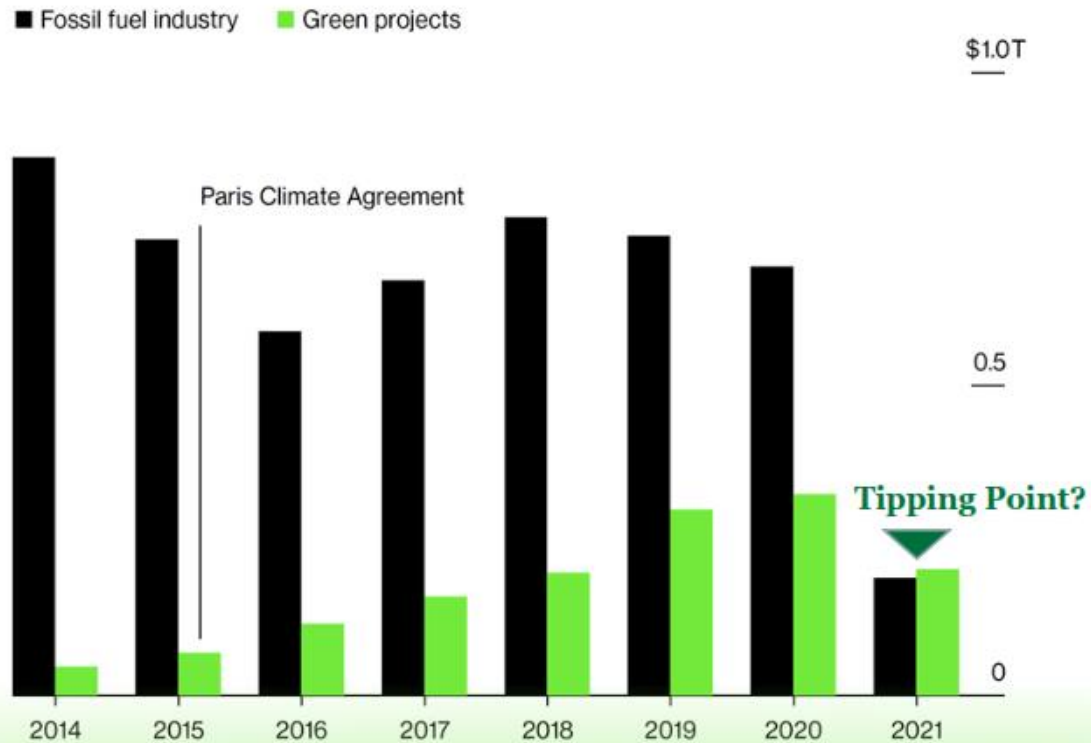


Impact of climate strategies on oil and gas industry

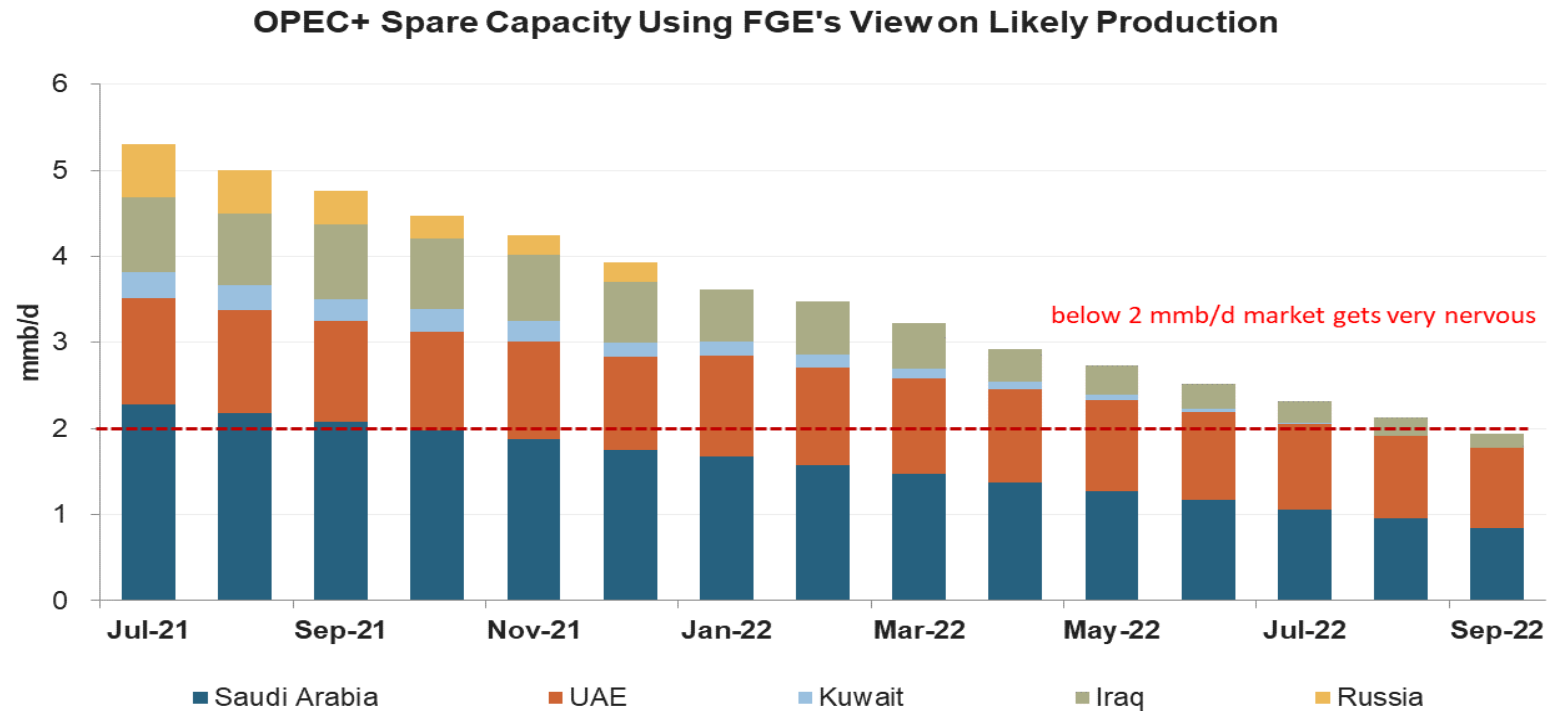
Tipping Point reached in Financing of Fossil Fuels vs. “Green” Projects?



