

THE OIL DOWNTURN

IMPLICATIONS FOR THE ENERGY TRANSITION

Mariana Liakopoulou

Energy Security Research Fellow

NATO Association of Canada

International Association for Energy Economics Webinar Series

August 28, 2020

H1'20 MARKET NARRATIVE

- Tightening fundamentals set against a weak macroeconomic background → oil prices stuck in a narrow trading edge.**
- 25-30Mbbbl/d demand drop in Jan-Apr '20.**



SCOPE OF PRESENTATION

Could this market narrative accelerate the deployment of clean energy strategies at the distinct, but mutually reinforcing, state and company levels?



INTRODUCTION

- ❑ **IEA: 8% CO2 emissions & a 40% low-carbon share in global energy mix in 2020.**
- ❑ **RES generation growth during the pandemic peak → No matter how low oil and gas prices are, they have a hard time competing with zero-marginal-cost wind and solar short-term costs in the generation merit order.**
- ❑ **Policy-makers give low-cost RES priority dispatch into the grid to the benefit of consumers.**
- ❑ **BUT: 13% in RES installations in 2020, as battered demand limits the availability of tax equity financing.**

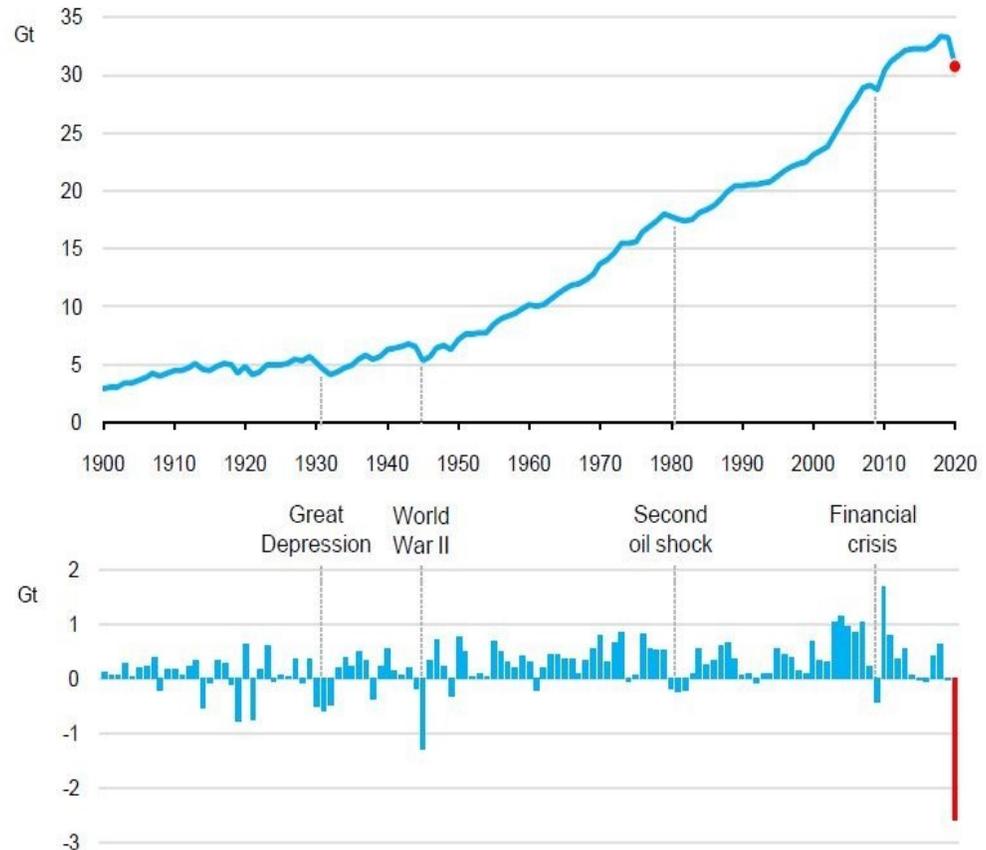


Figure 1: Global energy-related CO2 emissions and annual change, 1990-2020. Source: *IEA Global Energy Review 2020*.

