A large, circular, semi-transparent image of a busy city street at night, filled with people, cars, and illuminated buildings. The image is partially obscured by a large white circle that contains the title text.

Energy Outlook 2020 edition

Carbon Neutral Oil in Energy Transitions

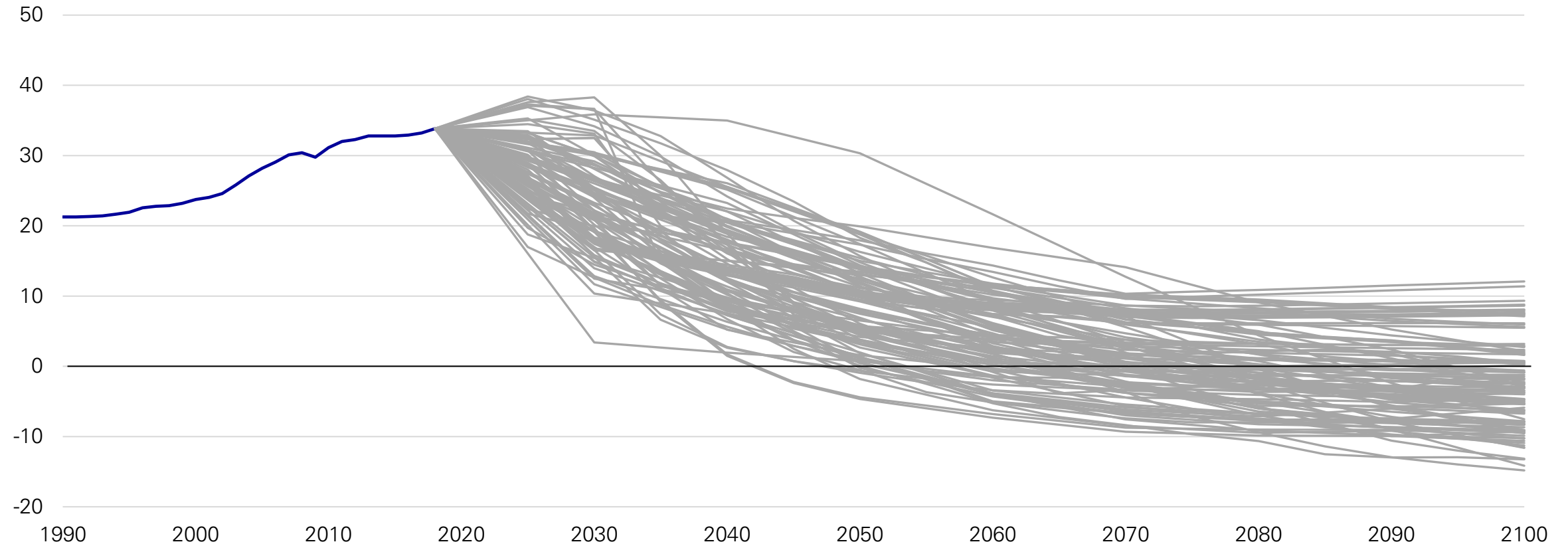
Center for Energy Studies – Baker Institute for
Public Policy at Rice University
27 April 2021

Michael Cohen
Chief US Economist and Head of Oil &
Refining
*Economic and Energy Insights | Strategy &
Sustainability*

