

AN INSIDE LOOK AT
ENERGY SYSTEM CHANGES
AND IMPACTS TO
CANADA'S OIL SANDS

INVESTORS *for*
PARIS COMPLIANCE

Canadian oil sands sector is applying “capital discipline” strategy

“ We have a bit of a disproportionate emphasis on the longer-term energy transition,” Kruger said, adding that while lower emissions energy is important, it is not what is going to make money for shareholders today. ”

Suncor has been too focused on energy transition, must get back to fundamentals: CEO

“ Canadian oil and natural gas, which is produced with some of the most stringent environmental standards found anywhere in the world, needs to play a larger role in meeting growing global energy needs. ”

–Lisa Baiton, President & CEO, CAPP

Canadian Association of Petroleum Producers
President & CEO Responds to the Federal
Government’s Plan for a Just Transition

In short term, sector’s strong performance enables it to focus on returning value to shareholders/debt holders

Sector paying out record value to shareholders – historically has re-invested record profits in cap ex/production growth



This strategy fails to address the risks facing this sector

1. **Global, geo-political, economic race for low-carbon economy position**
2. **Race results in faster than expected flipping of world's energy system to electricity/ low carbon energy at expense of all fossil fuels**
3. **The intensified competition and disruption exposes the Canada's oil sands sector to serious market risk**
4. **The oil sands sector is not making the capital investments to prepare for these changes which undermines its future viability and ability for sector to deliver on decarbonization promises**

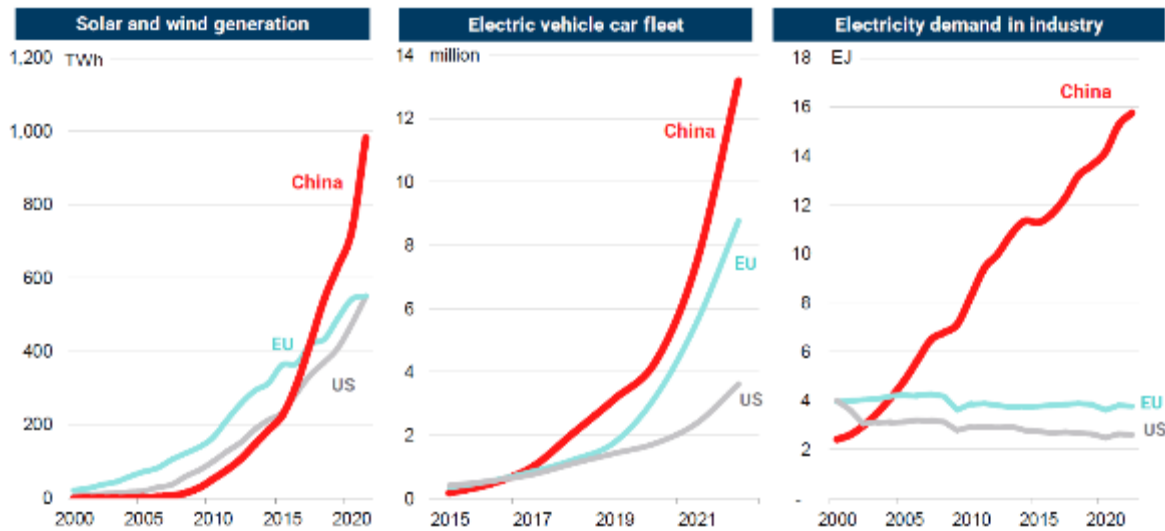


ANALYSIS:

Renewables, electrification and the impact
on demand for oil

China has huge lead in the race to the low carbon economy

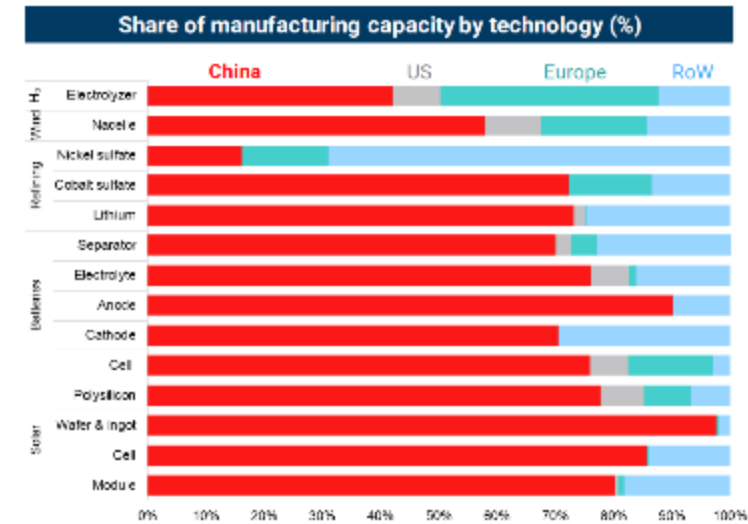
China leads the deployment of renewables



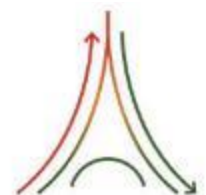
Source: RMI Energy Narrative

China dominates production of renewables

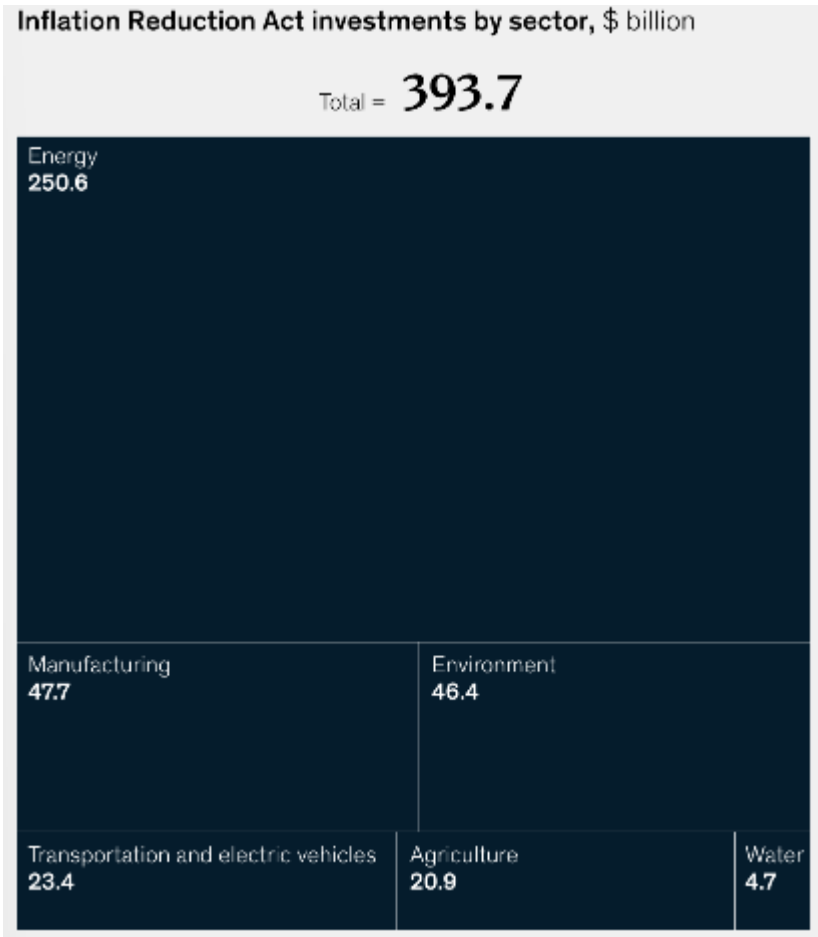
- China dominates production of all the key renewable energy technologies for many reasons:
 - It is the workshop of the world.
 - Manufacturing costs are considerably lower in China than elsewhere.
 - It is a major fossil fuel importer.
 - The government has had a strategic focus on renewables for a long time.
 - The West was not sufficiently focused on leadership.



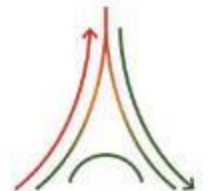
Source: RMI Energy Narrative



As a result of China dominance, the US has responded and is dramatically increasing spending on clean technologies



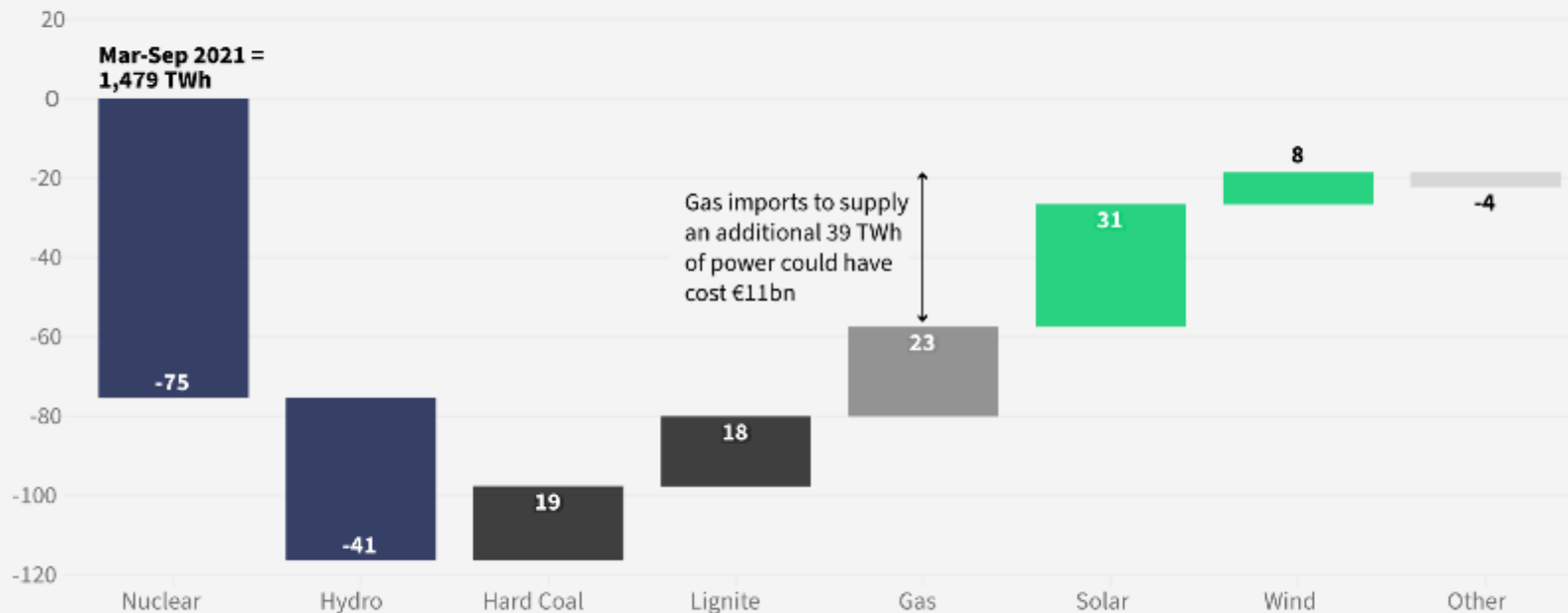
US federal government's average annual climate spending (\$ billions)