SECTION 1 – THE REGIONAL OUTLOOK

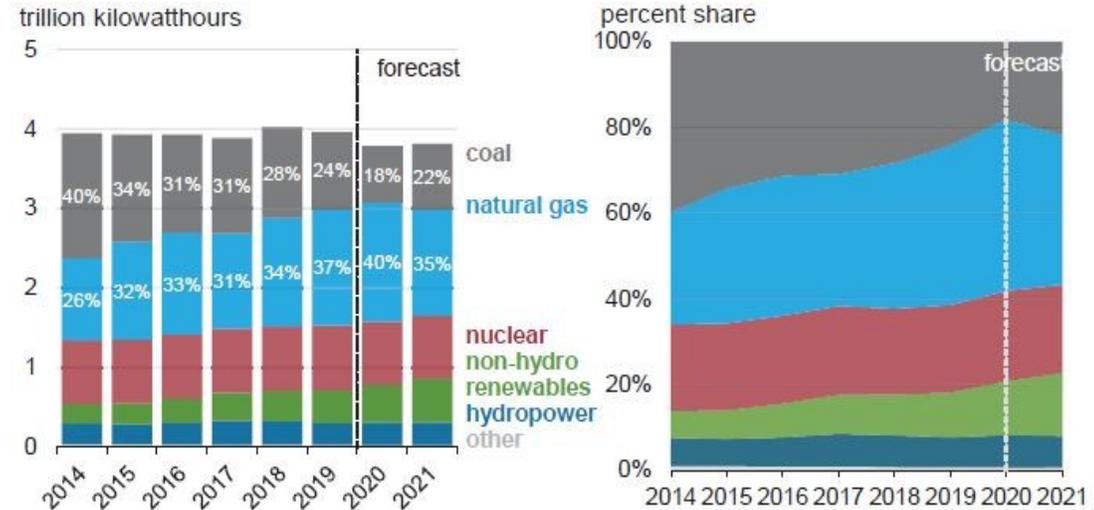
SCOPE OF THE SECTION

What is going to be the state of play for world powers' decarbonization agendas and global climate diplomacy, with “lower for longer” as the new normal in the global oil order and with economic prospects getting gloomier in fear of upcoming pandemic waves?

SECTION 1



- ❑ Shale downturn → Trump Administration's climate action denial overturned? Or Joe Biden's USD2tn climate plan standing a better chance?
- ❑ U.S. EIA: ↓ 7.5% CO2 emissions due to COVID-19.
- ❑ In 2019, RES exceed coal for the first time since 1885.
- ❑ Wood Mackenzie: 18GW of new PV capacity and 1.2GW of energy storage capacity to be installed in the U.S. in 2020.
- ❑ Promotion of RES investment on the State (rather than the Administration level).
- ❑ Gas to hold a 40% share in US electric power sector generation in 2020 (U.S. EIA).
- ❑ A complete fossil fuel phase out improbable due to expected large-scale consolidation in shale, driven by IOCs willing to invest in short-cycle supply.
- ❑ Revival of the long-stalled Green New Deal contingent upon the outcome of the upcoming election.

