Oil Market Futures: Effects of Low-Carbon Transport Policy on Oil Markets

Presented by Drew Kodjak, executive director, International Council on Clean Transportation

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The European Climate Foundation commissioned a research team, led by Cambridge Econometrics (CE), to undertake a model based analysis of the impact of reducing the demand for oil from transport on the oil price and the subsequent impact on the US economy.

The objective of the study was:

"to determine the extent to which long-term global oil demand reduction will impact on the oil price and to understand the wider impact of changes in the oil price on the US economy, by:

1. developing alternative but plausible scenarios for global oil demand
2. analysing oil supply and prices in response to changes in demand
3. modelling the wider economic impact of changes in crude oil prices"

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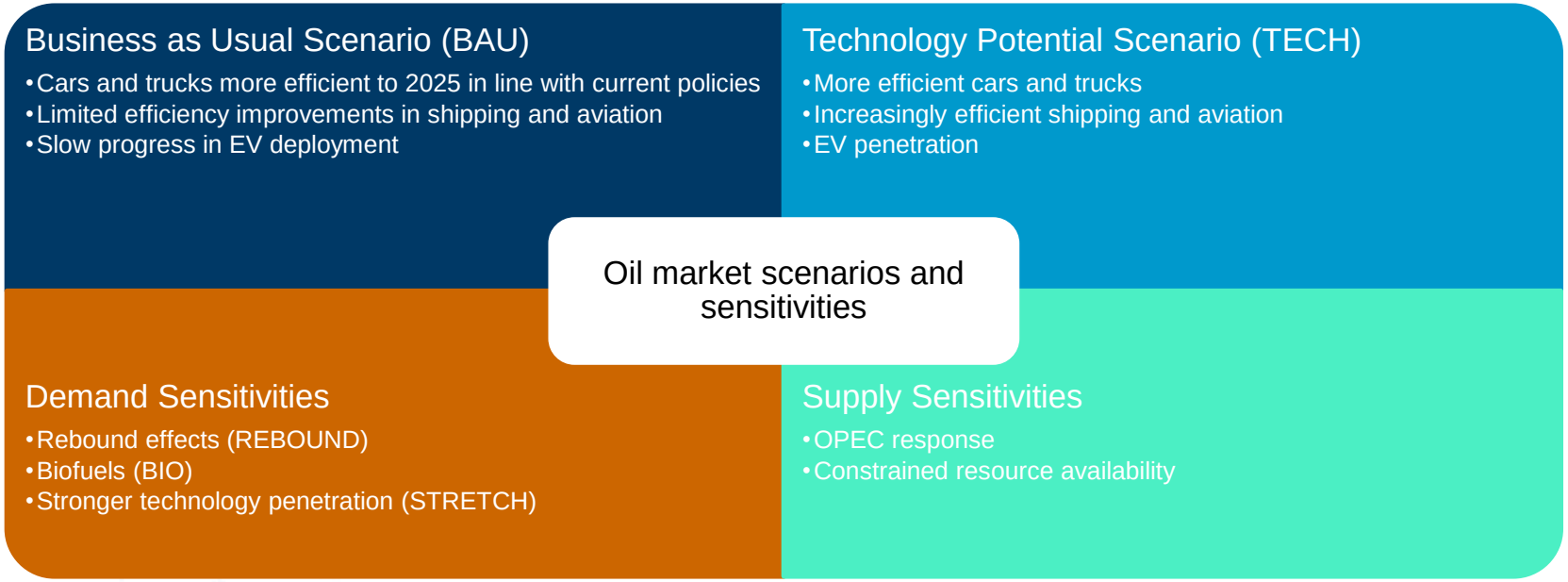
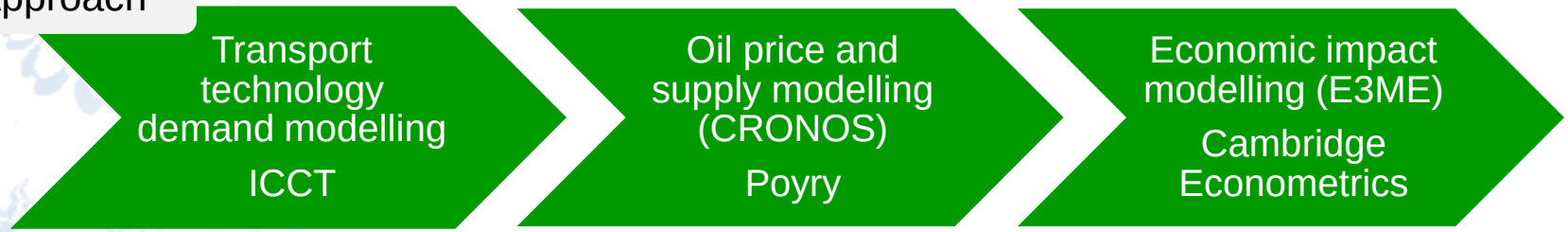
The ICCT developed two oil demand scenarios, which were tested in Poyry's oil market model. Demand and supply sensitivities were developed and tested to improve the robustness of the findings. Economic impact modelling was undertaken by Cambridge Econometrics.