Europe has also accelerated investments in clean technology

Growth in EU electricity generation from wind and solar has avoided €11bn in gas imports since Russia's invasion of Ukraine

Change in EU electricity generation for Mar-Sep, 2022 vs 2021 (terawatt hours)



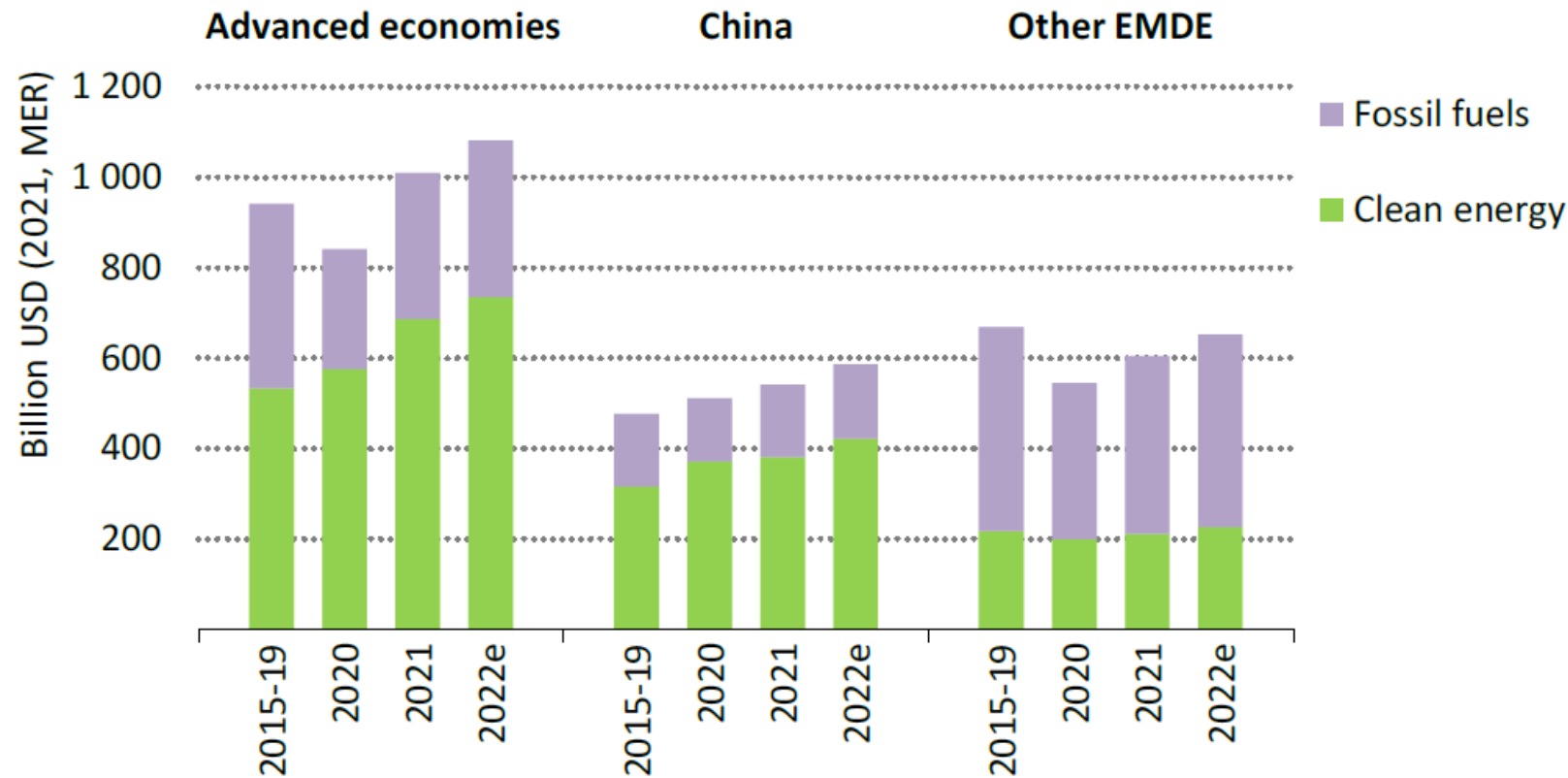
Source: Ember

Other includes bioenergy, other renewables and other fossil fuels

EMBER



And while it is true that emerging markets are lagging behind in clean energy investment...

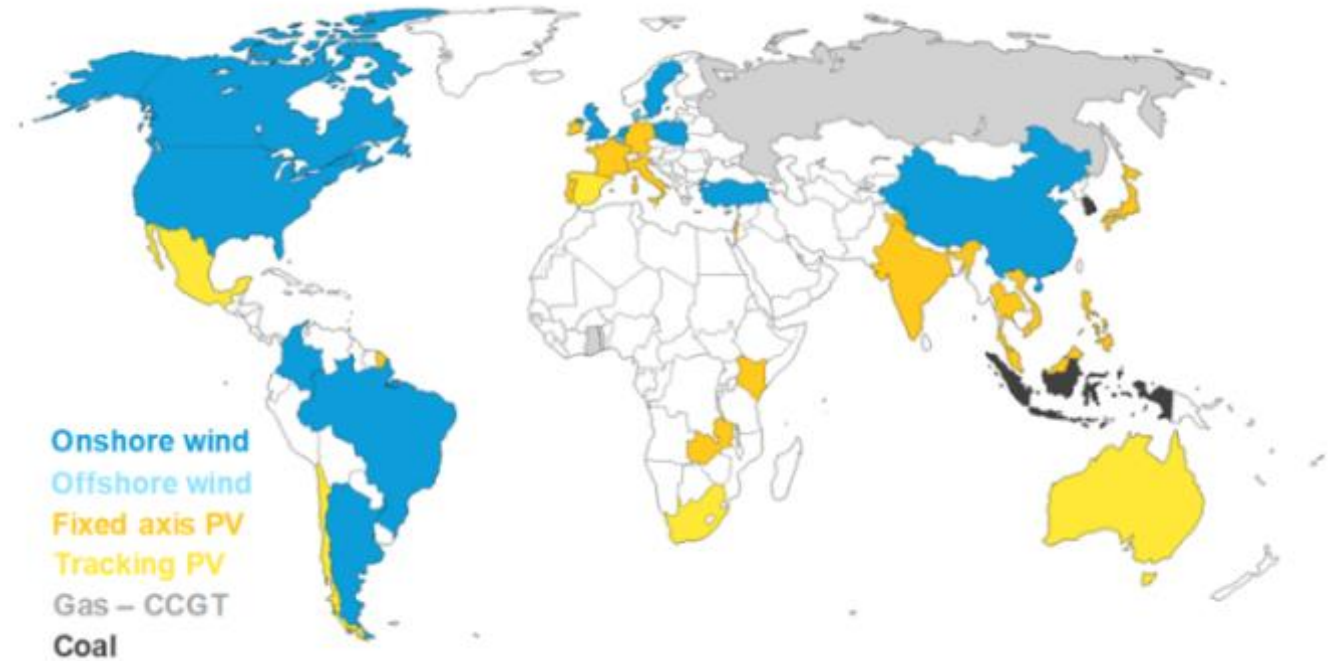
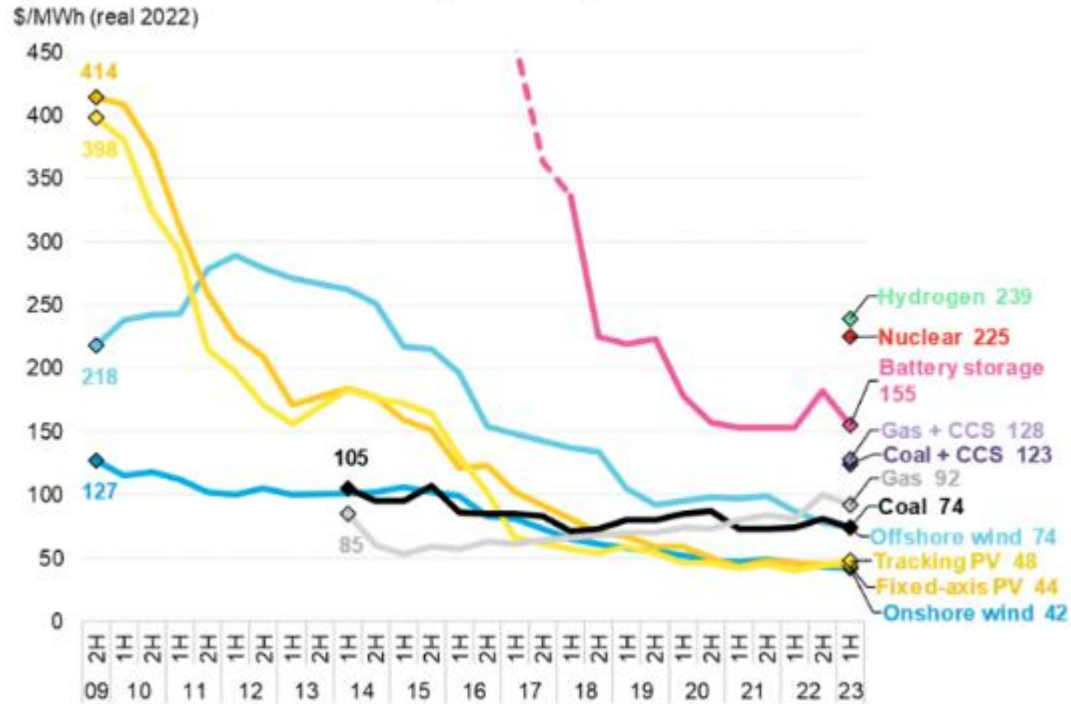


