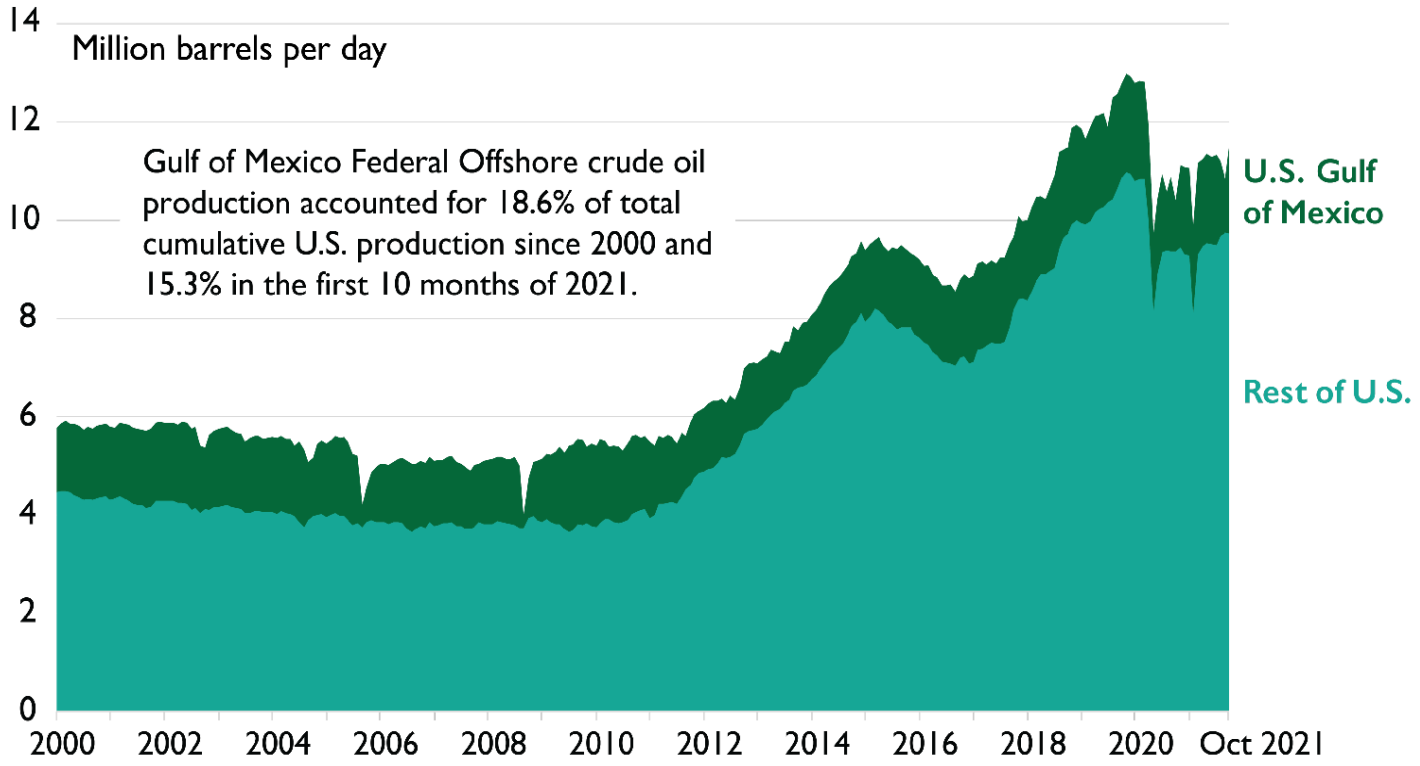
Figure 1

Monthly U.S. Crude Oil Production

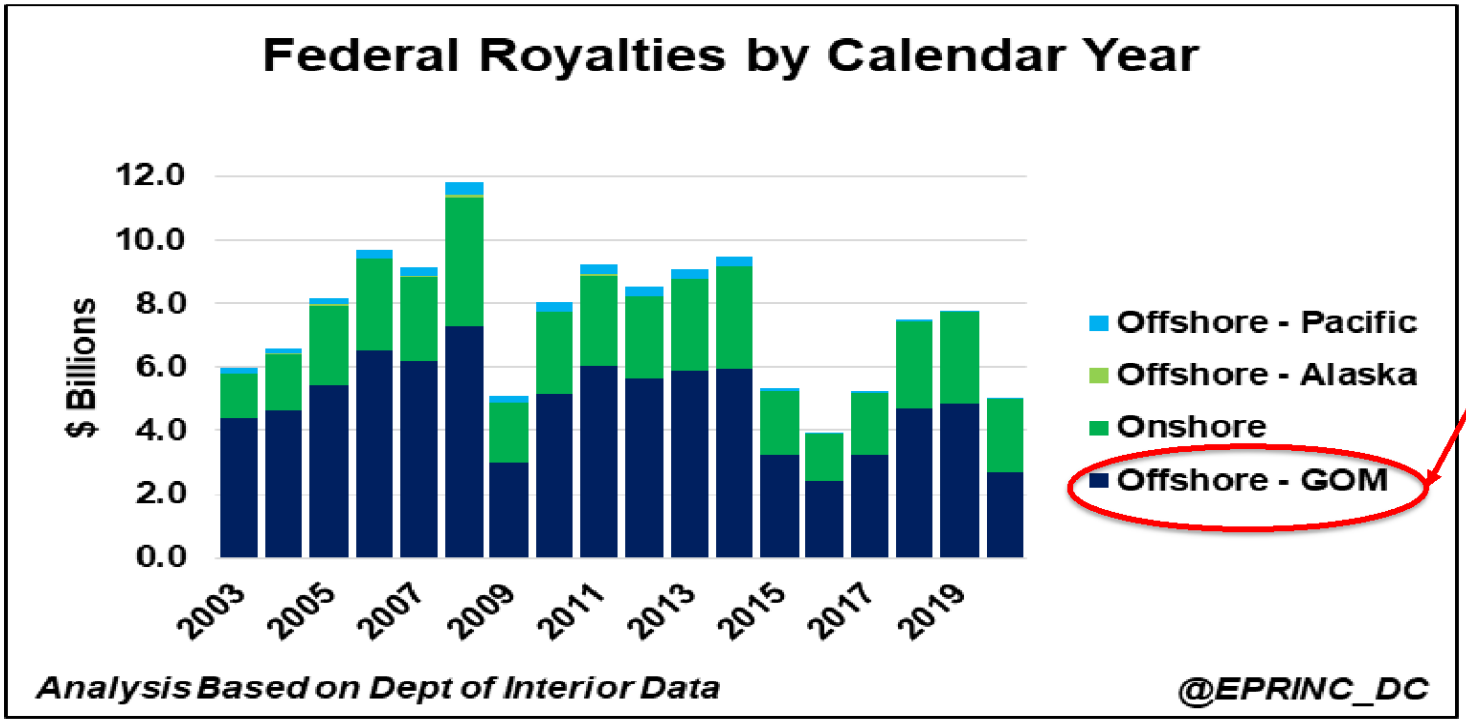


Source: Batt Odgerel. EPRINC figure and analysis based on EIA monthly petroleum data
In October 2021, GOM produced 1,744 thousand barrels per day.