IPCC Scenarios: 58 (~70%) achieve Net Zero b/w 2060-80

Carbon emissions from energy use

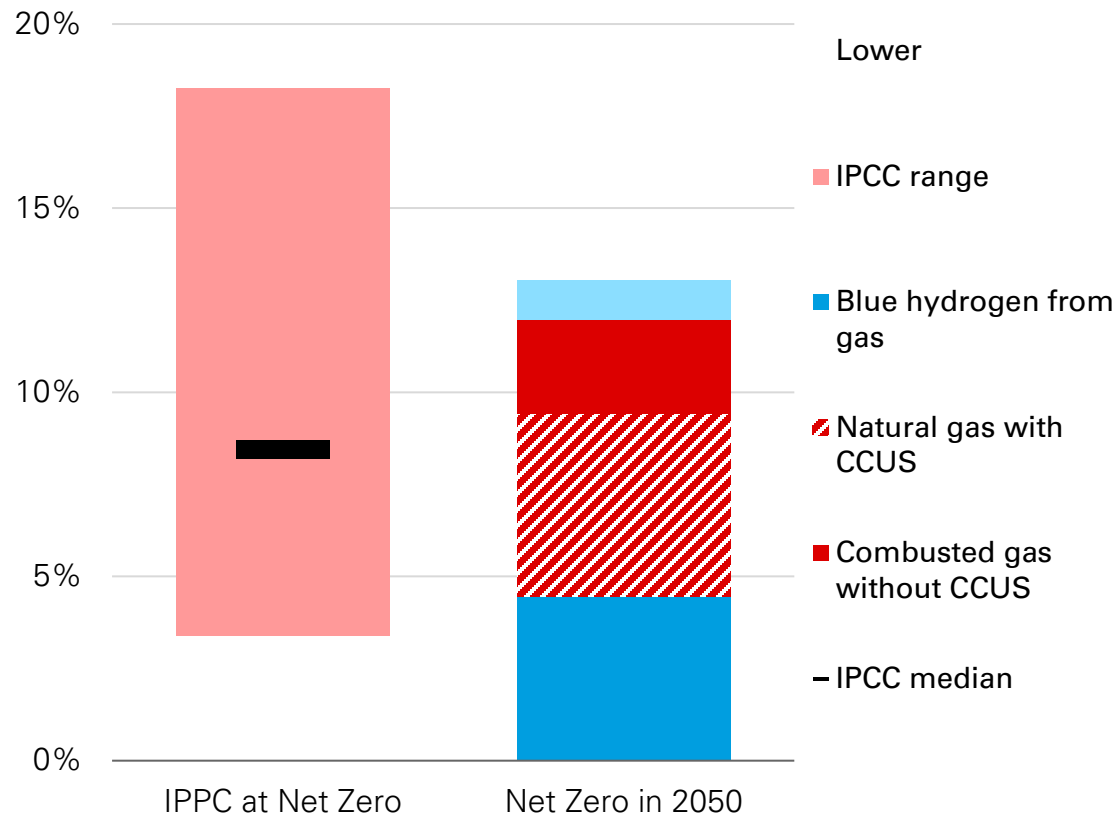
Gt of CO₂



What role for natural gas...

Natural gas consumption in IPCC scenarios and *Net Zero*

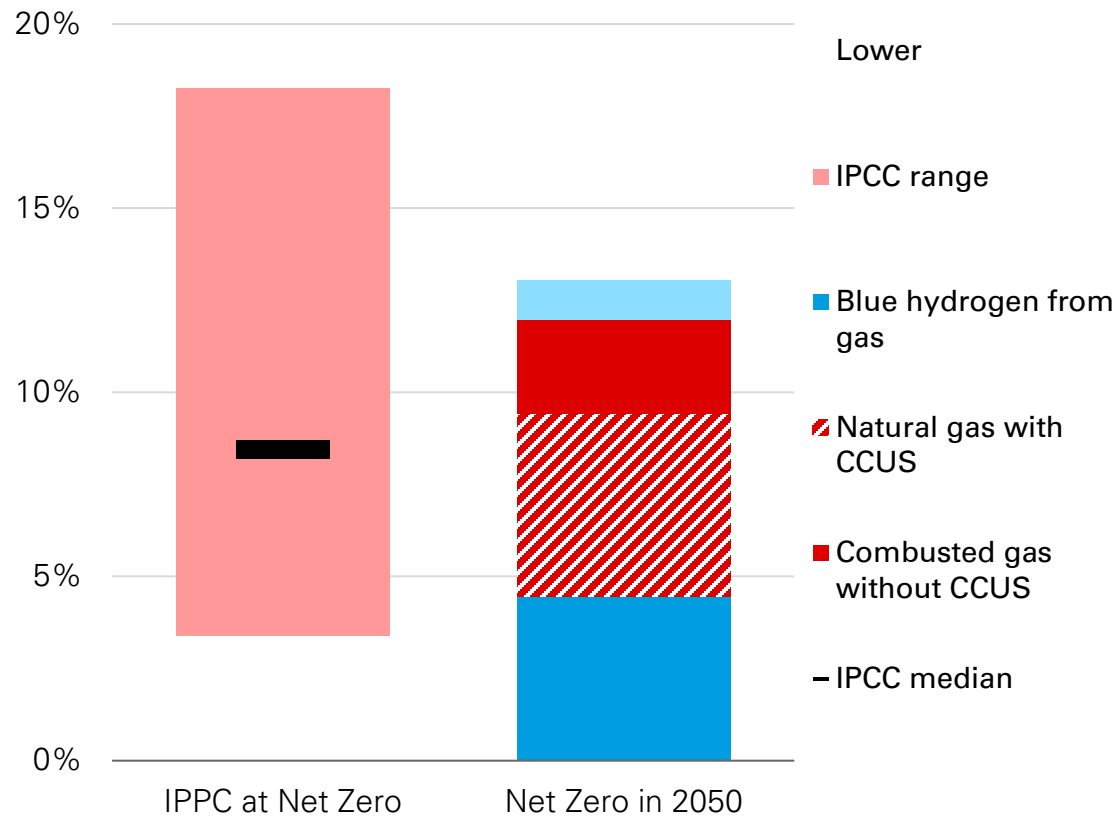
Share of primary energy



What role for natural gas...and oil?