Source: IEA WEO 2022 IEA License CC by 4.0



...these markets are poised to meet future energy demand with low-carbon energy

Figure 1: Global levelized cost of electricity benchmarks, 2009-2023

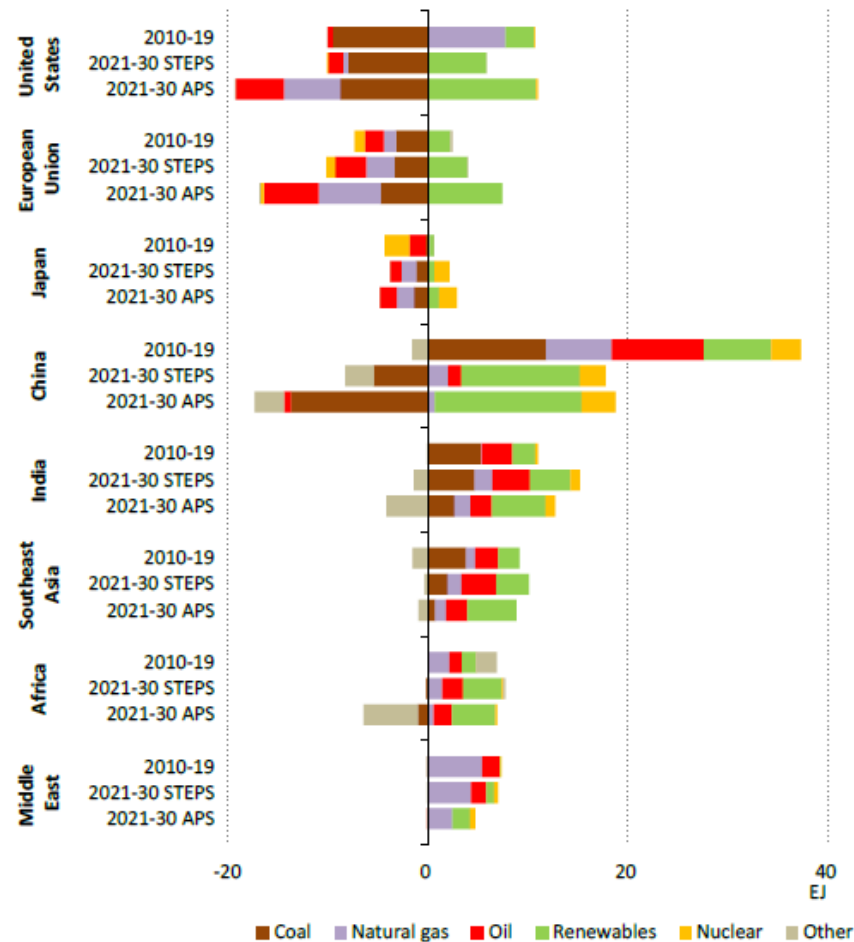


Source: BNEF



Growth in emerging markets will not lead to increased global oil demand

More ambitious climate policy results in a further 21% decline in oil demand by 2030



Source: IEA World Energy Outlook 2022, fig 5.3



EVs are what connect electrification to oil demand – and have displaced ~1.5% of global oil demand.

Vans and trucks



26,614 Barrels per day

Buses



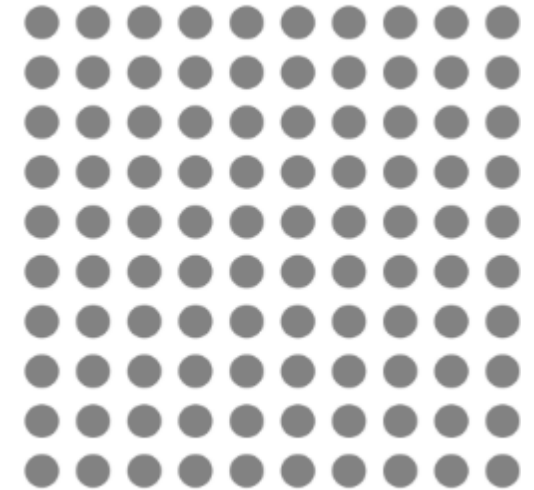
207,482 Barrels per day

Passenger cars



264,382 Barrels per day

2 and 3 wheelers



997,230 Barrels per day

Source: BNEF Electric Vehicle Outlook 2023

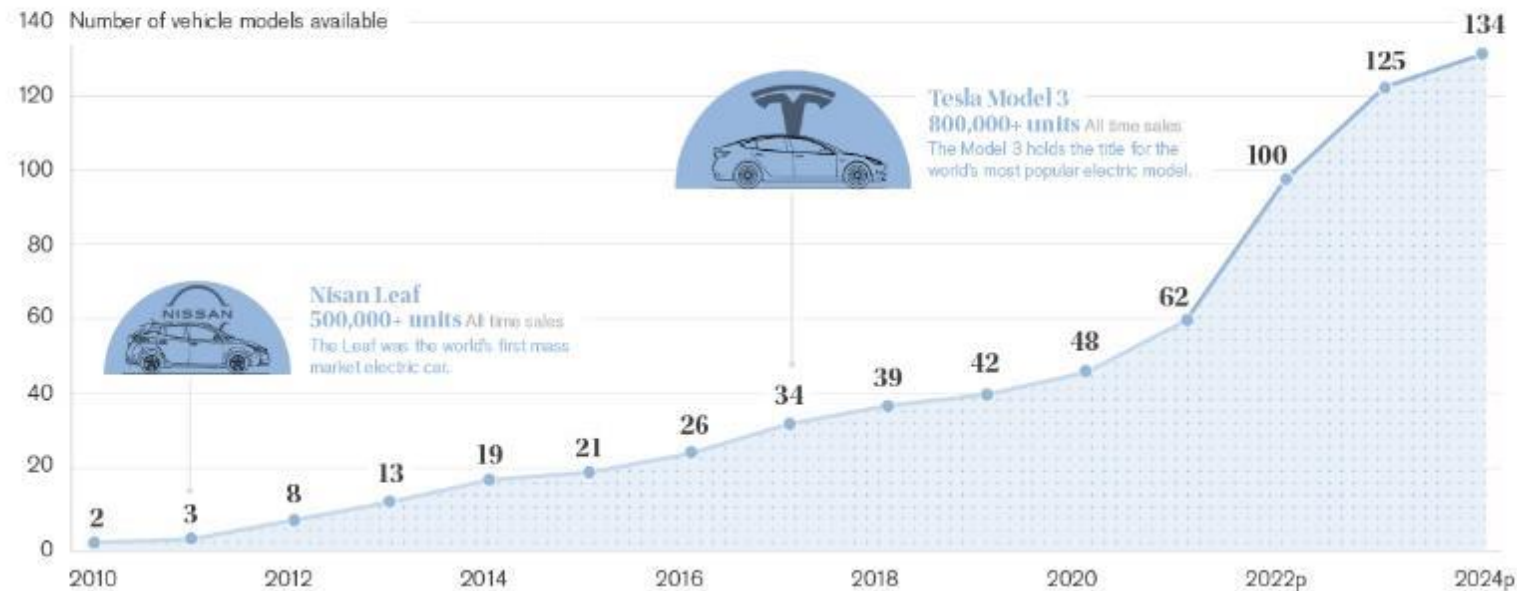
Fact: It's definitive that EVs have a dramatic reduction in GHG lifecycle emissions as compared to internal combustion engine vehicles (not including air quality benefit dirty grid: 15-20% lifecycle improvement, average grid: 60-80% improvement).



Global automakers have shifted to EVs with dramatic increase in choice for consumers

THE NUMBER OF **EV Models Will Double** BY 2024

EV shoppers in the U.S. will soon have over 130 models to choose from.



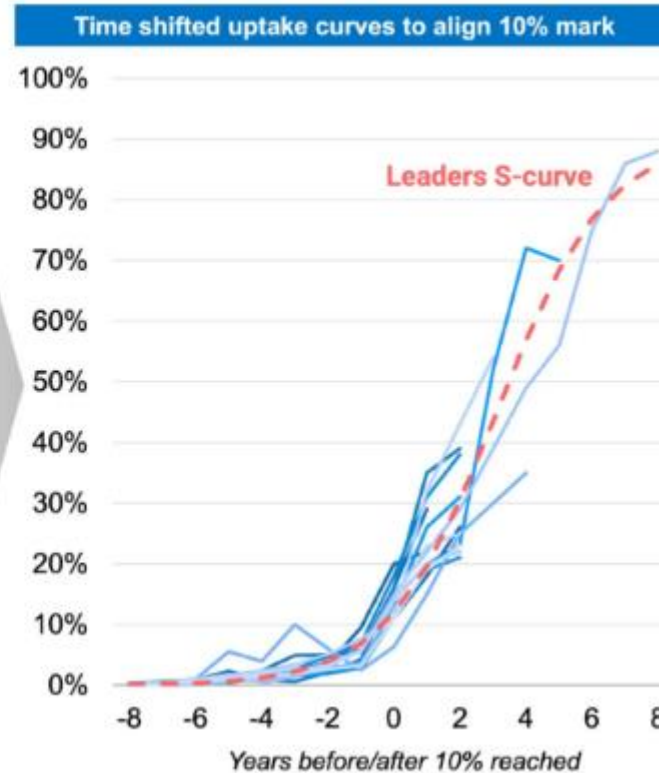
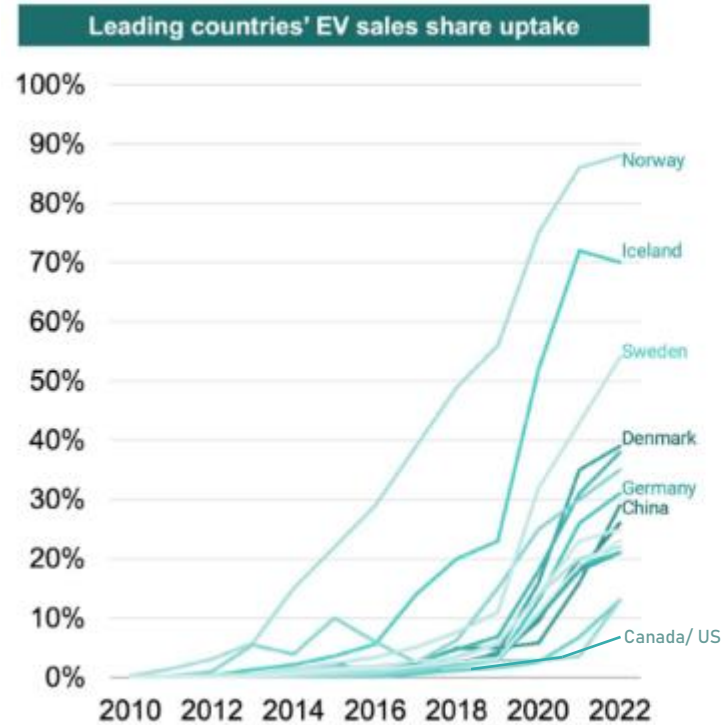
Source: Visual Capitalist

<https://www.visualcapitalist.com/the-number-of-ev-models-will-double-by-2024/>



Exponential growth of electric vehicle: takes 6 years to go from 1 % to 10% sales share. Another ~6 years >75%

