



Energy Shock 2026

Business Implications to the Iran Crisis



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Agenda

01 | Entering a tipping point for the global energy system

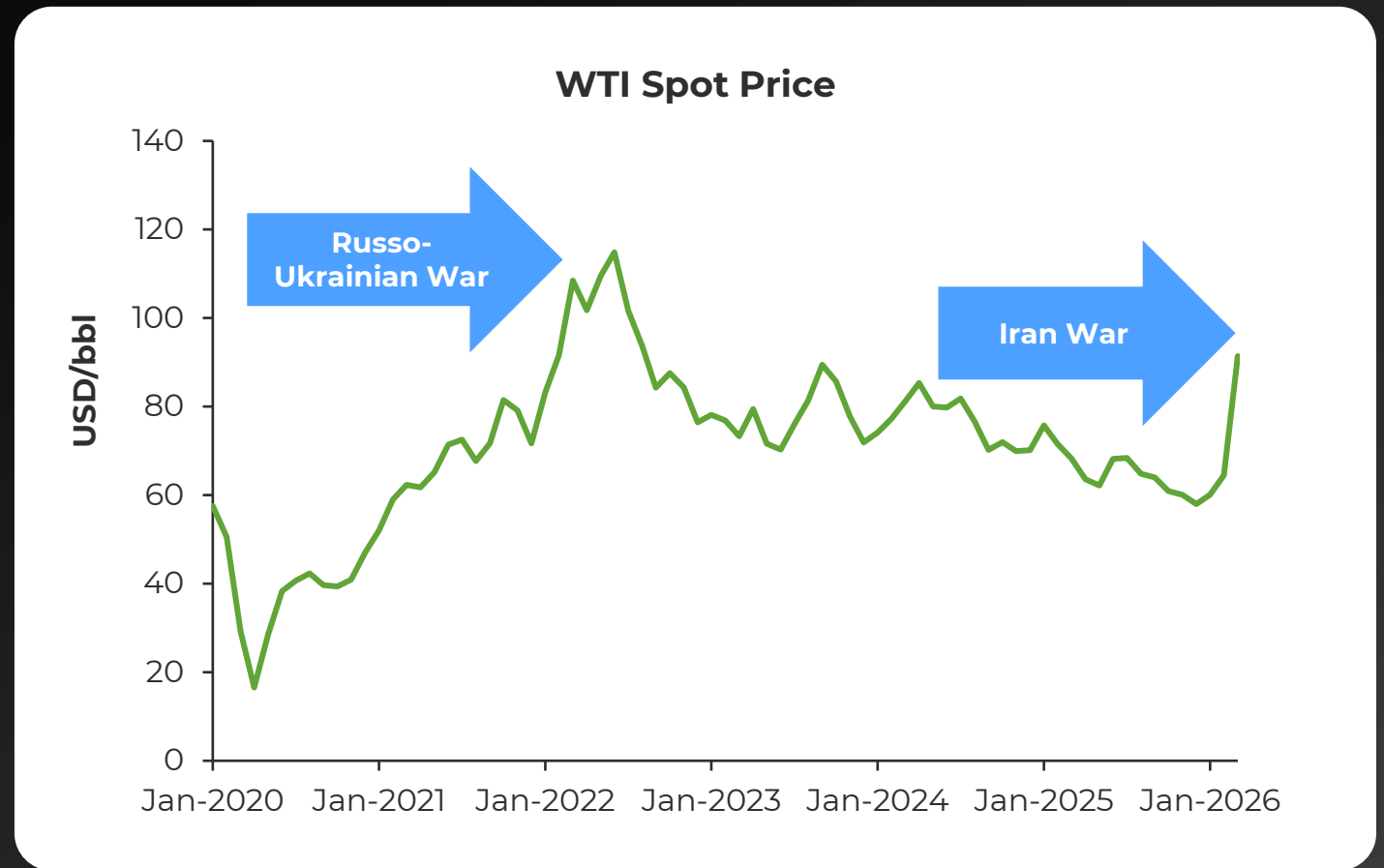
02 | Committing to structural changes for resilience and security

03 | Taking a different perspective on the “cost” of alternatives

The Strait of Hormuz closure exposes the geopolitical vulnerabilities of fossil fuels

Fossil fuels carry an often-overlooked geopolitical risk premium — during moments of geopolitical crisis, the risk takes center stage.

