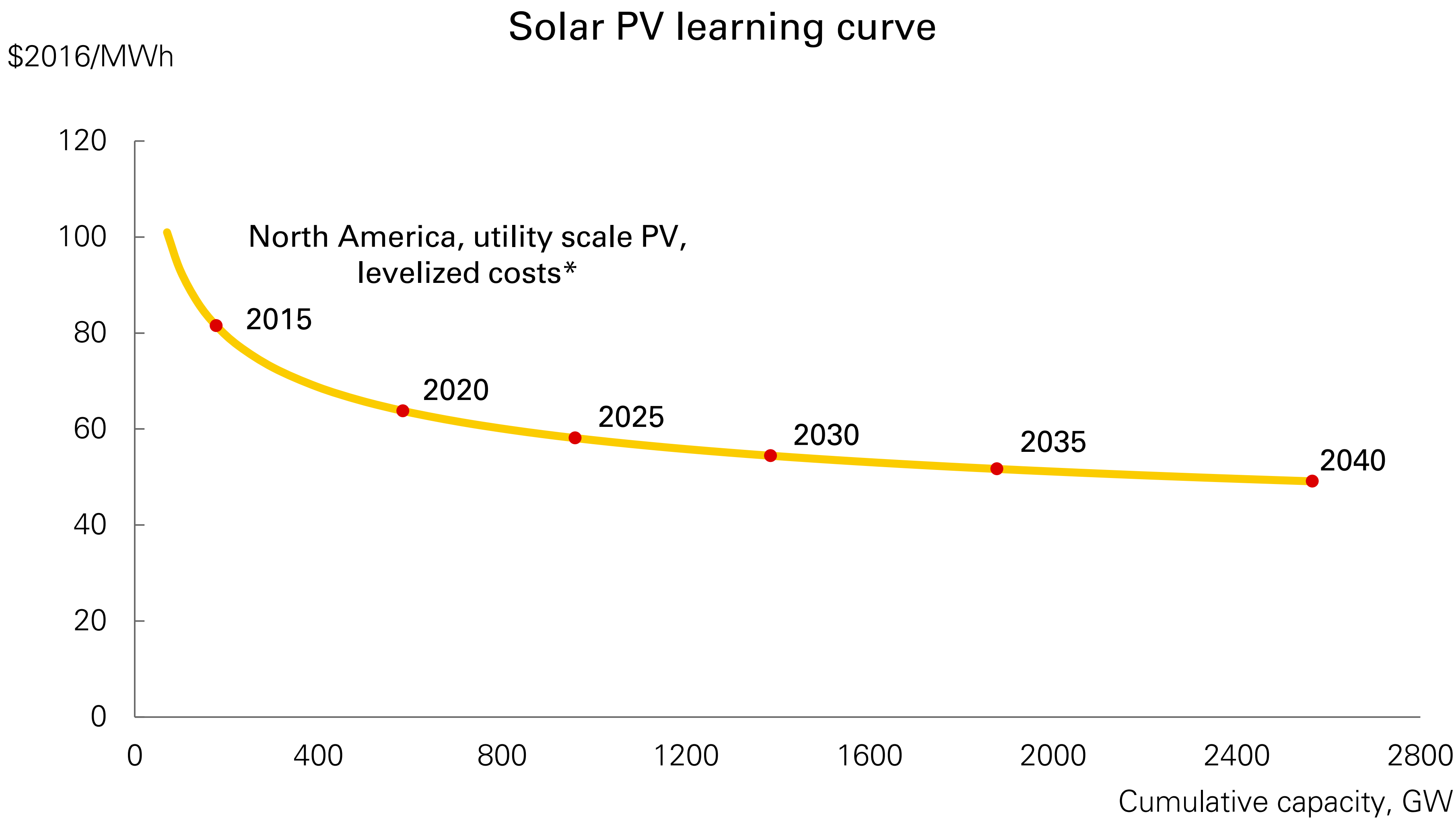
Pace of power market penetration

Largest gains in market share over 25 years, %pts



© BP p.l.c. 2018

The outlook for renewables has increased significantly

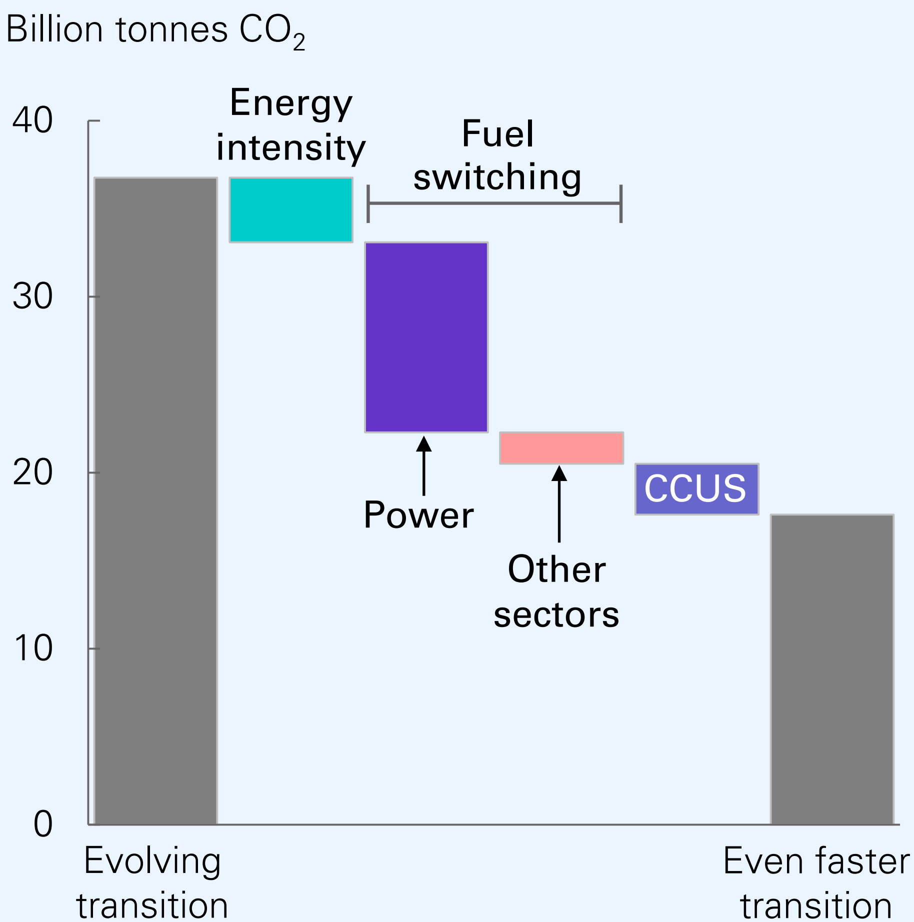


*Cost per MWh of building and operating a plant over