S-curve growth of EVs



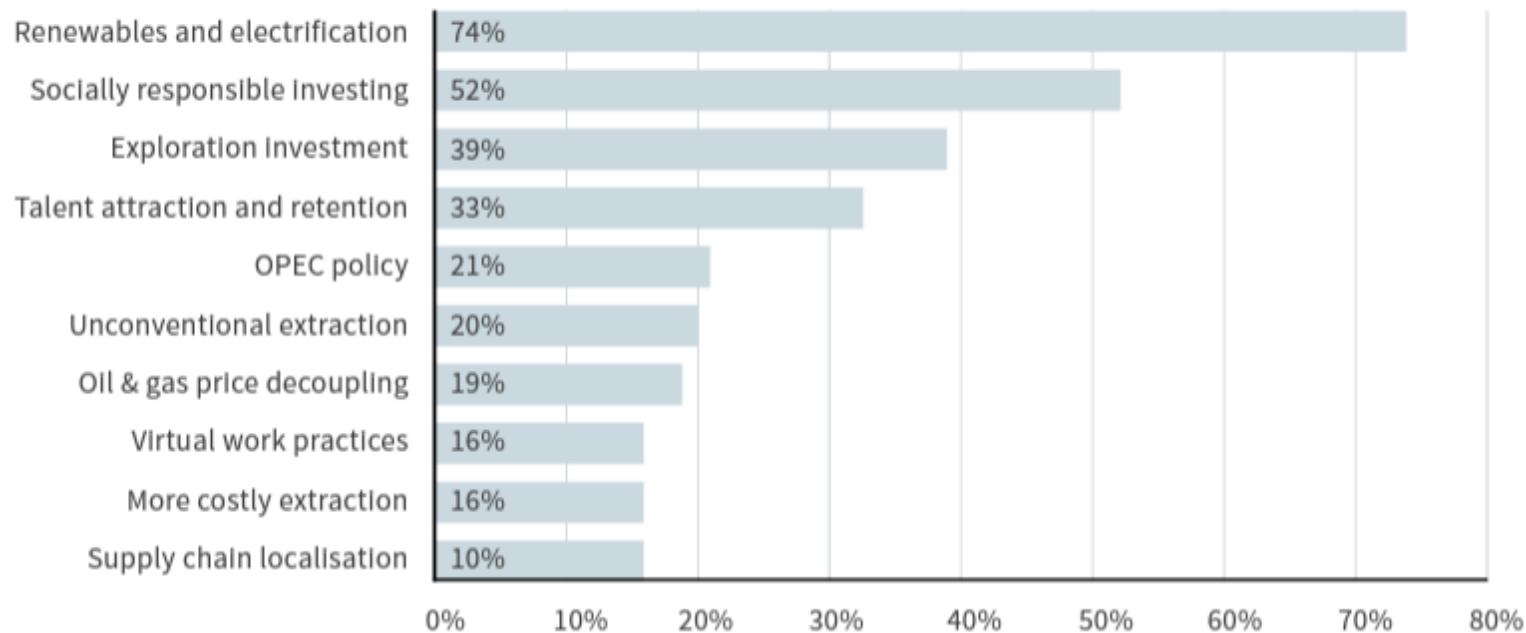
Source: RMI



The oil and gas sector is publicly bullish yet has private concerns about the medium/long-term risks from electrification.

QUESTION: Which of the following industry trends will have the biggest impact on oil & gas over the next 15 years?

(Respondents given 3 answers)

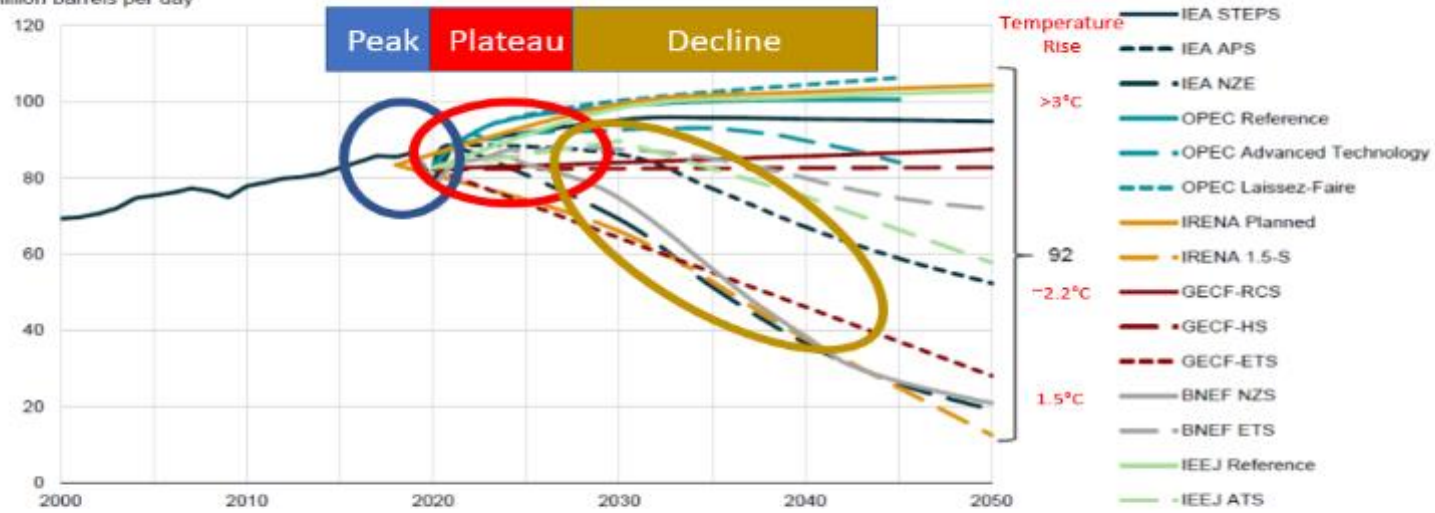


Scenarios show plateau in oil demand within 5 years – plateau will create oil demand/price uncertainty and volatility.

Demand for Oil, Coal, Gas to Peak This Decade, IEA Chief Says

Oil Demand Scenarios Through 2050

Million barrels per day

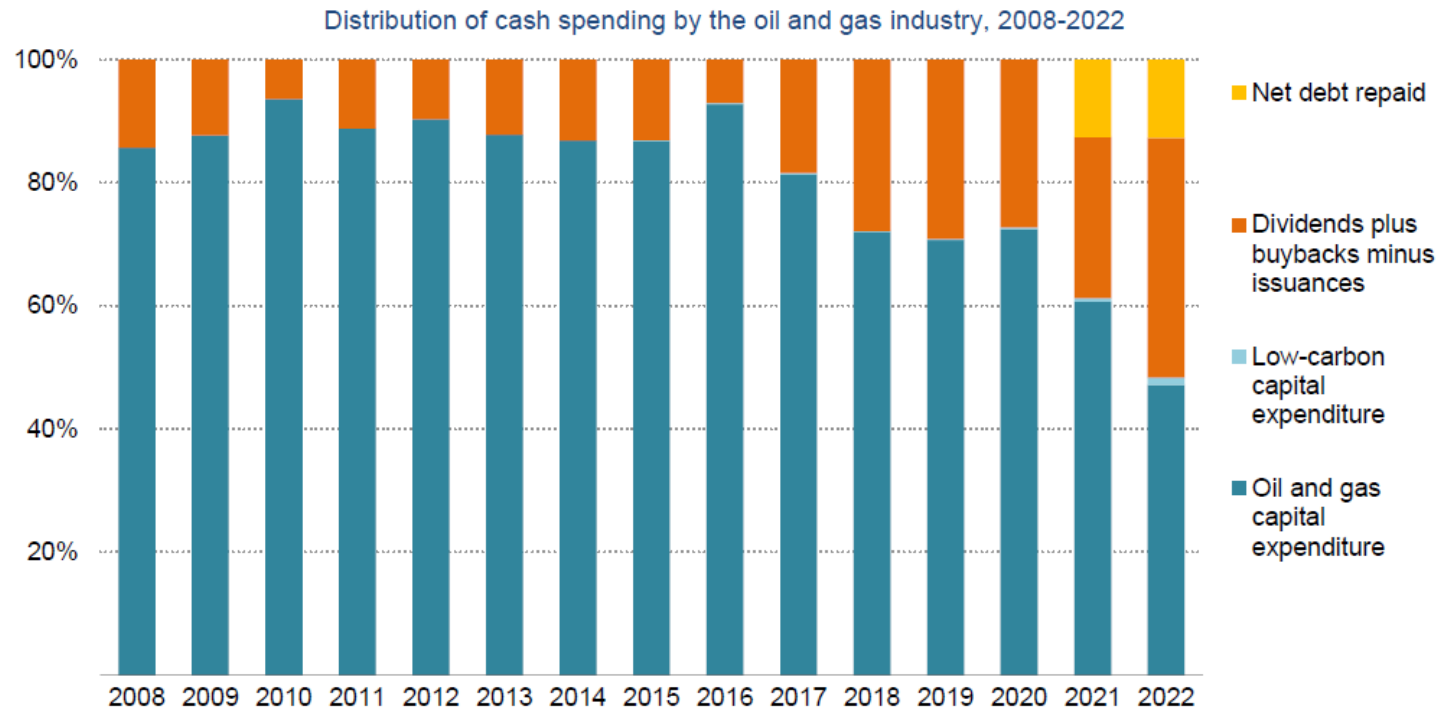


Source: IEF, IEA WEO 2022, OPEC WOO 2022, IRENA World Energy Transitions Outlook 2022, GECF 2022 Global Gas Outlook to 2050, BNEF New Energy Outlook 2022, IEEJ Outlook 2023



The oil and gas sector has shifted to a capital discipline, flat growth, and high shareholder return strategy.