History suggests focusing solely on short-term price movements misses the most important story — governments and markets reshape energy systems in response to the vulnerabilities that such crises expose.



The 1970s oil crises shows how disruption in energy supply reshapes long-term strategies

Committing to a technology



France responded by embarking on one of the most ambitious nuclear energy programs ever undertaken.

Committing to a new value chain



Brazil launched a nationwide initiative designed to replace gasoline with ethanol.

Committing to innovation

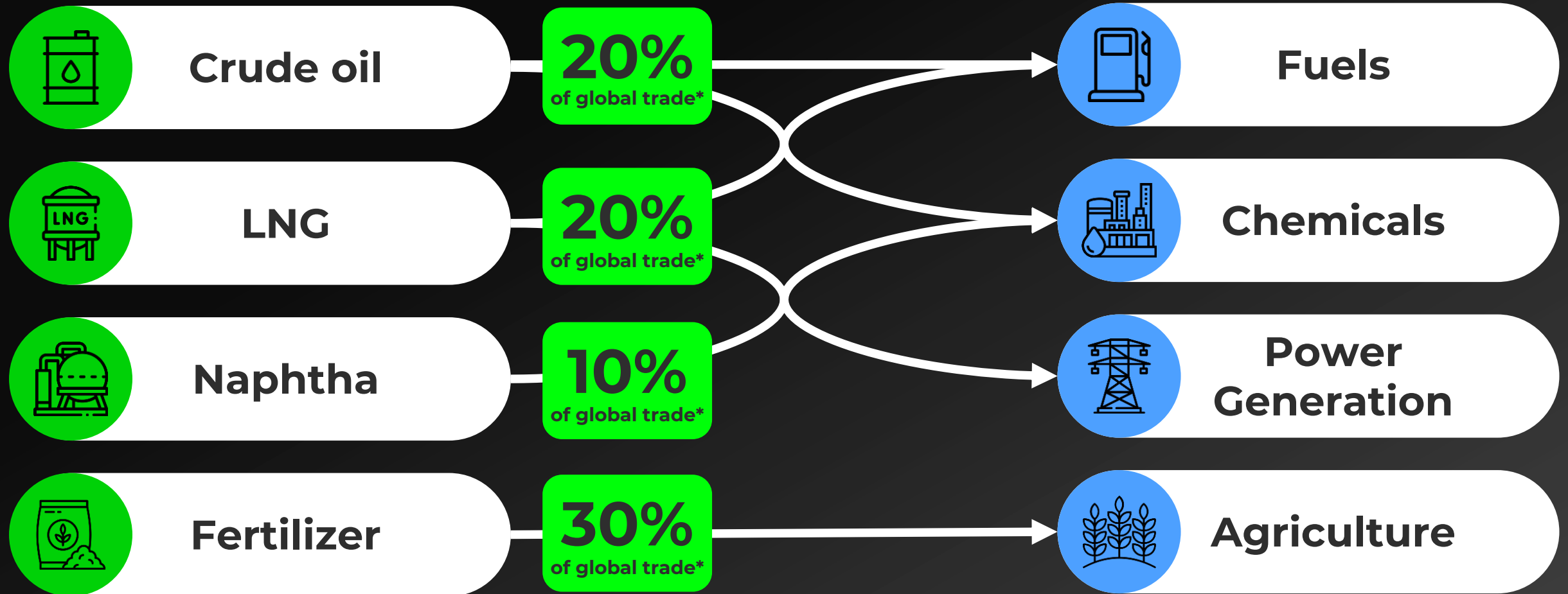


The U.S. invested in advancing R&D in alternative energy technologies that has played a central role over the decades.



Geopolitical energy disruptions have historically left lasting imprints on the global energy system.

