Politics, Economics, and the Energy Transition



PLANO Executive Night & Seminar R. Scott Nance | 15 February 2023



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Agenda

- **1** Macro view: the upstream industry in the Energy Transition
- 2 The US Gulf of Mexico's place in the Energy Transition



Macro view: the upstream industry in the Energy Transition

Macro view

Strategic planning in a time of hyper-uncertainty

Substantial investment in upstream oil and gas required in all conceivable transition scenarios

Range of demand outcomes

Upstream development capex required





Growing need for companies to articulate their path to decarbonisation

Stakeholders want more details on GHG risks, targets, data metrics and transparency

Levers for decarbonisation of upstream companies (illustrative)



Source: Wood Mackenzie. Note chart block size is not equivalent to impact, as this will vary on a country-to-country and project-to-project basis.

The Majors' renewables M&A spend shot up in 2022 as transactions scaled-up

M&A spend in alternative fuels ramped up in 2022, dominated by biofuels (Chevron) and biogas deals (Shell, BP). The Euro Majors also used M&A to expand their renewables generation pipelines

The Majors' disclosed renewables deal spend by category

Wind and solar capacity additions via M&A (full pipeline)



Net zero Scope 3 ambitions will dramatically shift the competitive landscape

"Big Energy" strategies are differentiated by the pace and timing of legacy wind-down - will that now slow down?

Oil and gas production range for the Majors with Scope 3 net zero targets in 2050





The US GoM's place in the Energy Transition

Filling the supply gap requires low intensity production

Deepwater GoM has a strong emissions advantage

Emission intensity by development theme



Emission intensity of major deepwater regimes

The global cost curve of 160 million b/d in 2033

Middle Eastern OPEC countries dominate low cost supply, North American supply becomes more expensive as core inventory is drilled out Global liquids capacity in 2033 by breakeven



US politics: reducing upstream turbulence, tentative steps to net zero

The Inflation Reduction Act has reinstated GoM lease sales and mandates renewable leasing program

Oil & Gas Leasing

- Sale 257
 - Winning bids reinstated
- Sale 259
 - To be held on 29 March
- Sale 261
 - To be held by 31 September
- Five-year program expected in 2023

Wind Leasing

- Two WEAS have been identified by BOEM
 - 38 km off Galveston, TX
 - 90 km off Lake Charles, LA

Carbon Capture

- BOEM was expected to release update by 14 November 2022
- Rule making likely similar to wind proposals

Net zero pathway actions

- Non-binding strategy document for net zero by 2050
- Build Back Better Act
 - US\$555 billion in tax credits for renewables and carbon capture programs
- Inflation Reduction Act
 - Zero carbon power supply incentives
 - Energy storage incentives
 - Fleet electrification / EV charger incentives
 - Increased 45Q tax credits for CCS for 12 years
 - 45V incentives for hydrogen production
 - Methane fee for intensities greater than 0.2% of gas produced

GoM and the Gulf Coast are on the leading edge of CCS

Plentiful industry for CO2 capture onshore, abundant reservoirs for storage offshore



- ~182 Mtpa of carbon storage projects planned, under construction, or active onshore in the Gulf Coast
- Up to 5.1 billion boe storage capacity in shelf depleted reservoirs
- Tax credit changes
 - US\$3 / kg for hydrogen
 - US\$85 / ton for CO2 storage

US GoM as a super-basin

Integrating hydrocarbons, renewables, and carbon capture



Source: Wood Mackenzie Exploration Service, Wood Mackenzie Corporate Service, US National Renewable Energy Laboratory. Technical capacity of renewable systems is converted from GW to be by converting by the equivalent fossil fuel input required to generate 4,380 GWh of electricity in a thermal power plant.

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