its lifetime. Excludes subsidies, tariffs and the cost of grid integration.

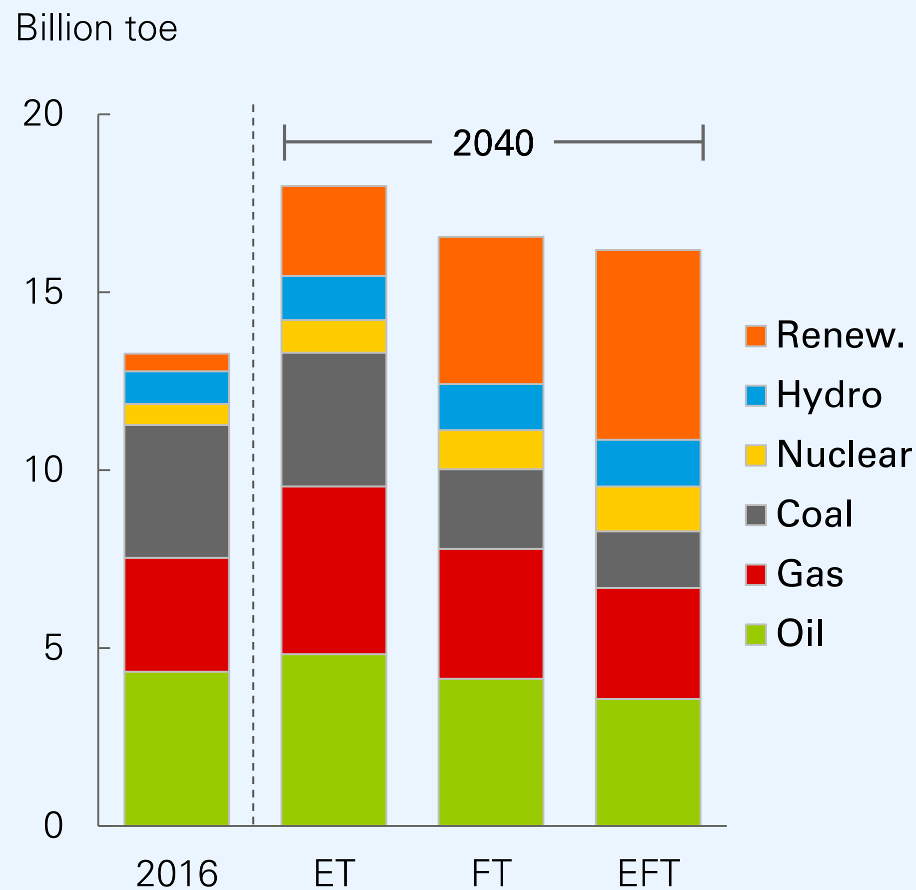
© BP p.l.c. 2018

Alternative scenario: impact on global energy system

Carbon emissions in 2040: EFT versus ET scenario



Primary energy consumption by fuel



© BP p.l.c. 2018