



Decarbonization, Transportation and the Changing Oil Market: The Role of Politics and Policies in the Peak Demand Debate

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Exploring key drivers of changes in the oil/transportation system: are these structural changes to global oil demand?

- Role of public policy
- Headwinds for policymakers
- What other factors should be explored?

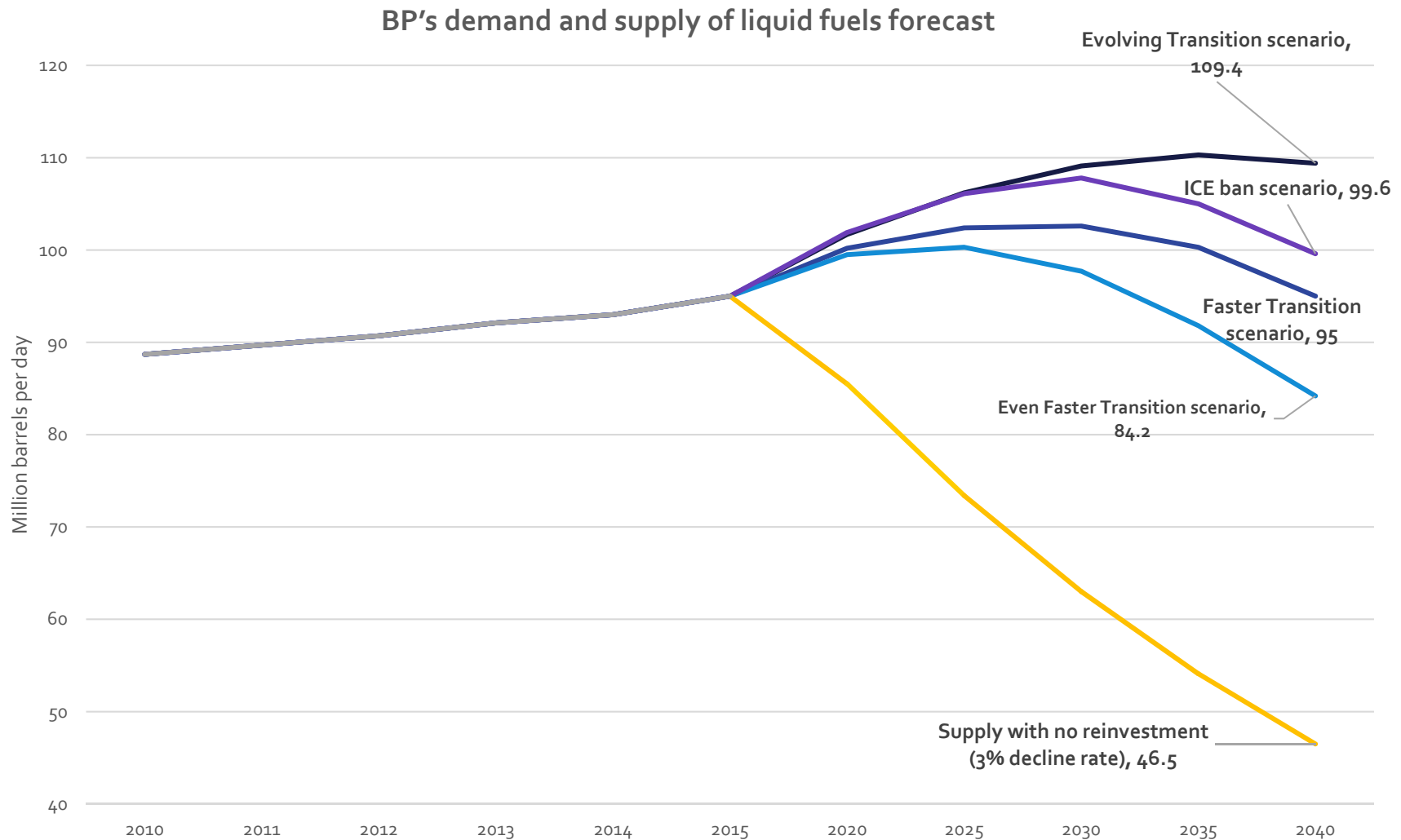




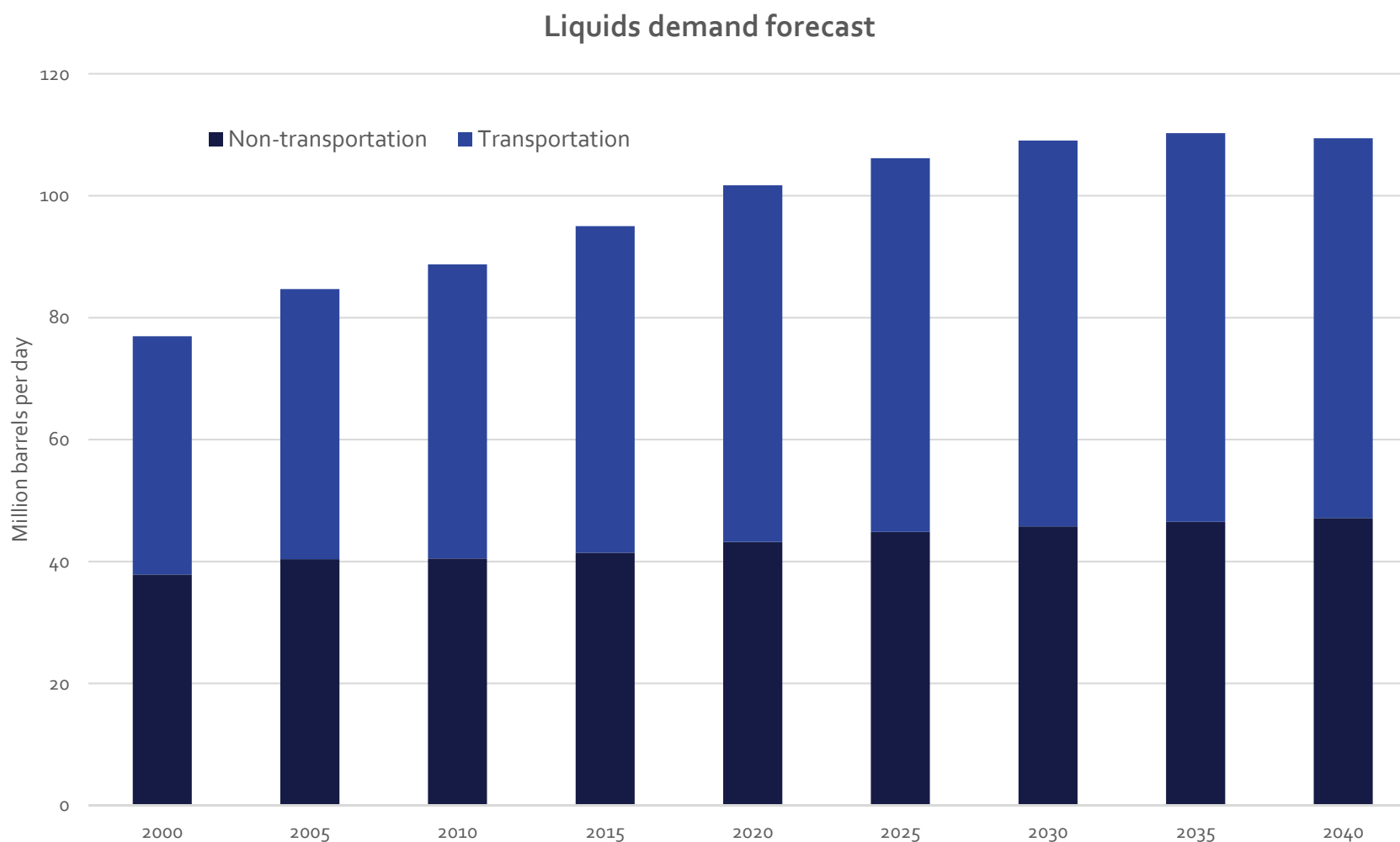
Role of public policy: ambitious or unrealistic?



