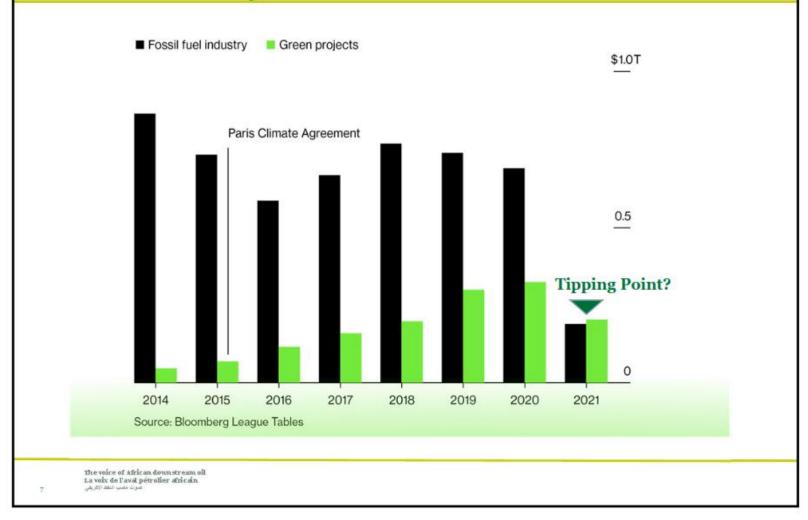
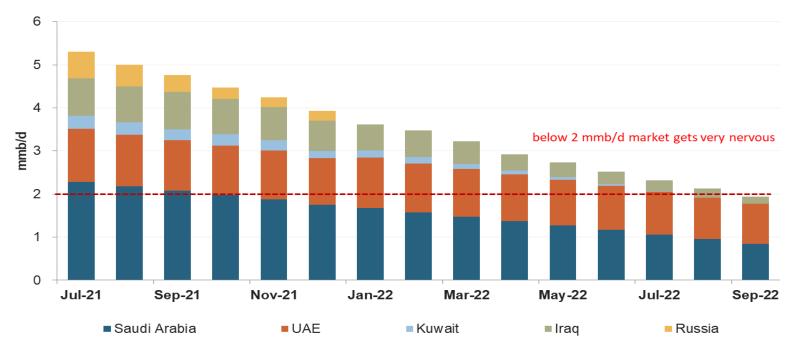
Impact of climate strategies on oil and gas industry

Tipping Point reached in Financing of Fossil Fuels vs. "Green" Projects?



Supply Concerns

- Global supply faces challenges in OPEC+ and non-OPEC.
- Besides Saudi Arabia and UAE, most others struggle to meet their quotas.
- Saudi Arabia and UAE have plans for 2.0-2.5 mmb/d new production by 2027-2030. It is a challenge to find more output with sanctions on Iran, Venezuela, and Russia.
- With sanctions in place, oil prices can hover near or around US\$100/bbl for several years.
- OPEC+ spare capacity reaches a critical level by late 2022.



OPEC+ Spare Capacity Using FGE's View on Likely Production



LOST IN TRANSITION | O&G UNDERINVESTMENT THREATENS ENERGY SECURITY Upstream spending by selected company types (bn \$) Global Investment Upstream O&G 2014-2021e 160 ~-50% 120 80 40 2016 2017 2018 2019 2020 2021e 2015 2016 2017 2018 2019 2020 2021e ■ Majors ■ Chinese NOCs ■ Russian companies ■ Middle East NOCs Against the backdrop of war in Ukraine, 2022 is seeing renewed Between 2015-2021, strong decline in investments focus on ENERGY SECURITY for Majors (growing pressure to cut GHG

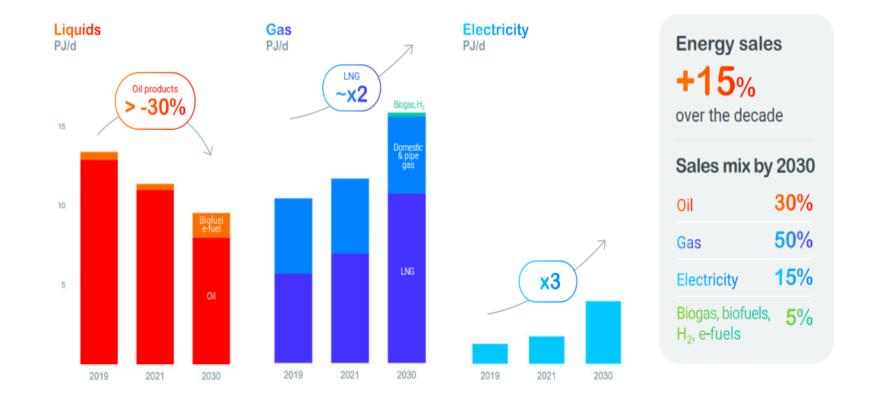
The crisis has revealed the challenge ahead for the world as it faces geopolitical conflict, EFFORTS TO DECARBONIZE and HIGH GLOBAL INFLATION Between 2015-2021, strong decline in investments for Majors (growing pressure to cut GHG emissions), in comparison to Chinese NOCs (+23%) and Middle East NOCs (+10%)