Less than half of the oil and gas industry's unprecedented cash flow from the energy crisis is going back into traditional supply and only a small fraction to clean technologies



Return Of Mergers And Acquisitions: Oil Sector Dealmaking Heats Up

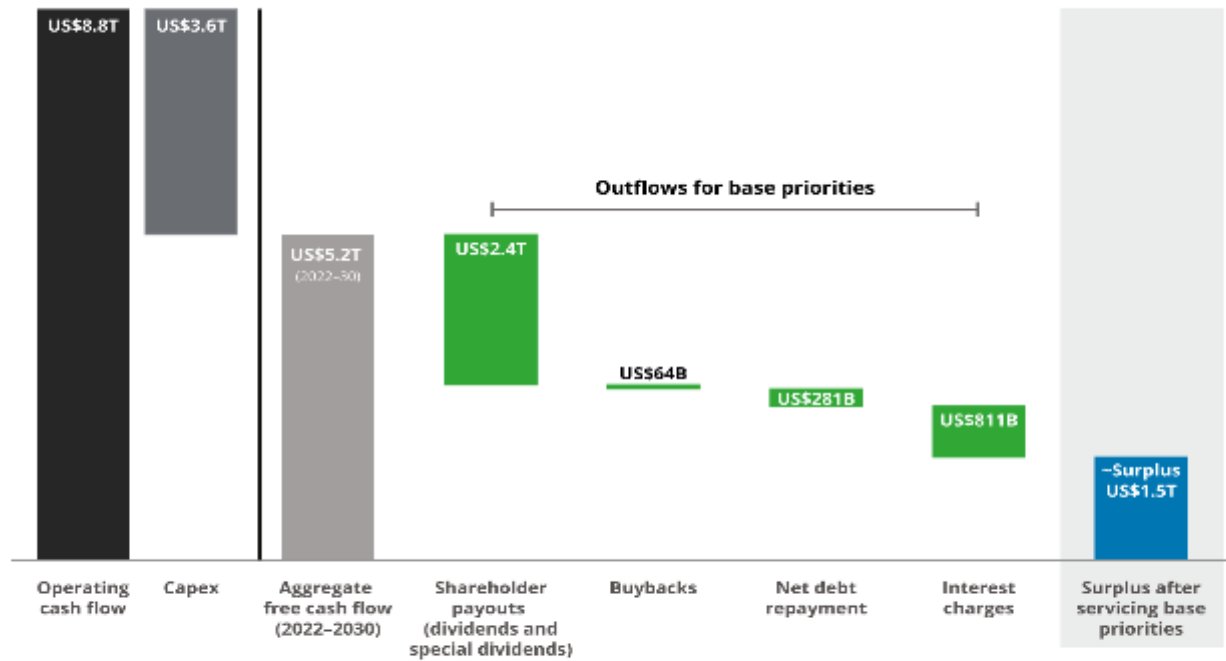
Source: IEA analysis based on data from S&P Capital IQ.

IEA. CC BY 4.0.



O&G sector predicted to continue this strategy in the future

Future cash flows, inflows and outflows (2022–2030)*



Notes: Numbers may vary slightly due to rounding off in the detailed financial model. *Refer to the methodology page in the Appendix for more details. The analysis excludes the impact of the Inflation Reduction Act (IRA) of 2022, a bill passed by both chambers of Congress in August 2022. The bill contains a wide array of subsidies, taxes, credits, and pricing reforms, each with varying impacts on households and businesses. Additionally, the bill contains several energy, environment, and climate-related provisions that may influence production, cost competitiveness, profitability, tax payouts, and investment and share buyback decisions of US O&G companies. For more details, refer: The inflation Reduction Act (IRA).

Source: Deloitte analysis based on data from Rystad Energy Ucube database.

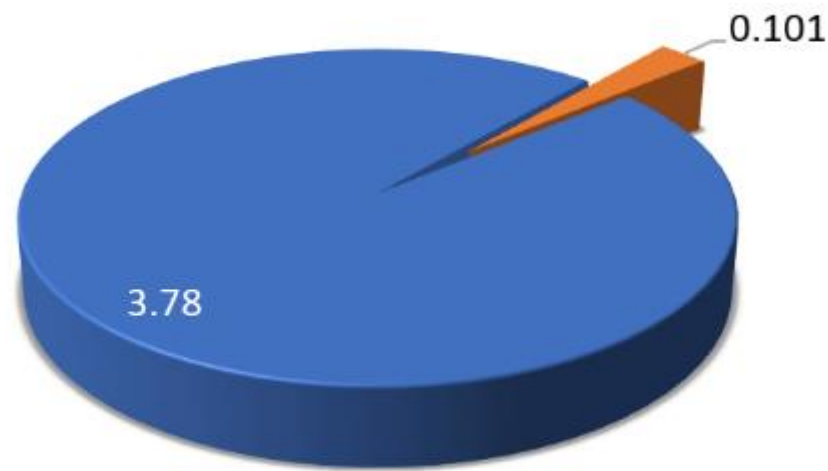


ANALYSIS:

Impact of changes to global energy system
on Canada's oil sands market conditions

Canada's oil sands has strong demand from North American refineries...

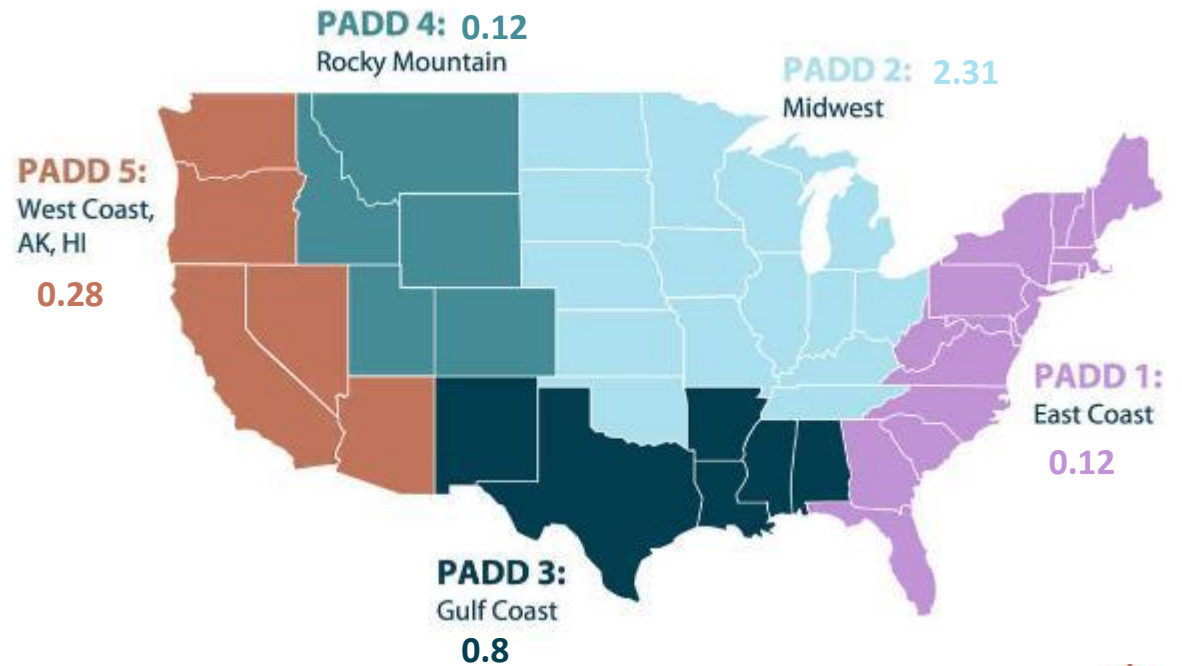
Cdn Exports by Destination, 2022
(million bbl/day)



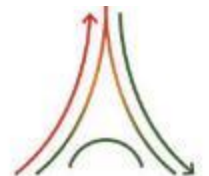
■ US exports ■ Non-US Exports

Source: Canadian Energy Regulator, June 2023

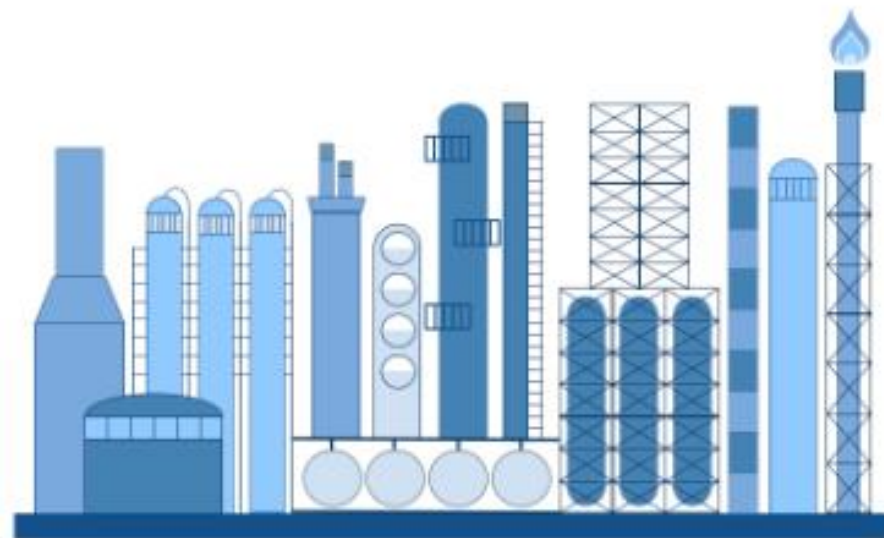
Canadian Exports to Specific US Refining Regions (million bbl/day)



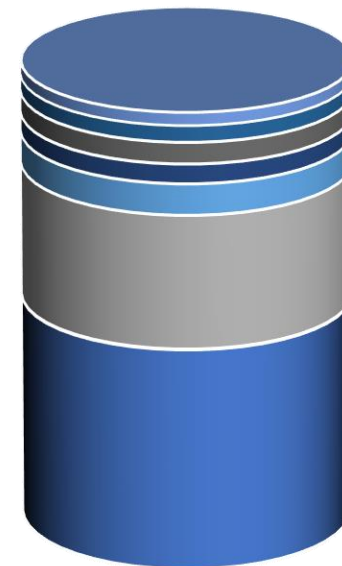
Source: Canadian Energy Regulator, Breakthrough



... as refineries re-invested to use heavy oil as feedstock, produce more higher value transportation fuels and increase profit margin

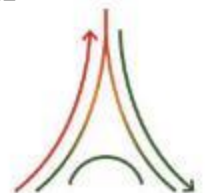


COMPLEX "HIGH-CONVERSION"
REFINERY



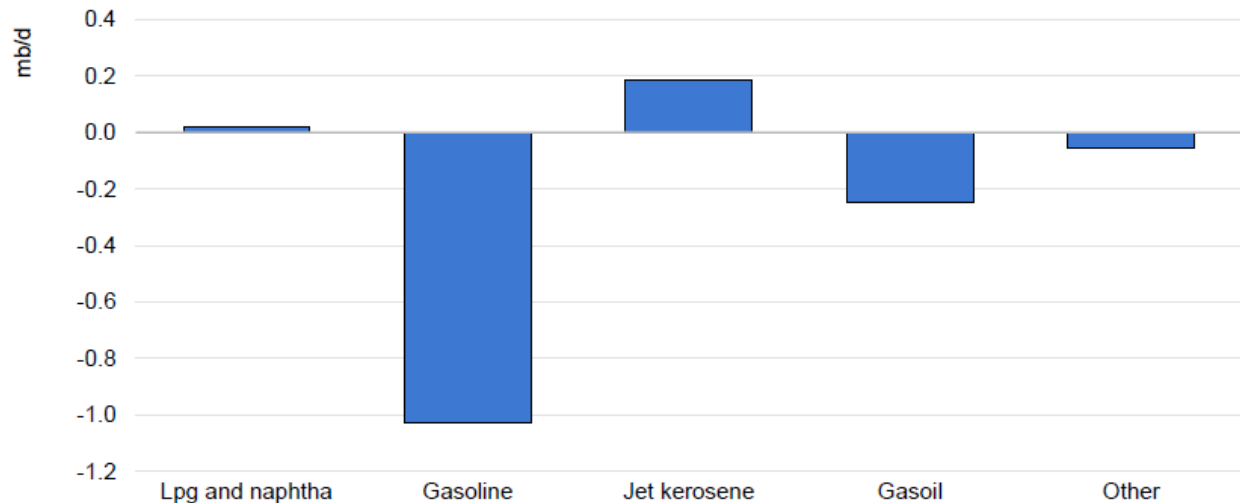
- 3% LPG
- 4% Still Gas
- 5% Residual
- 4% Asphalt
- 7% Jet fuel
- 30% Diesel
- 50% Gasoline

Source: EIA PADD 2 Refinery yield 2022



That strength posed to become risk as EV market growth disrupts gasoline demand

North America cumulative oil demand growth by product, 2022-2028



IEA. CC BY 4.0.