Political intervention can accelerate “peak demand” scenarios that would otherwise evolve more slowly based on market forces and technology



Ambitious transportation sector policies could have important consequences for oil demand destruction

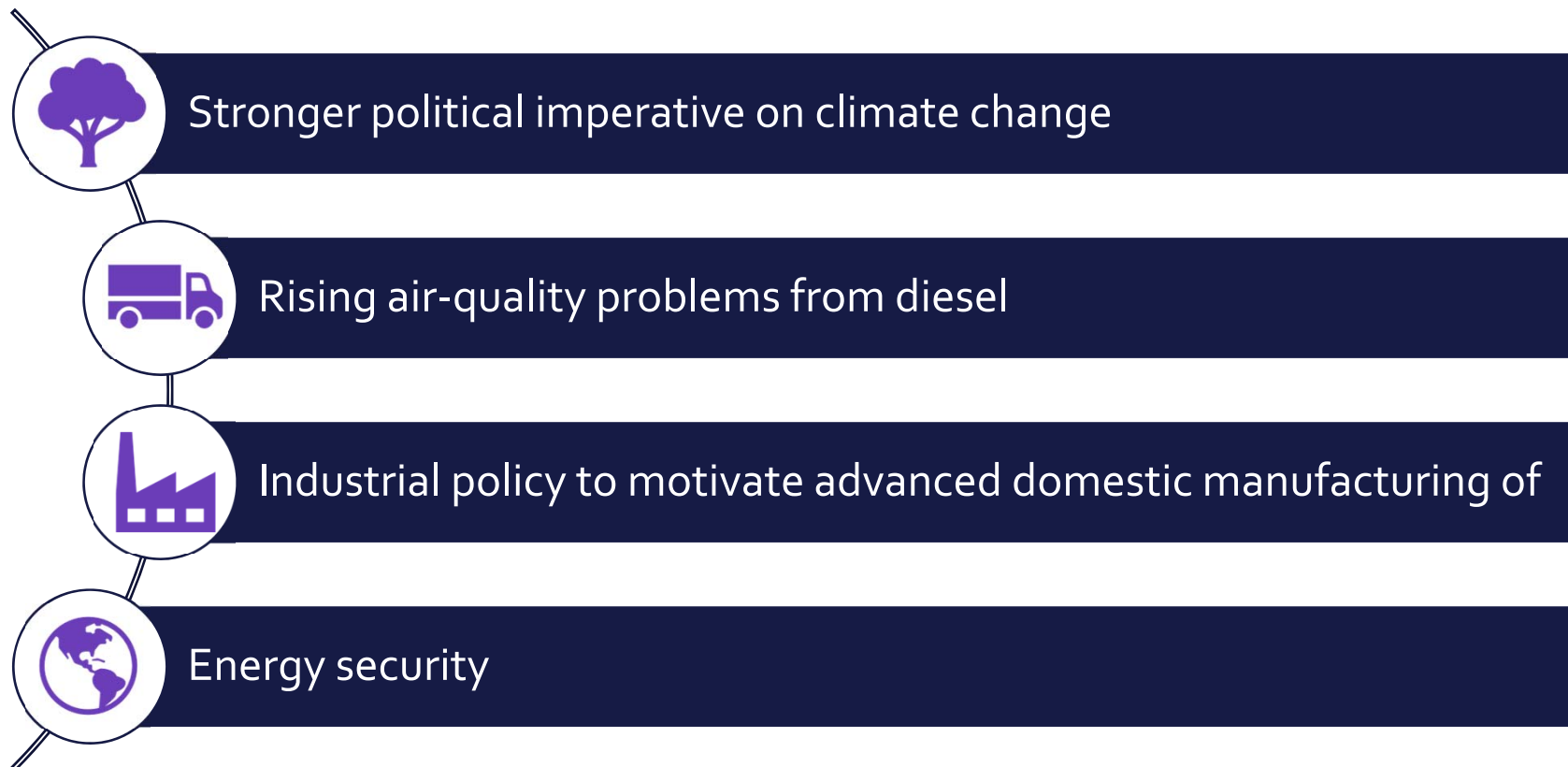


Source: BP

Note: Non-transportation includes industry, non-combusted, buildings, and power. Transportation includes non-road (aviation, marine, rail), trucks (most SUVs in North America), cars (includes 2-and-3-wheelers)

Clean transportation policies likely to be more effective when accounting for and influenced by a “national interest approach”

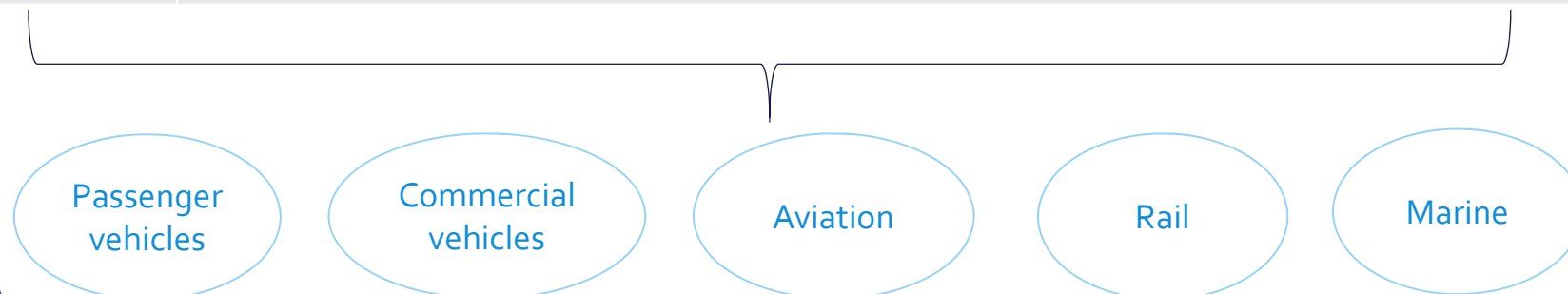
Major drivers of decarbonization in the transportation sector include:



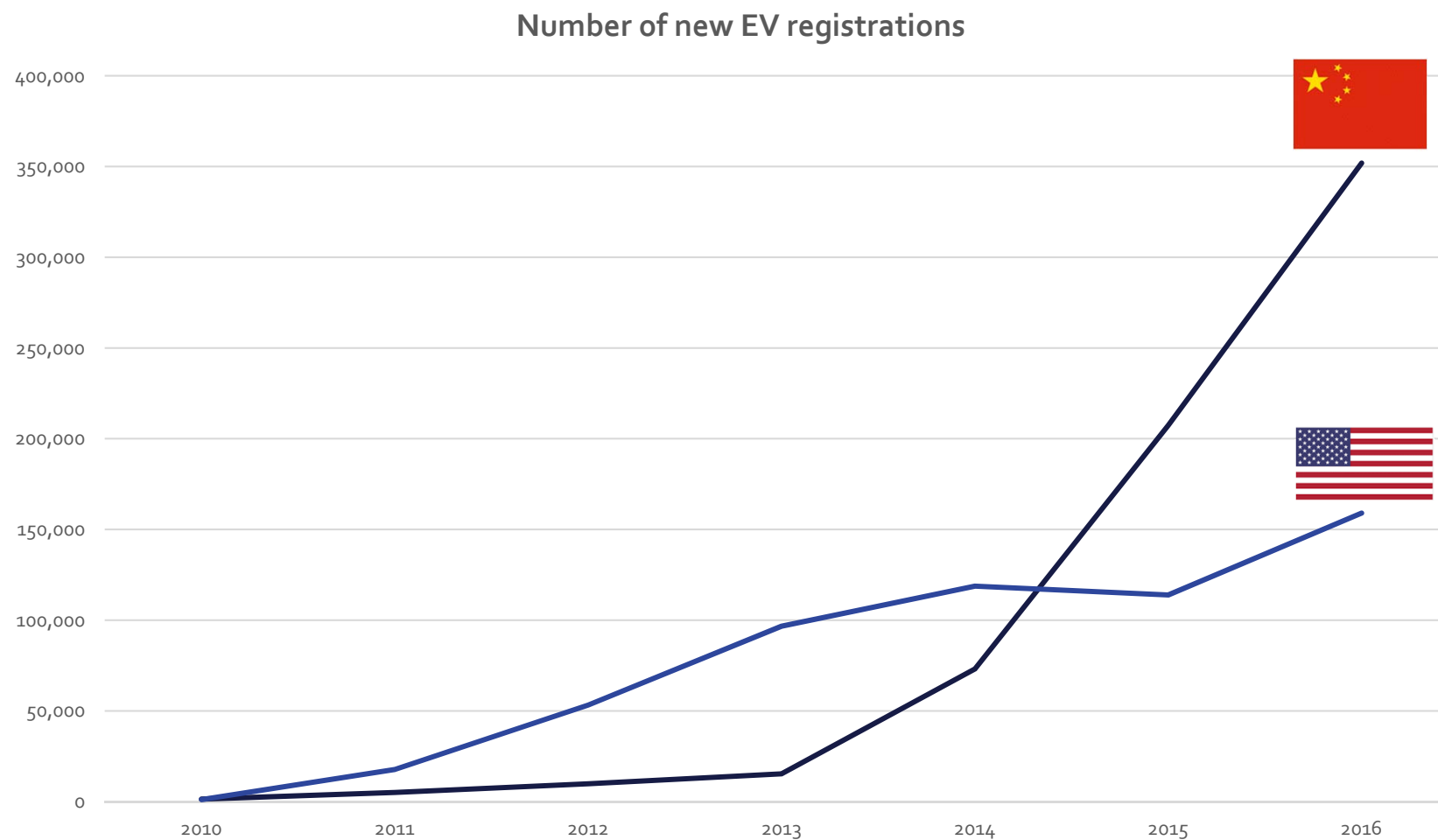
Popular transportation sector policy options fall into four broad categories

The types, strengths, underlying motivations, and enforcement timelines of these transportation policies all play an important role in the outlook for oil demand

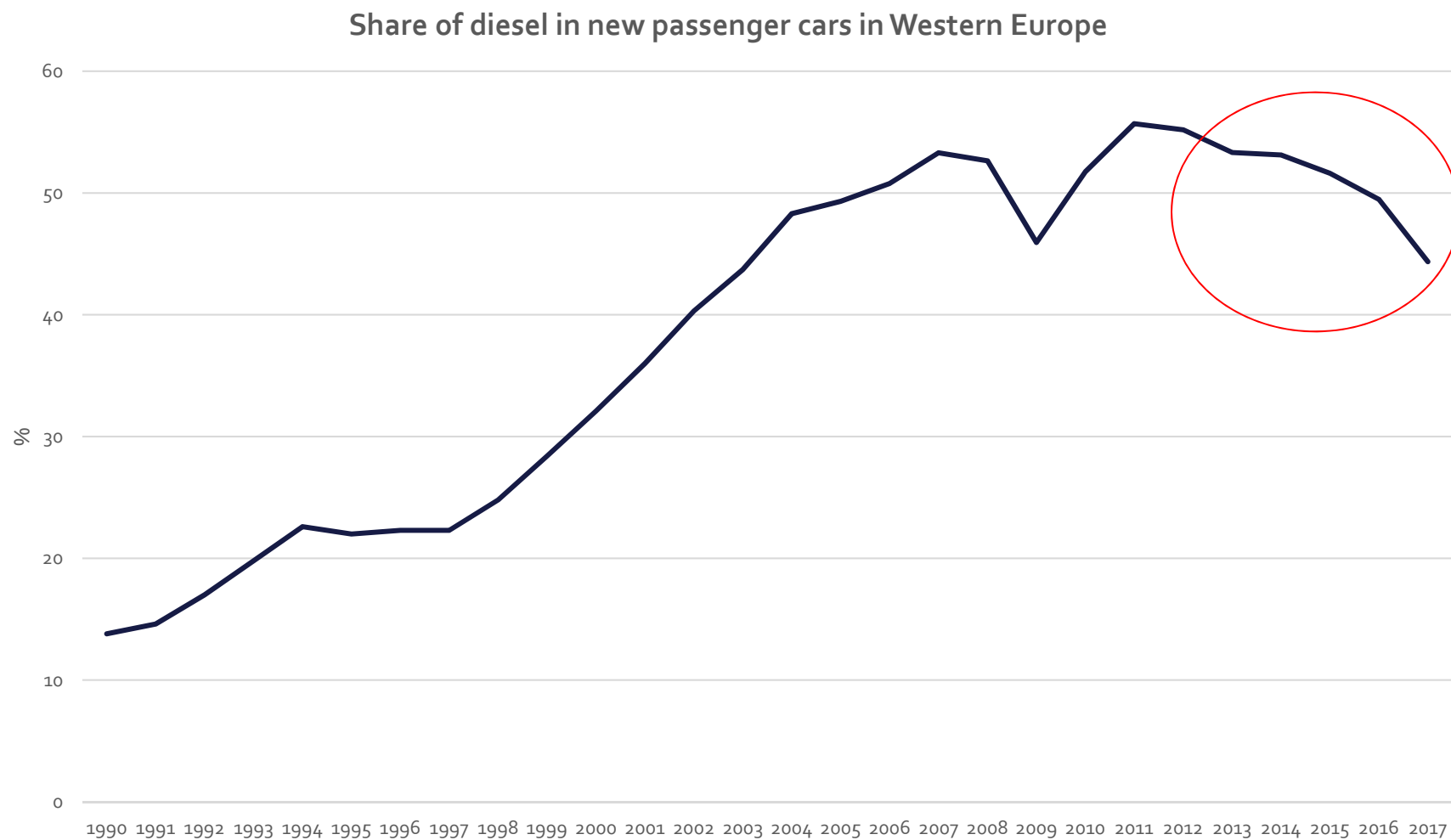
Portfolio approach	
1	Efficiency mandates
2	Lower-zero carbon fuels
3	Replacing the international combustion engine (ICE)
4	"Social engineering"