3

Figure 2

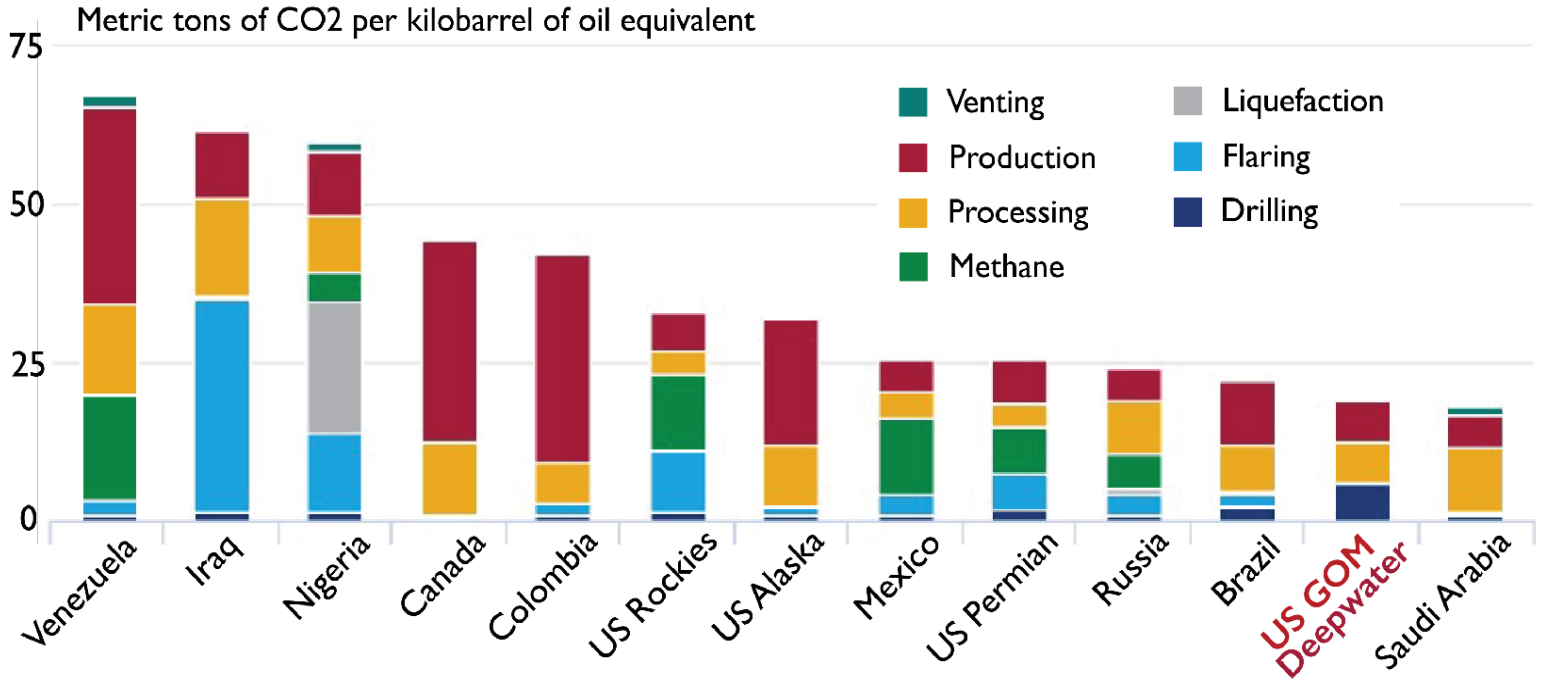
At Least 50 Percent of Federal Oil & Gas Revenues Come from Gulf of Mexico



In every calendar year, U.S. GOM royalties are at least half the total of royalties collected by the Department of Interior.

Figure 3
US GOM Deepwater Oil & Gas Production Has a Low Carbon Footprint

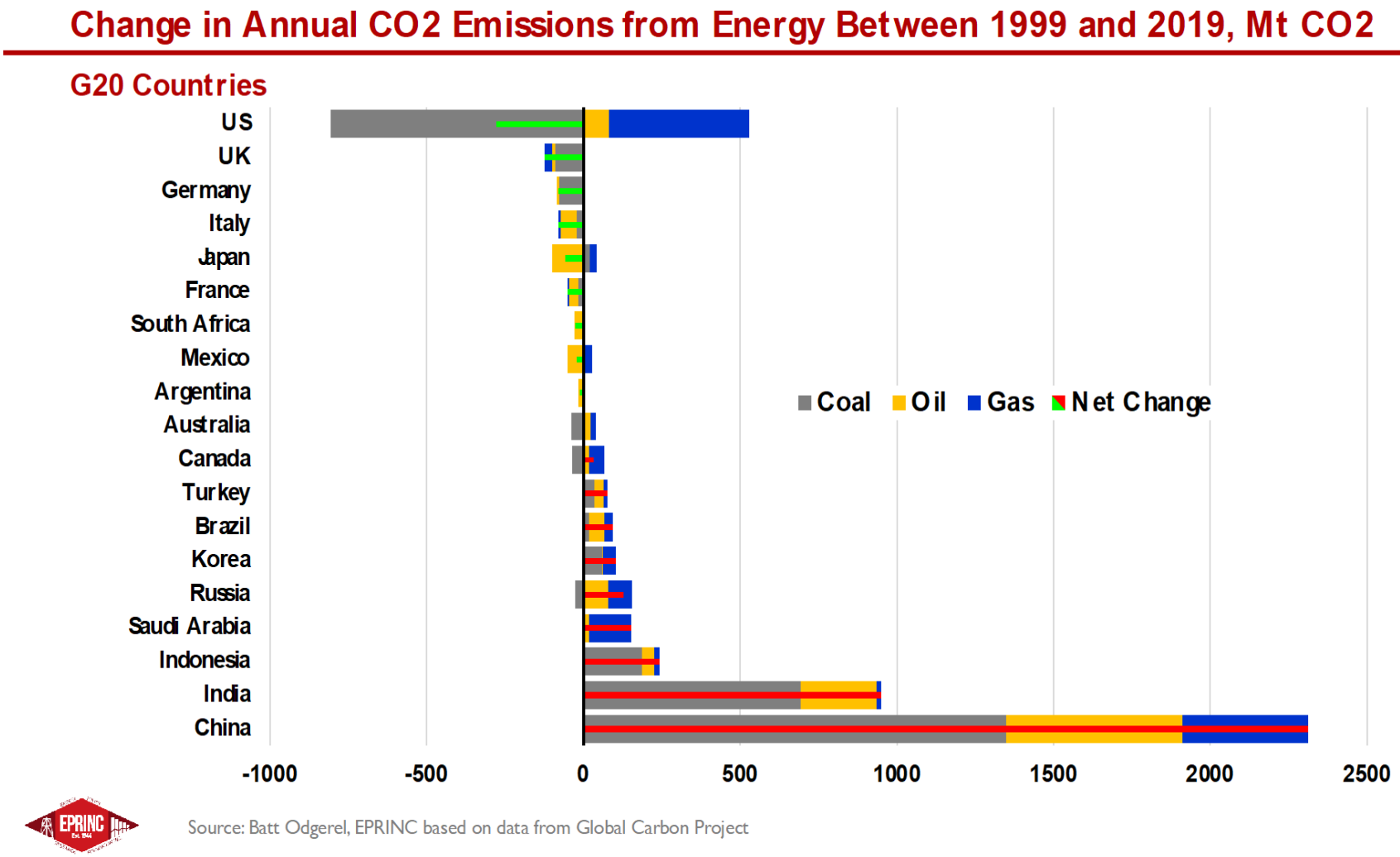
CO2 Emissions Intensity by Production & Processing Source



