

Oil and Gas Markets and Energy Transition

IMEMO, November 9th, 2017



Vladimir Drebensov
Head of Russia and CIS Economics, BP plc

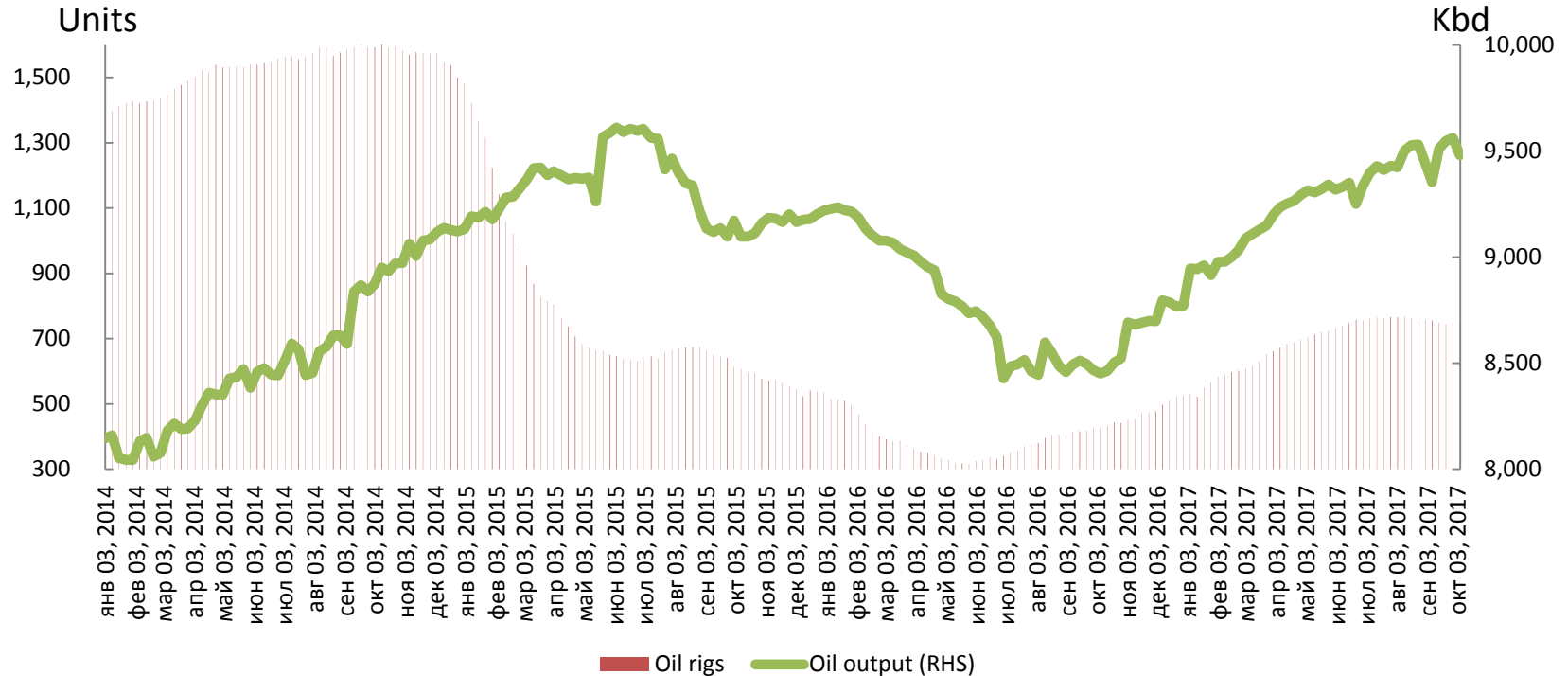