Policies that promote electric vehicles (EVs) are getting the most attention

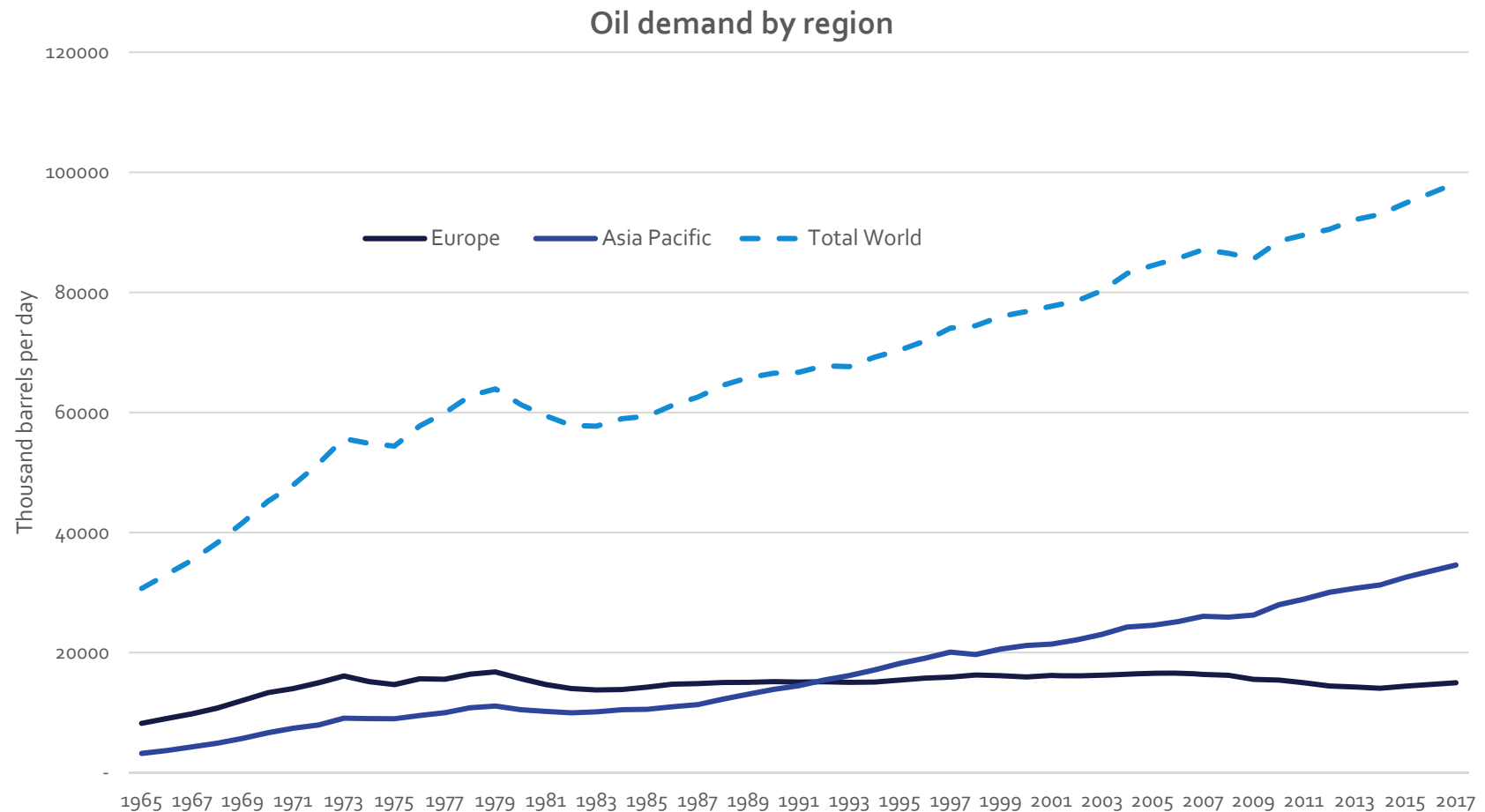


Europe is pushing the envelope on electric and hybrid vehicles

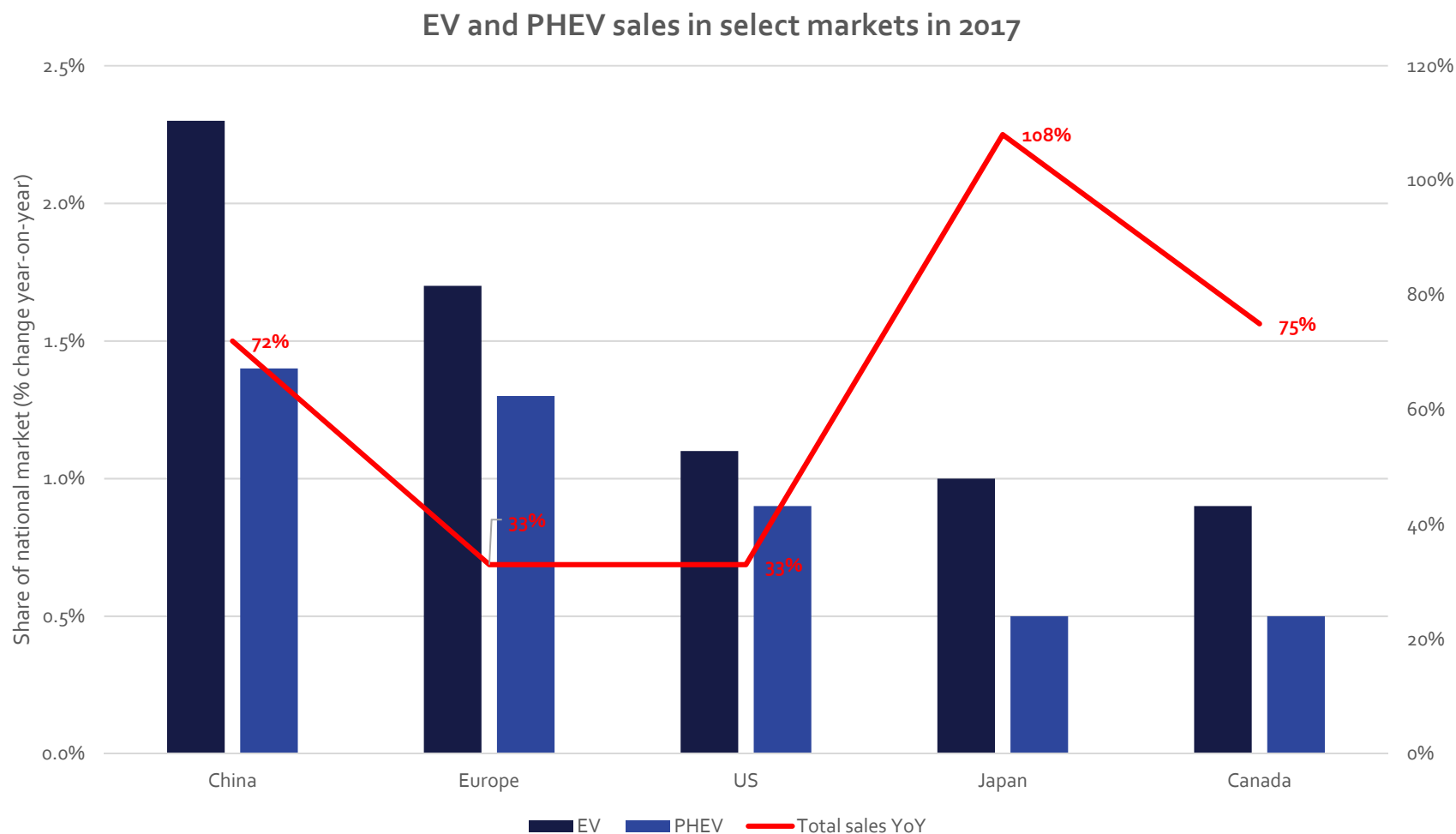


But European market alone is not large enough to pose significant headwind for global oil demand growth

Important to watch developments in key consumption growth markets such as China and India



The Chinese government's generous EV incentives have proven effective in driving sales—how much more upside is there?