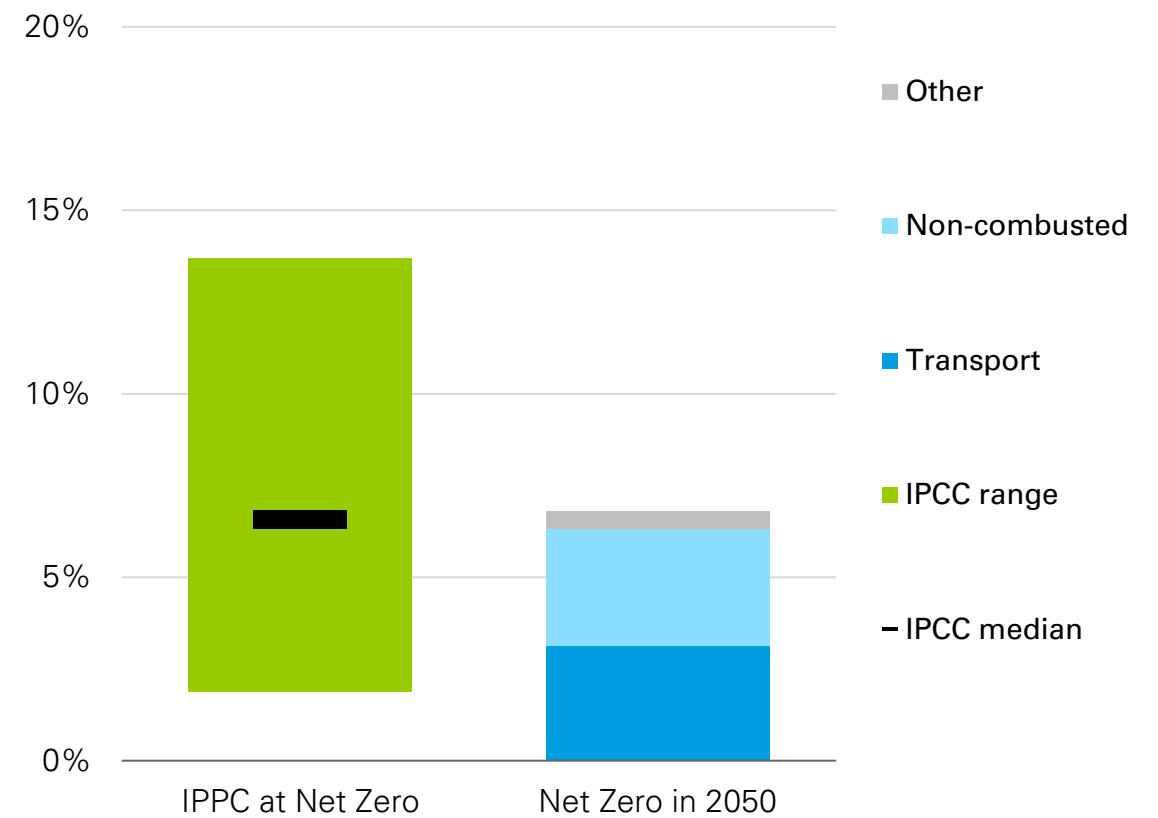
Natural gas consumption in IPCC scenarios and *Net Zero*