Source: Bloomberg League Tables

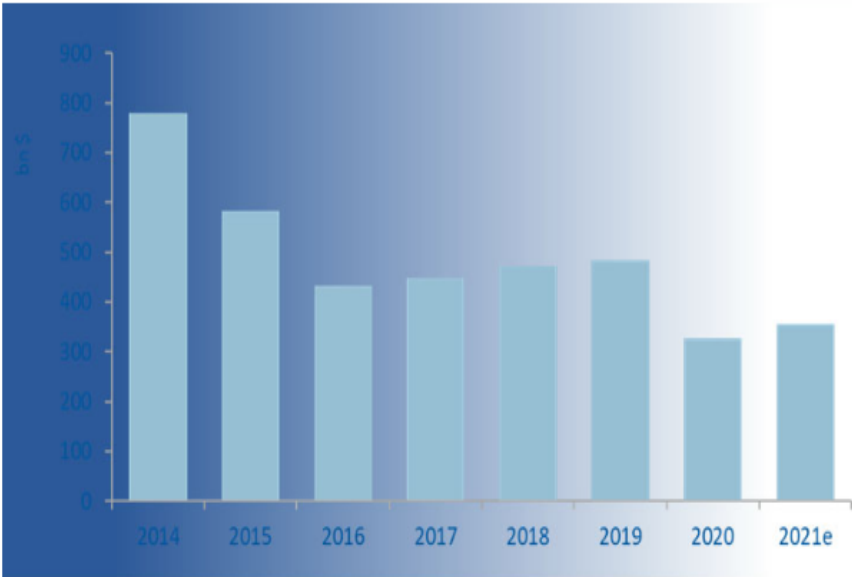
Supply Concerns

- 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.

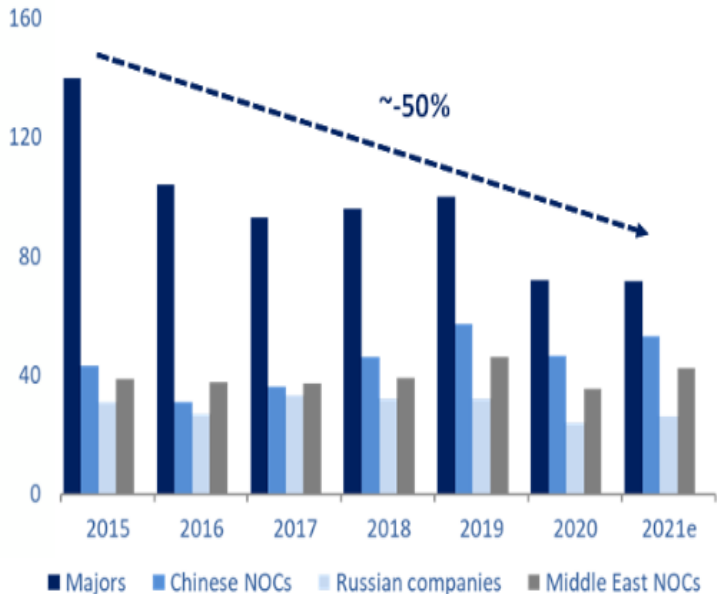


LOST IN TRANSITION | O&G UNDERINVESTMENT THREATENS ENERGY SECURITY

Global Investment Upstream O&G 2014-2021e



Upstream spending by selected company types (bn \$)