2026 is a tipping point for a more resilient and secure energy system



Taking a different perspective on “cost”

Quantifying the cost of inaction for security and resilience

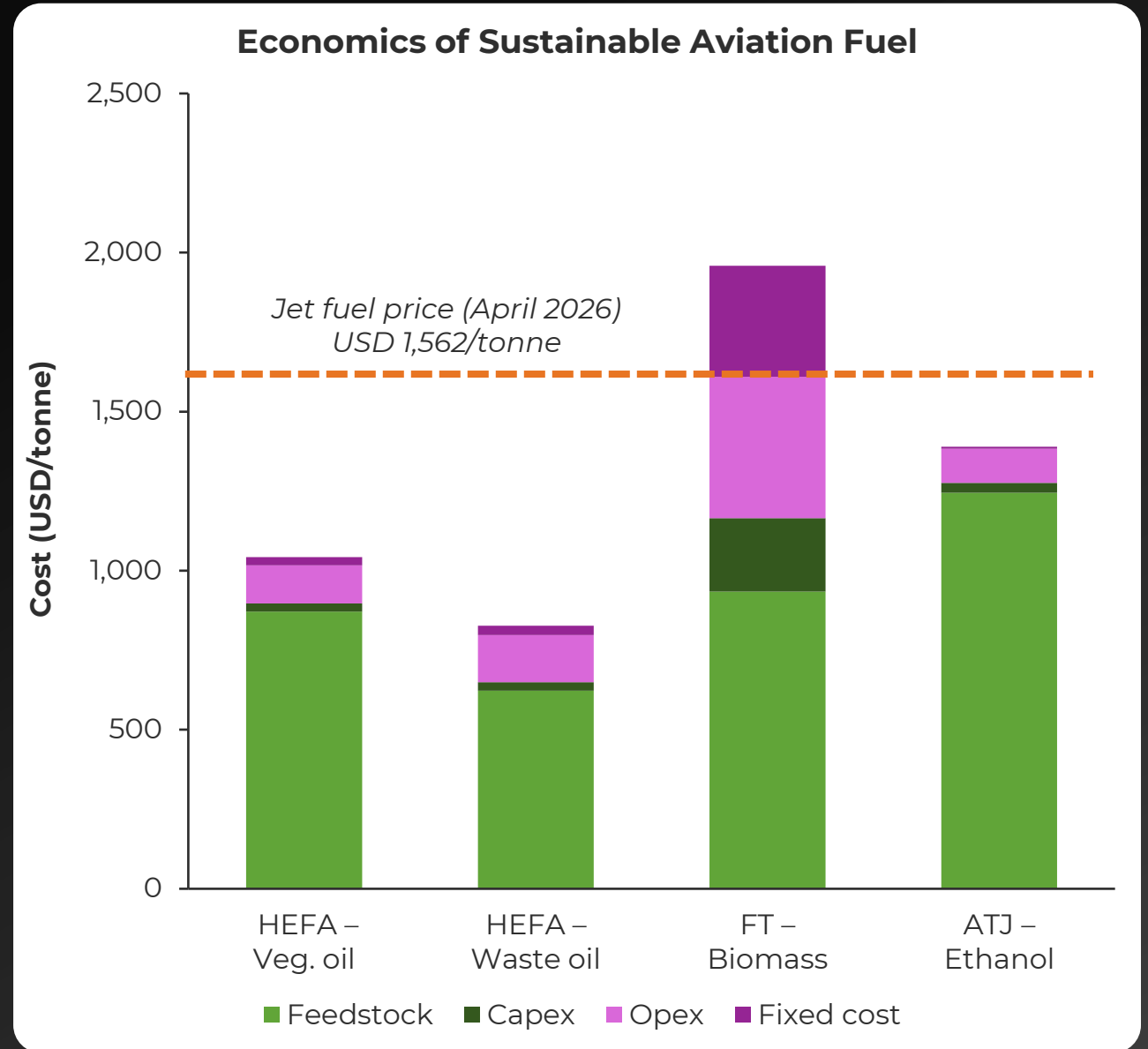


Aviation

Sustainable aviation fuel's value proposition for continued operations

Qantas announced it would cut 5% of its domestic capacity in May and June as it estimates its fuel costs would increase by 20%.

Approximately 7,500 tonne of sustainable aviation fuel at cost-competitive prices would allow Qantas to keep its domestic flight plan — avoiding **missed revenue of AUD 65 million** during those two months.