2 Source: IEA World Energy Investment (WEI)

2020-2030: adapting our energy sales to demand

Oil products in sales mix: from 65% in 2015, 44%^{*} in 2021 to 30% in 2030



Building a multi-energy company

2021 data excluding Covid impac

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TotalEnergies

Targeted oil investments generating strong cash flow







4 x 150 kb/d First oil 2022-25

Capex+Opex < 20 \$/boe GHG 15 kg CO_{2ed}/boe²

~800 M\$/y CFFO³

UGANDA Lake Albert (56.7% op.)



230 kb/d First oil 2025

Capex+Opex < 20 \$/boe GHG 13 kg CO_{2ed}/boe²

> 1 B\$/y CFFO³

IRAQ Ratawi (assumes 50% op.)



140 Mcf/d & 210 kb/d by 2026 600 Mcf/d gas midstream

Capex+Opex < 10 \$/boe GHG 9 kg CO_{2eg}/boe²

> 1 B\$/y CFFO³

Criteria for new hydrocarbon projects

- Profitability evaluated at
 50 \$/b with 40 \$/t¹ carbon price and
 100 \$/t from 2030
- > Focus on low-cost projects
 - > Capex+Opex < 20 \$/boe or
 - > After-tax breakeven < 30 \$/boe
- Lower GHG emission intensity than portfolio average

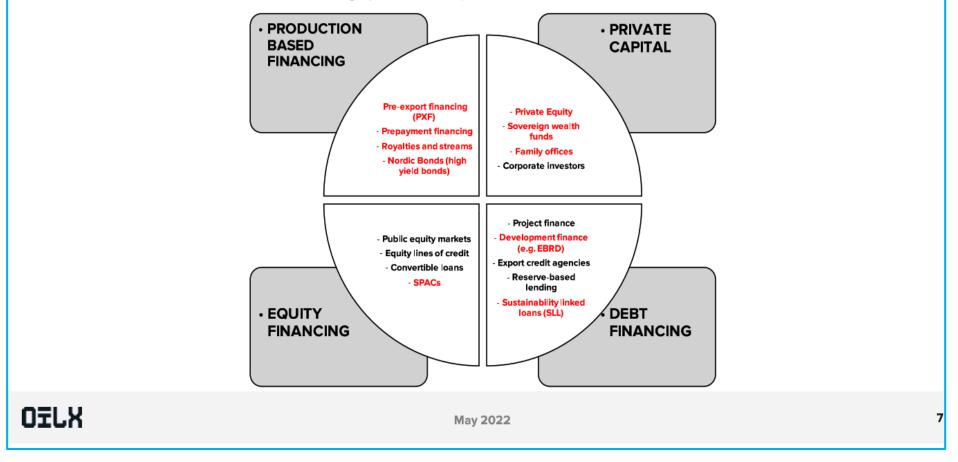
¹ or the current price if higher than 40 \$A ² at plateau ³ TotalEnergies share at 50 \$/b, at plateau

Delivering resilient projects with significant upside at high prices

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Alternative sources of financing

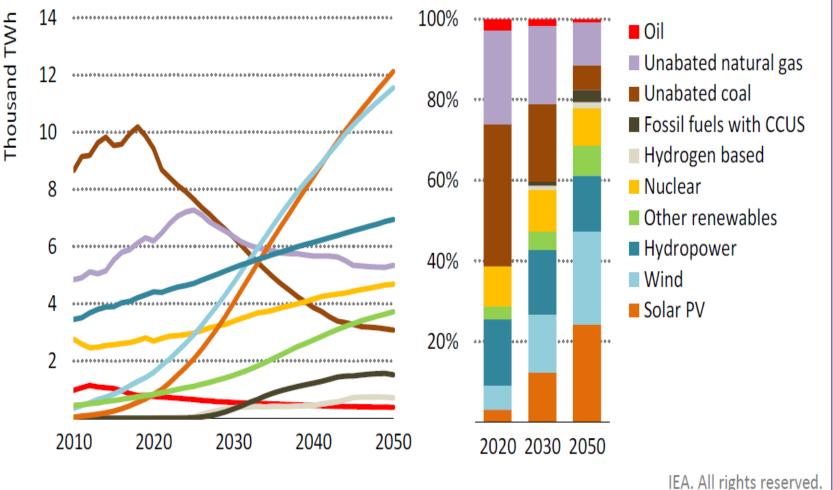
In order to mitigate the challenges posed by ESG on E&P project financing, oil and gas companies can seek alternatives sources of financing (see in **red**):