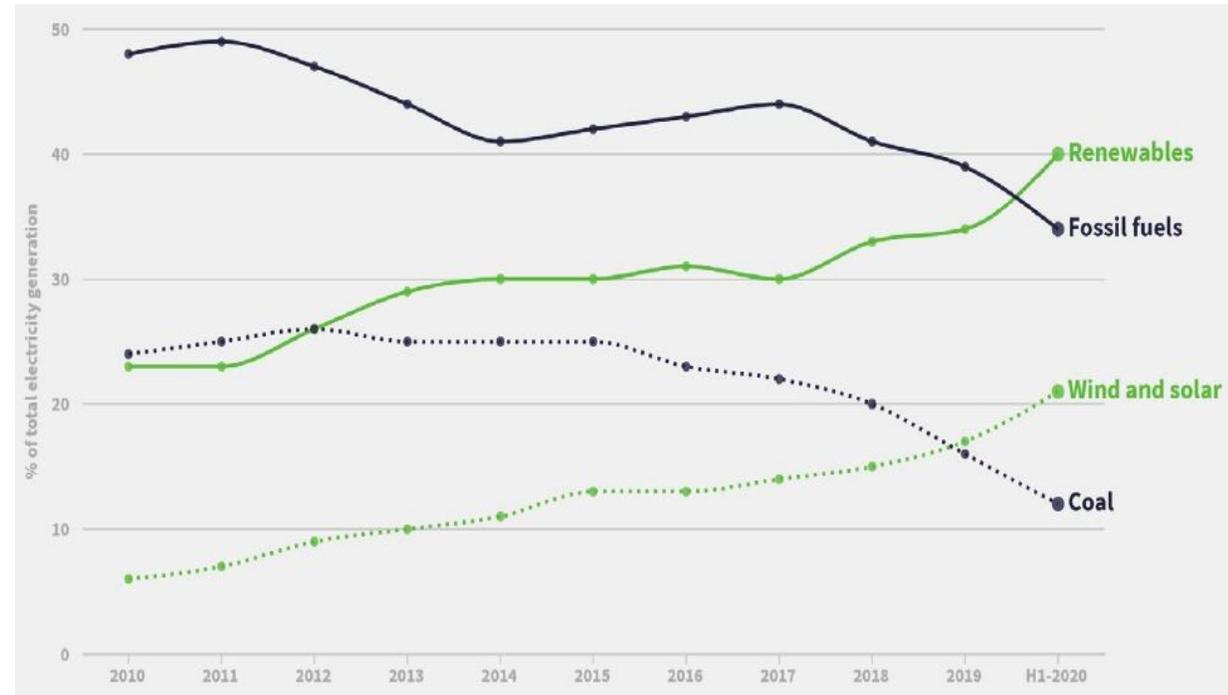


U.S. electricity generation by fuel, all sectors.
Note: Labels show percentage share of total generation provided by coal and natural gas.
Source: U.S. Energy Information Administration, *Short-Term Energy Outlook*, August 2020.

SECTION 1



- ❑ **↓ 50-55% GHG emissions by 2030 (under consideration).**
- ❑ **EU Green Deal: Implications for unabated gas & associated infrastructure.**
- ❑ **Regulatory & policy tools: Gas Decarbonization Package, Green Finance Taxonomy, TEN-E revision (debate over the role of oil & gas networks) → greater sense of direction regarding EU's medium- & long-term exposure to fossil fuels.**
- ❑ **Climate action at the heart of the EUR1.8tn post-COVID recovery package → 30% climate target applying to the total amount of expenditure from the Multiannual Financial Framework and Next Generation EU.**
- ❑ **BUT: Just Transition Fund slashed from proposed EUR40bn to EUR17.5bn, need to prioritize “Coal Regions in Transition” regarding apportionment of EU Structural and Cohesion Funds.**
- ❑ **ENTSO-E: March & April 20: European RES generation soared vs coal & natural gas (down by 17% & 35% and by 5% & 24% for each month).**
- ❑ **Ember: H1'20: 40% RES in EU-27's electricity vs 34% for fossil fuels.**
- ❑ **U.S. historically more oil-intensive than Western Europe. Could it follow the example of its Transatlantic ally?**



RES generation share in the EU-27 electricity mix (2010-H1 2020).
Source: Ember (2020), *Renewables Beat Fossil Fuels: Half-Year Analysis of Europe's Electricity Transition* (aggregating ENTSO-E data).