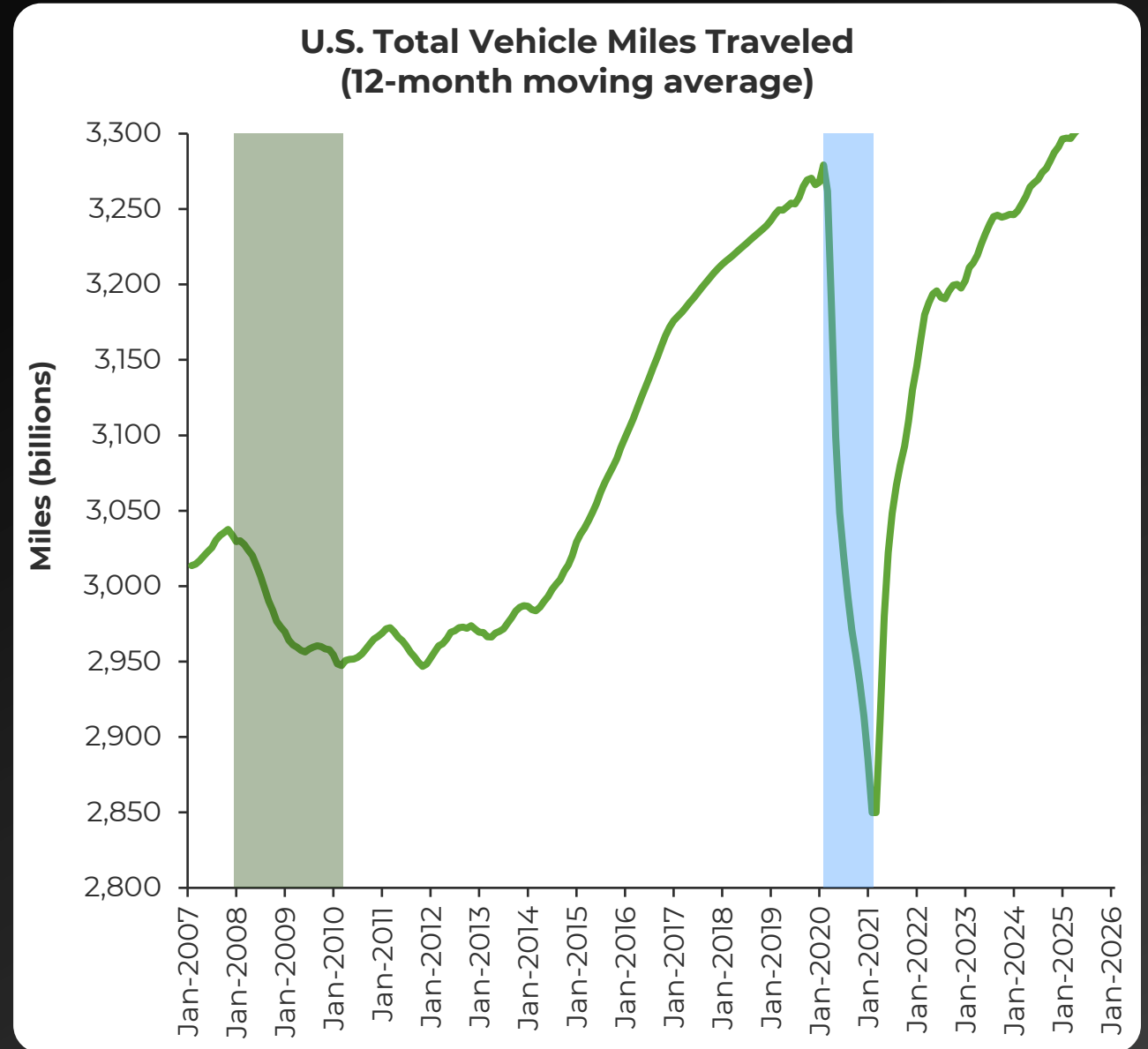


Road transport

Electric vehicles and biofuels keep people on the road when fuel prices go up

When oil reached USD 147/bbl during the 2008 financial crisis, the U.S. saw a decline of 92 billion vehicle miles traveled during a two-year period.

Those 92 billion miles equate to a **missed revenue of USD 210 million** or **USD 1 billion** in **electricity** for electric vehicles or **biofuels** sales, respectively.