Approach



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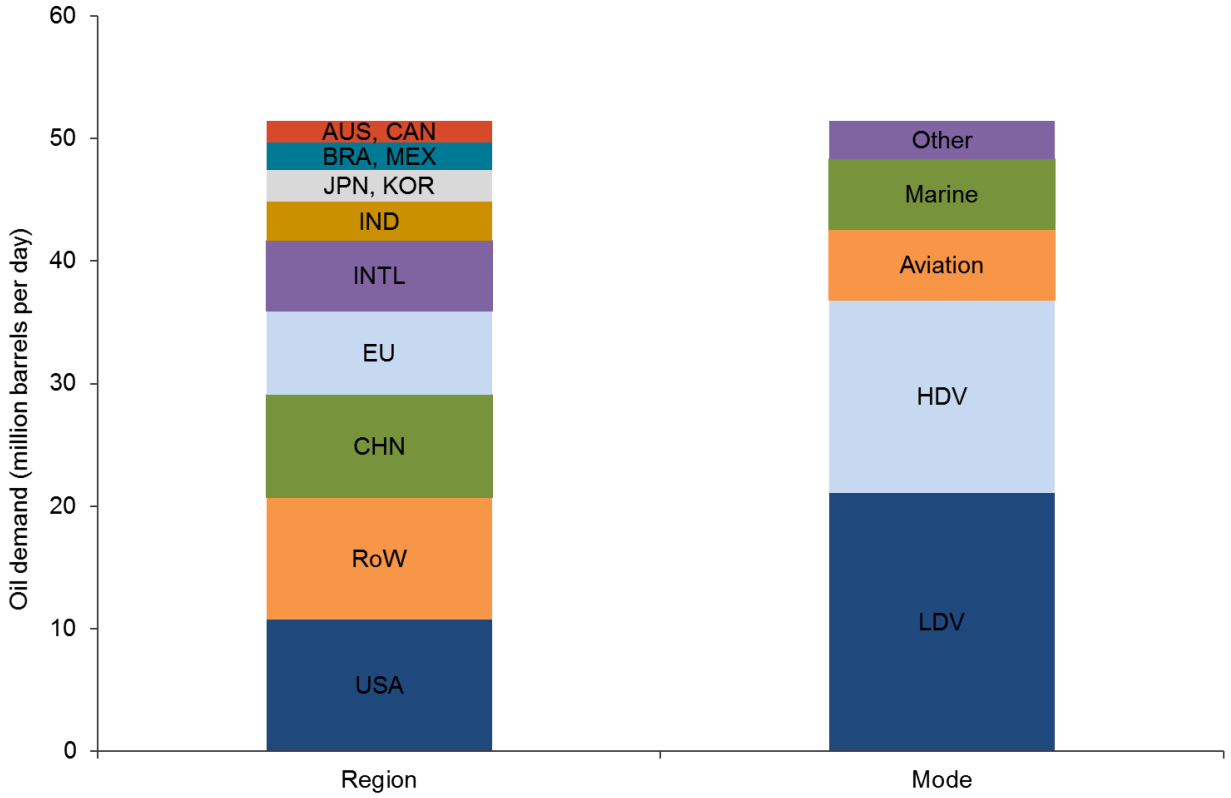
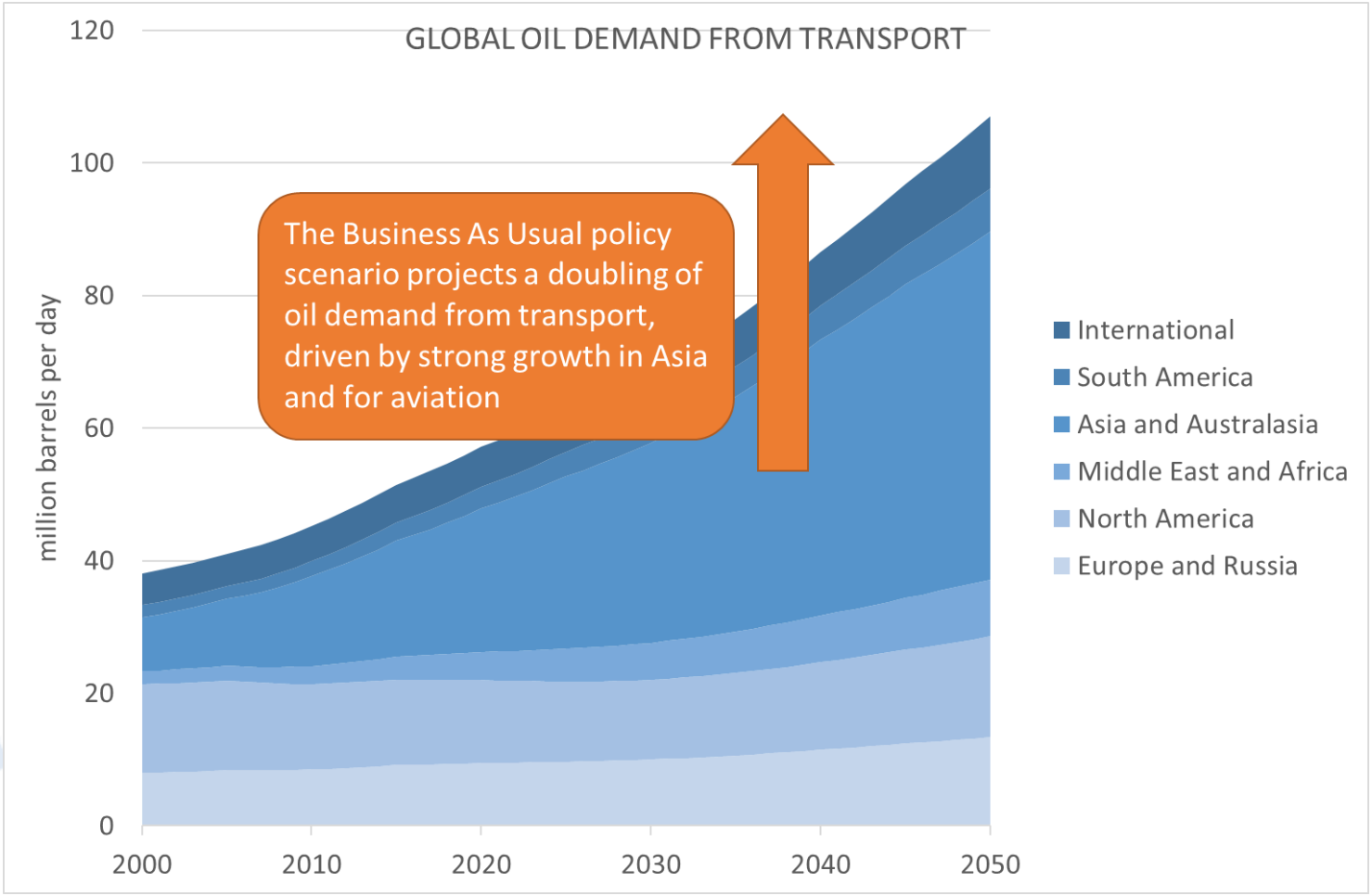
In 2015, the global transportation sector consumed more than 51 million barrels of oil per day. Together, the U.S., EU, and China account for over half of the global total. Thus, energy efficiency measures in these three markets could substantially impact global oil demand and prices.

Figure 1.1: Oil demand from transport by region and by mode, 2015



In a world without climate policies to drive investment in low-carbon technologies, global demand for oil would grow from 94 million barrels per day (mbpd) in 2015 to 112 mbpd in 2030, an increase of 19%. By 2050, demand would grow by a further 35% to 151 mbpd.