SECTION 1



- ❑ **Falling RES costs → Incentive for progress with China's national & multilateral clean energy initiatives.**
- ❑ **Energy Revolution Strategy (ERS) → non-fossil fuel share in China's energy mix should account for 15% in 2020 & 20% in 2030.**
- ❑ **Green energy cooperation also foreseen at the international and regional levels by the Belt and Road Initiative (BRI) and the Association of Southeast Nations (ASEAN)-EU action plan.**
- ❑ **BUT: “lower-for-longer” prices as a deterrent for reducing dependence on oil and for pruning emissions through, for example, EV industry development (although there's no downward adjustment of retail gasoline & diesel prices, whenever oil prices fall below USD40/bbl, so as to limit losses at China's NOCs).**
- ❑ **China already helping to take excess cheap oil off the market, by purchasing about 3Mbb/d in excess of their internal demand in June, mostly for the teapots' needs.**
- ❑ **POSITIVE OUTCOME: broader coal-to-gas switch due to reduced spread between long-term oil-indexed & spot LNG contracts (with risks for prospective pipeline infrastructure from Russia and Central Asia).**

SECTION 1



- ❑ **Key growth market that, just like China, could also allow for LNG to make inroads against coal.**
- ❑ **BUT: March 24 lockdown has undermined the RES-based national clean energy plan.**
- ❑ **NDC under the Paris Agreement: 40% of non-fossil fuel power generation capacity installed by 2030 & 33-35% reduction of the GDP's emission intensity from the 2005 level.**
- ❑ **Government pledge for 175GW of renewable capacity installed by 2022 and 450GW by 2030.**
- ❑ **The halt in construction and tendering out of renewable capacity, because of the lockdown and the subsequent recession, will most likely defer these goals.**

Sector	Installed capacity (GW)	Under Implementation (GW)	Tendered (GW)	Total Installed/ Pipeline (GW)
Solar Power	32.53	25.05	25.78	83.36
Wind Power	37.28	9.64	2.20	49.12
Bio Energy	9.94	0.00	0.00	9.94
Small Hydro	4.65	0.55	0.00	5.20
Wind Solar Hybrid	0	1.44	0.00	1.44
Round the Clock (RTC) Power	0	0.00	1.60	1.60
Total	84.40	36.68	29.58	150.66

Renewable energy capacity in India – Project status as on December 17, 2019. Source: *Press Information Bureau Government of India.*

SECTION 1



- ❑ **One of the most fossil-fuel centric energy mixes internationally.**
- ❑ **Large-scale oil & gas production and exports provide vital income for national budgets.**
- ❑ **Volatility in global energy markets = Macroeconomic pressure.**
- ❑ **RES not the likely winners from the current oil crisis.**
- ❑ **Just like with all other economic sectors, RES investments highly depend on direct and indirect government support due modest private sector penetration.**
- ❑ **BUT: “lower-for-longer” prices could act as an incentive for MENA to diversify away from the “resource curse” and to remove controversial energy subsidies.**
- ❑ **If reforms are maintained whenever prices recover, MENA will manage to prove its low-cost producer status, as oil demand peaks, and will shield its economies from oil market volatility with countercyclical fiscal policies.**
- ❑ **In other words, it will be able to sustain a potential next price crash for an extended timeframe.**

SECTION 1 – CONCLUSIONS

- ❑ **Low prices unlikely to spur individual state climate action.**
- ❑ **RES integration & electrification require spending that the COVID-impacted world economies will struggle to afford.**
- ❑ **That's especially true for the resource-driven MENA states.**
- ❑ **EU M-S, steadily thinking negatively the oil industry & its carbon footprint, are better positioned to implement climate policies.**
- ❑ **China and India take advantage of low prices with uncertain effects for their national climate strategies, although this might also prompt a systematic coal-to-gas switch.**
- ❑ **Revival of the U.S. Green New Deal, particularly after the negative WTI futures, remains questionable and may be either abandoned or resumed in a modified form depending on the election outcome.**

SECTION 1 – CONCLUSIONS

- ❑ **And what about collective climate action?**
- ❑ **COVID economic crunch likely to jeopardize multilateralism, fostering isolationism & unilateralism.**
- ❑ **BUT: low oil prices could present an opportunity for world governments to increase fossil fuel taxation.**
- ❑ **At present price lows, taxes will not hurt consumers and will boost budget revenues in favor of climate funding.**
- ❑ **E.g.: Introduction of national (and at a certain point pan-European) GHG border taxes by the EU, darkening outlook for its gas imports.**