Source: Wood Mackenzie Emissions Benchmarking Tool. Shipping/transport emissions not included.
Original graph slightly adjusted for appearance and visibility.

2

Figure 4



Source: Batt Odgerel, EPRINC based on data from Global Carbon Project

Figure 5
Energy Transition is Hard and Rare

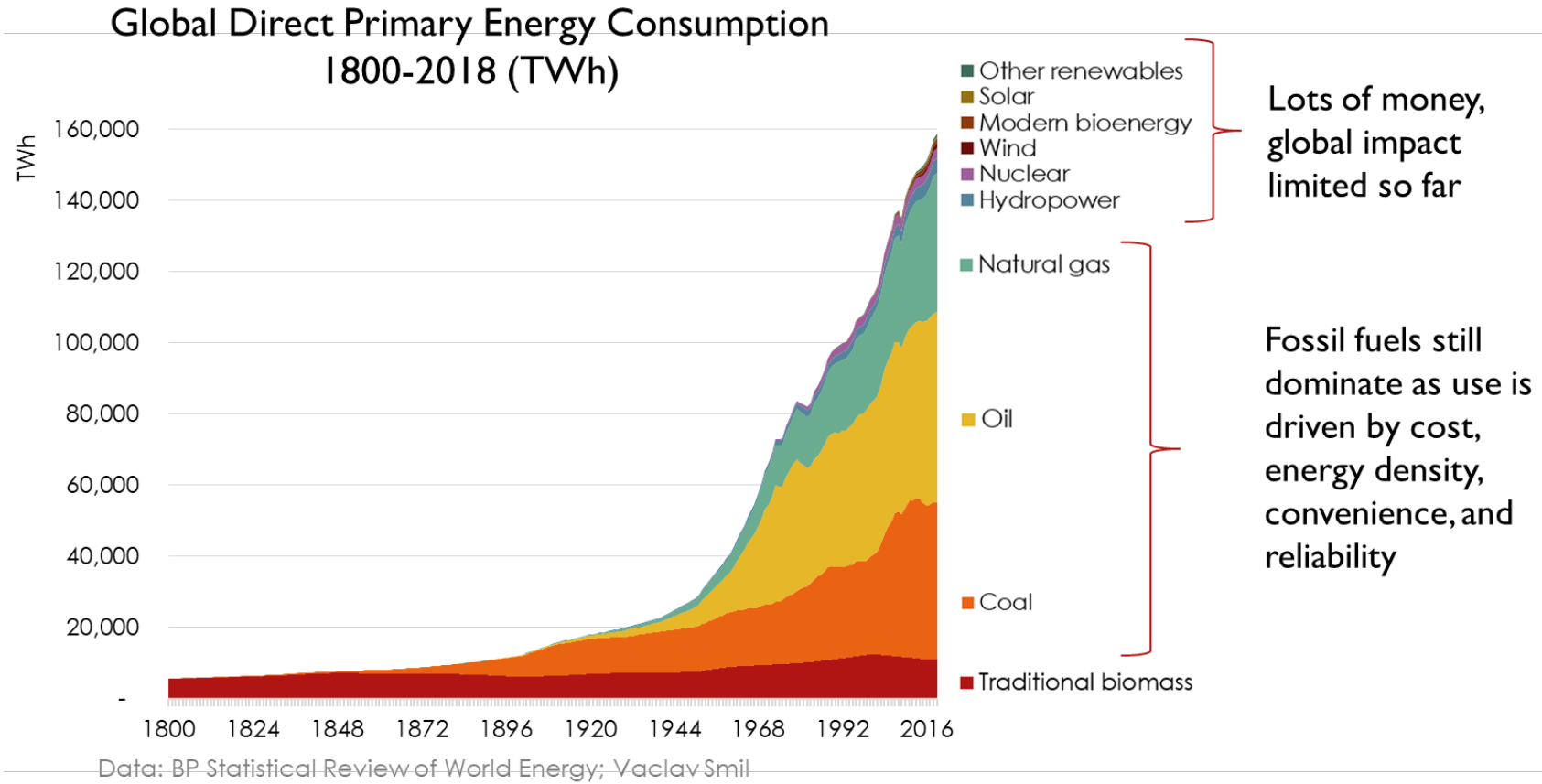
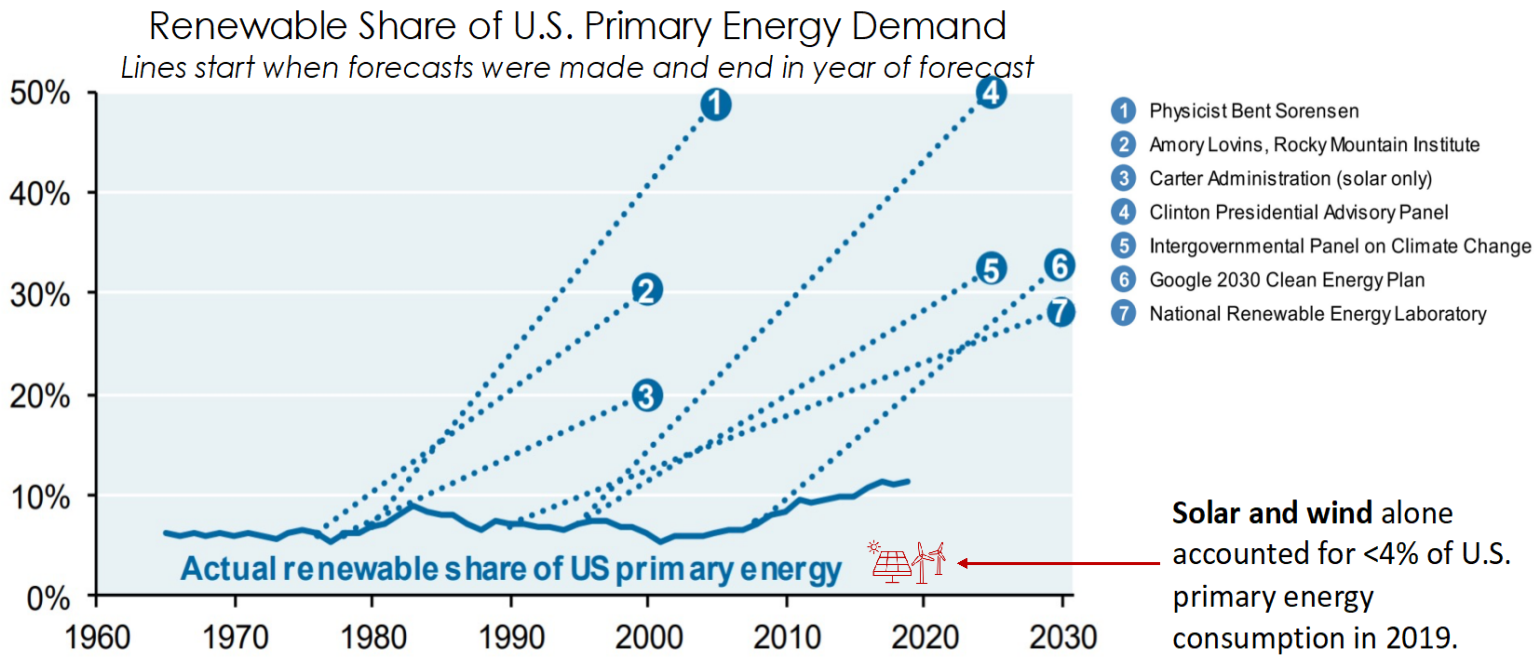