Analysis shows IRA impact will decrease petroleum products demand by 13% by 2030, and 25% by 2040



U.S. refiners facing additional environmental regulatory pressure to address negative environmental impacts

“Biofuels are displacing petroleum-based distillate fuel oil consumption on the West Coast” EIA 2023

US Oil Refineries Find Paying Fines Can Be Cheaper Than Cleaning Up

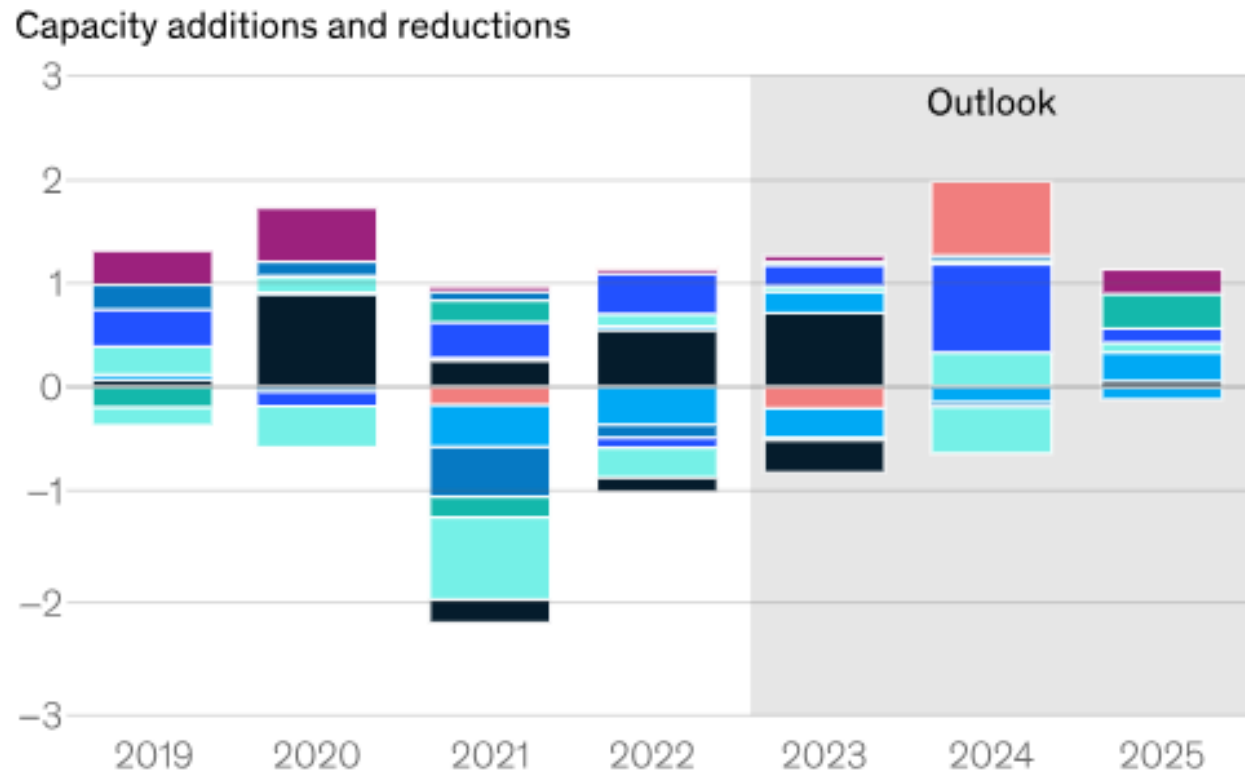
Many facilities dodge expensive upgrades and emit outside quantities of greenhouse gases.

Suncor threatened with thousands in fines over cancer-linked chemicals in water

Report faults EPA for not enforcing limits on toxic benzene emissions at oil refineries



Asian heavy refining growth outpaces oil demand growth.



China India North America Middle East Latin America Europe/FSU Other Asia Africa

McKinsey & Company



Asian refining capacity for heavy oil is a highly competitive market opportunity for oil sands.

Saudi maintains crude supply to Asian refiners despite OPEC+ cuts

Saudi cuts Asian Premium after India taps Russian oil

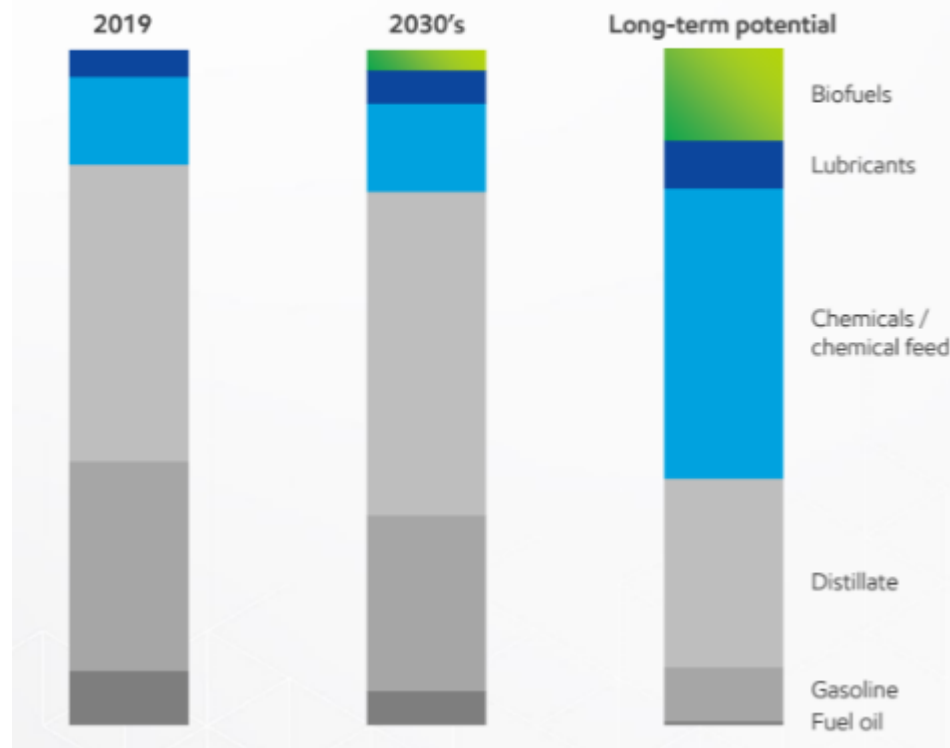
- Middle Eastern medium/heavy sour currently dominates Asian market
- Price is king in Asian market



Responses from U.S. refineries could put demand for oil sands at risk

Exxon Weighs Chemicals Output Boost as EVs Threaten Gasoline Use

Representative product mix based on U.S. Gulf Coast and Singapore refining asset plans¹



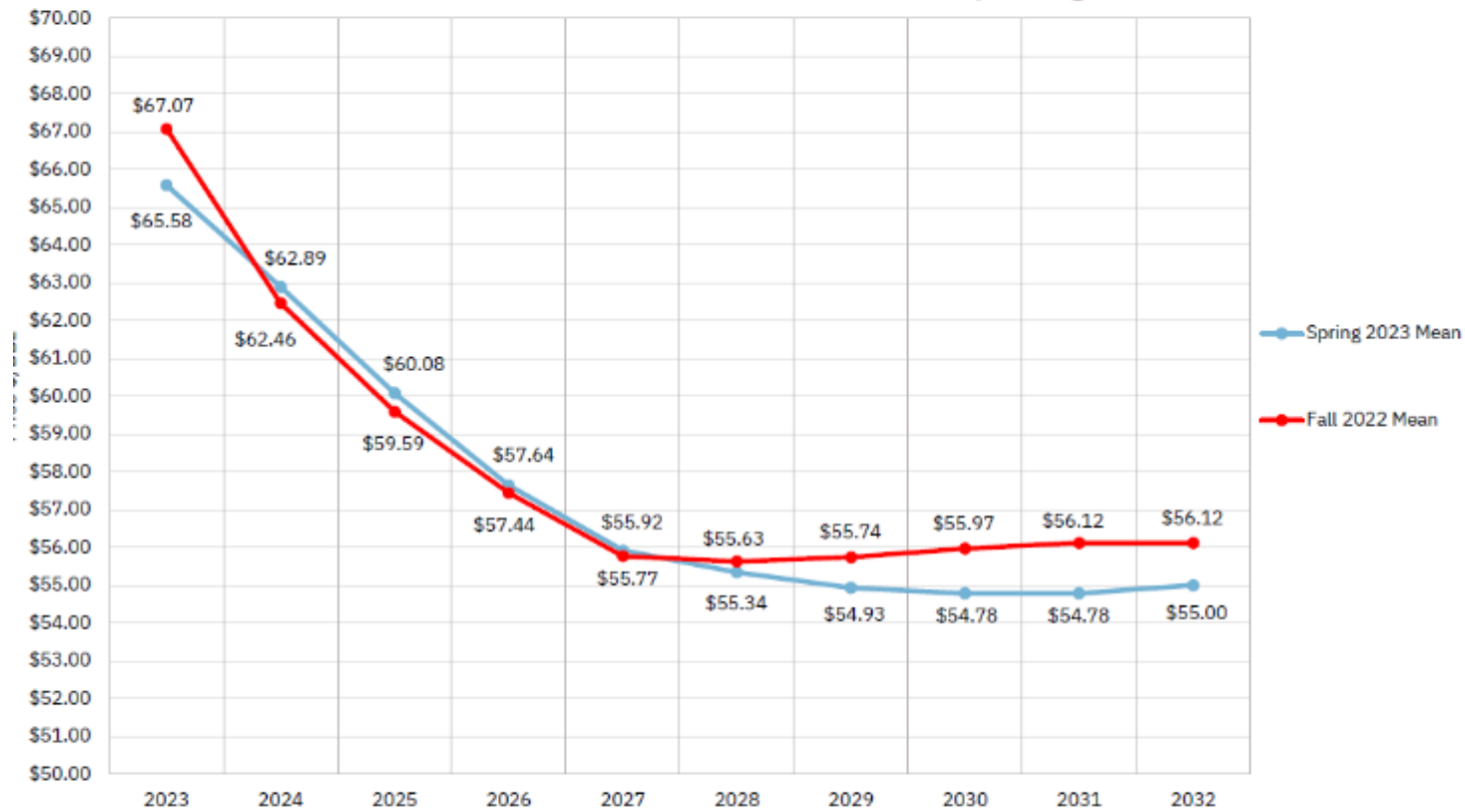
Source: ExxonMobil Product Solutions Spotlight Presentation Sept 20, 2023



Expectation of downward pressure on oil prices creates a negative impact on oil sands' cash flow and shareholder returns.