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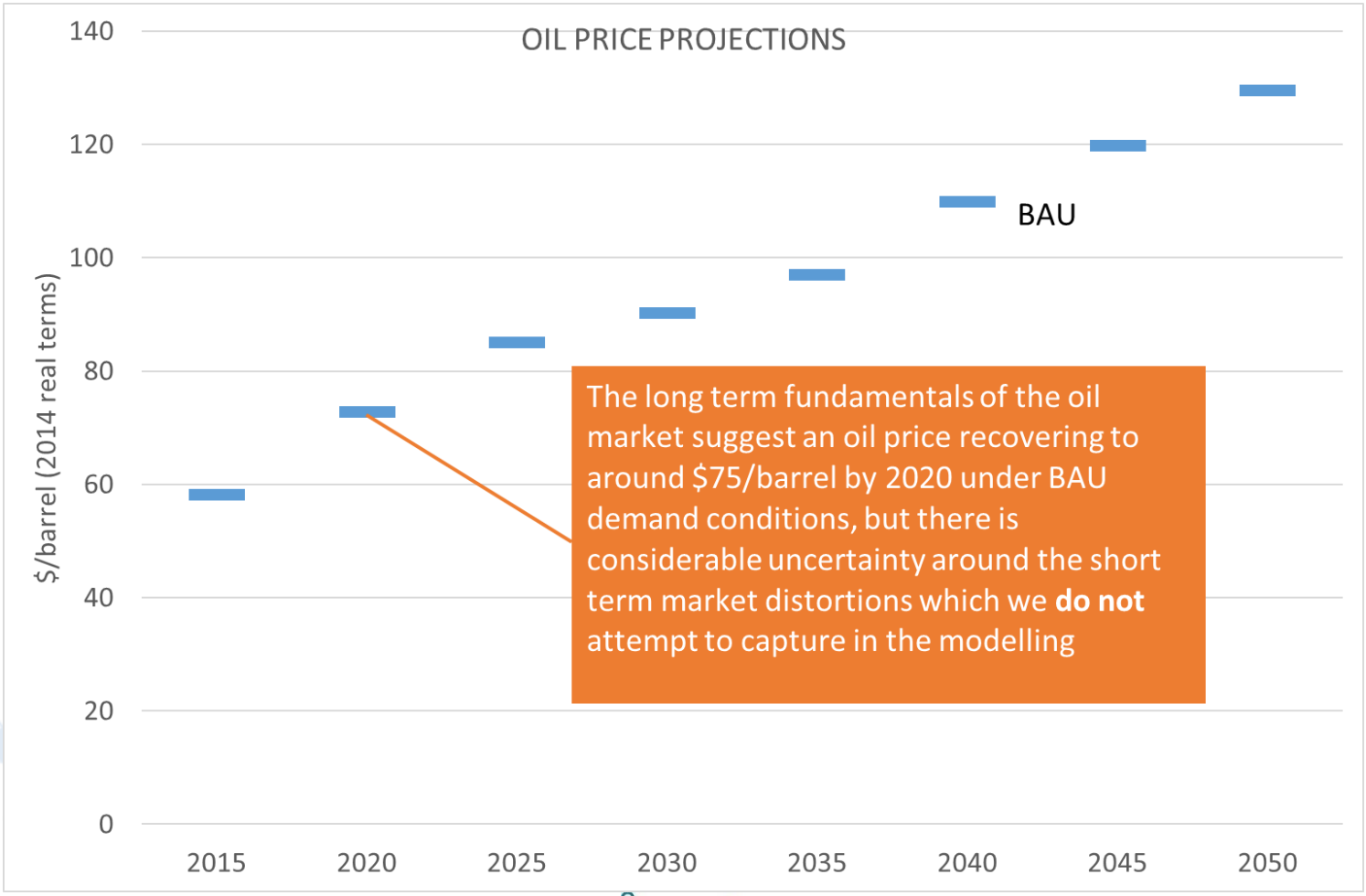
Increasing demand in the BAU would lead to a situation in the 2020s where significant investment in new non-OPEC production capacity is needed, and oil prices will need to rise to around $80 per barrel to stimulate that production. Ultimately, without major new finds or step changes in production techniques, increasing demand would push world prices above $90 per barrel by 2030 and over $130 per barrel by 2050.