Against the backdrop of war in Ukraine, 2022 is seeing renewed focus on ENERGY SECURITY
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%)

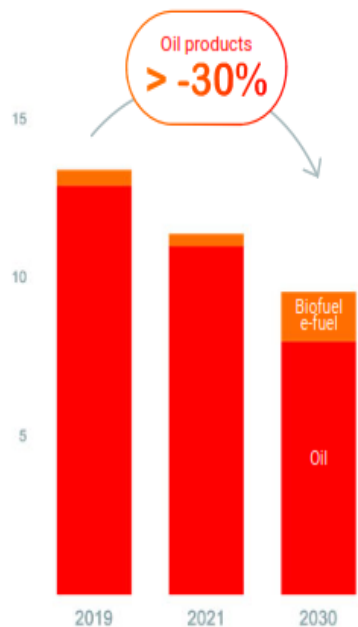


2020-2030: adapting our energy sales to demand

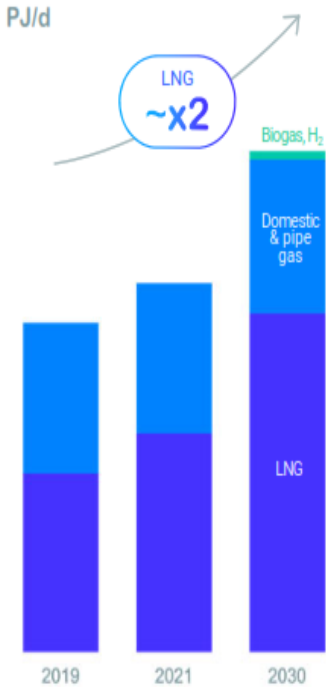


Oil products in sales mix: from 65% in 2015, 44%* in 2021 to 30% in 2030

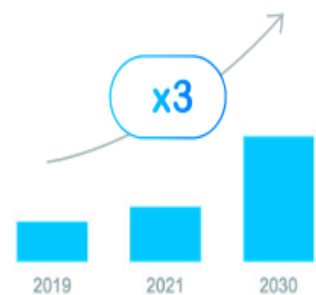
Liquids
PJ/d



Gas
PJ/d



Electricity
PJ/d



Energy sales

+15%
over the decade

Sales mix by 2030

Oil	30%
Gas	50%
Electricity	15%
Biogas, biofuels, H ₂ , e-fuels	5%

Targeted oil investments generating strong cash flow



BRAZIL

Mero (20%)



4 x 150 kb/d

First oil 2022-25

Capex+Opex < 20 \$/boe
GHG 15 kg CO_{2eq}/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_{2eq}/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_{2eq}/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 \$/t