Source: CEIA, hybrid cars.com, EAFO, Macquarie Research, Business Insider



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More attention needs to be paid to the broader transportation sector (trucks, marine, aviation, alternative fuels and smart cities), especially in Asia

China, Japan, and Korea are the world's 1st, 4th, and 5th largest crude oil importers

"Made in China 2025" program

China- Bicycles, rail electrification

China Belt and Road Initiative- Super-grid

Japanese zero-emissions and hydrogen fuel cell program

Korean National Green Growth Strategy

Smart Cities for emerging Asia- India, ASEAN

Ride-sharing and fleet utilization

Air quality concerns and climate policy

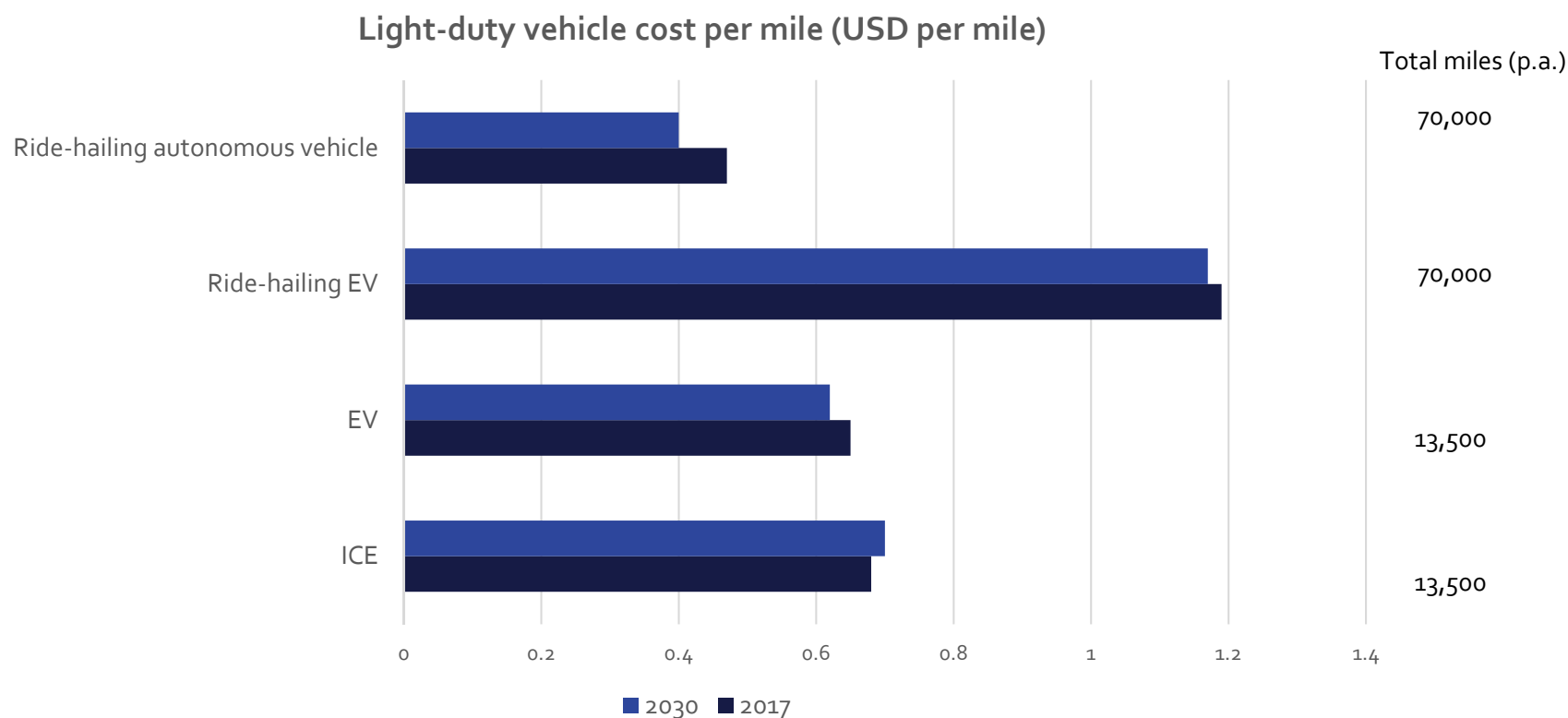
Industrial policy and government coordination

Energy insecurity and import dependence

The role of transportation is shifting owing to developments in “micro-mobility”

Autonomous vehicles, ride-sharing, and “micro-mobility” developments continue to demonstrate technological progress and declining costs in addition to being the subject of rising government interest

The future of fleet ownership and the influence of market design on how consumers own, rent, or lease vehicles is also an important dynamic



All of these factors pose a threat to oil's supreme role in transportation—key question is by how much and when?

Within the clean transportation and peak oil demand debate there is little consensus about the exact recipe of policy measures and implementation timeframes

There remains a significant level of uncertainty in the analysis and forecasting on this issue particularly outside of the electric passenger vehicle domain.

Decarbonization scenarios and transportation sector policies	
<i>Scenario</i>	<i>Peak demand forecast</i>
IEA's Sustainable Development Scenario	Around 2020
IEA's Faster Transition Scenario	Around 2020 (and falls thereafter at a faster rate than SDS)
IEEJ Peak Oil Demand Case	Around 2030
Rocky Mountain Institute's Reinventing Fire Scenario	China's oil demand peaks by 2030
Exxon Mobil's 2D Scenarios	Doesn't forecast exact peak date
Shell's New Lens Scenarios	Varies by scenario
BP's Evolving Transition scenario	Demand for oil does not plateau and peak until the end of the 2040-outlook

