

Building a Net-Zero Oil and Gas Company



Chris Robinson
Senior Director



The
Deciding
Factor

Agenda

1 | Urgency to Change

2 | Opportunities for Oil and Gas Companies

3 | Taking Action

Urgency to Change

Shifting public opinions

A majority of the public supports carbon-neutrality goals.

Demographic shifts will push public support further in favor of net-zero goals.

This is already impacting the oil and gas sector.

THE WALL STREET JOURNAL.

Shell Directors Are Sued Over Action on Climate

Oil giant says it has a robust energy-transition plan in place

The Washington Post

Investors reject climate proposals targeting ExxonMobil, Chevron

Technology is improving

Today, solar and wind are the cheapest ways to produce electricity.

Performance metrics across a variety of climate tech show promising progress.

The raw materials supply chain is catching up.

Three companies have already exceeded performance targets for 5 °F operation as part of the U.S. Department of Energy's Residential Cold Climate Heat Pump Challenge.



Shifting public opinion and the emergence of viable alternatives to fossil fuels are rapidly changing the policy landscape

Fostering applied innovation

U.S.: Inflation Reduction Act

China: Self-reliance and common prosperity policies

Japan: Economic Measures for National Security Act

Restricting imports and exports

U.S.: CHIPS and Science Act and related executive orders

EU: Carbon Border Adjustment Mechanism

Indonesia: Export restrictions on nickel

Defining market rules

U.S.: “Made in America” policies and executive orders

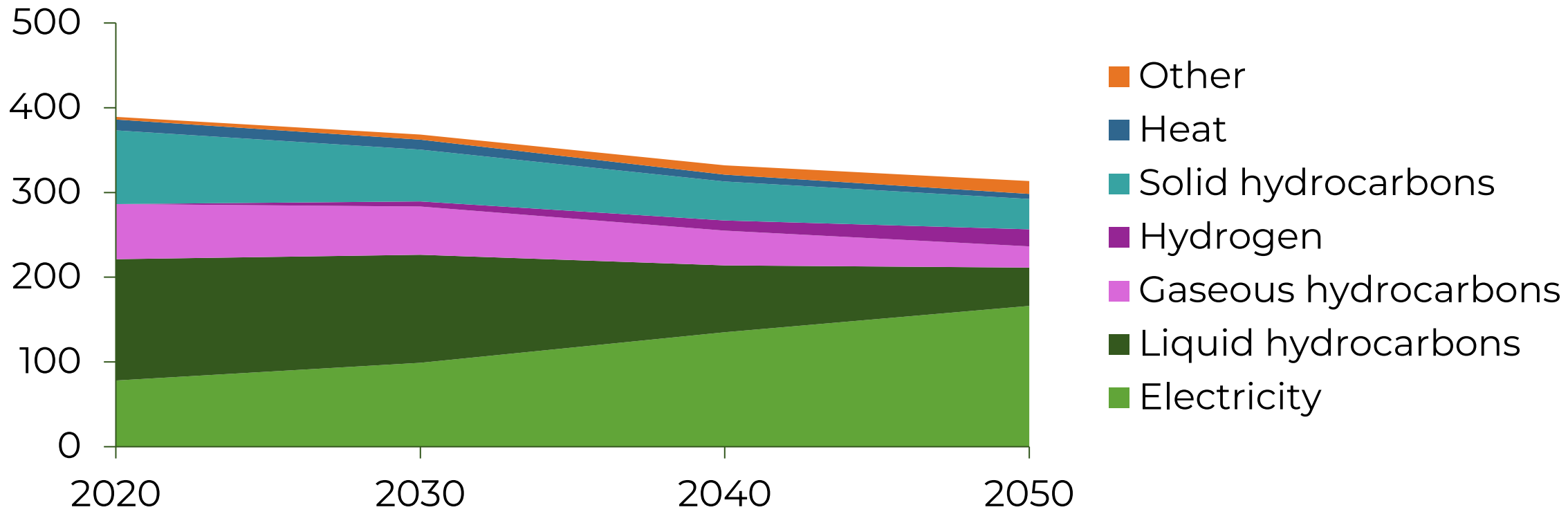
China: Self-reliance and common prosperity policies

Japan: Economic Measures for National Security Act

The IEA Net-Zero 2050 Scenario provides the foundation for carbon-neutrality strategies

IEA Net-Zero 2050 Scenario

Capacity (exajoules, EJ)



Opportunities for Oil and Gas Companies



**THE STATUS QUO
STRATEGY**

CARRIERS:

Oil, gas



**THE NEW FUELS
STRATEGY**

CARRIERS:

Oil, gas,
biofuels,
electricity,
hydrogen



**THE CHEMICALS
STRATEGY**

CARRIERS:

Primary
and
specialty
chemicals



**THE SEQUESTRATION
STRATEGY**

CARRIERS:

CO₂



**THE UTILITY
STRATEGY**

CARRIERS:

Electricity



THE STATUS QUO STRATEGY

Operations don't change. It continues to focus on the extraction of hydrocarbons for both energy and chemicals.