bp.com/statisticalreview
bp.com/energyoutlook
#Bpstats

BP Statistical Review of World Energy 2016



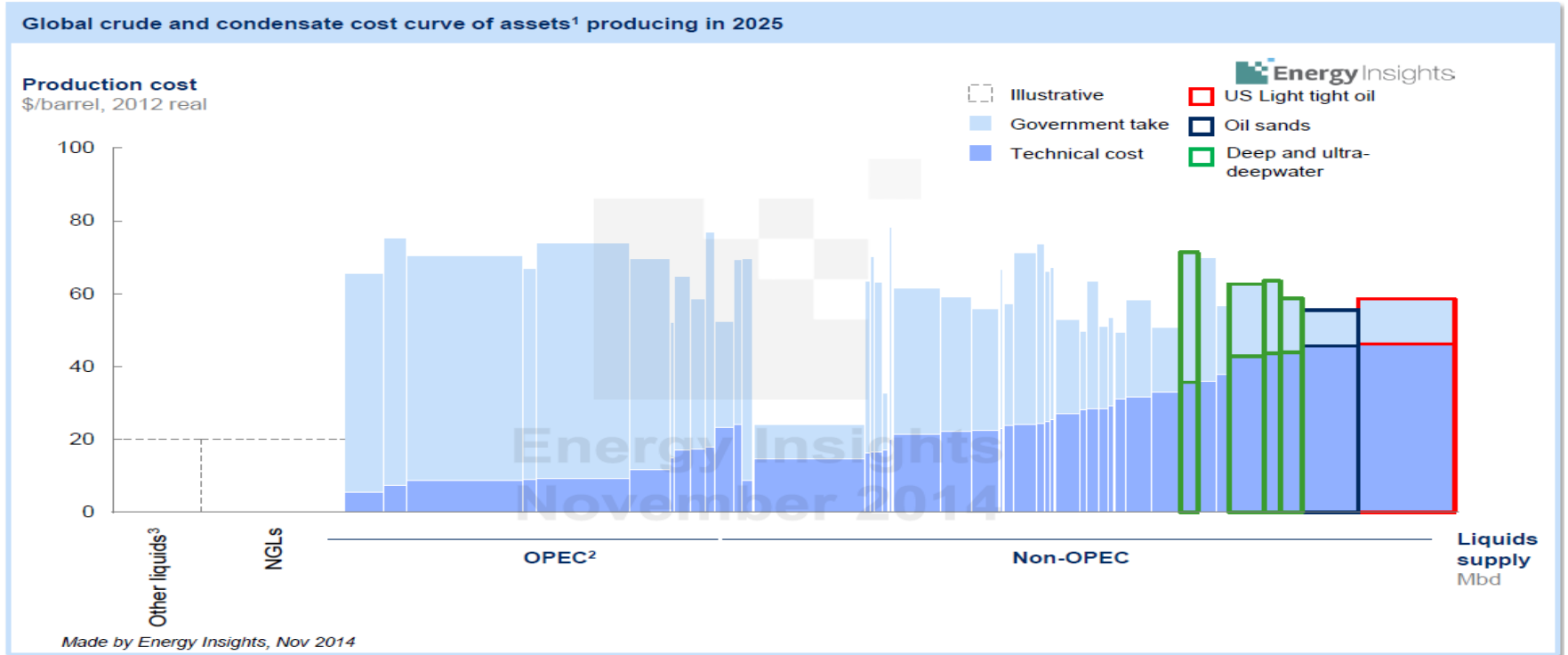
US oil output has been growing again for over a year