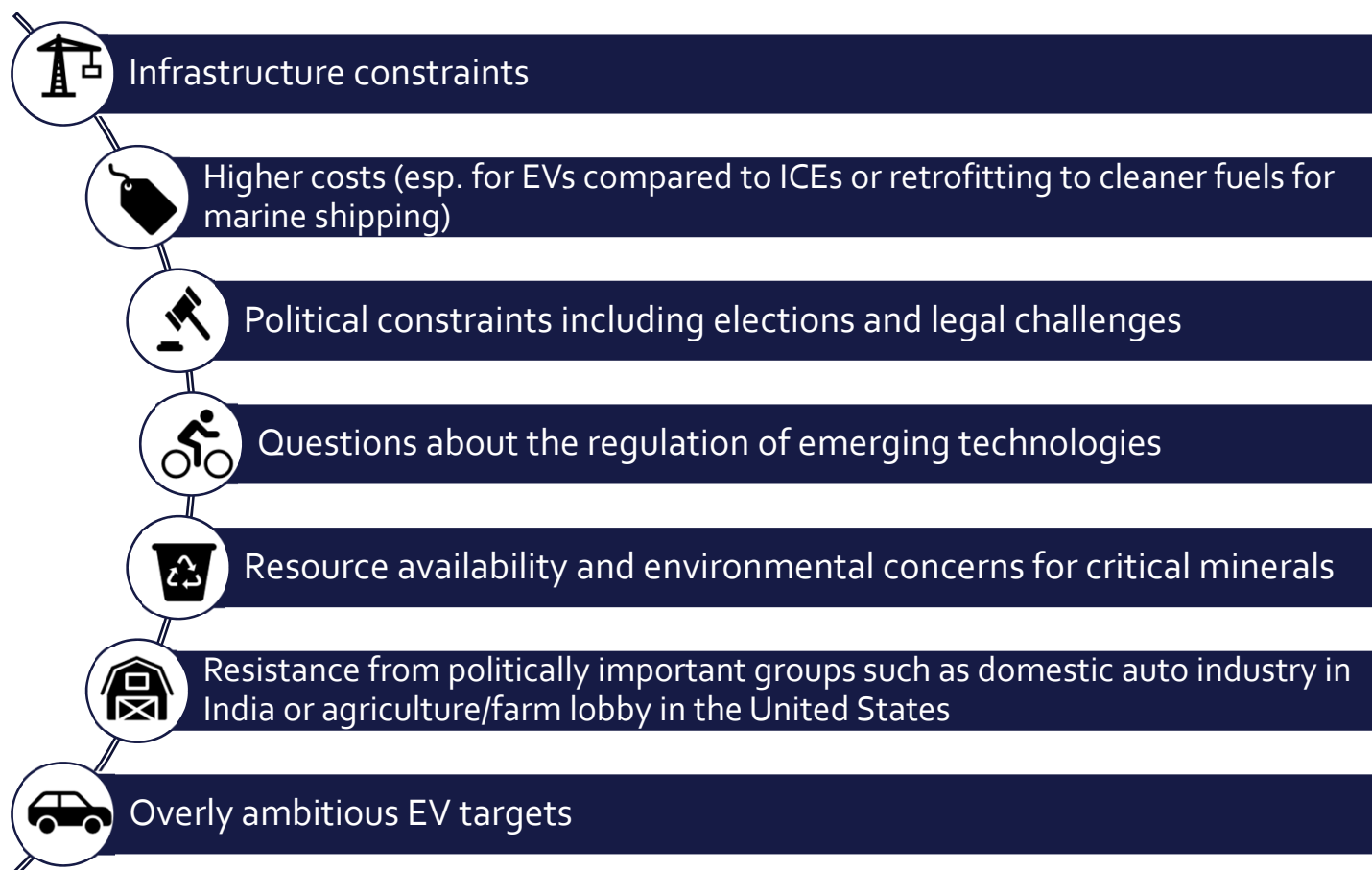


Challenges for policy makers: are they a deal breaker?



Lawmakers face key risks and challenges that undermine the transportation decarbonization effort

Will governments be willing to put more political capital behind expensive initiatives that encourage EV sales or implement politically tricky ICE bans/limit sales of fossil-fueled power vehicles? What about broader carbon policies like economy-wide carbon taxes?



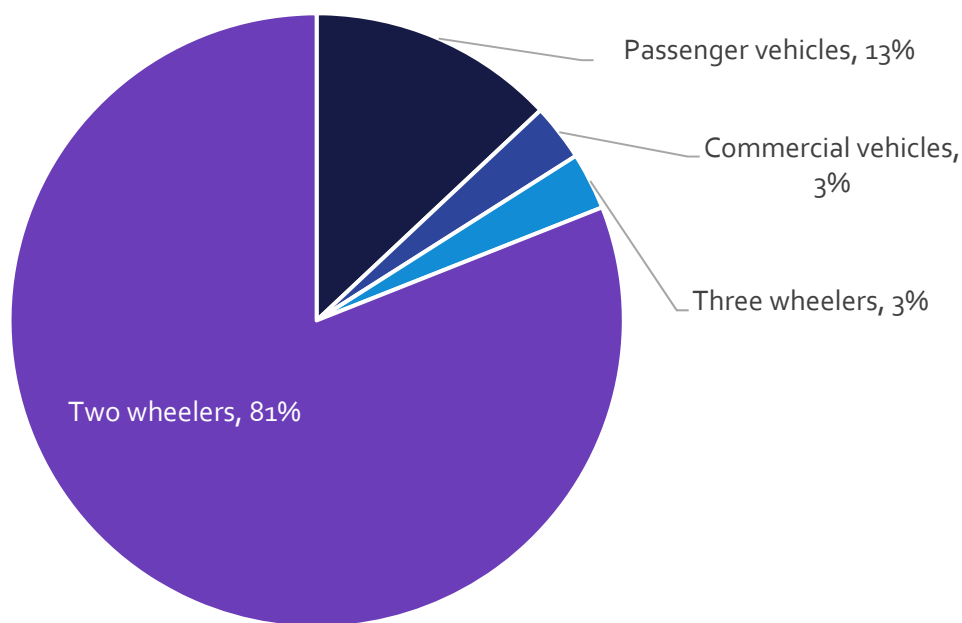
Do governments instead prefer a more cautious approach that would signal a less disruptive outlook for global oil demand?

In US, EVs remain very small share of total auto sales: At the federal level, Trump administration's attempt to weaken fuel efficiency standards will deal a setback to EV uptake

In India, officials have walked back on ambitious EV target

There is a risk that overly ambitious or unrealistic policies could have a "snap-back" effect and unintentionally harm the development of a clean transportation sector

India's domestic automobile market share (2017-2018)