Figure 6

Ambitious Goals Need Sober Assessment



Solar and wind alone accounted for <4% of U.S. primary energy consumption in 2019.

*Renewables include wind, solar, hydropower, geothermal, biomass, wood and waste.

Source: EIA, listed authors, Vaclav Smil, JPMAM. 2019.

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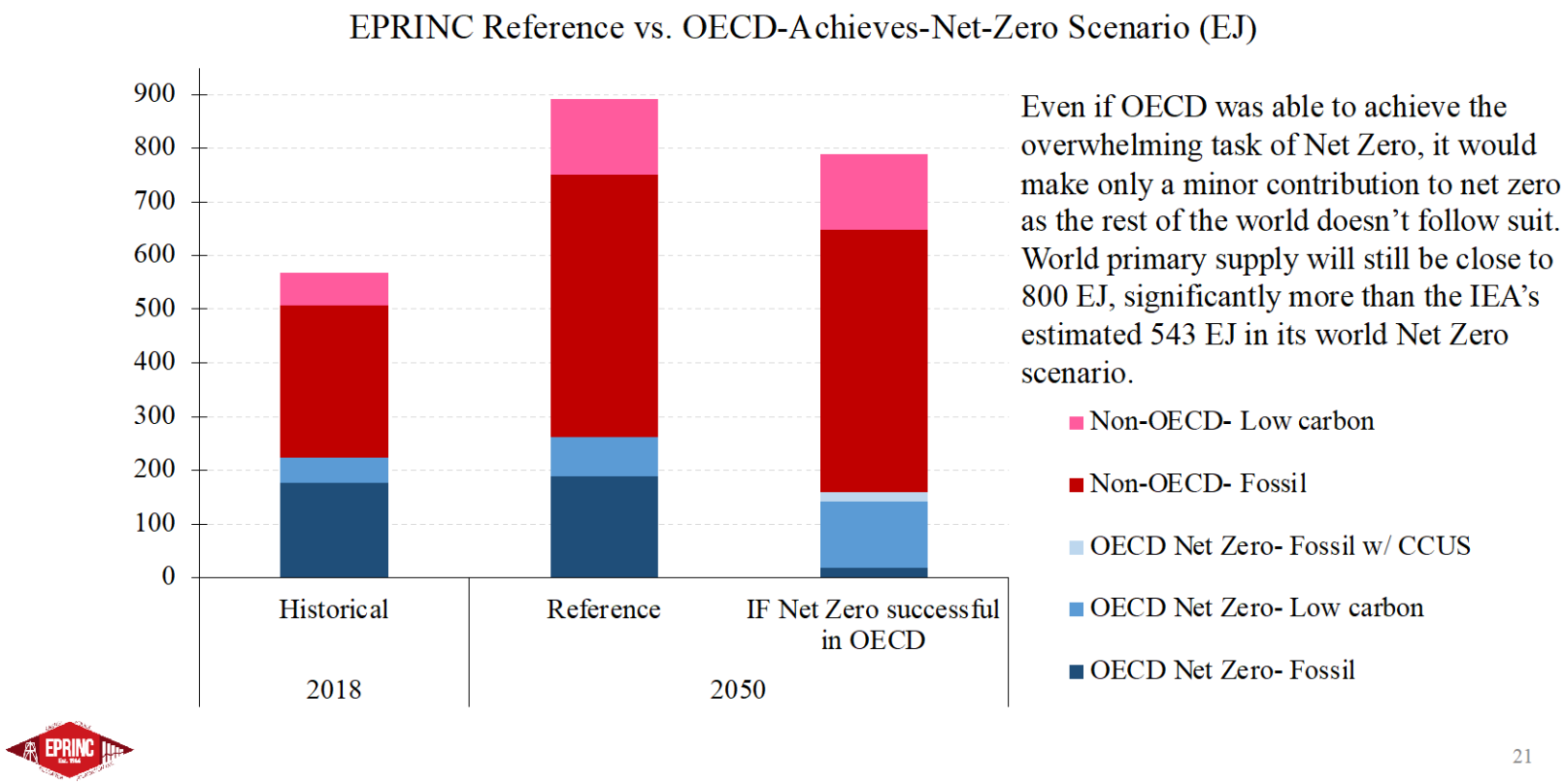
Figure 7