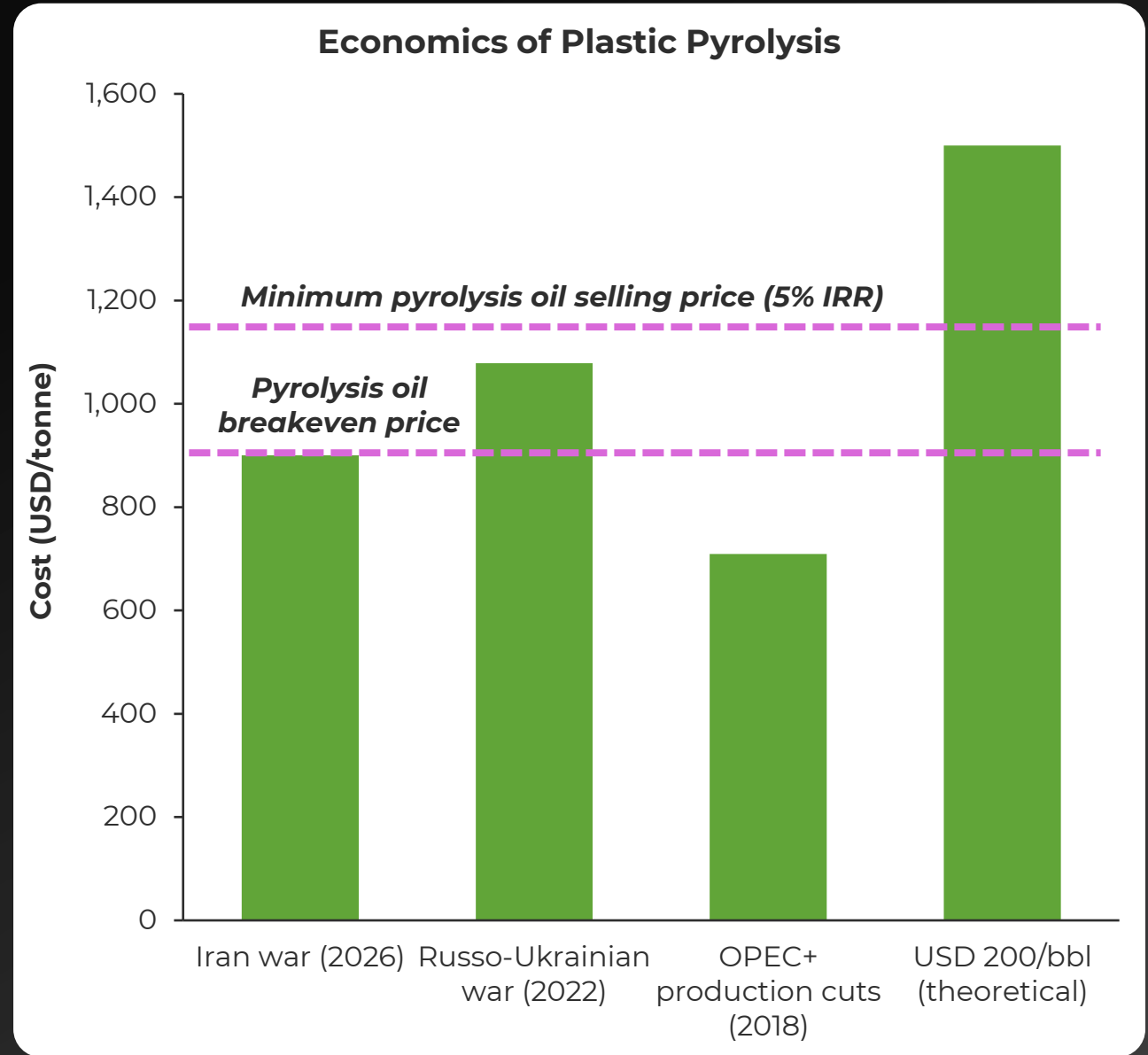


Chemicals

Pyrolysis oil avoids costly shutdowns and lengthy ramp ups

SCG temporarily shut down its Rayong Olefins naphtha cracker citing disruptions of feedstock supply due to the Iran war.

Pyrolysis oil could have served as feedstock insurance for SCG as it **missed on revenue** from record-high prices of ethylene and propylene and avoided the shutdown that continues to **incur costs of THB 150 million (USD 4.7 million)** per month.