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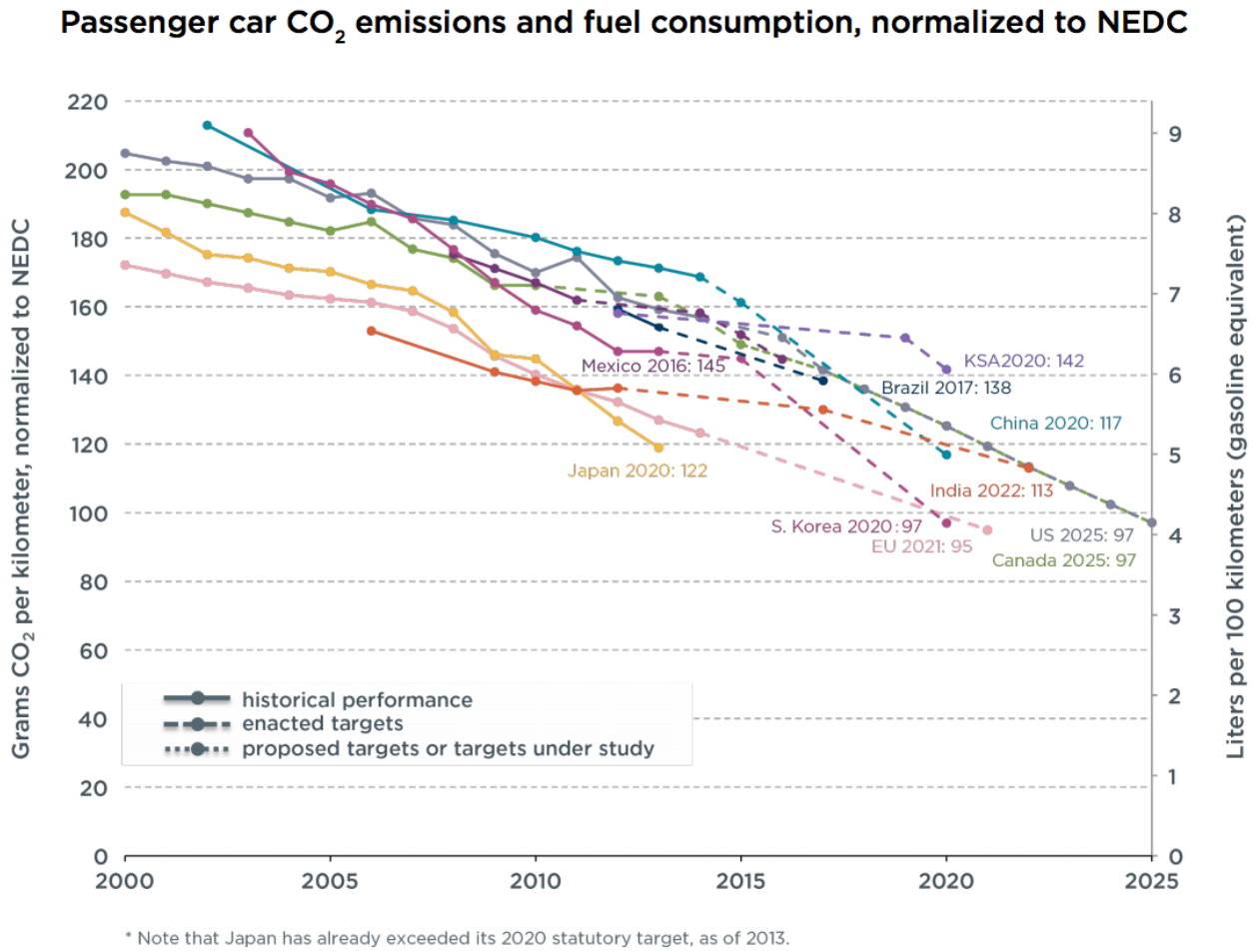
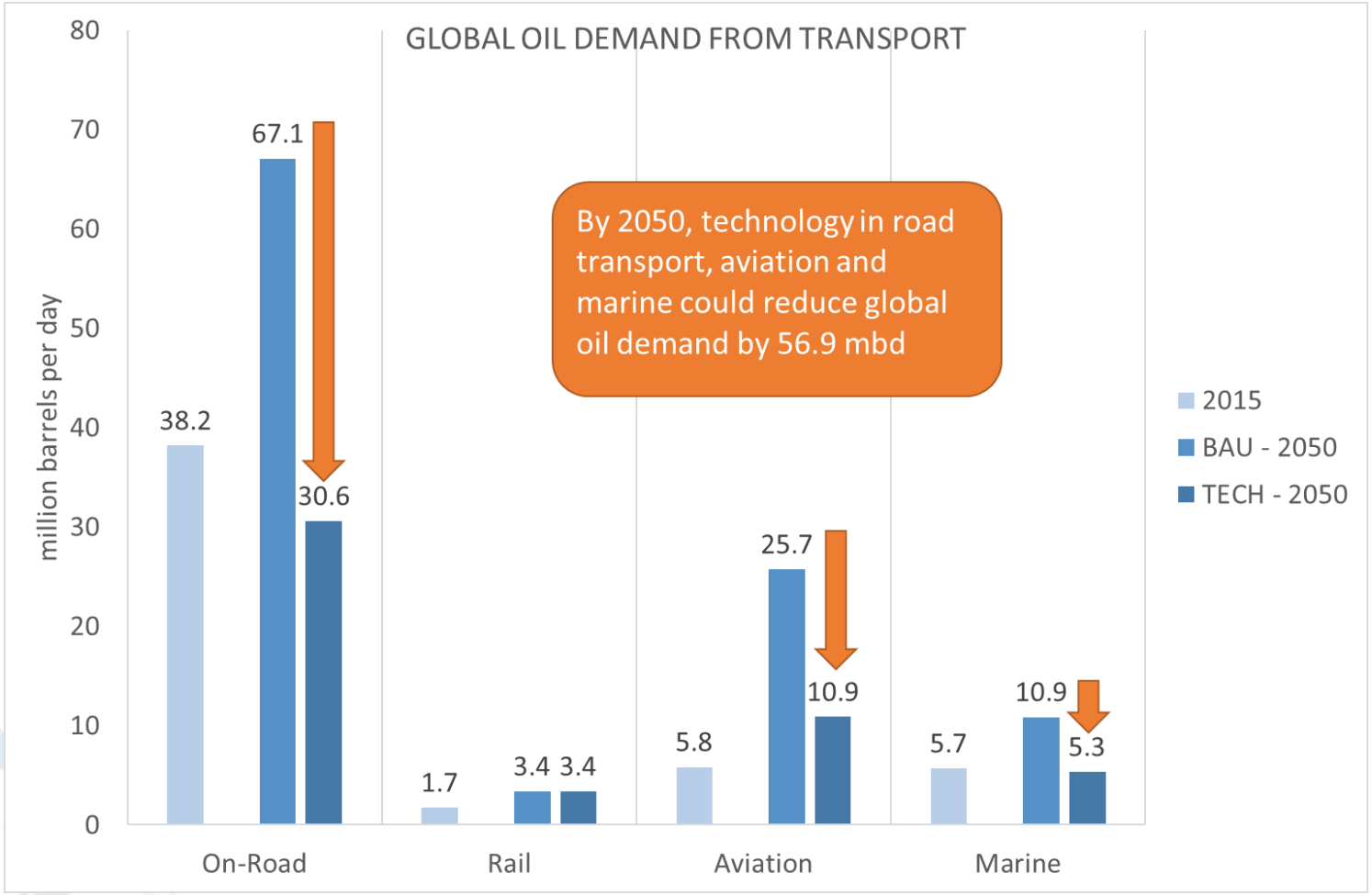
The BAU assumes full implementation of U.S. 2017-2025 LDV and 2014-2018 HDV fuel economy and GHG standards. The TECH scenario goes further, assuming continued improvements until reaching currently assessed technology potential.