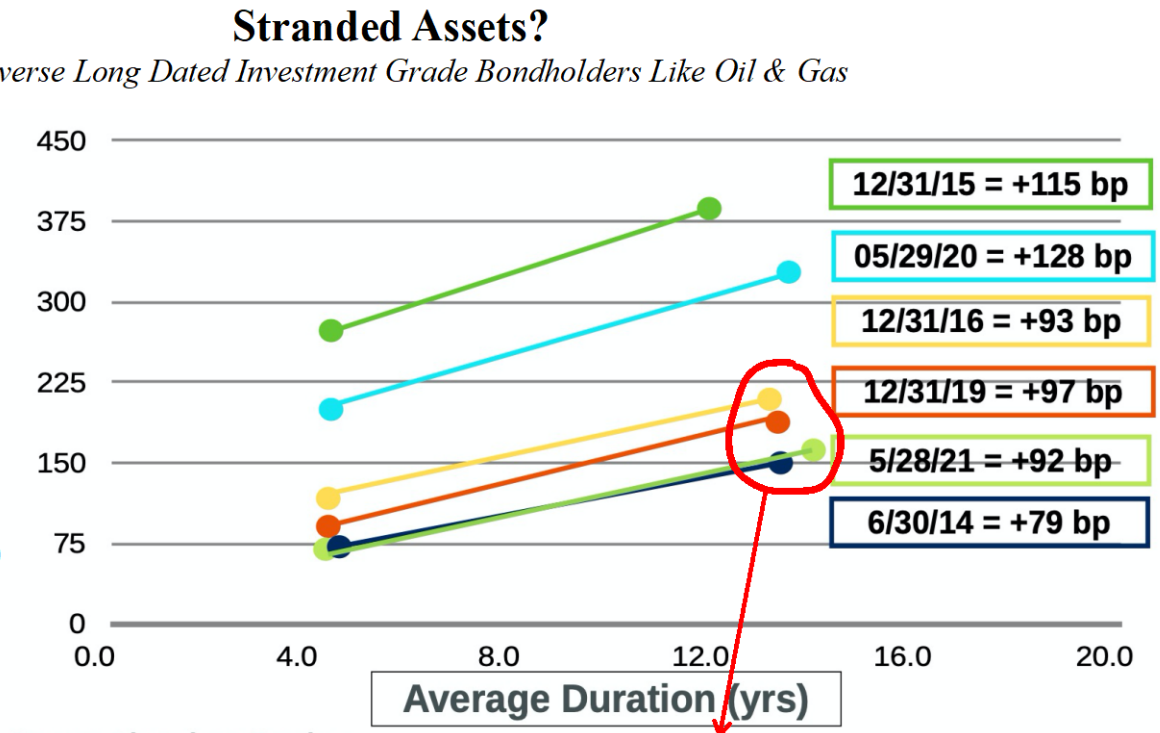
Even If OECD Approaches Net Zero, Non-OECD Will Struggle to Follow Suit



Source: EPRINC analysis of optimistic scenario of net zero for industry, buildings, and transport for OECD. In this scenario the OECD achieves near net zero while non-OECD makes some modest progress. EPRINC "Net Zero" scenario yields about 20% lower carbon emissions than reference case. EJ refers to exajoules. 1 exajoule = 477,000 bbl of oil equivalent.

Figure 8
Financial Data Show that Oil & Gas Reserves are Not Stranded Assets?

Since the shale-related reset of world oil prices that began in mid-2014, the IG energy credit spread curve has not steepened meaningfully, other than temporary spikes caused by oil price volatility (mainly the 2020 pandemic and related OPEC+ market share war).

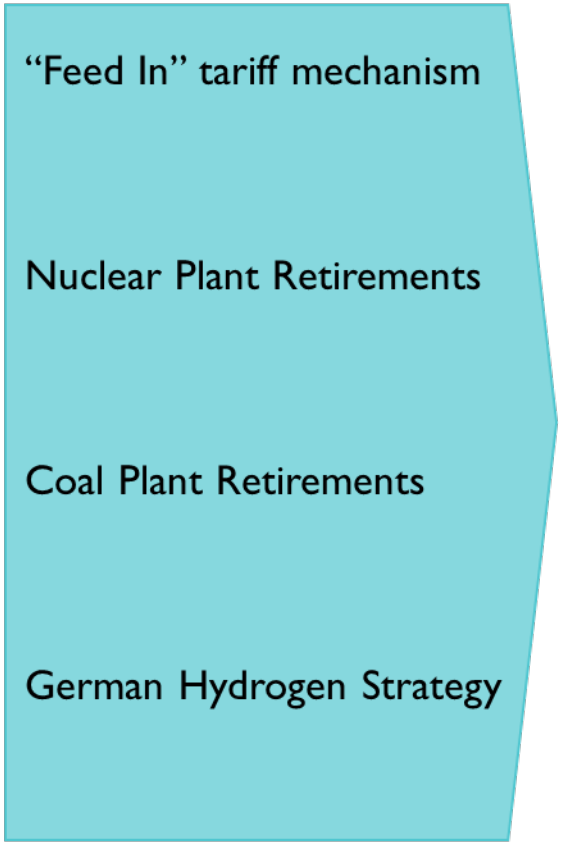


Source: Paul Tice, Stern Shool of Business, NYU; EPRINC Chart of the Week

9

Figure 9

German Energy Transition Difficulties Are 'Policy Driven'



Stated Aim/Objective of the Policy

Introduced in 2000, this policy guaranteed high tariffs for early investors which produced a solar boom.

Following the Fukushima Accident, Germany was the first country to ban all future nuclear power and enforce a shutdown of its nuclear fleet by 2022

The "Coal Commission" policy proposals advocate a retirement of entire 45GW coal capacity by 2038

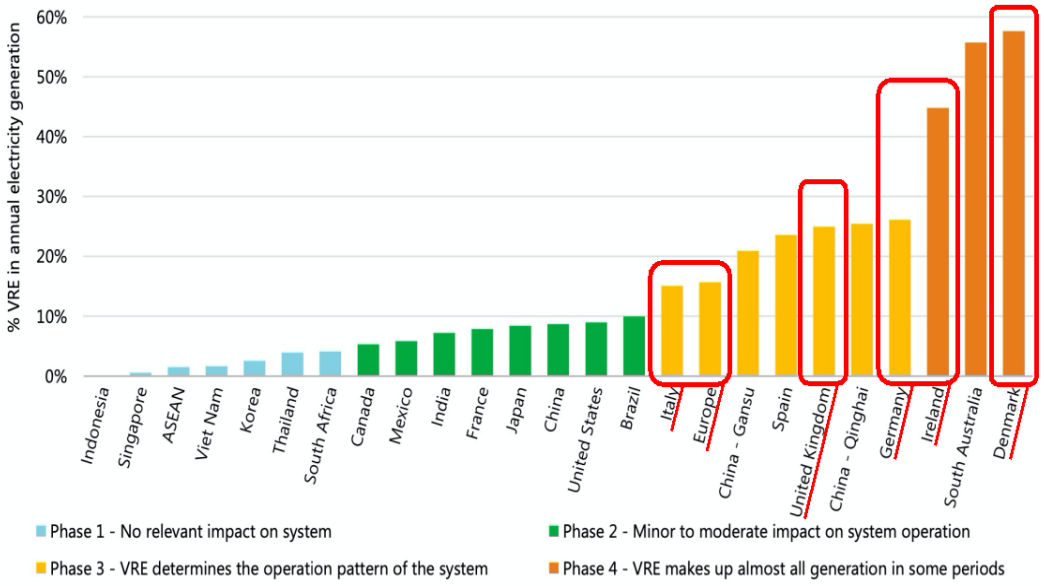
The Hydrogen policy seeks to utilise the renewable overcapacity for hydrogen production through promoting commercial scale electrolysers- a technology choice made by policy, ignoring the cost-competitiveness of hydrogen production through the natural gas steam reformation route.