Former California governor & founding Chair of the "R20 Regions of Climate Action", Arnold Schwarzenegger (left), and former Vice-President of the European Commission (EC) in charge of Energy Union, Maroš Šefčovič (right), announcing a cooperation on innovative sustainable investment at sub-national level in developing countries involving the EC, the Global Covenant of Mayors and R20, during the first One Planet Summit, hosted by French President Emmanuel Macron, on December 12, 2017, Source: *EC Audiovisual Service*.

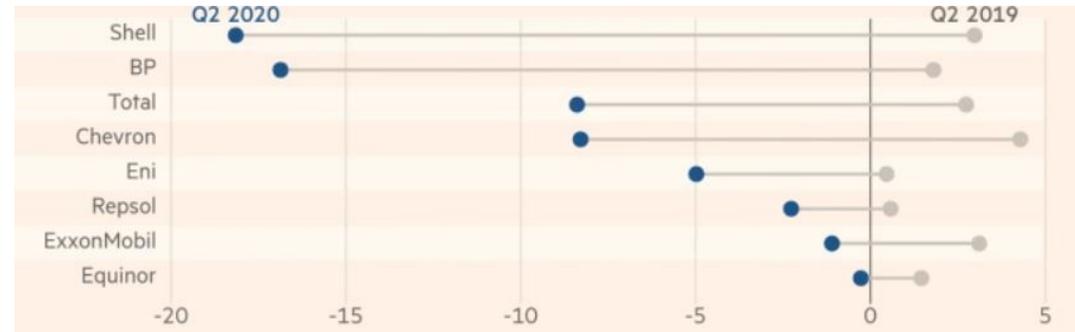
SECTION 2 – THE INDUSTRY OUTLOOK

SCOPE OF THE SECTION

What is the outlook for the fossil fuel industry, at both the IOC and NOC levels, against a peak oil demand backdrop?

SECTION 2 – INTERNATIONAL OIL COMPANIES

- ❑ Q2 '20 earnings: Losses, asset write-downs & CapEx cuts for 2021 in a bid to shore up their balance sheets.
- ❑ Emissions & fossil fuel use declines → Ambitions on acceleration of corporate climate action models' development.
- ❑ Economic contraction revealed overreliance on fossil fuels & political-economic rigor needed to meet Paris targets.
- ❑ Such realizations encourage IOCs to adapt their investment choices to the pace of the energy transition.
- ❑ Dividends & buybacks harder to be paid with low oil prices reducing IOCs' profitability & commercial appeal of fossil fuel projects vs RES.



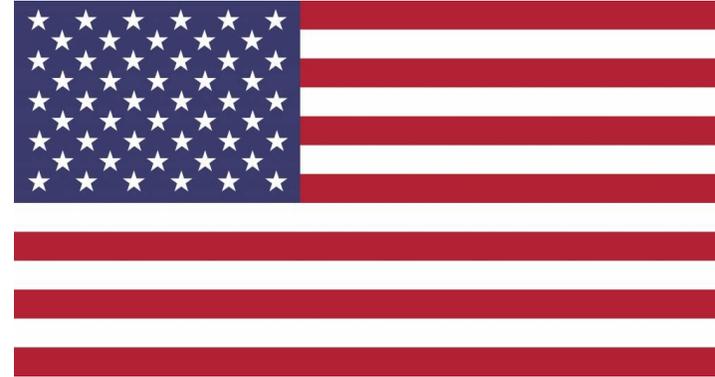
Oil Majors' net income Q2'19 vs Q2'20 (USDbn). Source: *Financial Times*, *S&P Capital IQ*.

- ❑ Oil price volatility accentuates the intrinsic risk factor of fossil fuel investments.
- ❑ Low-carbon project returns are more modest, but also more predictable and bankable.
- ❑ They offer lower risk and stable cash flows.