* Note that Japan has already exceeded its 2020 statutory target, as of 2013.

Updated September 2015. Details at www.theicct.org/info-tools/global-passenger-vehicle-standards

In the TECH scenario, where climate policies are being implemented to drive investment in low-carbon technologies, demand for oil will be significantly lower than in the BAU: by around 11 mbpd in 2030 and by 57 mbpd in 2050.



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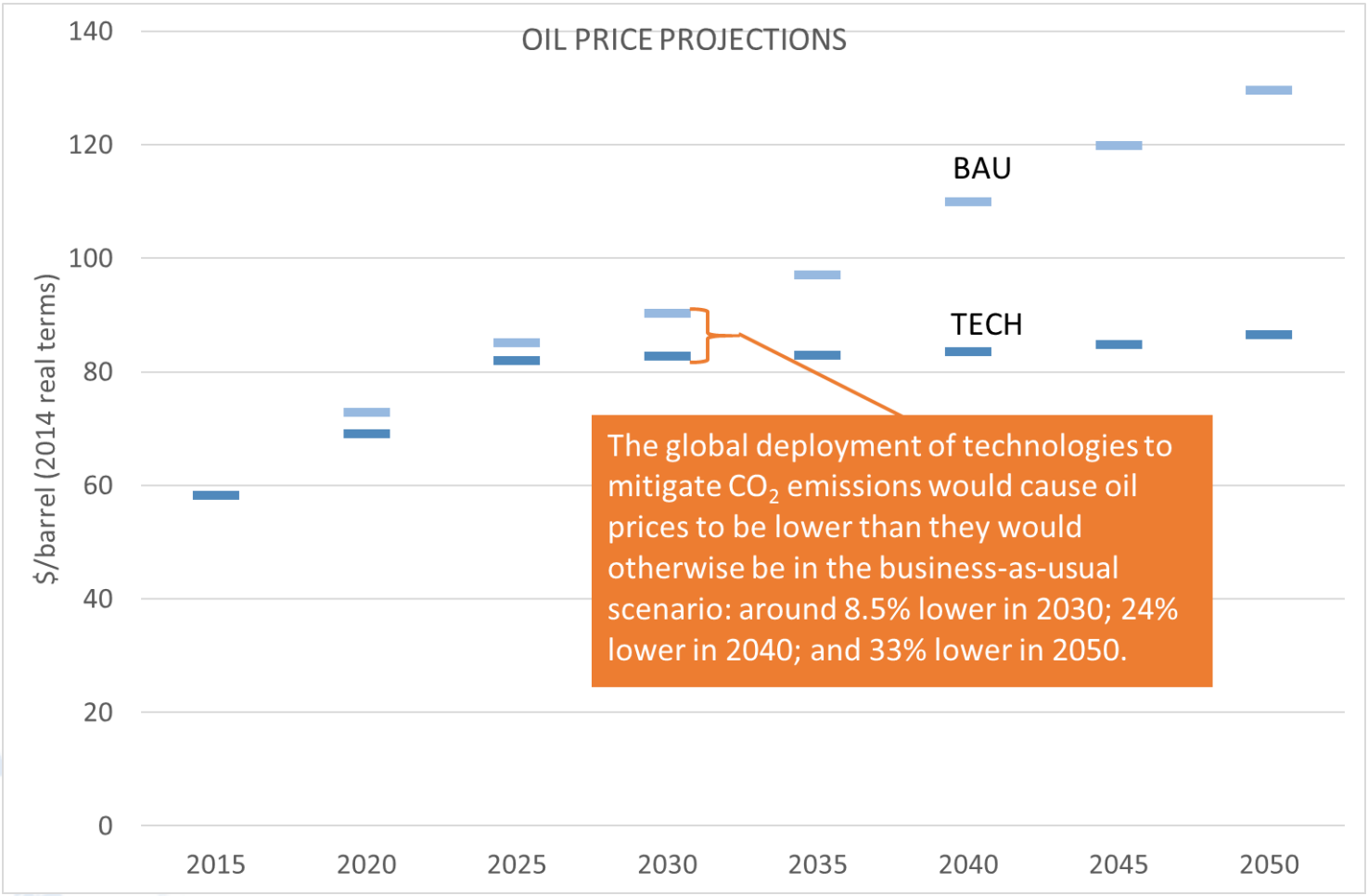
The reduction in demand delays the need to invest in extracting increasingly expensive oil from non-conventional sources, and the long-term market price of oil would settle around a stable band between $83 and $87 per barrel from 2030 to 2050.