Source: US EIA, PIRA



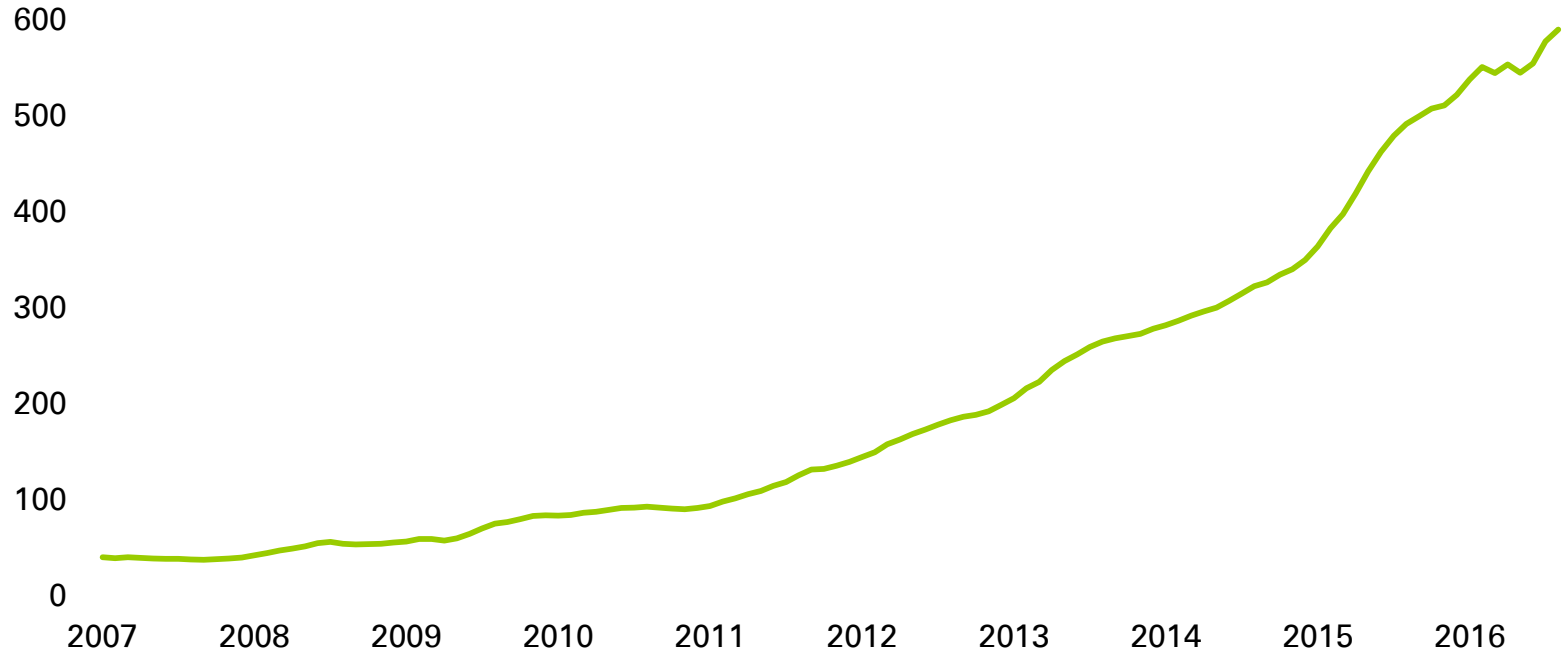
Oil cost curve in 2014





US new-well oil production per rig keeps growing

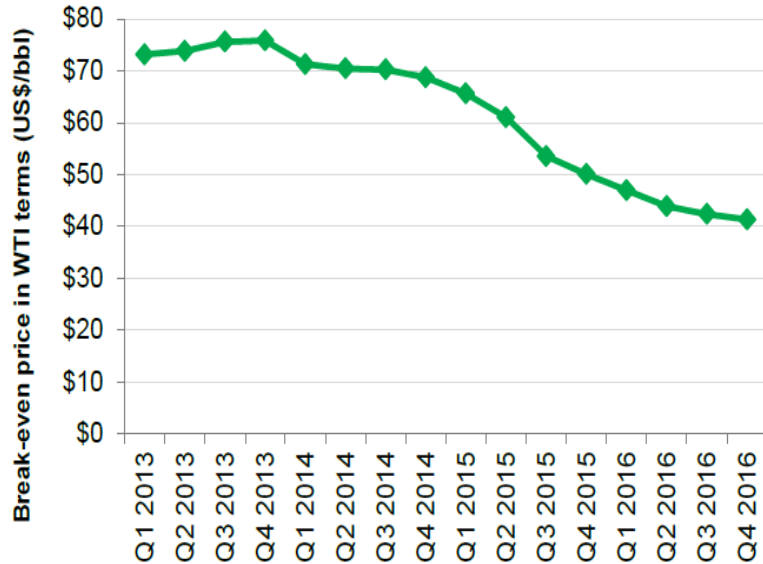
Boe/d per rig





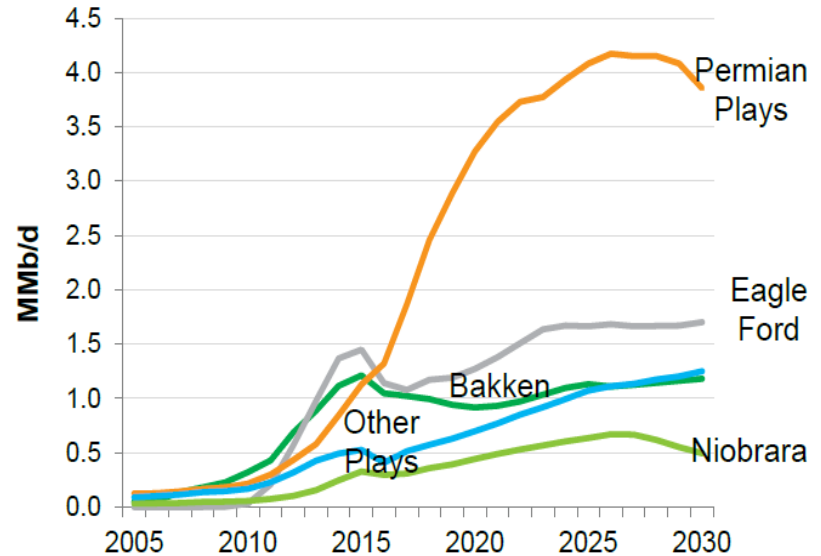
US tight oil output will grow further

Median well break-even prices of several US tight oil wells



Note: The break-even price is the WTI price required for the project to cover all of its estimated capital and operating costs and generate a 10% rate of return. The plays are the Bakken, Bone Spring, Eagle Ford, Niobrara/Wattenberg, Scoop, Stack, Wolfcamp Delaware, and Wolfcamp Midland.