SECTION 2 – INTERNATIONAL OIL COMPANIES



- European energy firms abide by the EU Green Deal roadmap.
- From February to May 2020, BP, Eni, Shell & Total have all pledged to go carbon-neutral by 2050.

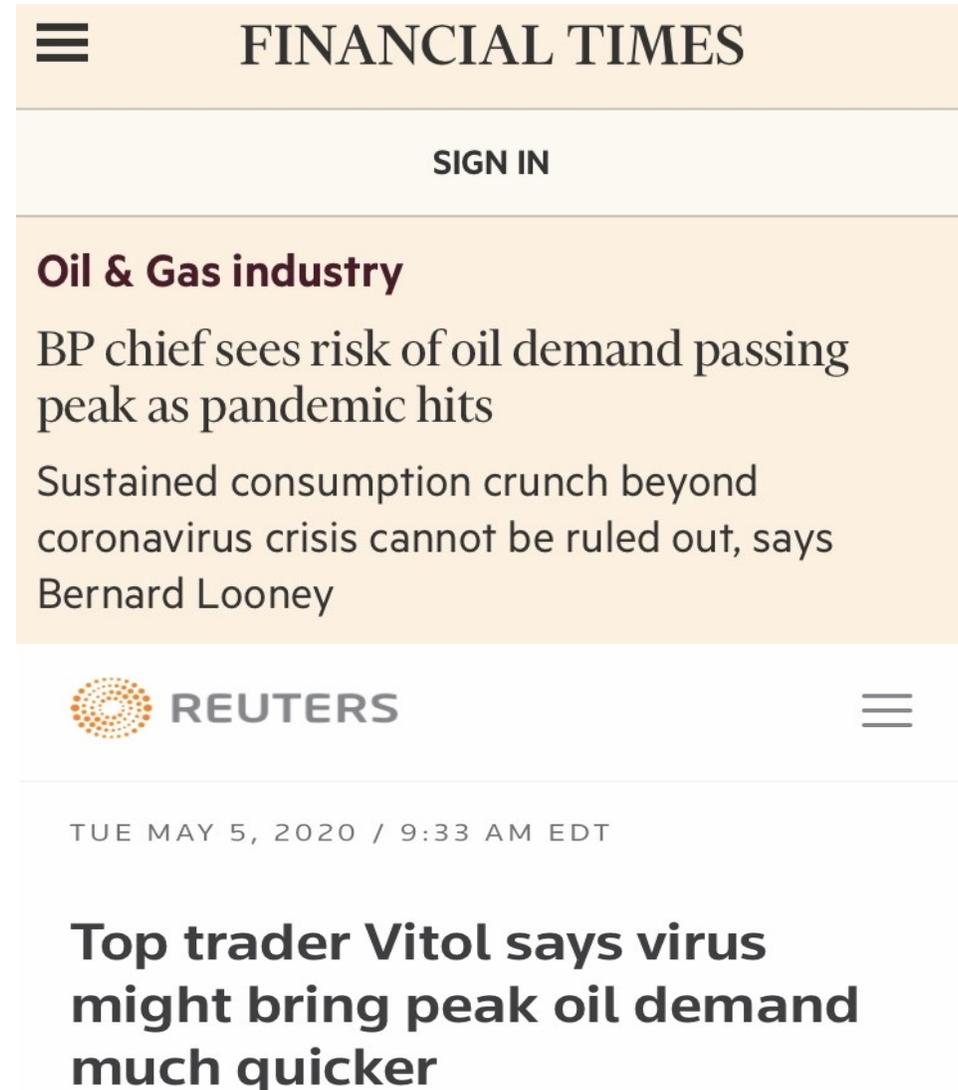


- Lack of domestic policy incentives (e.g. climate-focused government stimulus plans) vs European counterparts.
- Use of the price crash for cheap access to quality conventional reserves in the MENA.