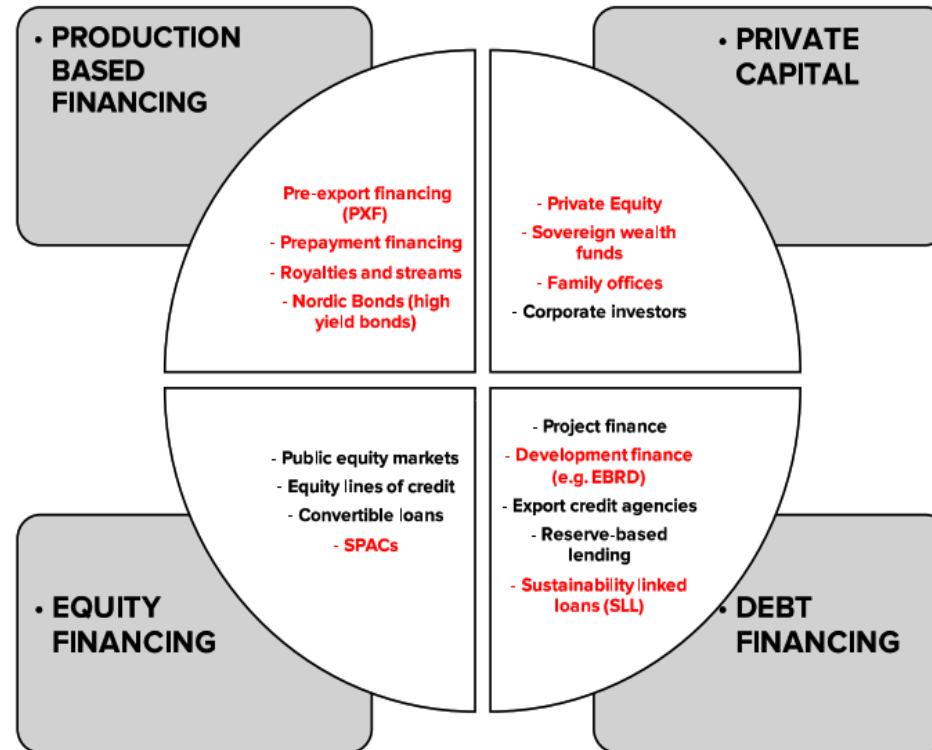
² at plateau

³ TotalEnergies share at 50 \$/b, at plateau

Delivering resilient projects with significant upside at high prices

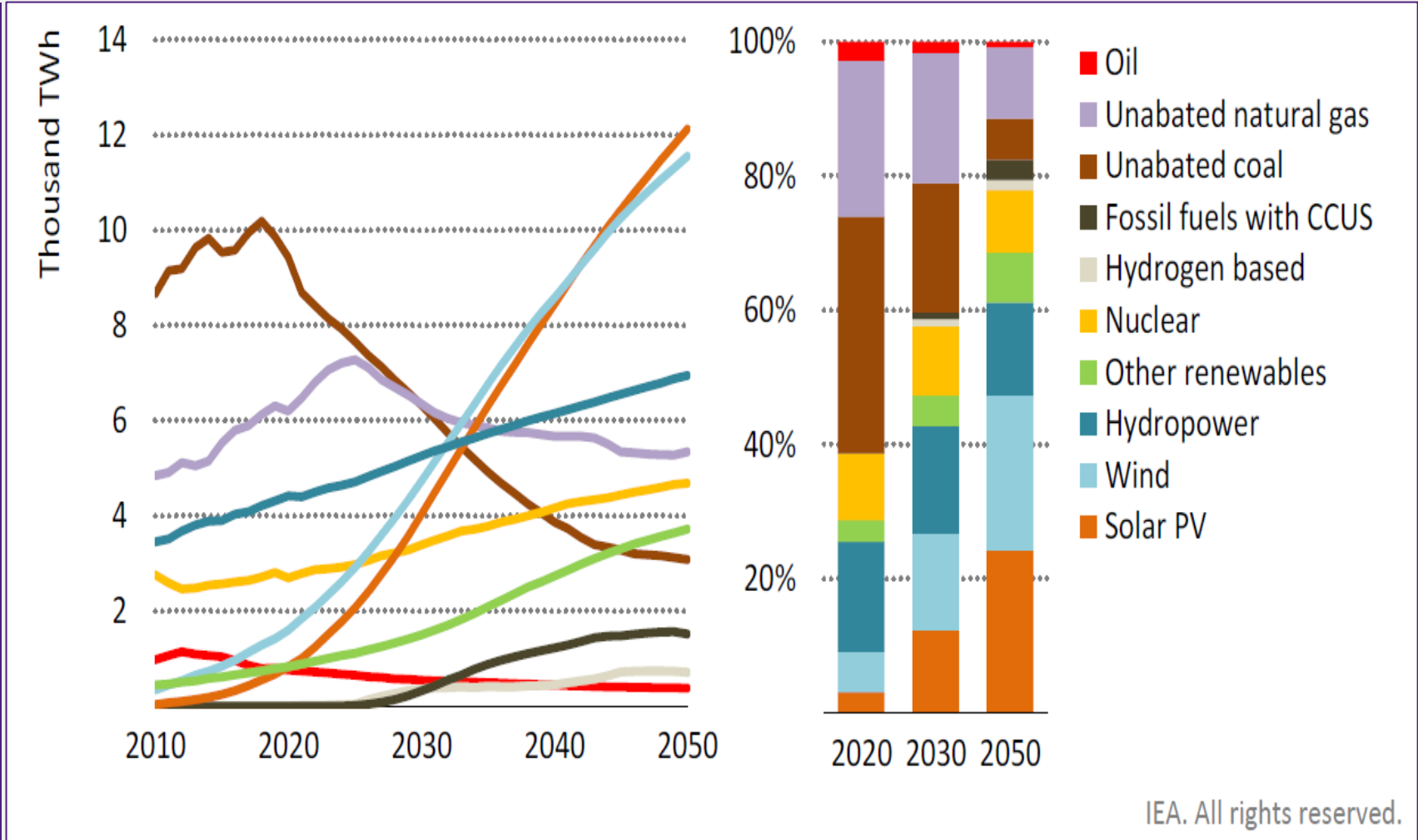
Alternative sources of financing