CARRIERS:

Oil, natural gas

+	Existing demand	There will always be a need for oil and gas
+	Asset maximization	Existing assets will be used to the end of their lifetime
+	Monopolization	Industry will grow less competitive
-	Peak oil (and gas?)	Market in permanent remission
-	Backlash	Viewed as doing "nothing"
-	Tech laggards	Miss out on emerging technology innovation

Saudi Aramco spends nearly USD 14 billion to acquire a stake in petrochemicals companies in China.

These deals come with long-term supply agreements for crude.





THE NEW FUELS STRATEGY

Shifts focus to its largest market. Will invest in new energy carriers to service the mobility sector.

CARRIERS:

Oil, natural gas, electricity, biofuels, and hydrogen

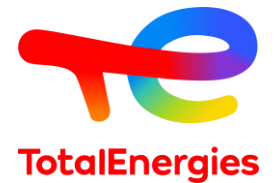
+	Largest market	Mobility has the largest demand for energy
+	Experience	Already involved in the mobility sector
+	Stable demand	There will always be a need to move things and people around
-	Increased diversification	The carrier mix will include oil, gas, biofuels, electricity, hydrogen, ammonia, methanol, etc.
-	Greater efficiency	More-efficient vehicles lead to lower consumption of energy
-	Changing mobility habits	Car-free societies may drastically impact the mobility sector

BP and **TotalEnergies** separately partner with **Daimler** to build a network of hydrogen refueling stations in the U.K. and Europe.

The refueling stations will be used to support hydrogen adoption in the freight network.



Image source: [Daimler](#)





THE CHEMICALS STRATEGY

Transforms itself into a chemicals company. Moves down the value chain to become a producer of specialty chemicals.

CARRIERS:

Primary and secondary chemicals

	More money	Can muscle out existing chemicals companies
	Acquisition	Can acquire chemicals companies to kick-start transition
	Control of supply chain	Can produce and refine own feedstock into specialty chemicals
	Smallest market	Demand for chemicals is much lower than for energy products
	Stagnant growth	Demand growth expected to be in the single digits
	More regulatory pressure	Exposed to broader regulations targeting environmental and human health impacts

TotalEnergies partnered with **Plastic Energy** to build a 33,000 tonne/y plastic pyrolysis plant in Spain.

The plant will convert recycled feedstock into polymers.





THE SEQUESTRATION STRATEGY

Transforms itself into a carbon-removal company. Will capture, transport, and sequester CO₂ from any source.

CARRIERS:
CO₂

	Existing expertise	Can leverage expertise in offshore operations
	Asset retrofit	Can repurpose existing gas fields for sequestration
	Customer-base expansion	Can work in previously untapped markets
	Geographic constraints	Can target only localized markets
	Societal backlash	Viewed as extending use of fossil assets
	Tech laggards	Miss out on emerging-technology innovation

Svante expanded to direct air capture (DAC) along with a USD 15 million investment from **United Airlines'** Sustainable Flight Fund.

Aviation will need to rely on DAC for synthetic fuels due to its secondary carbon cycle.



Svante





THE UTILITY STRATEGY

Transforms itself into a utility. Will focus entirely on generating and distributing renewable electricity to the energy market.

CARRIERS:
Electricity

+	Largest carrier	Electricity is the new oil
+	Acquisitions	Can acquire utility companies to kick-start transition
+	R&D capabilities	Outmaneuver existing utilities through superior R&D prowess
-	Decommissioning	Total phase-out of fossil assets
-	Investor backlash	Radical transformation may spook investors
-	Reduced revenue	Selling electricity generates less money than oil and gas

Equinor leads funding round into hydrogen bromine flow battery developer Elestor.

Flow batteries, such as Elestor's, can typically support tens of thousands of cycles and scale energy and power independently.



Taking Action

Hydrogen plays a key role in several strategies



THE STATUS QUO STRATEGY



THE NEW FUELS STRATEGY



THE CHEMICALS STRATEGY



THE SEQUESTRATION STRATEGY



THE UTILITY STRATEGY

Fueling stations
for mobility

Feedstocks for
synthetic fuels

Feedstock for
specialty
chemicals

LDES

Combustion for
heat

CCUS plays a key role in several strategies



THE STATUS QUO STRATEGY

Carbon capture for existing operations



THE NEW FUELS STRATEGY



THE CHEMICALS STRATEGY

Carbon capture for managing emissions and as a feedstock



THE SEQUESTRATION STRATEGY

This entire strategy is CCUS*



THE UTILITY STRATEGY

Key Takeaways

1 Oil and gas companies need to refine plans for what their organizations will look like in a net-zero scenario

2 Consider size, skills, and geography when identifying a strategy

3 The biggest opportunities for oil and gas today are in hydrogen and carbon capture

Thank you

A link of the webinar recording will be emailed within 24–48 hours.

UPCOMING WEBINARS

SEPTEMBER 7

[Can Japan Deliver on Sustainability?](#)

SEPTEMBER 12

[Balancing Consumer Perspectives and Environmental Sustainability in the Adoption of CO2-Based Plastics](#)



EMAIL

questions@luxresearchinc.com



VISIT

www.luxresearchinc.com



READ

<http://www.luxresearchinc.com/blog/>



[LuxResearch](#)



[@LuxResearch](#)



The
Deciding
Factor