SECTION 2 – INTERNATIONAL OIL COMPANIES

PEAK OIL THEORY

- ❑ Early 21st century formulation → Fears about poor innovation in production and a lack of new extraction sites.
- ❑ The second tremendous price crash since 2014 shifts perspective from “peak supply” to “peak demand.”
- ❑ Fossil fuel divestments so far limited mostly to coal, but revised “peak oil” theory might extend them to oil & gas.
- ❑ Meanwhile, it could advance Majors’ natural gas portfolios, in order to address RES’s intermittency.



The screenshot shows a mobile view of a news article. At the top, there is a navigation bar with a hamburger menu icon on the left and the text "FINANCIAL TIMES" in the center. Below this is a "SIGN IN" button. The main content area has a light orange background and features the section title "Oil & Gas industry" in bold. The headline reads "BP chief sees risk of oil demand passing peak as pandemic hits". Below the headline is a sub-headline: "Sustained consumption crunch beyond coronavirus crisis cannot be ruled out, says Bernard Looney". At the bottom of the article preview, the Reuters logo is visible on the left and a hamburger menu icon on the right. Below the article preview, the date and time "TUE MAY 5, 2020 / 9:33 AM EDT" are displayed. The main headline of the article is "Top trader Vitol says virus might bring peak oil demand much quicker".

THE GAS OPTION



- ❑ Low spot gas prices due to successive unseasonably mild northern hemisphere winters.
- ❑ Low oil prices beneficial for buyers of oil-indexed contracts (with a 6-9 months' lag), while producers could assess viability of new capacity at lower oil-linked prices by late '20.
- ❑ More flexible & liquid LNG market possibly leading to coal displacements in Asia & Europe.
- ❑ Value of gas storage for system integration of RES.
- ❑ BUT: Small inter-regional price differentials, leaving little room for arbitrage gains, might dissuade IOCs from new project FIDs, as returns from switching gas between markets decline.
- ❑ Portfolio players with large balance sheets will pull off new projects without external finance.
- ❑ BUT: IOCs seeing low returns on LNG projects already in operation unlikely to re-invest.
- ❑ Climate-compliant gas portfolio investments (e.g. blue H2 projects) still lack mature markets, where capital would be quickly and massively allocated and absorbed.



RES PORTFOLIOS

- ❑ The hydrocarbon industry currently represents about 2% of global RES investment.
- ❑ Their cash flow generation & carbon mitigation strategies require an oil price range of USD50-60/bbl.
- ❑ Within this range, solar & wind assets, with an average 5-10% IRR (12-14% for offshore projects), cannot compete with an oil drilling project's average 20% IRR.
- ❑ BUT: Within the USD20-30/bbl range, returns are pretty much equal to returns from low-risk solar & wind projects.
- ❑ Low oil prices & cheaper RES costs → avoidance of project subsidization & stable cash flow generation under long-term supply contracts, on par with greenfield oil projects.

SECTION 2 – NATIONAL OIL COMPANIES

- ❑ Typically abide by governmental priorities & concentrate on deeper regional integration though the oil and gas value chain.
- ❑ Mission: To increase the state's cash flow through tax proceeds, dividends or borrowings.
- ❑ Traditionally benefit from very low production costs (e.g. Saudi Aramco's upstream capital expenditures averaged USD4.7/boe in 2018, which was lower than that of each of the Five Major IOCs).
- ❑ This does not let them realize the deflationary nature of RES investments.
- ❑ Overtime, even the cheapest oil producers are going to struggle competing with a deflationary energy source, as it becomes large-scale and thus a lot less expensive.
- ❑ In line with what was mentioned in the previous section, mainly about the MENA region, as long as governments perceive the price slump as circumstantial, NOCs will not manage to undergo a thorough overhaul.