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



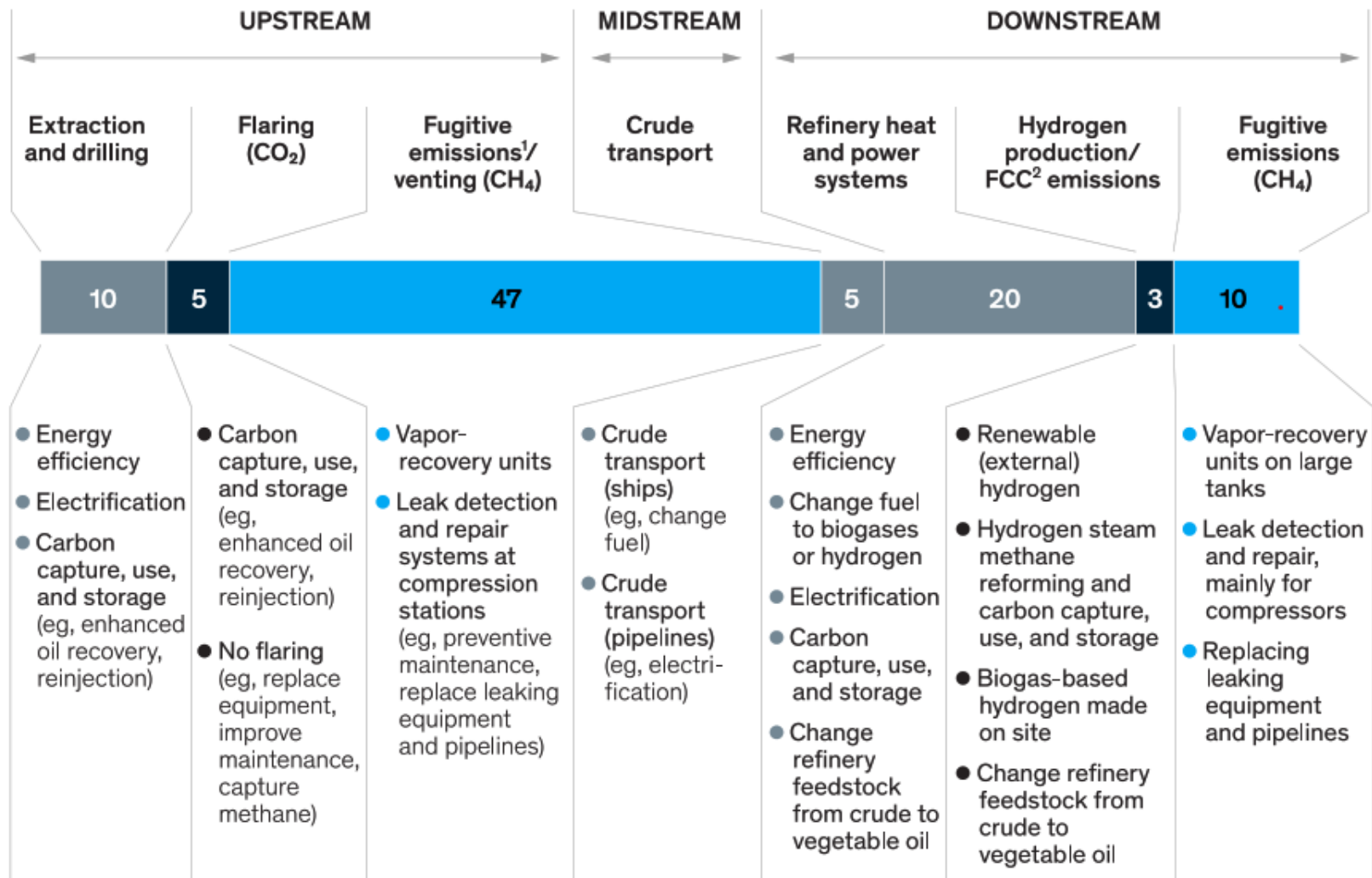
Electricity Supply Projection till 2050

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



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.