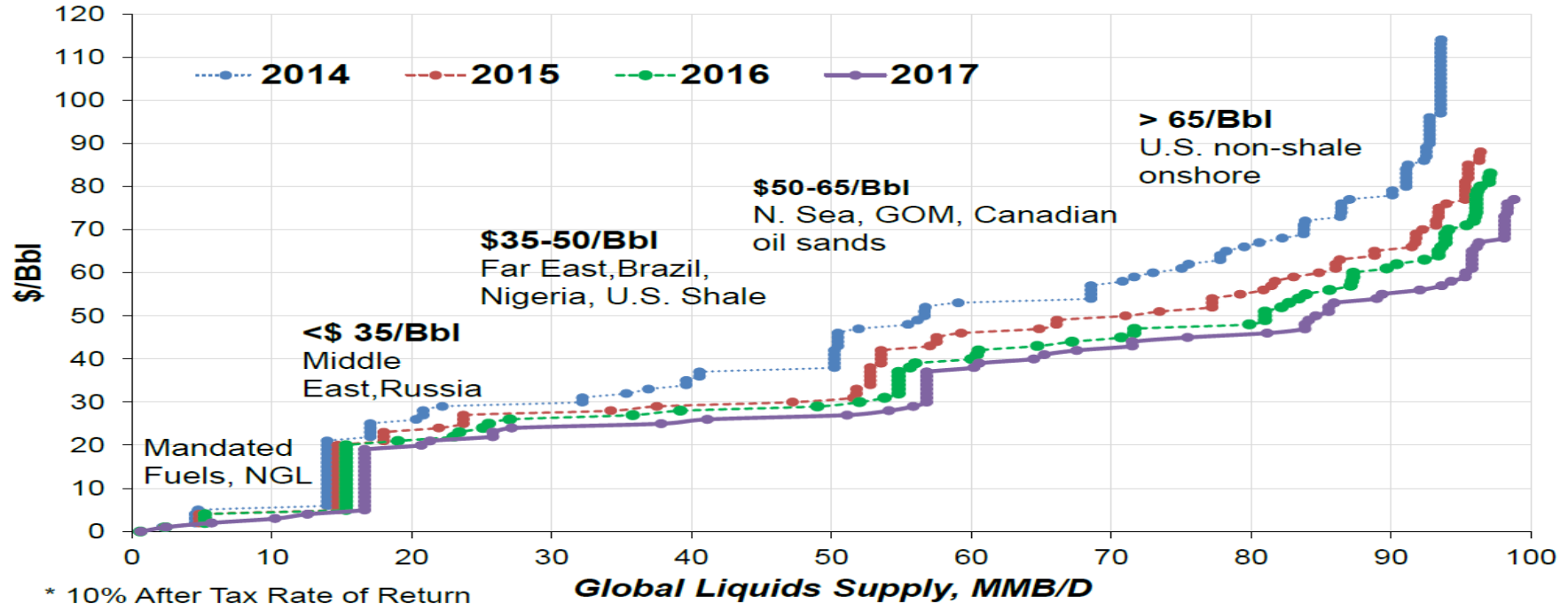
US tight oil production outlook





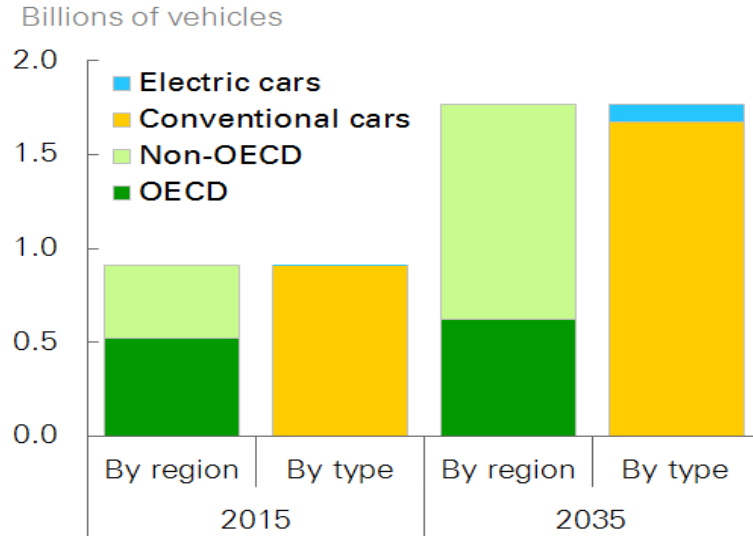
Estimate of the global production cost curve shifts down