Source: Ash Shastri, EPRINC Distinguished Fellow

Figure 10

Recent Events Suggest Greater Renewable Energy Portends Set of Risks

Annual Renewable energy & IEA defined system integration phase in selected countries



Countries experiencing acuity of end user price rise in Autumn 2021

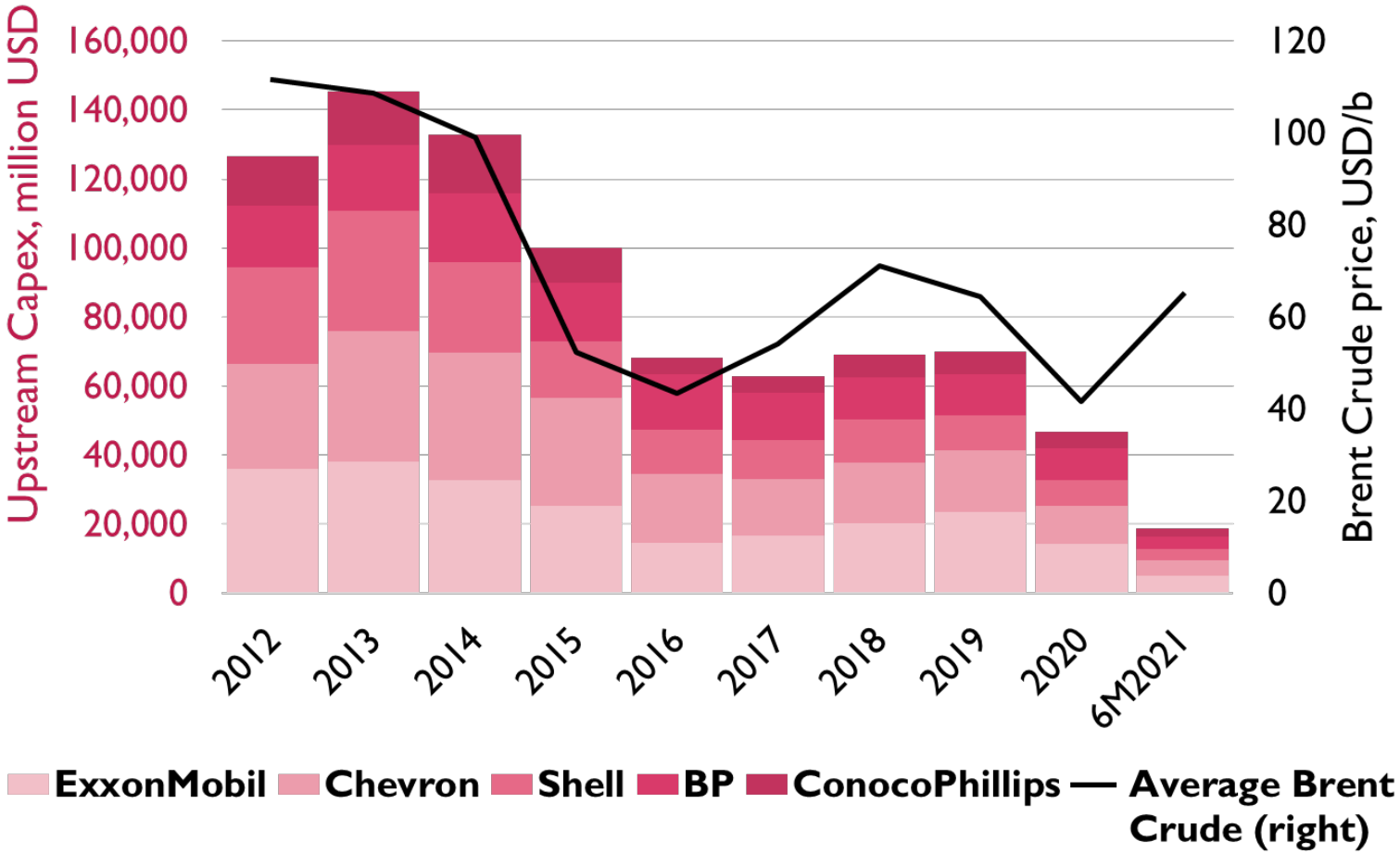
A considerable number of countries with advanced/ greater penetration of variable renewable energy appear to have faced greater supply side uncertainties.

A rise in renewable penetration above 70% may be necessary to achieve the mid-century deep decarbonization targets, but raising concerns relating to end user pricing and security of supply.

Source :Ash Shastri, EPRINC, from Secure Energy Transitions in Power Sector. IEA

Figure 11

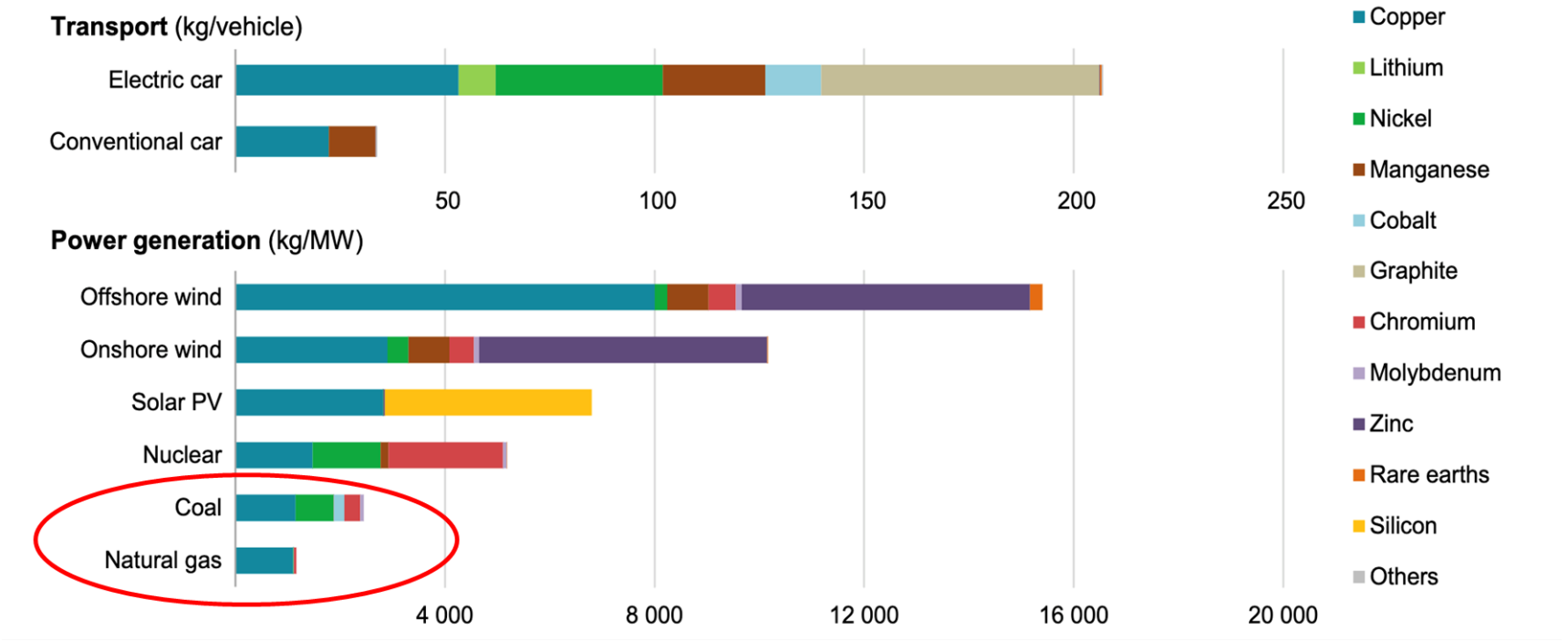
U.S. Oil and Gas Capital Expenditures by Select Majors