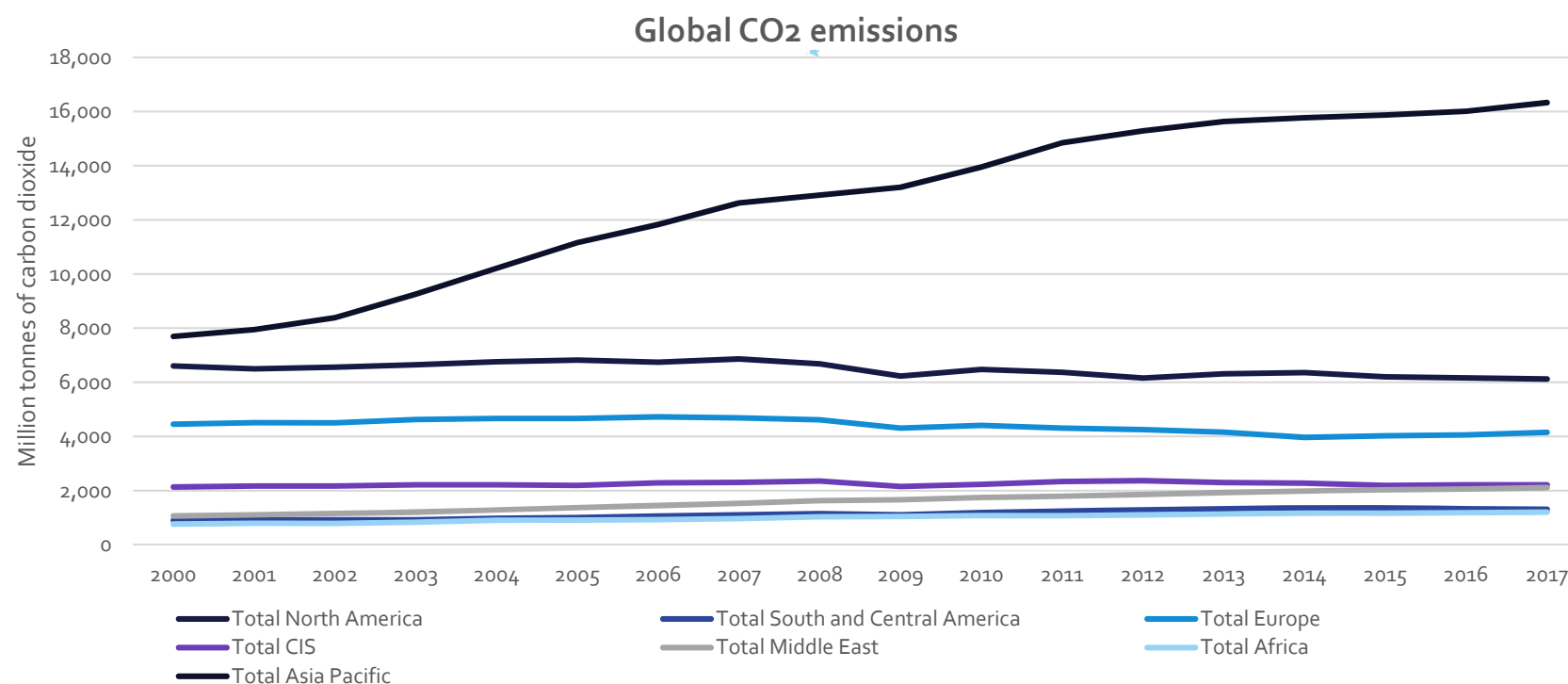
Conclusions and Discussion



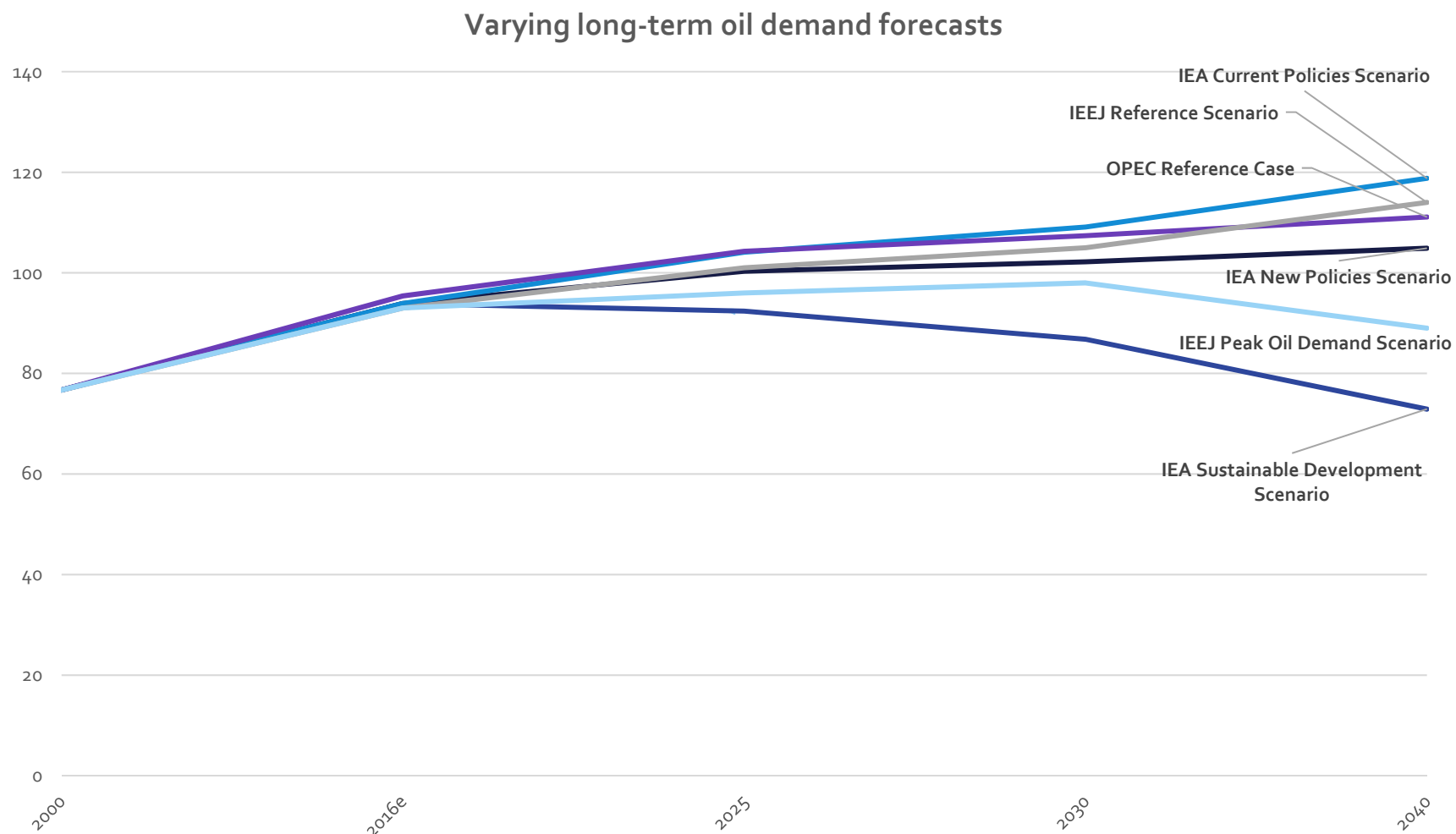
Climate policies remain patchwork and therefore limited

Level of patchwork policymaking and continued examples of governments not willing or sufficiently able to put their weight beyond these measures signals that a more significant effort will be needed to ensure major headwinds for oil demand that would inform a peak demand scenario for the foreseeable future

Key risk is whether governments will act even more aggressively in the future to make up for the current gaps of policy making



However, the peak demand debate is already complicating investment outlook for long-cycle upstream projects