Haynes Boone Energy Bank Price Deck Survey

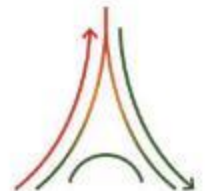
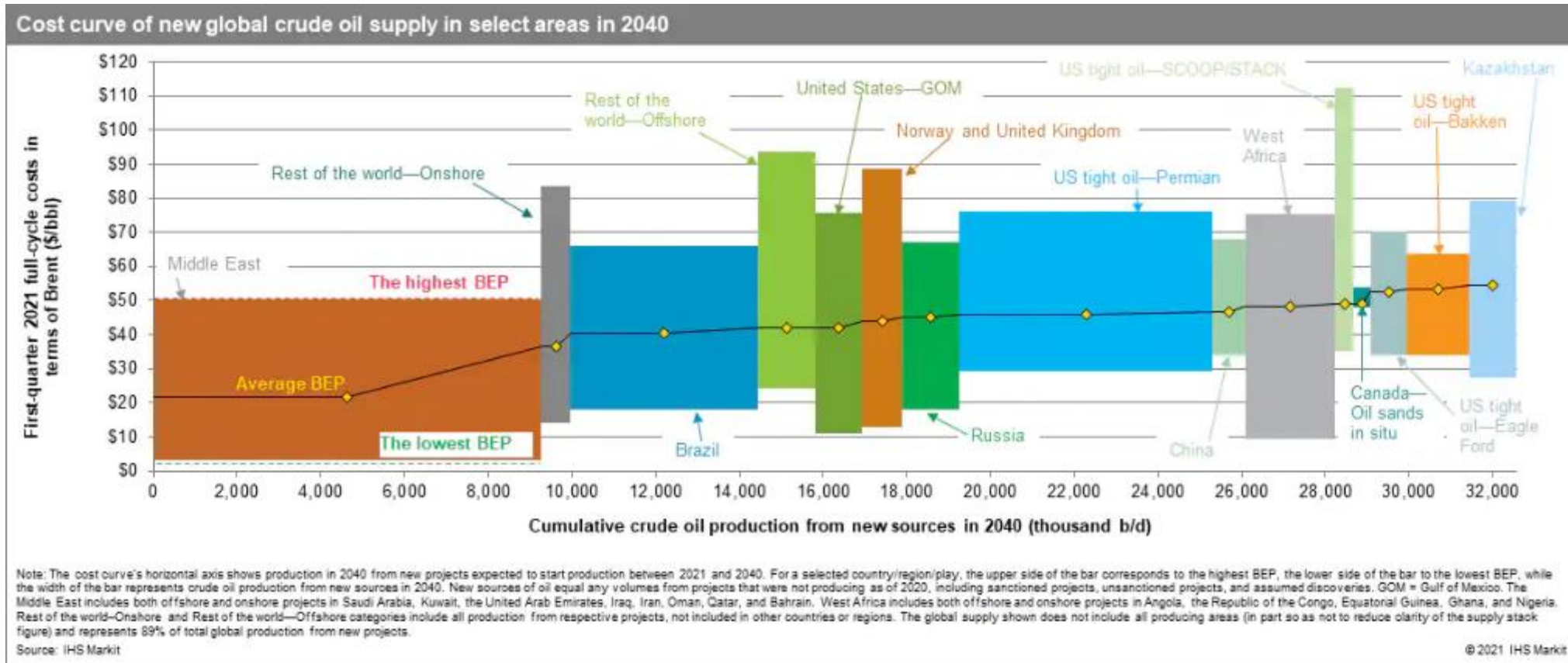
Oil Base Case – Fall 2022 vs. Spring 2023



Source: [Haynes Boone Energy Bank Price Deck Survey](#), Spring 2023 *This chart displays the cumulative mean for the fall 2022 and spring 2023 price decks.*



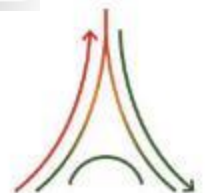
Plateauing or declining oil demand will favour oil producers with lowest costs, presenting challenge for new Canadian production



Climate risk has yet to be factored into credit agencies' evaluation but ...



Source: Fitch Ratings, S&P Global Market Intelligence, Moody's Investors Service and [IEEFA's compilation](#)



...more stringent financial reporting requirements for GHG emissions and climate risk will soon provide metrics to assess companies' climate performance and risk.

California Gets Ahead of SEC in Forcing Firms' Carbon Disclosure

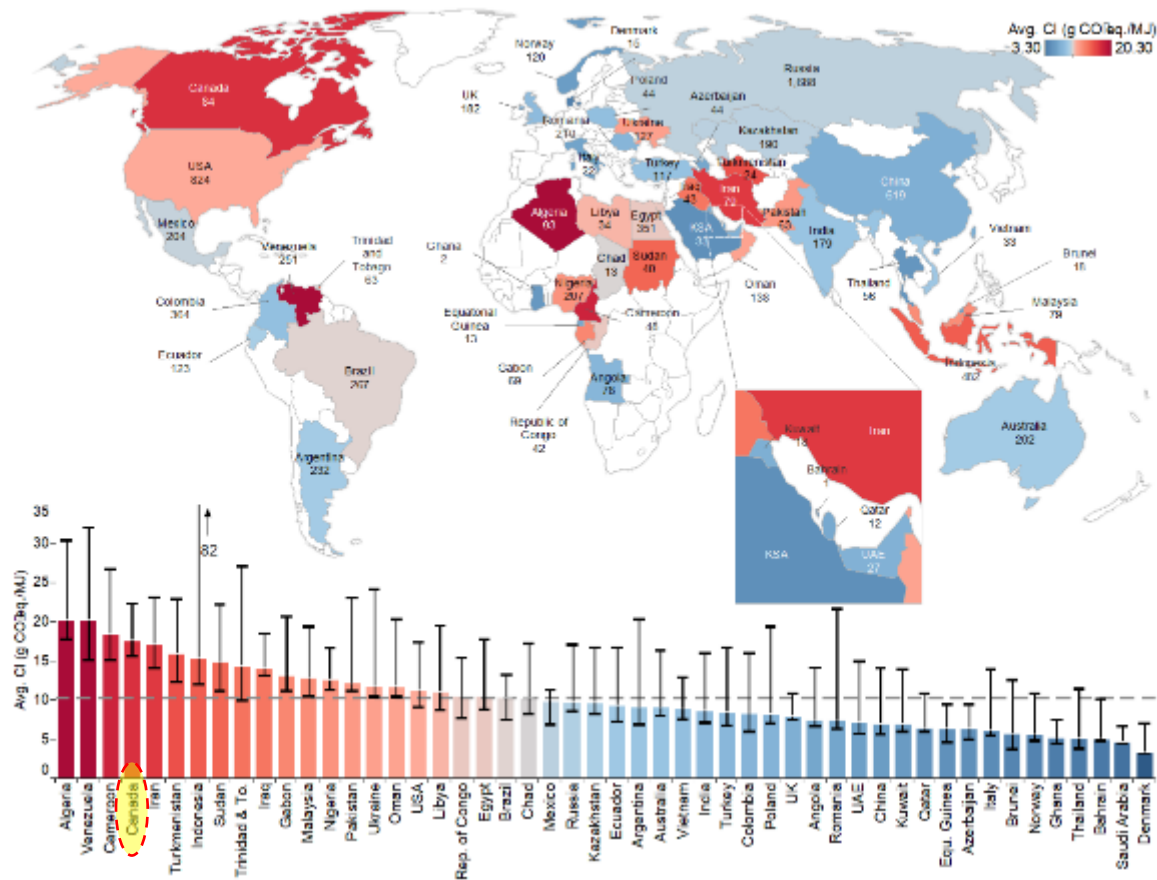
SEC's Climate-Disclosure Rule Isn't Here, but It May as Well Be, Many Businesses Say

ESG Investors Get First-Ever Set of Global Reporting Standards

- ISSB publishes long-awaited sustainable reporting framework
- Standards are intended to address 'proliferation' of ESG rules



Canadian production faces even higher costs if the global oil and gas sector is required to reduce GHG emissions.