Share of primary energy



Oil consumption in IPCC scenarios and *Net Zero*

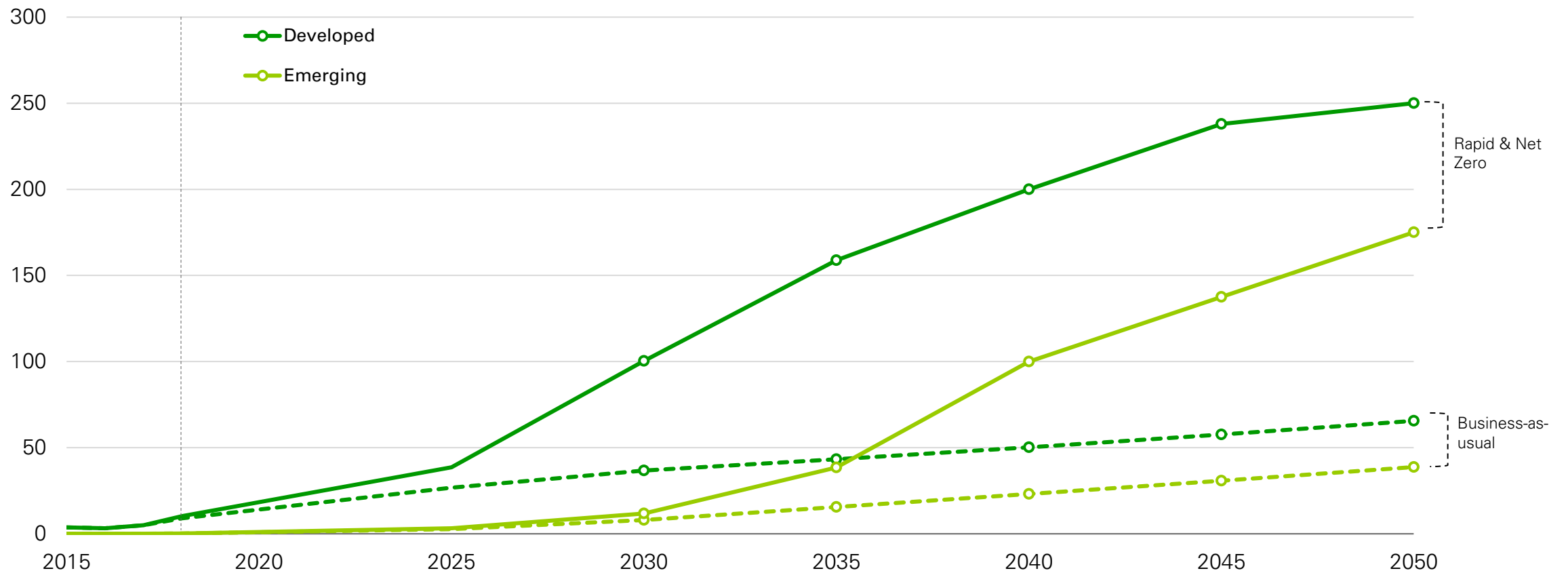
Share of primary energy



Carbon price assumptions

Average carbon prices in developed and emerging regions

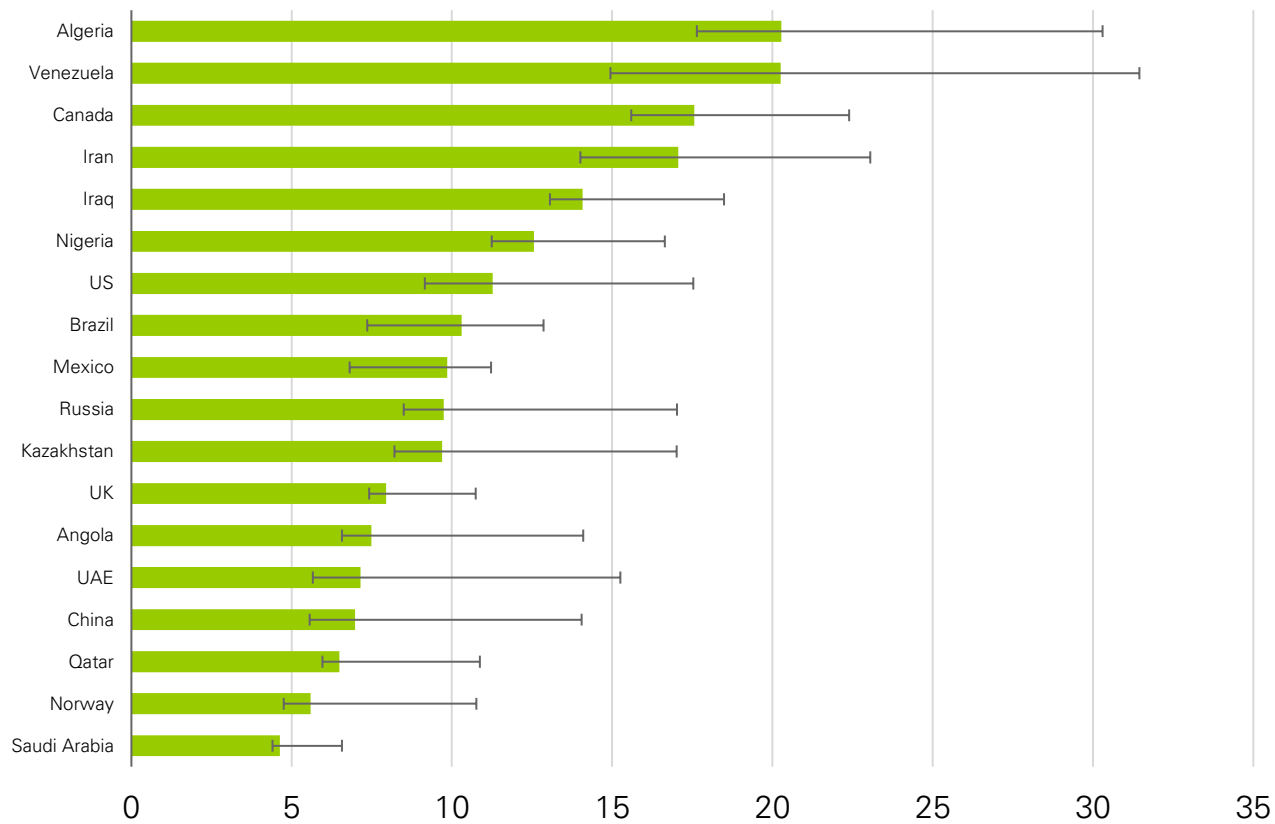
US\$ per tonne (real 2018)