SECTION 2 - CONCLUSIONS

3 LEVERS FOR IOCs & NOCs IN RESPONSE TO LOW OIL PRICES

1. **Defer new project FIDs, with the exception of quicker earning shale.**
2. **Boost efficiency in existing operations, so that they produce the same by spending less.**
3. **Minimize activity & costs in base business (incl. short-cycle investments, exploration & operating costs)**

- Low & zero-carbon investments → Subject to climate policies & regulations implemented by NOCs' respective governments & IOCs' host governments, so that the latter maintain their social license to operate.**
- Low oil prices will likely increase the pace and quantity of the industry's clean energy investment options.**

SECTION 2 – CONCLUSIONS

THE BIG QUESTION: IOCs & NOCs MEDIUM-TERM EXPECTATIONS

- 1. If they believe that prices will rebound to USD60+/bbl within the next decade, then saving money for future drilling makes economic sense.**
- 2. If they see demand peaking by 2030, they will diversify their portfolios, with RES investments looking proportionally more attractive**

- ❑ BUT: If “lower for longer” prices persist, companies’ oil and gas profits will be hit and that’s the pool of revenue from where energy transition assets are supposed to be financed.**
- ❑ The level of those profits will largely determine firms’ and shareholders’ stance towards climate in the medium-term.**

FINAL CONCLUSIONS

REGIONAL OUTLOOK

- ❑ **“Lower for longer” oil prices will induce only modest individual governmental climate action, with the exception of the EU.**
- ❑ **The COVID-related economic distress will likely undermine multilateralism in global climate diplomacy.**
- ❑ **BUT: Concerted solutions, like a consumer-friendly fossil fuel taxation that will strengthen international climate finance, can always be worked out.**

INDUSTRY OUTLOOK

- ❑ **Reformulation of “peak oil” concept, with focus shifting to “peak demand”, from “peak supply”, prompts IOCs (especially in Europe) to pursue clean energy alternatives in the medium-term**

FINAL CONCLUSIONS

INDUSTRY OUTLOOK

- ❑ **New gas project FIDs, considering gas's role as bridge fuel to RES, doubtful → With steadily low prices eradicating inter-regional differentials, companies become less incentivized to continue with this portfolio approach, as returns from switching gas between markets decline.**
- ❑ **As for RES, if oil trading falls back within the USD20-30/bbl range, cash flows can be generated.**
- ❑ **BUT: Level of RES investments contingent upon climate policies & regulations of NOCs' respective governments and IOCs' host countries, which explains why the state & industry levels are distinct but mutually reinforcing.**

FINAL CONCLUSIONS

ENERGY SECURITY

- ❑ **Positive worldwide emissions & fossil fuel abstention figures have opened the debate on a possible long-lasting impact of the oil downturn on climate.**
- ❑ **During the peak of the pandemic, especially in Europe, the flexibility of the system was put to the test and transmission system operators succeeded in balancing supply and demand in a different way than they used to – by managing higher share of variable RES into the grid in a particularly windy period.**

THE NEW GEOPOLITICS OF ENERGY

- ❑ **This debate will also raise the issue of how interstate power relationships are going to unfold in a clean energy world.**

FINAL CONCLUSIONS

THE NEW GEOPOLITICS OF ENERGY

- ❑ **Far-reaching energy market shifts historically accompanied by geopolitical shifts → E.g. coal to oil switch leading to geopolitically indispensable relations with the Middle East/Gulf for importers' energy security, or the 2010s' shale revolution expanding the US's geopolitical clout.**
- ❑ **BUT: Growth of decentralized RES means that future energy systems will stand out for high-level competition & absence of energy superpowers.**
- ❑ **Gain-loss game about geopolitical advantages from the energy transition → Will major hydrocarbon producers, such as Russia and Saudi Arabia, turn into holders of stranded assets?**
- ❑ **As low oil prices render RES as appealing as conventional upstream projects, the evolving energy geopolitics deserve greater attention.**

THANK YOU

Email: mariana.liakopoulou@natoassociation.ca

Email: liakopouloumariana@gmail.com

LinkedIn: <https://www.linkedin.com/in/mariana-liakopoulou-b029a9126/>

Web: <http://natoassociation.ca/mariana-liakopoulou/>

Web: <https://liakopouloumariana.wixsite.com/energy>