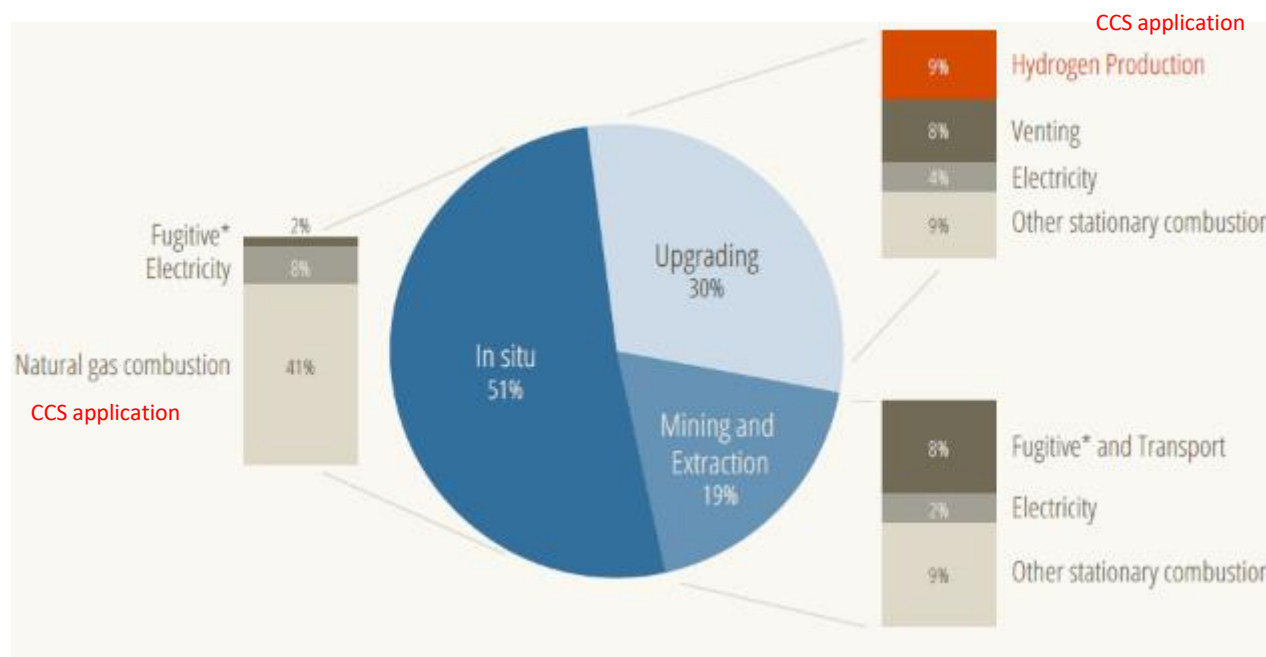
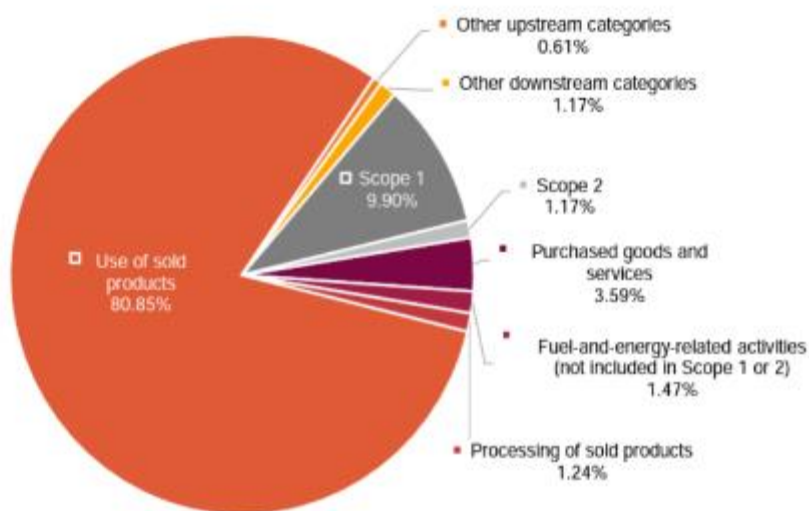


Source: "Global carbon intensity of crude oil production" Masnadi et al



Two major GHG emission challenges: 1) the most GHGs come from the use of oil sands products, and 2) CCS can theoretically only apply to 20-30% of operational emissions.

Scope 3 Categories as % Total Scope 1+2+3 Emissions - Oil & Gas Sector



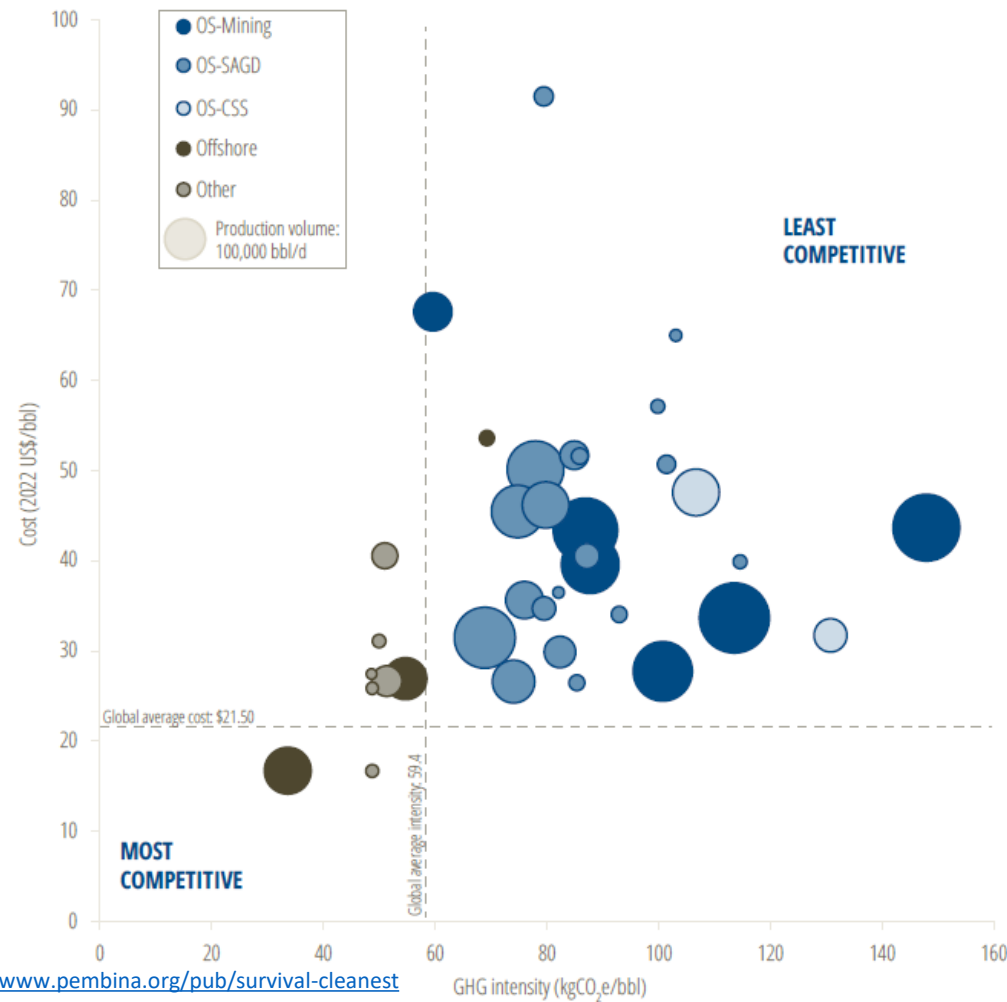
Oil sands can only use CCS, which is less effective and more expensive than methane reduction.

GHG reduction solution & sector	Cost (\$/t of CO ₂ e)	Potential Reduction
Methane, Conventional oil production	\$0-50	75%
CCUS, Oil sands	\$50-200	20-30%

Source: International Institute for Sustainable Development report 2023

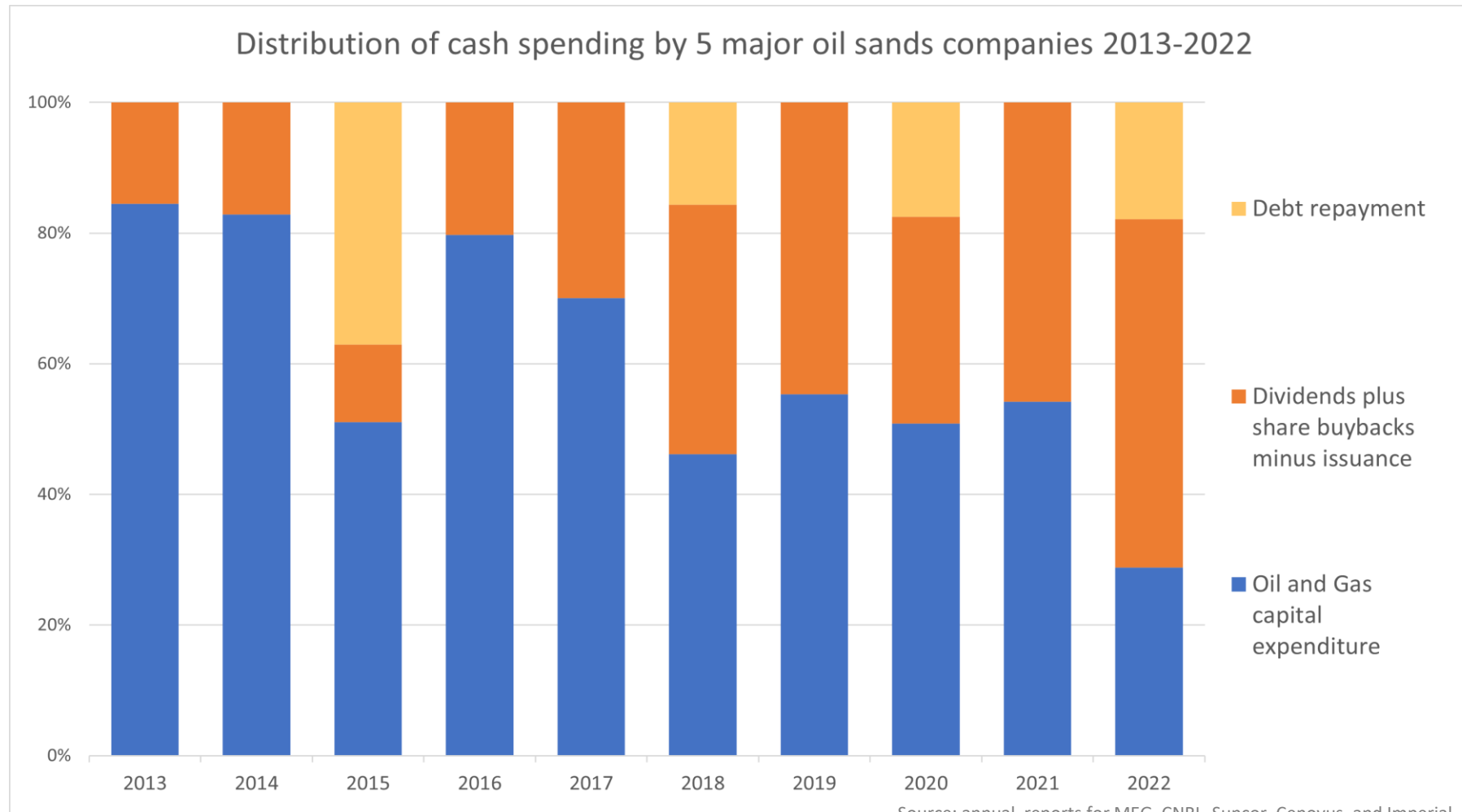


Some existing oil sands assets will be able to afford CCS while still remaining competitive, but others won't



Canadian oil sands companies' "capital discipline" shows flat growth and high shareholder return strategy.

CCUS will require large amounts of capital allocation



Further market changes will erode oil sands' position and put serious financial pressure on the sector

- Expect that some oil sands assets, with significant investment in GHG reductions, could be part of oil supply mix, but over 50% of production will struggle/fail
- With that in mind, investors need better and more transparent reporting by oil sand's companies on legitimate climate solutions including capital investment plans, and how companies are planning for the financial risks from disruptive technologies and market changes
- Better reporting is critical for investors as they need to evaluate and assess what they want in medium term for this sector:
 - Could strong cash flow be shared between shareholder returns and investments in creating new low carbon opportunities?
 - Are the medium term risks to oil sands industry too great and there are better opportunities for investors in other parts of the energy sector?



Thanks for your time

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