Brent Equivalent Development Cost, \$/Bbl*

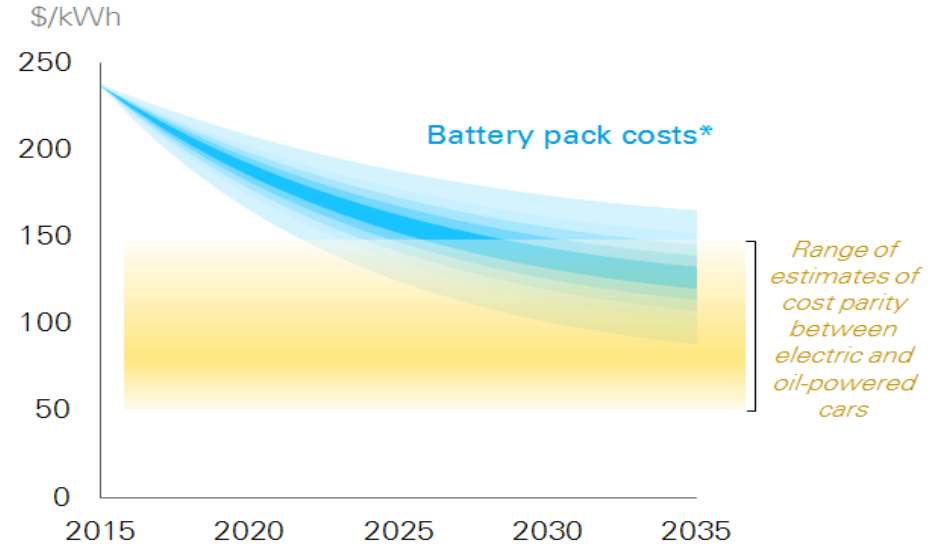


Growth of electric cars

The global car fleet: 2015-2035

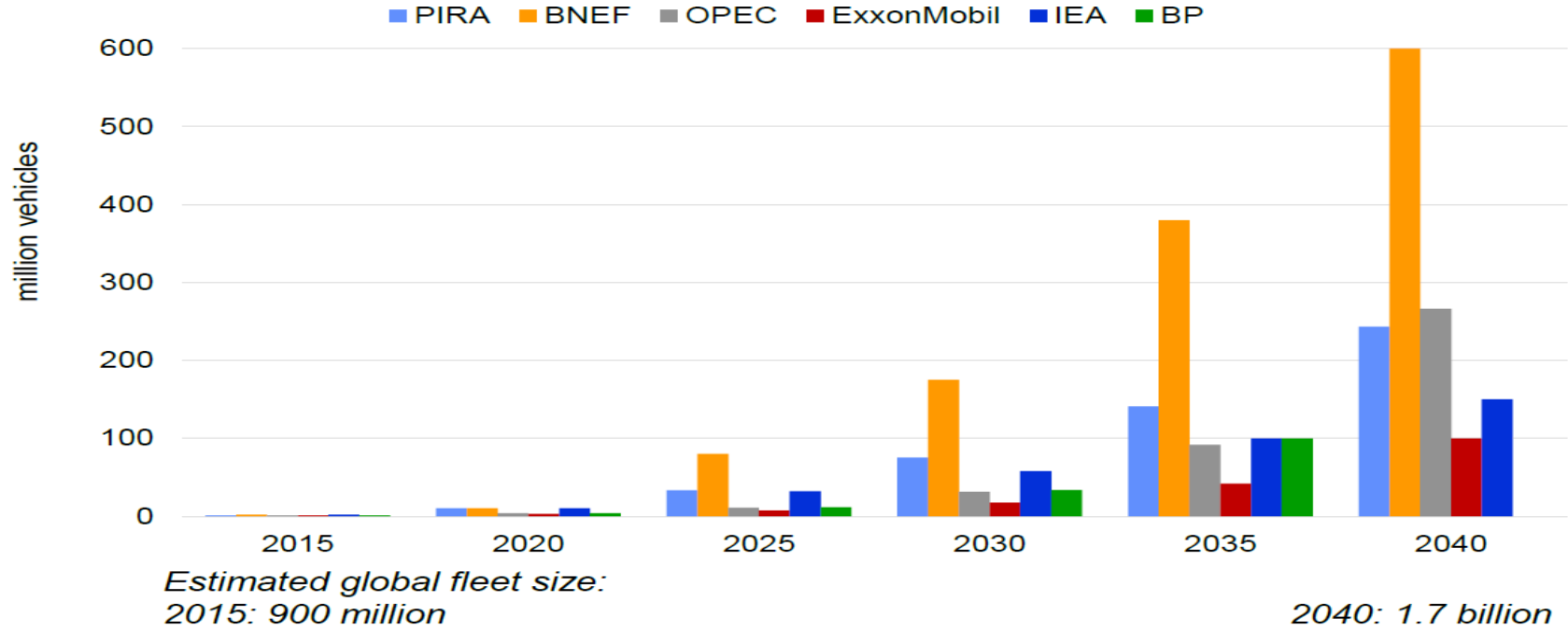


Illustrative path for battery pack costs



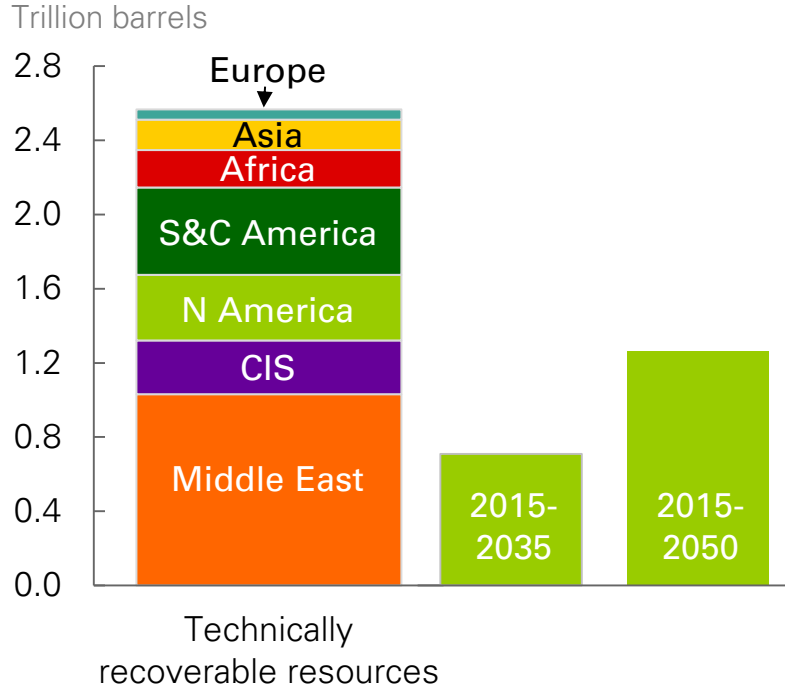
*For a Battery Electric Vehicle with a 60 kWh pack. Cost projections depend heavily on the degree of EV uptake, which is uncertain, so ranges should be treated as illustrative only. Current estimates of battery costs also vary widely, but this uncertainty is not shown