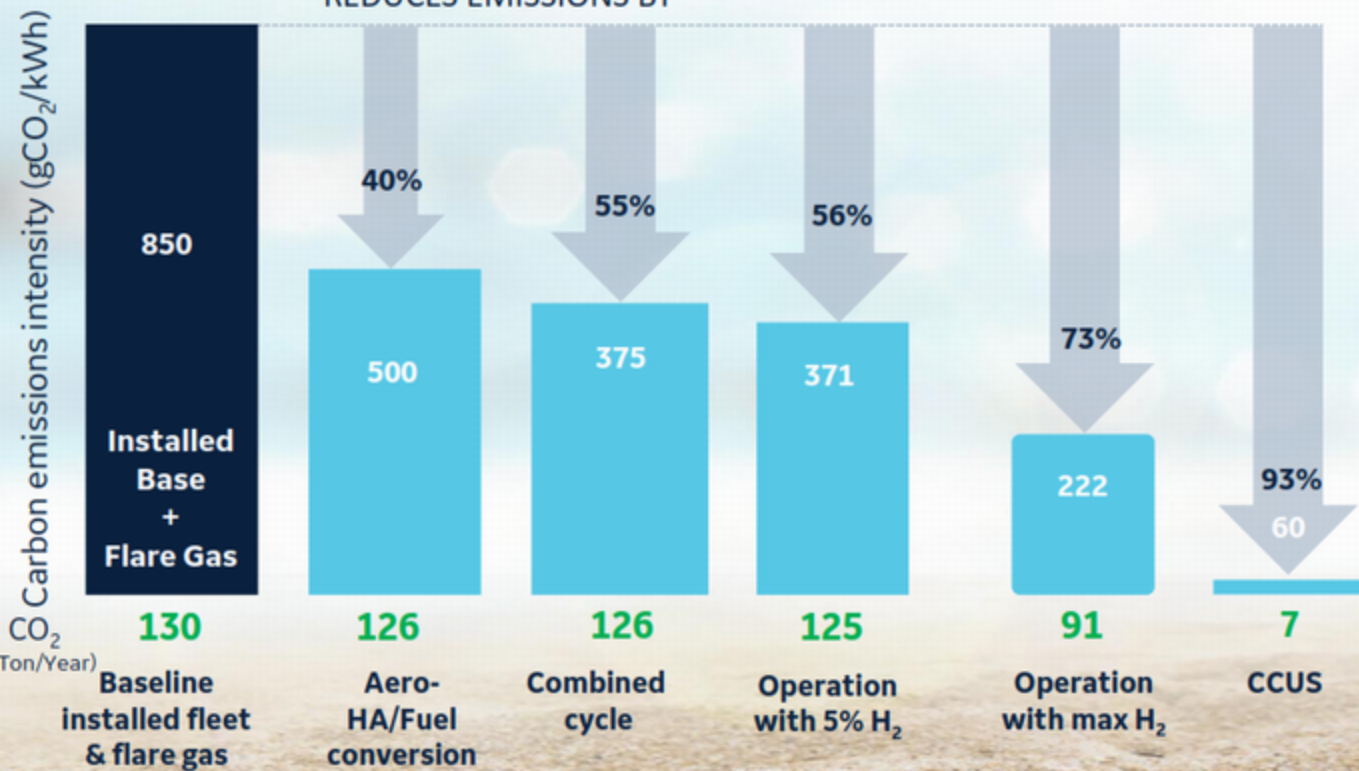
²Fluid catalytic converter.

Source: World 2018 CO₂ and SF₆ 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