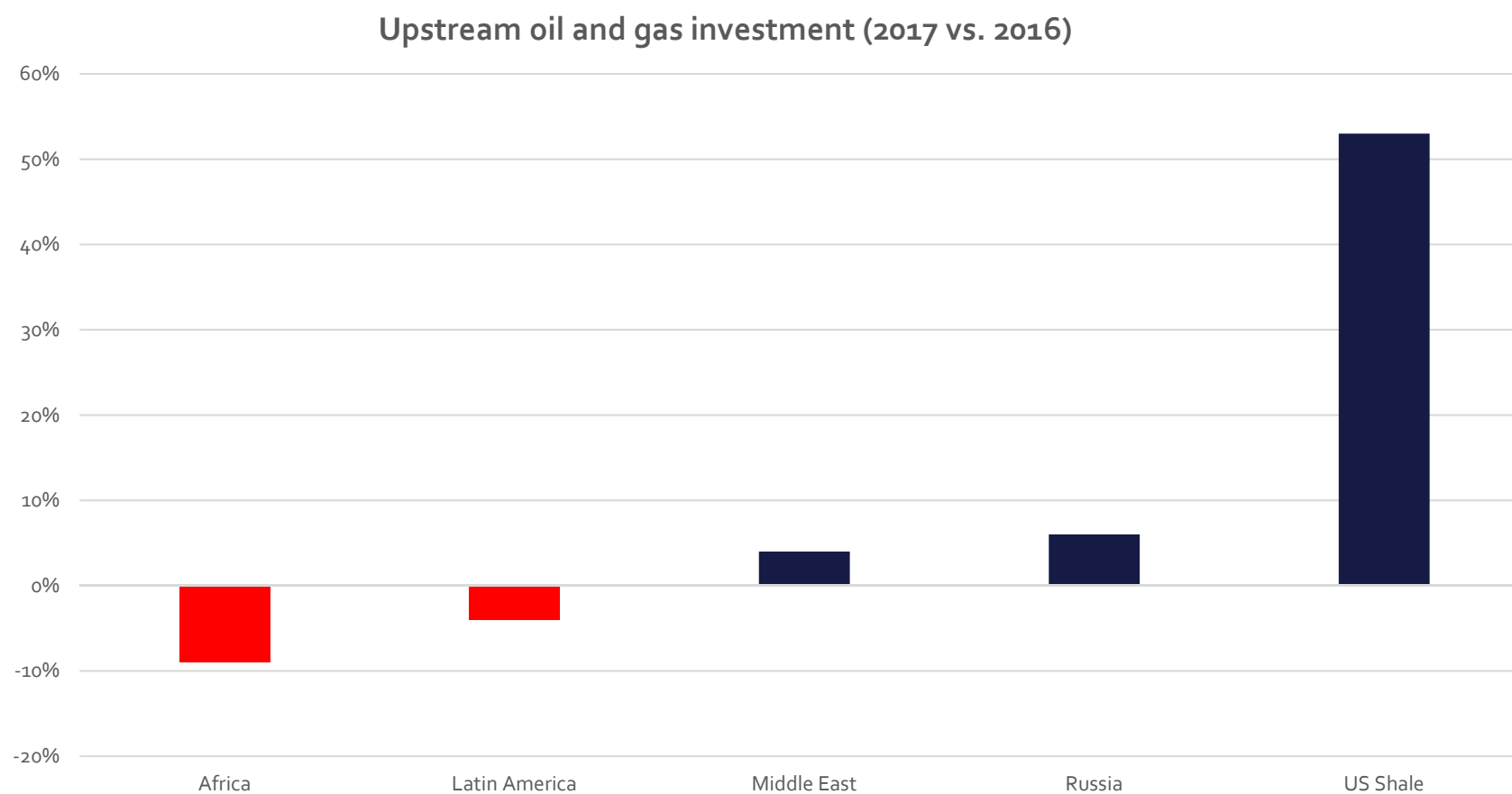
Source: International Energy Agency, the Institute for Energy Economics, OPEC



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In the short-term, a shift to short-cycle plays such as US shale is underway

Companies and investors are looking to minimize risk in this environment (US shale is the big initial winner)



Source: International Energy Agency

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What do governments do with stranded assets?

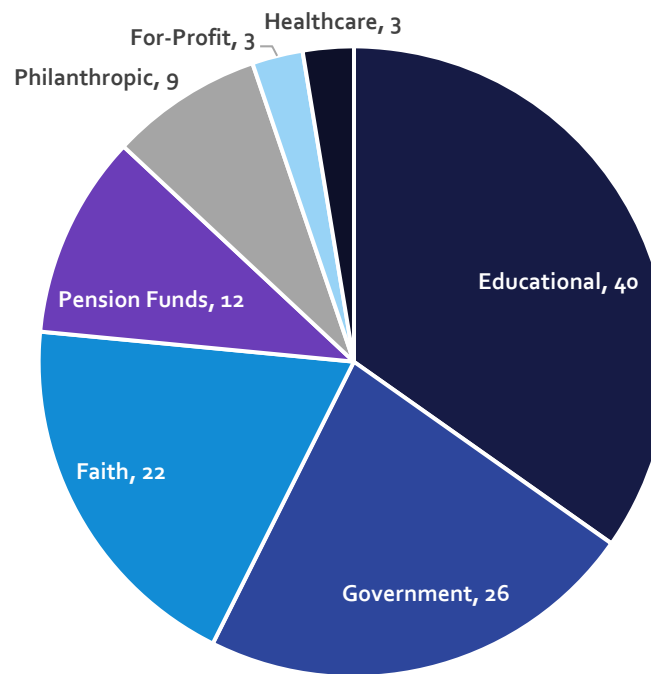
Stranded assets could add financial strain to government and company budgets, as well as logistical challenges from issues such as restructuring



Investors are paying attention to this debate

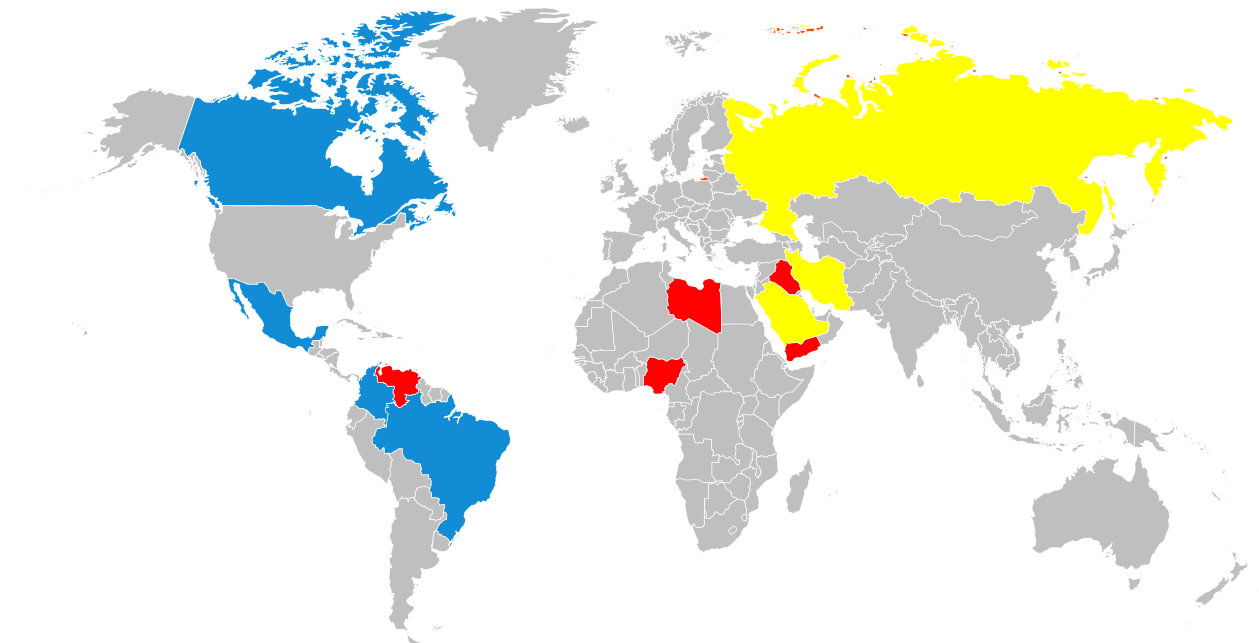
Key question: Why do asset managers see “inevitability” in peak demand/transportation decarbonization?

Divestment from fossil fuels by institutions in 2016



Geopolitics of peak demand: High cost/long-cycle sources of supply and energy-sector political risk will also be challenged

The next round of geopolitical shockwaves in the form of 'peak demand' (or at least slowing oil demand combined with increased availability of low-cost resources) will have greatest impact **on high political risk, high production cost** countries



Yellow: At risk in the long-term: Russia, Saudi Arabia, Iran

Blue: At risk in the medium-term (due to lost investment): Mexico, Brazil, Colombia, Canada

Red: Immediate destabilizing impact: Nigeria, Venezuela, Libya, Iraq, Yemen



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