Comparison of EV Fleet Forecasts

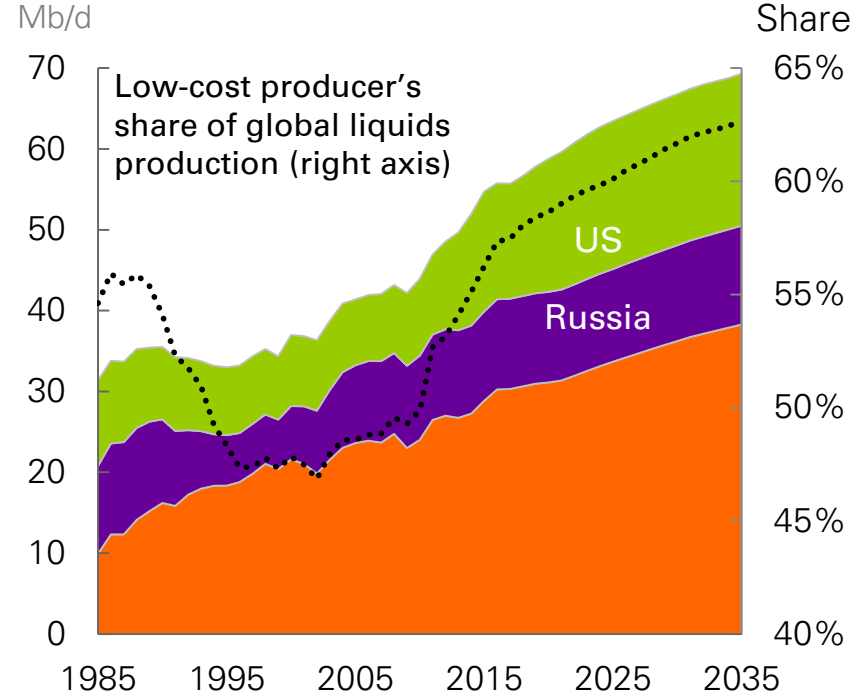


Abundance of oil resources

Estimates of technically recoverable resources and cumulative oil demand



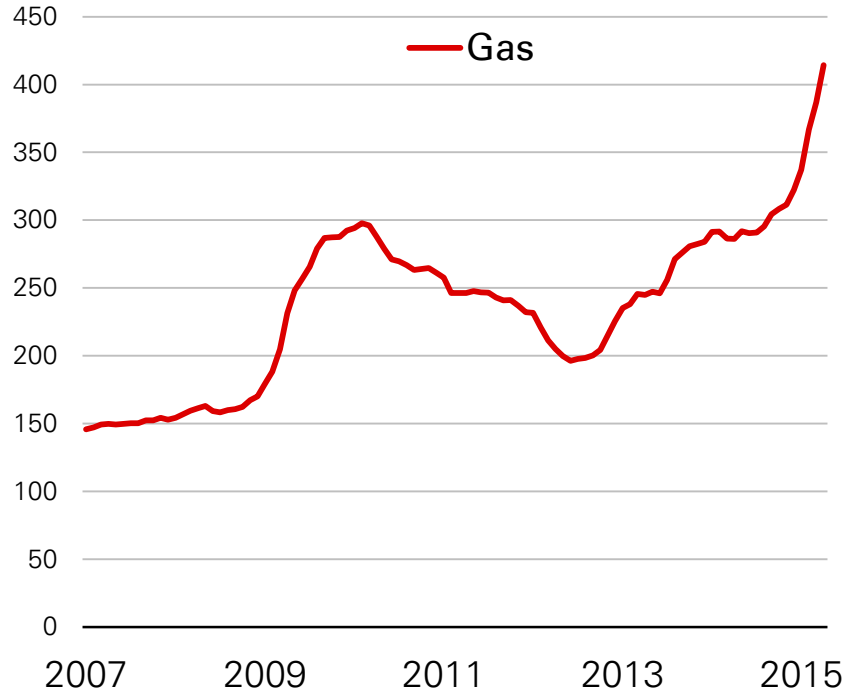
Oil supply of lower-cost producers



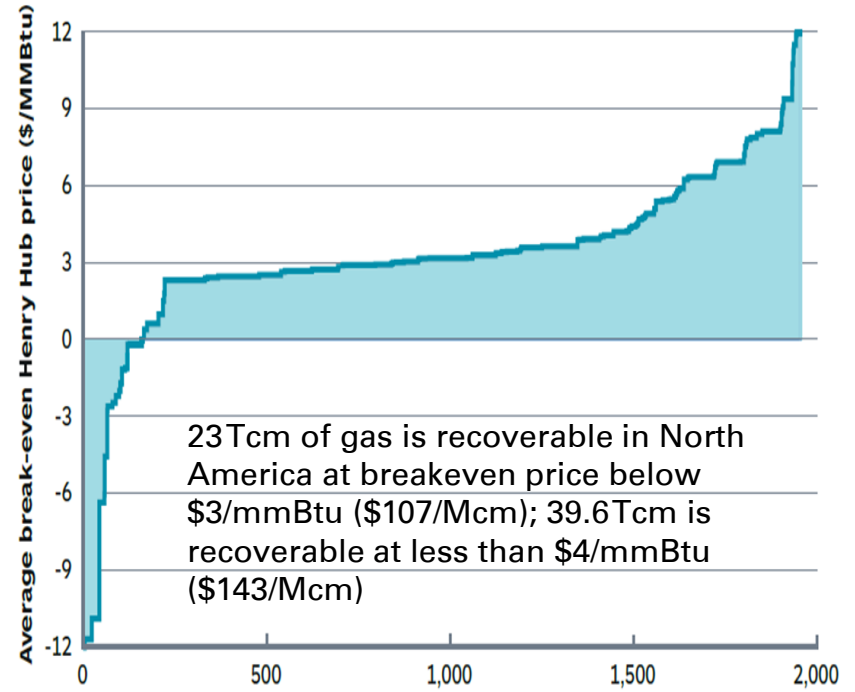