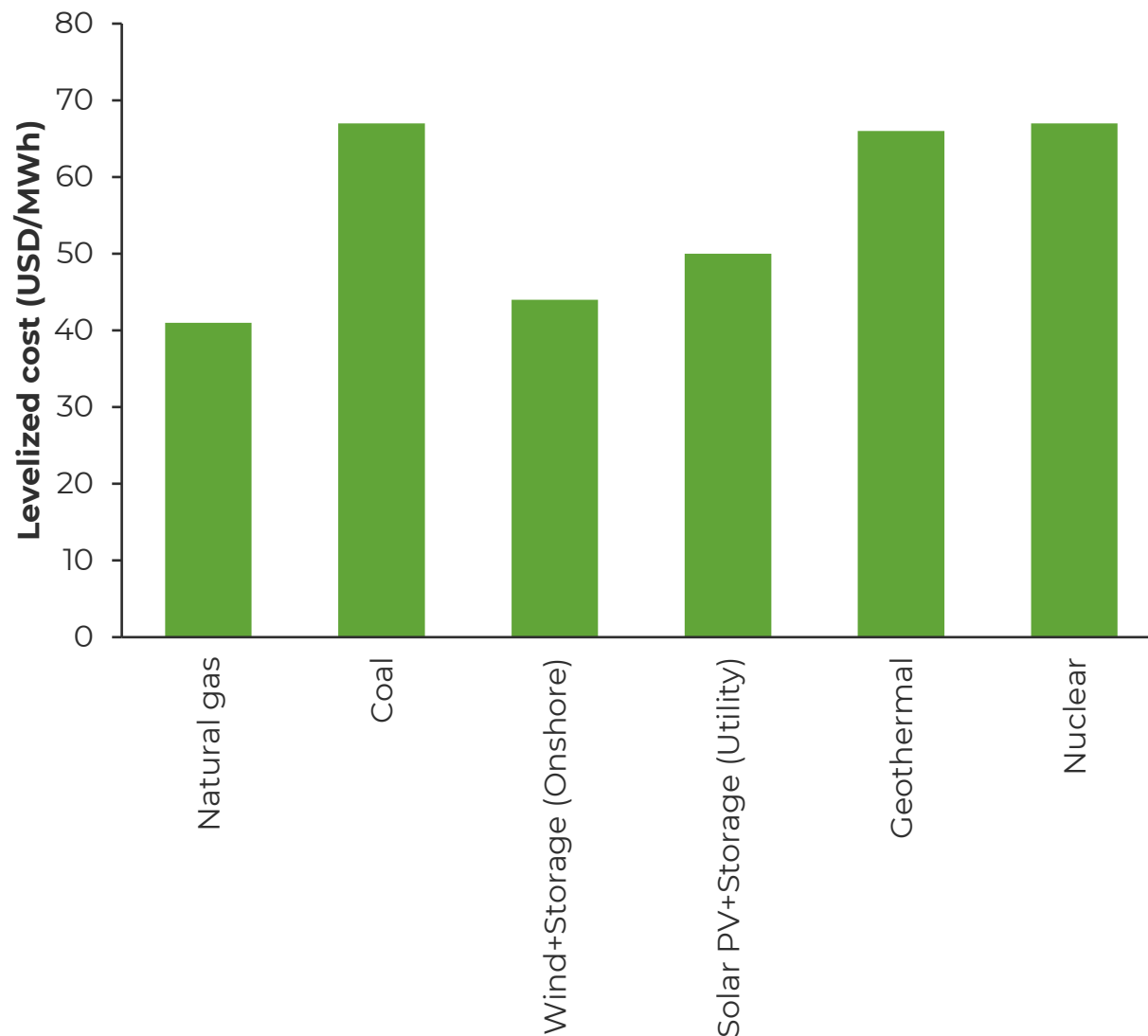
Power generation

Renewables decouple economic productivity from fossil fuels

Relying on fossil fuel imports for power generation is no longer a reasonable business case with the continuous fall of renewable energy prices.

Disruptions to power generation have compounding effects, such as power outages and downtime. The U.S. DOE estimates outages **cost the U.S. economy USD 150 billion annually.**

Levelized Cost of Energy (Low-Cost Scenario)



Agriculture: The price of food shortages goes beyond economic impact

Business disruptions and asset downtimes are not the only cost vulnerabilities when dealing with the food ecosystem.