Data: Company annual and quarterly reports and SEC filings; EIA's historical oil price data
Note: BP 2021 Q1 and Q2 upstream Capex are estimates based on previous quarters' ratios.

Figure 12

Energy Transition will Require Acquisition of Higher Volumes and Broad Range of Minerals

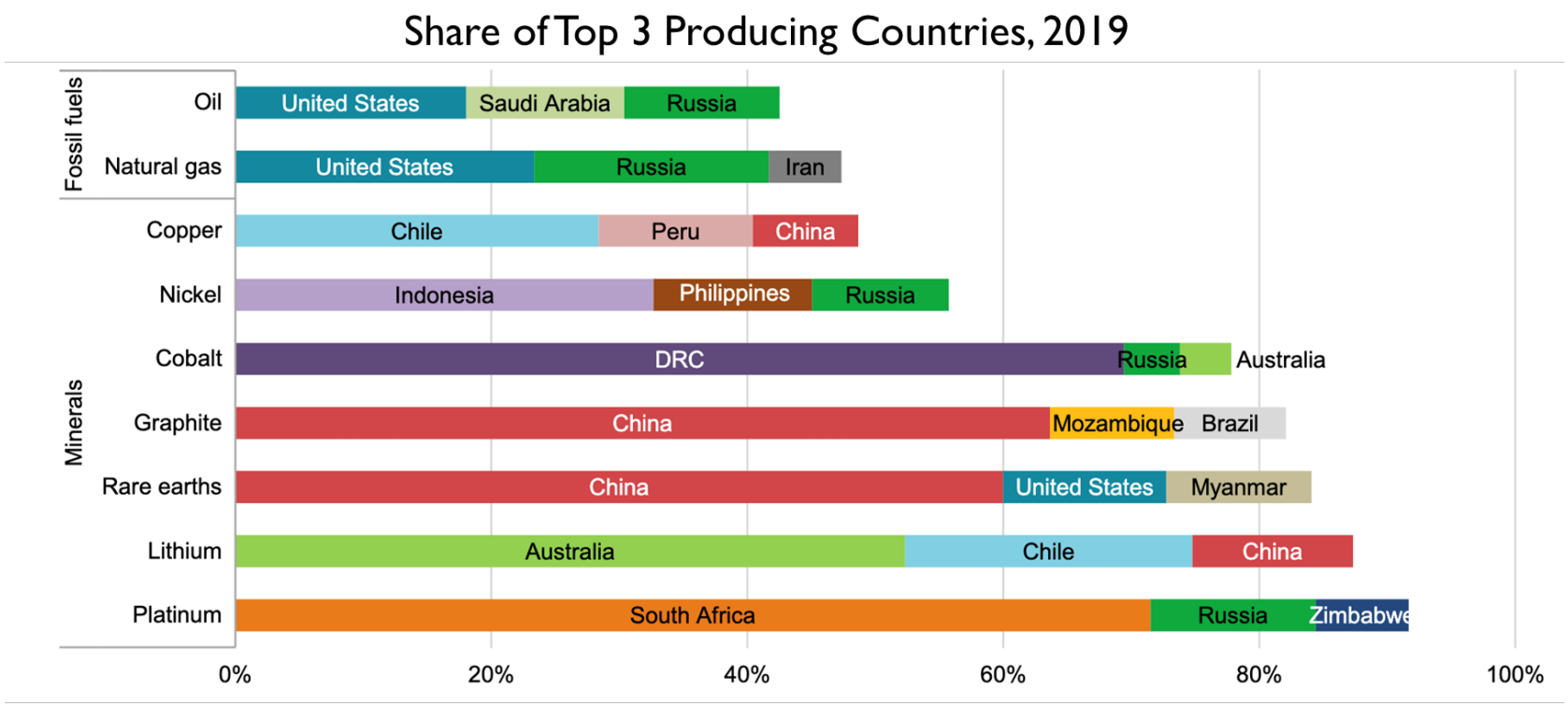


Source: IEA

Figure 13

The U.S. is a Leader in Oil and Gas Production

(In specialty minerals, the U.S. is highly dependent on foreign sources of supply)



Source: IEA

Figure 14

The New Energy Security Problem?