US new gas well production per rig and resource additions

Boe/d per rig



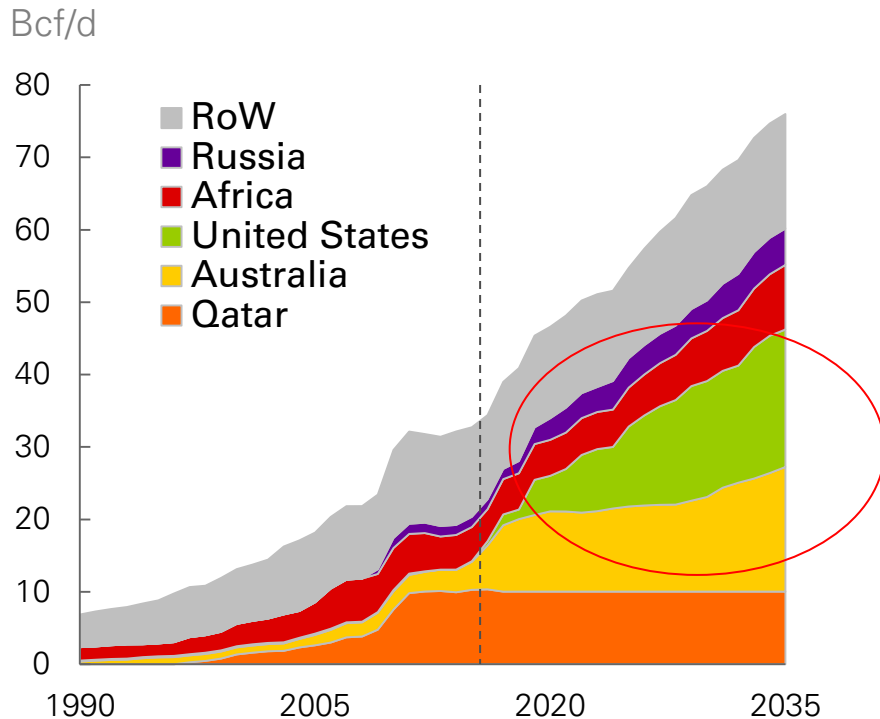
Constant \$2014



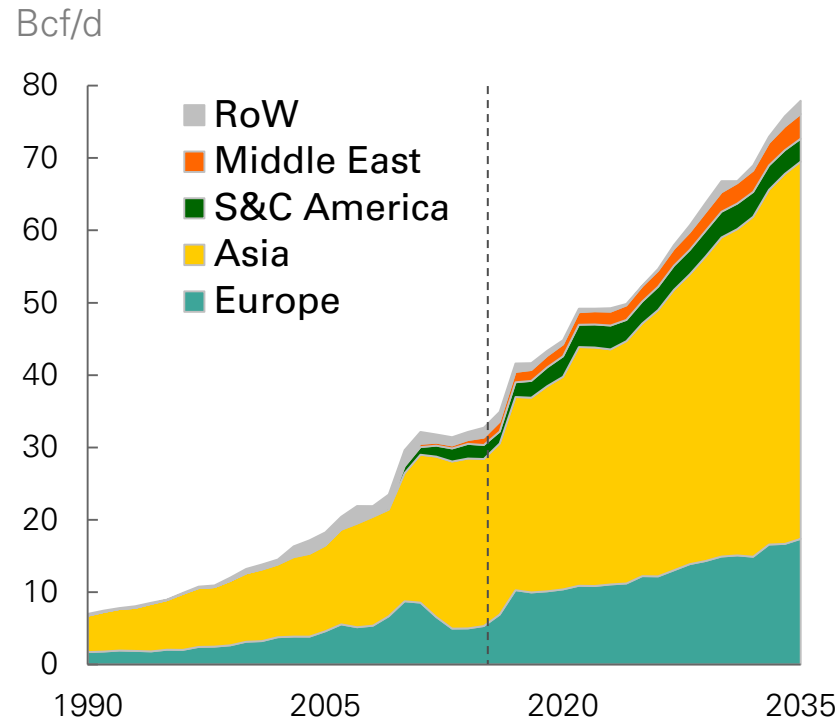
LNG supplies will grow strongly led by the US; how much of this will Europe absorb?