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



REDUCES EMISSIONS BY

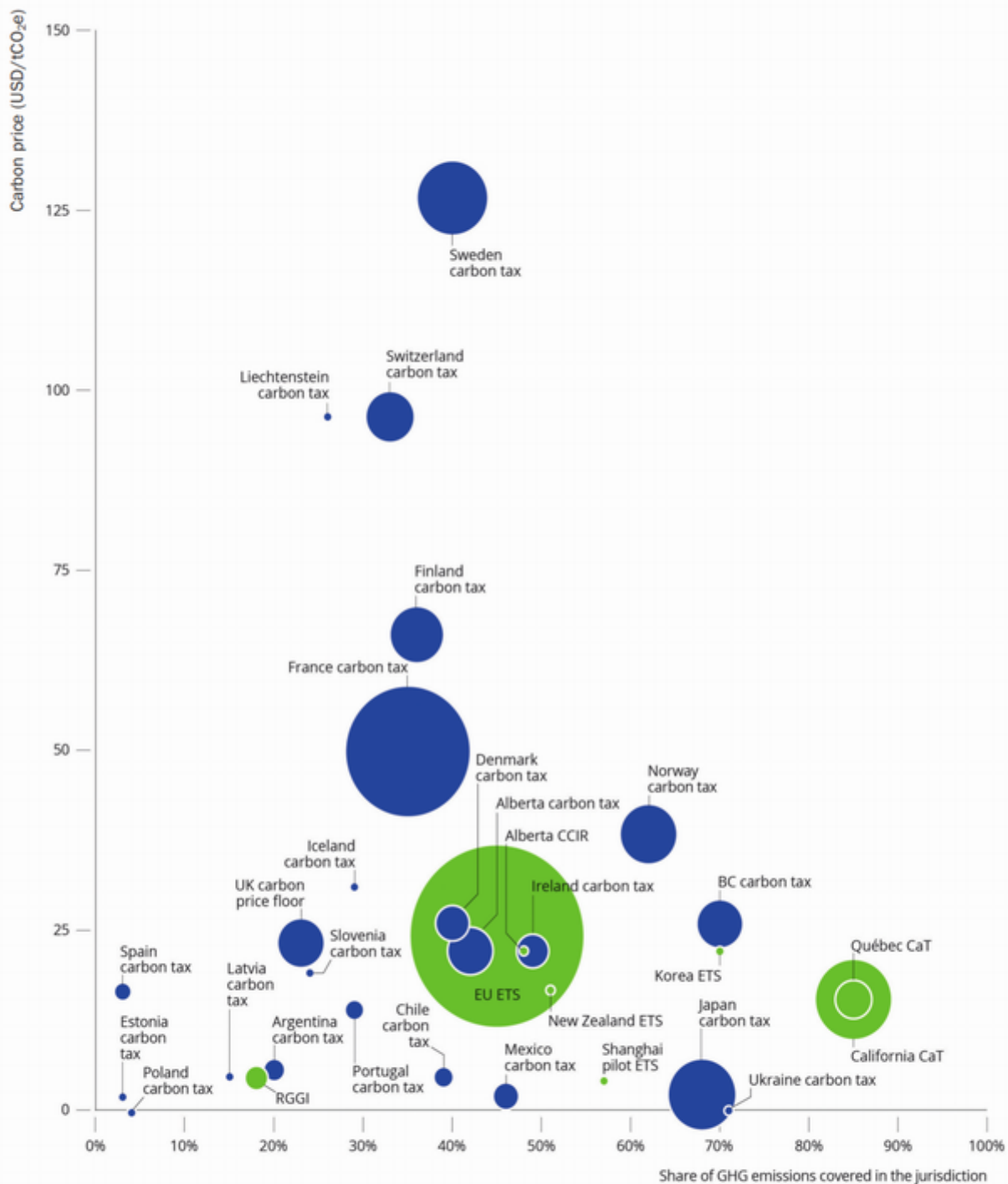


Liquid Fuel to-Gas Switching, Hydrogen, Carbon Capture and Sequestration

are viable pathways to low or zero carbon power



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

- 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

Attribute approach

- Carbon intensity becomes an attribute of the production (much like sulfur) allowing for price differentiation
- Producers may look to reduce operational carbon intensity

**Carbon Intensity
for Crude**

CI for crude production
(to refinery gate)