Electricity Supply Projection till 2050



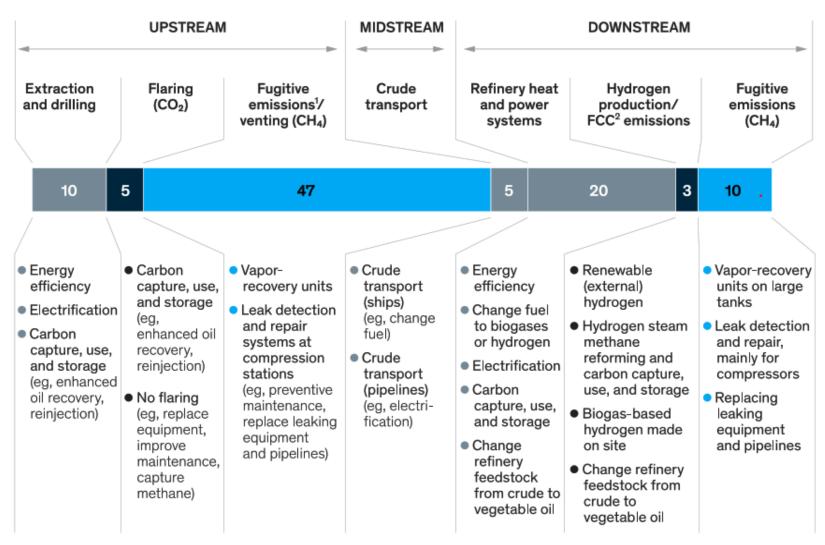
Renewables reach new heights, rising from just under 30% of electricity supply in 2020 to nearly 70% in 2050, while coal-fired generation steadily declines



Source: Net Zero by 2050 Interactive by IEA

Emissions by source, share, and possible solutions, %

■ CO₂ (energy related) ■ CO₂ (not energy related) ■ Non-CO₂



¹Fugitive emissions from midstream are included in upstream (~20% of total oil and gas emissions, mainly methane) to be consistent with IEA World energy outlook 2018 classification.

²Fluid catalytic converter.

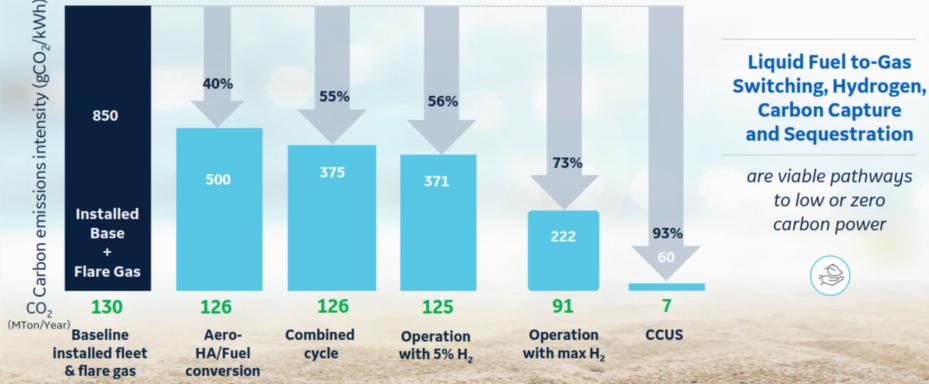
Source: World 2018 CO₂ and SF₅ emissions from fuel combustion, Organisation for Economic Co-operation and Development (OECD) and IEA; world 2018 emissions of CO₂, CH₄, N₂O, hydrofluorocarbons, and perfluorinated compounds, OECD and IEA; Global Greenhouse Gases Emissions EDGAR v4.3.2, European Commission Joint Research Centre, July 2017, edgar.jrc.ec.europa.eu; *World energy outlook 2018*, IEA, November 2018, iea.org