LNG supply

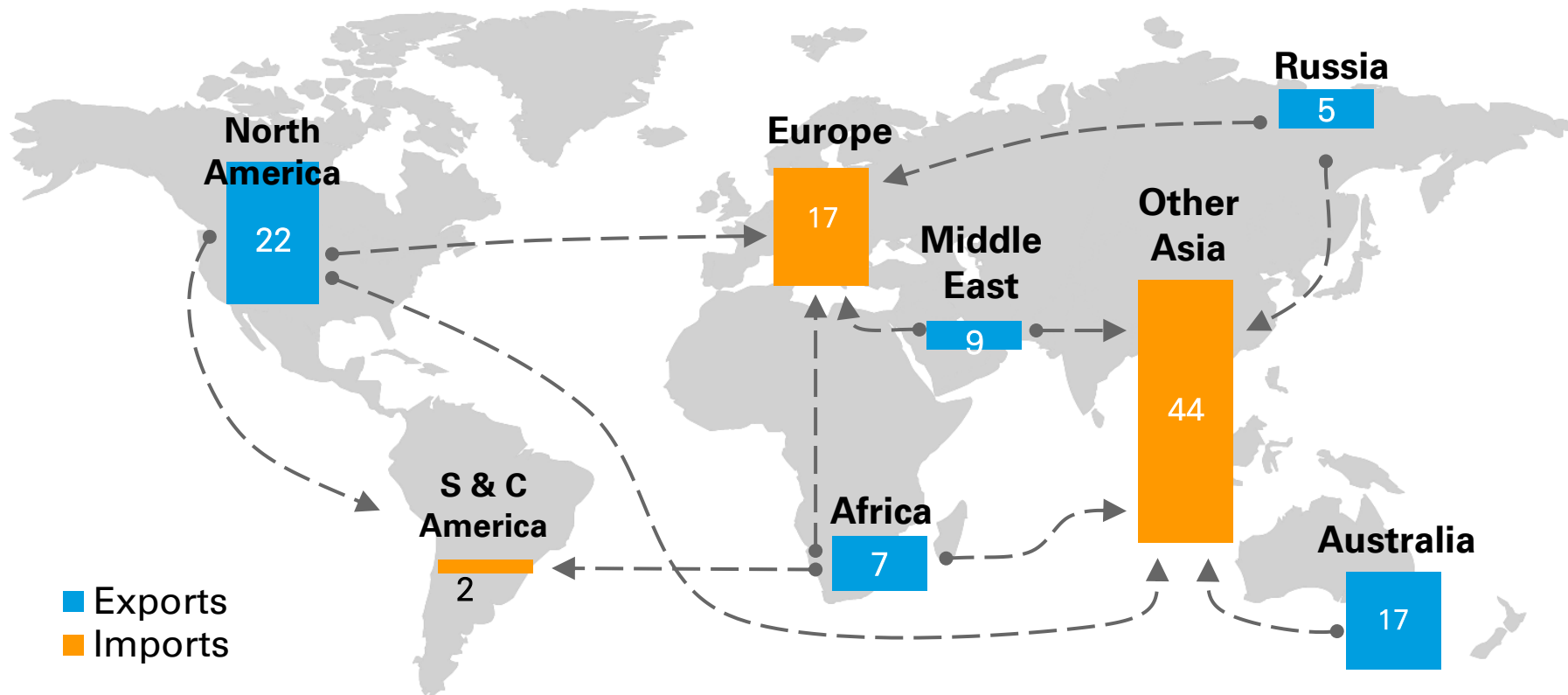


LNG demand



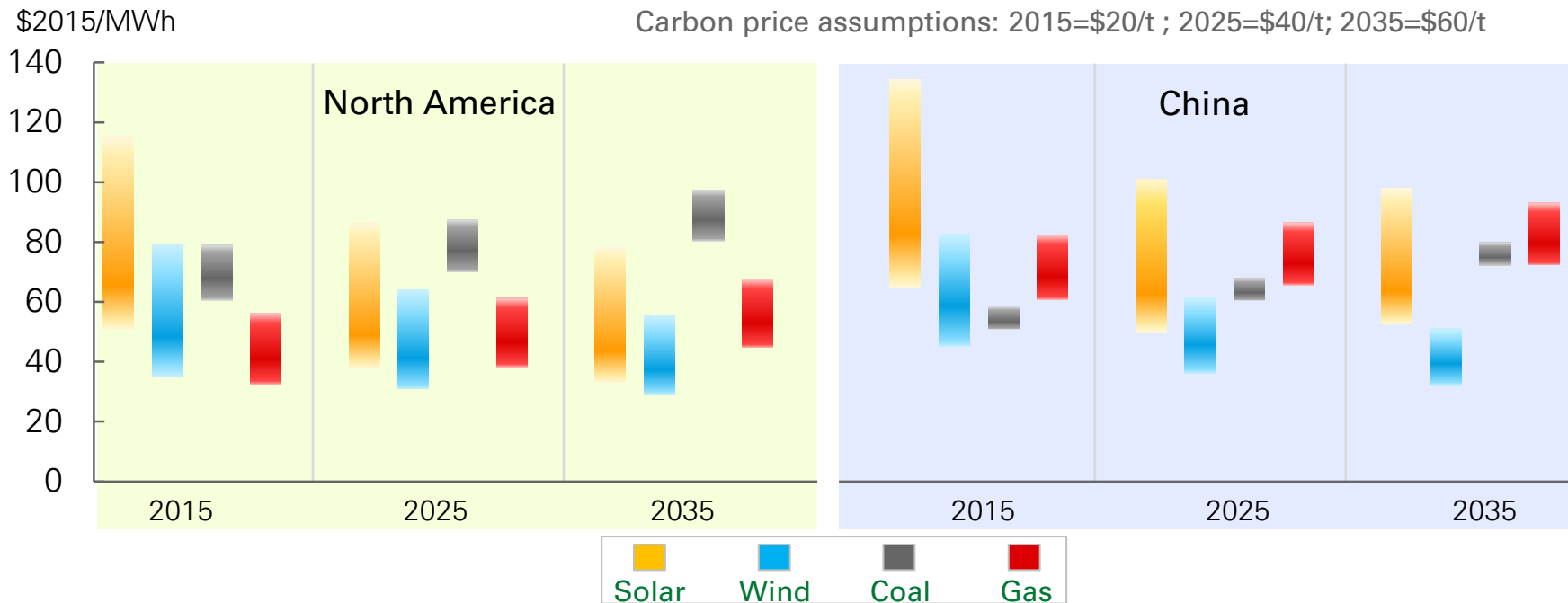
LNG's share in traded gas increases sharply

Net LNG exports/imports 2035 (Bcf/d)



Renewables growth is driven by increasing competitiveness

Cost of power generation from new-build plants*



*Levelized cost of power over the lifetime of plant. Ranges reflect the impact of low/high estimates for: cost of capital; load factors for solar and wind; fuel prices for gas and coal. Solar and wind include estimates of system integration costs.

Different approaches to monetization of gas resources – Something to think about?