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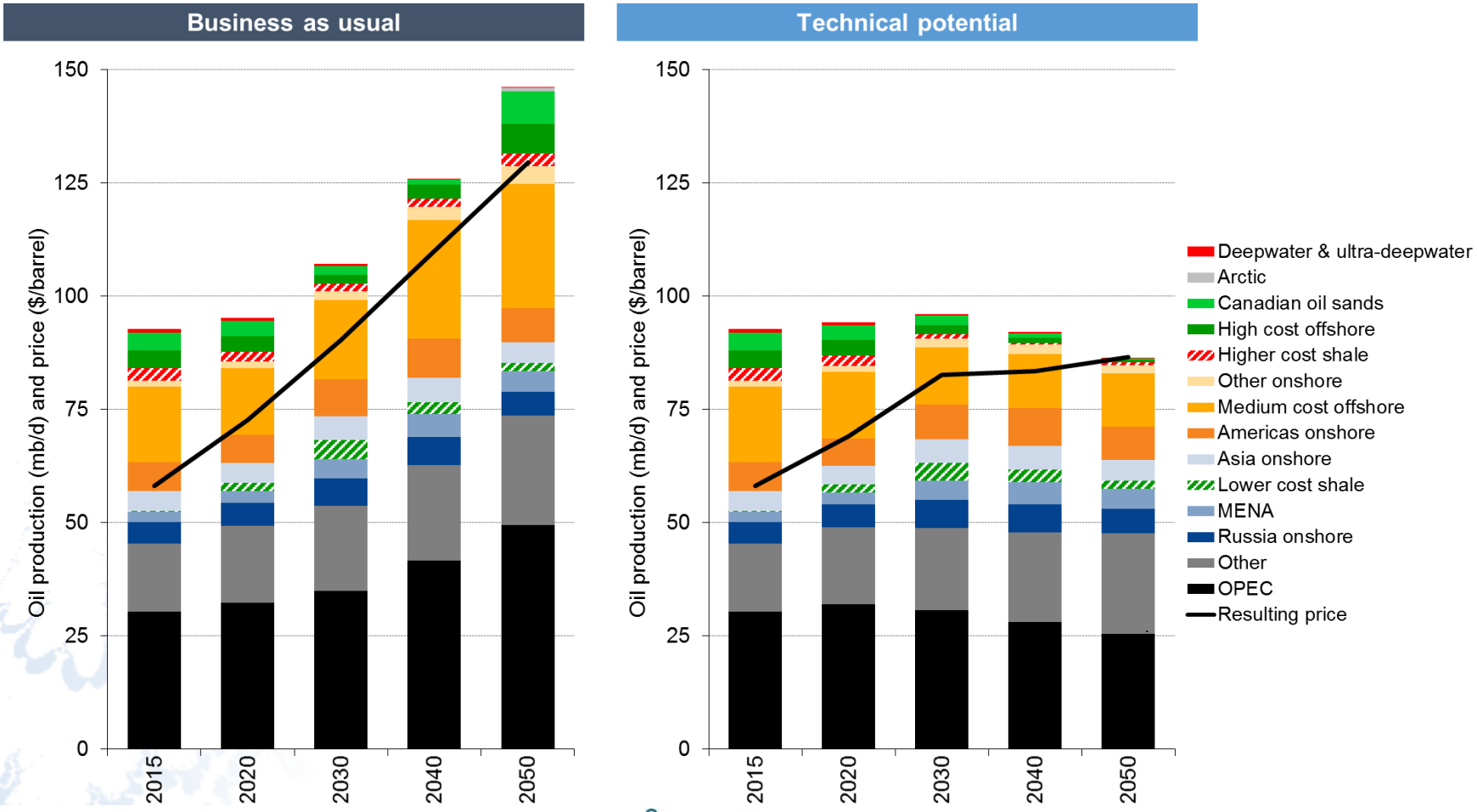
At the price point projected in the Technology Potential scenario, it would not be profitable to extract oil from the Artic; from many deep-water oil reserves; as well as from in-situ tar sands and higher cost offshore and shale.



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SUMMARY OF FINDINGS

1. In our baseline scenario, we forecast oil prices to rise steady to meet growing demand, hitting $130 / barrel in 2050 (2014 USD).
2. In our TECH scenario, we find substantial potential for oil savings from the transportation sector with adoption of efficiency standards and policies to accelerate penetration of electric vehicles. We estimate that projected transport oil demand could be cut in half, holding transport oil demand constant at current levels.
3. Comparing the BAU and TECH scenarios, we find that global oil prices can be contained in the mid- $80 /barrel, which would also limit some of the more energy intensive types of oil extraction. This would result in a 24% cut in oil prices in 2040, and a third lower in 2050.
4. We find substantial economic benefits associated with the vehicle efficiency policies in the TECH scenario. We estimate that global annual oil expenditures could be reduced by $330 billion – on average – from 2020 to 2030. In the US, we estimate a half percent increase in GDP in 2050, and an increase of more than 170,000 jobs.

Thank you.

- Questions?
- For more information, contact study authors:
  - Hector Pollitt, Philip Summerton and Sophie Billington, Cambridge Econometrics
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