McKinsey & Company

A decade of action | Pathway to low or near-zero carbon power



REDUCES EMISSIONS BY



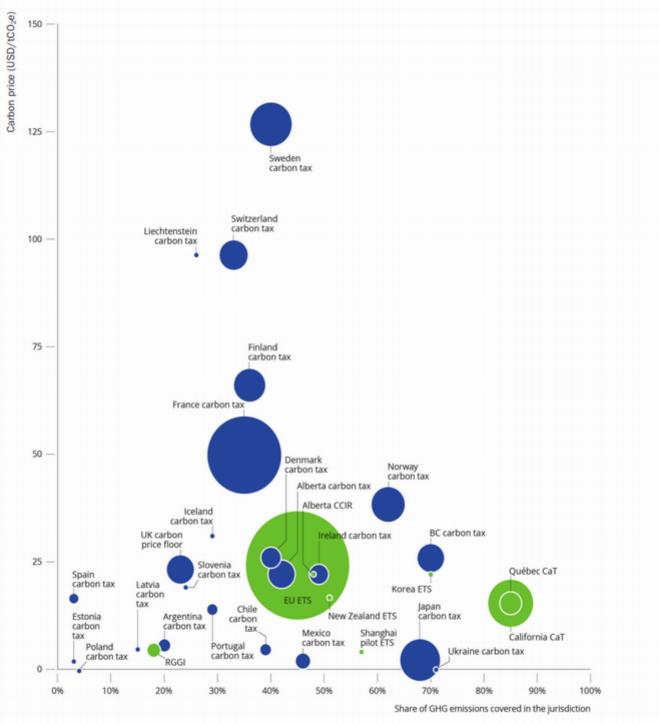


Figure 7.1: Carbon price, share of emissions covered and carbon pricing revenues of implemented

Source: World Bank (2019).

Sweden was among the very first countries to introduce a tax on carbon in 1991. The carbon tax was initially levied on all sectors with exemptions for the industry exposed to international competition. With the introduction of the EU ETS, industries within the ETS were exempted from carbon taxation except for district heating that was included in the EU ETS but continued to be subjected to the carbon tax.

Transitioning Markets - Crude

Offset

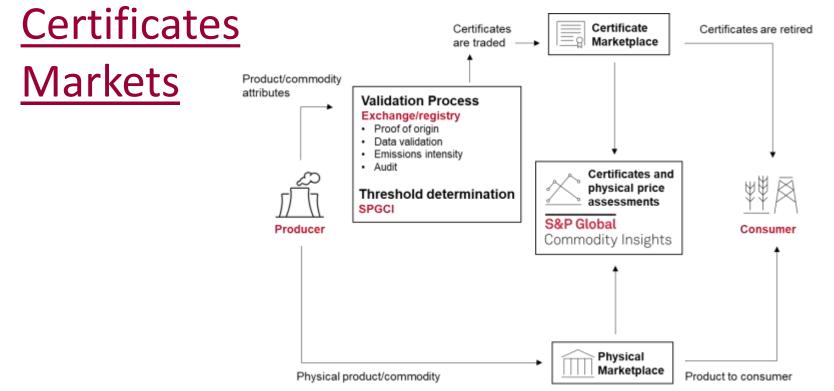
Approach

Attribute

approach

- Buying carbon credits to offset emissions in the value stream
- Wide range of credit types and questions on scope of emissions to offset; credibility is required
- Carbon intensity becomes an attribute of the production (much like sulfur) allowing for price differentiation
- Producers may look to reduce operational carbon intensity





#MPGC2022

Carbon Ecosystem

By(Paia)

Pay accreditation

fees / annual fees

The Carbon Credits Ecosystem



3RD PARTY AUDITORS

Independently vet emissions reduction potential before projects are registered, and regularly vet emissions reduction of projects once they're running

3 *Pay a fee for registration and issuance of credits*

List issued

for a fee

carbon credits

CARBON OFFSET PROGRAMS / SCHEMES

Set standards for carbon credit quality, certify and issue carbon credits, and have a registry to track certified credit projects and credits issuance and retirement

Buyers finance continued operation

of offsets project, engaging directly

with project developers, or going

through third-parties

VERRA Gold Standard



Pay account registration fees to transfer and retire credits

CREDIT BUYERS

Buy carbon credits to offset their own emissions, or emissions in their value chains

- Companies regulated by capand-trade regulations
- Companies buying credits out of goodwill
- Governments meeting their NDCs

PROJECT

2

Pay 3rd party auditors

to conduct validation /

verification

DEVELOPERS

Design carbon offsets projects in consultation with stakeholders, and sells carbon credits to buyers

- Governments
- NGOs
- Companies

Finance carbon credits project

INVESTORS

Sponsor and finance credit projects

- Companies
- **Financial institutions**
- Academic institutions

CARBON EXCHANGES

5

Carbon marketplaces where verified credits are listed, bought, and sold

CARBON BROKERS / RETAILERS

Offer a range of credits, and services that reduce time taken to engage directly with project developers