Differences in carbon intensity of crudes

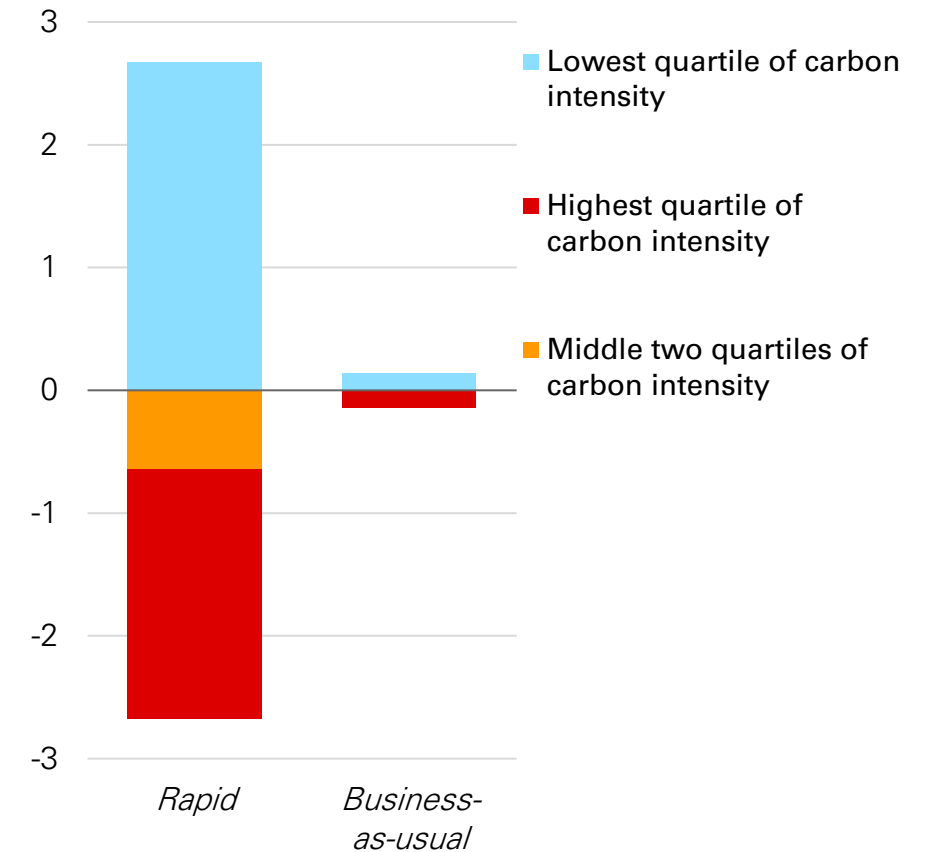
Average carbon intensity of crude production by country, 2015

g of CO₂e/MJ



Carbon intensity: impact on volumes*

Mb/d



Source: Masnadi et al. (2018), Global carbon intensity of crude oil production graph includes countries with crude and condensates production above 1 Mb/d in 2018. Error bars include 5-95th percentile of fields