**Voluntary
Carbon Credit
Price**

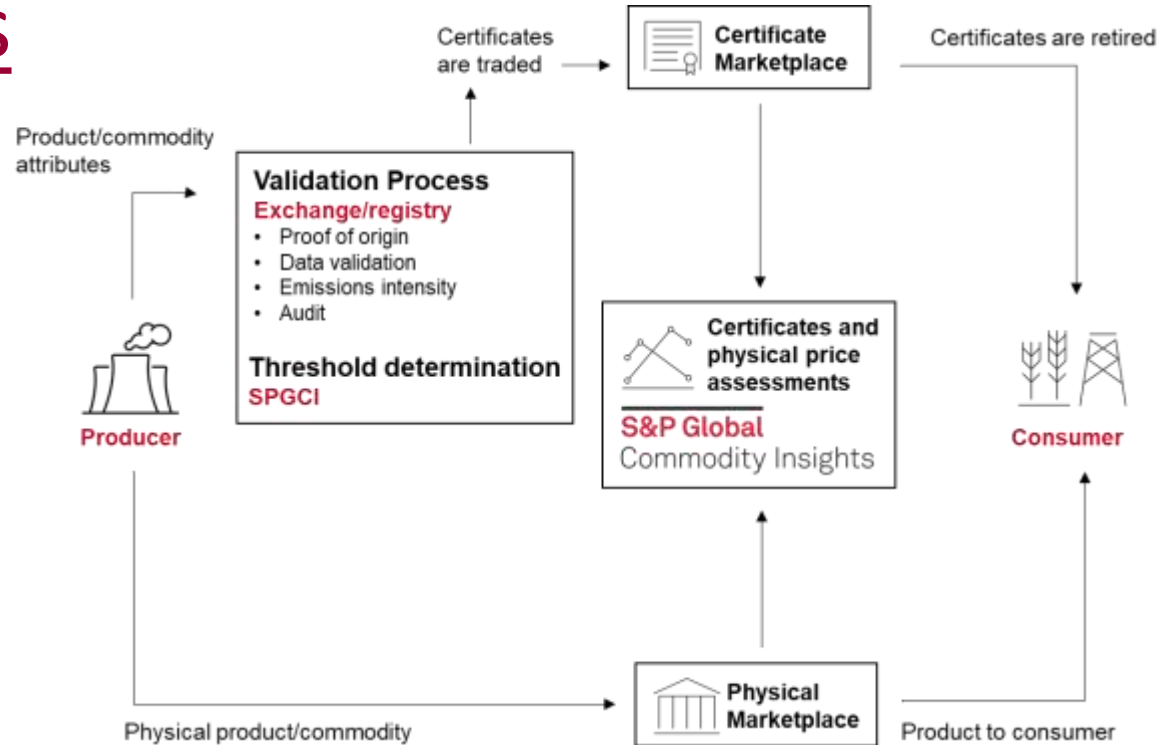
Removal-based credits



**Carbon Intensity
Premium**

\$/bbl indication of cost to offset

Certificates Markets



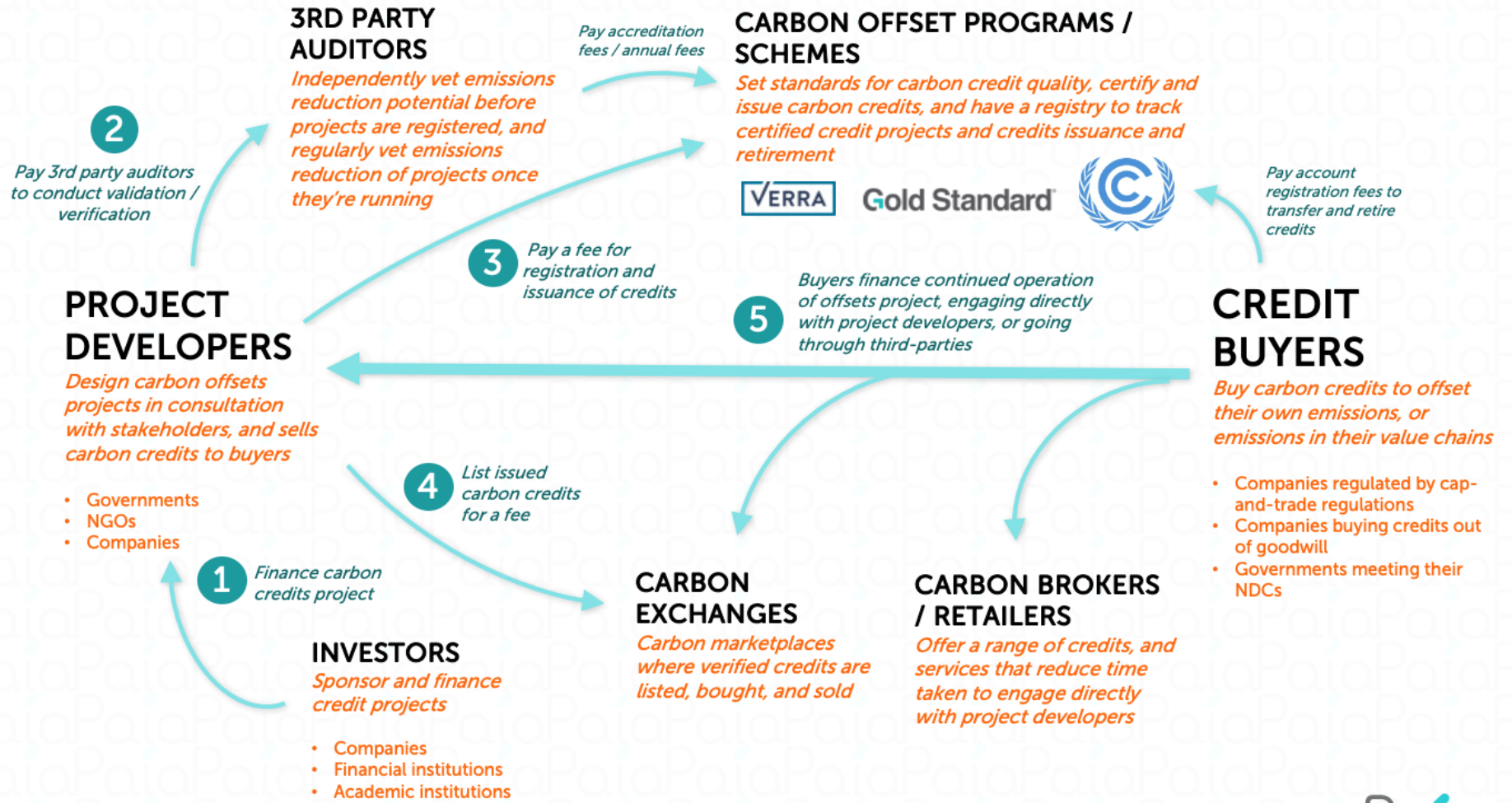


Carbon Ecosystem

By (Paia)

The Carbon Credits Ecosystem

LEGEND

 : capital flow


Thank you