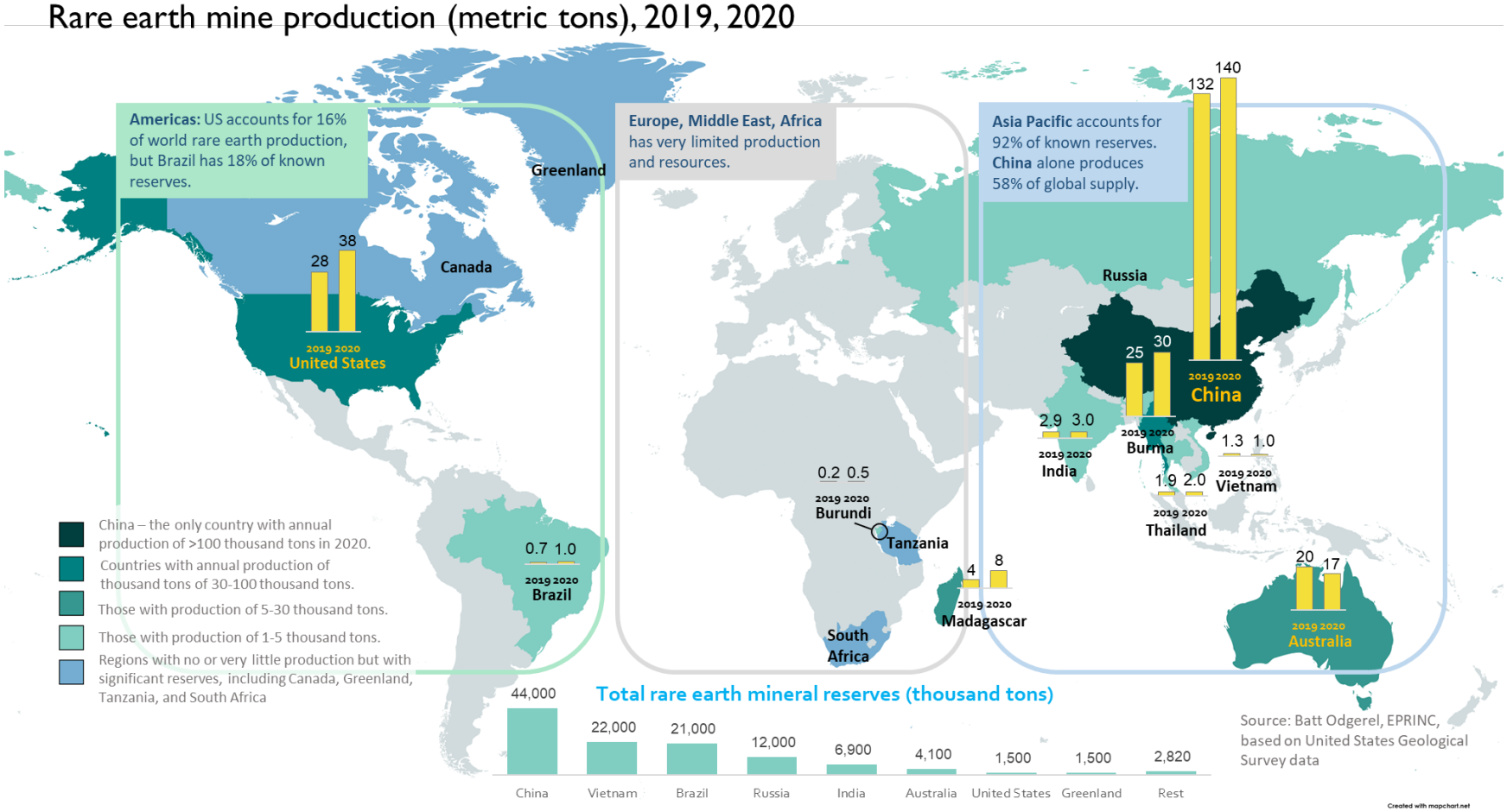
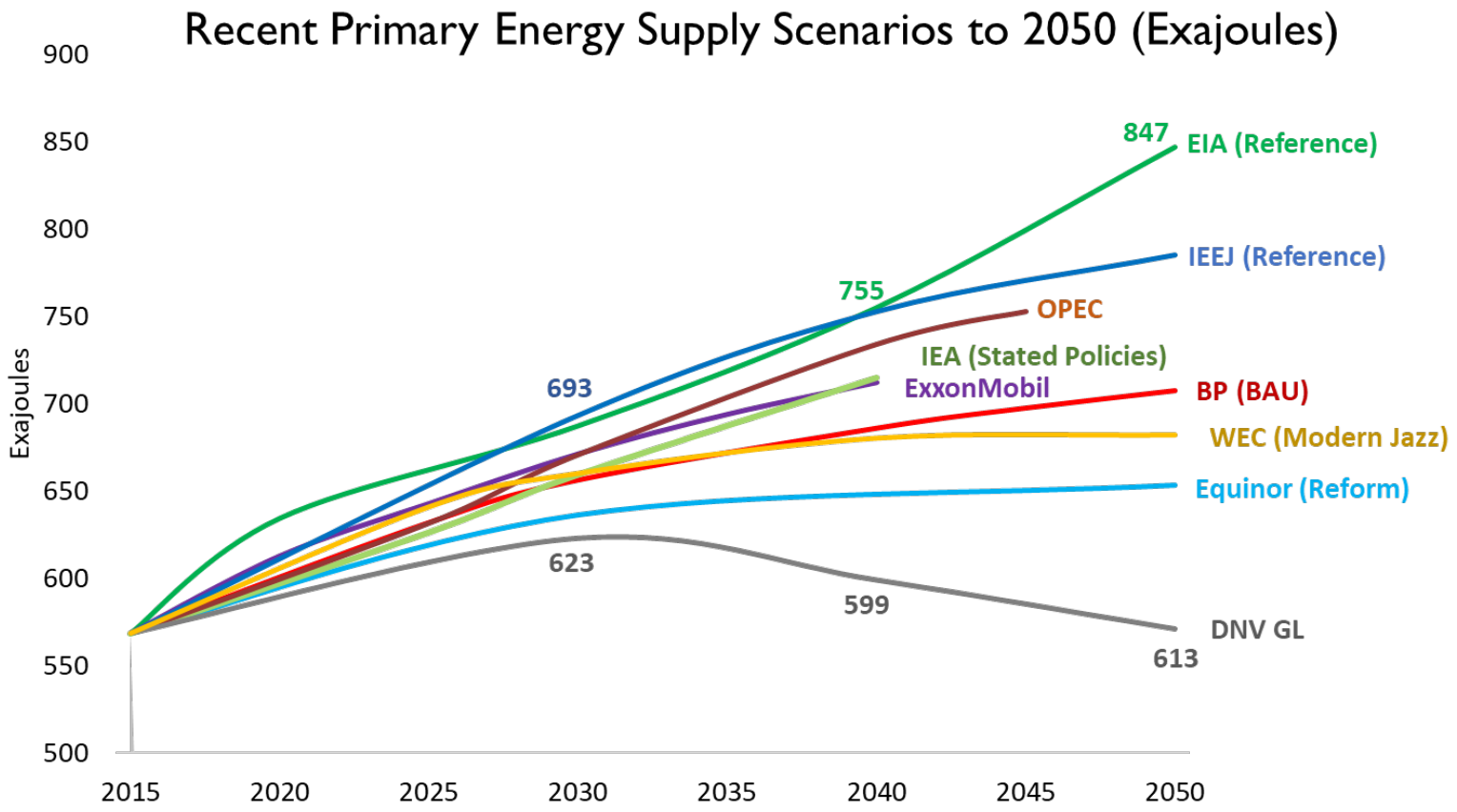


Figure 15

Wide Differences in Energy Outlooks



Note: Exajoule (EJ) is a comprehensive unit of energy, roughly equivalent to 1.05 quadrillion British thermal units (Quads). One EJ equals 1018 (one quintillion) joules, and one joule equals the amount of work done on a body by a 1 Newton force that moves the body over 1 meter. One EJ per year = 447,000 barrels of oil equivalent per day.

Source: EPRINC analysis and figure based on outlooks by the nine groups