Rising food prices, famine, and slowed economic growth come at **the cost of societal unrest and regime changes.**



Flour War



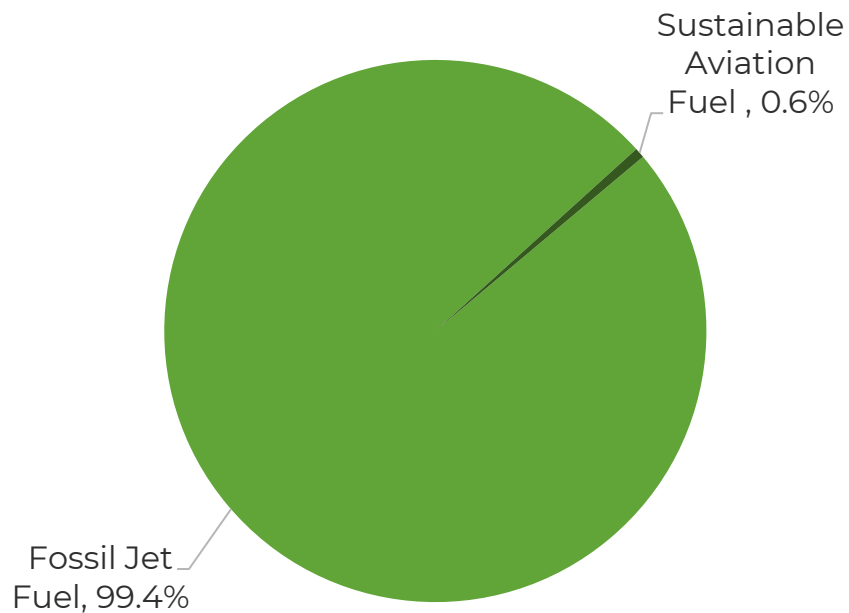
Bread Riot



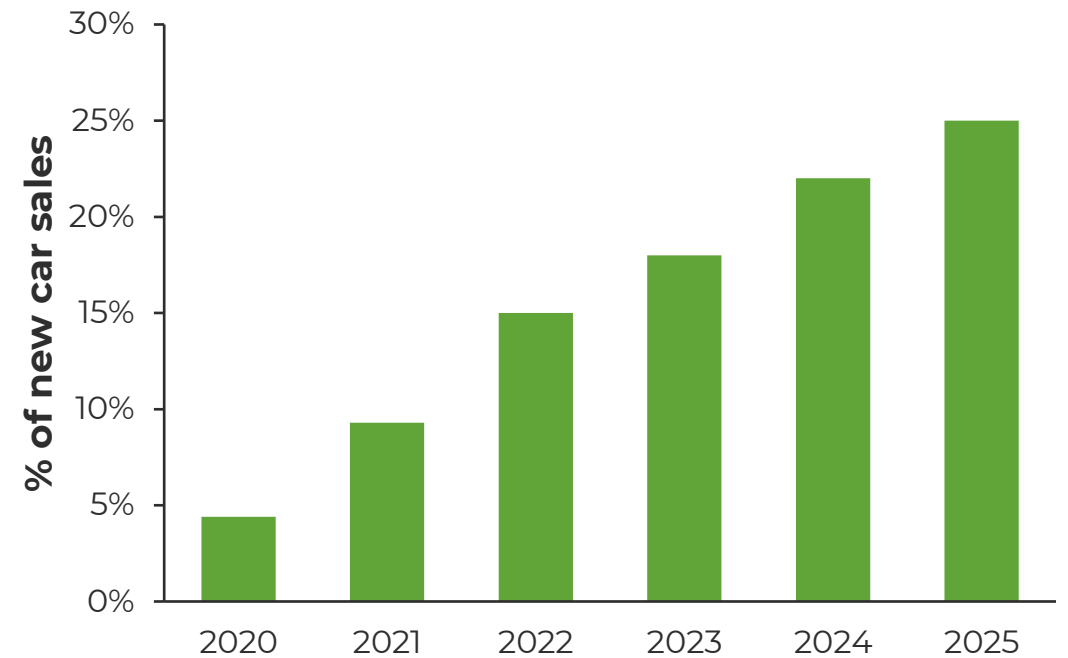
Arab Spring

Alternatives are technically mature but breaking into the market at different speeds

Global Jet Fuel Consumption

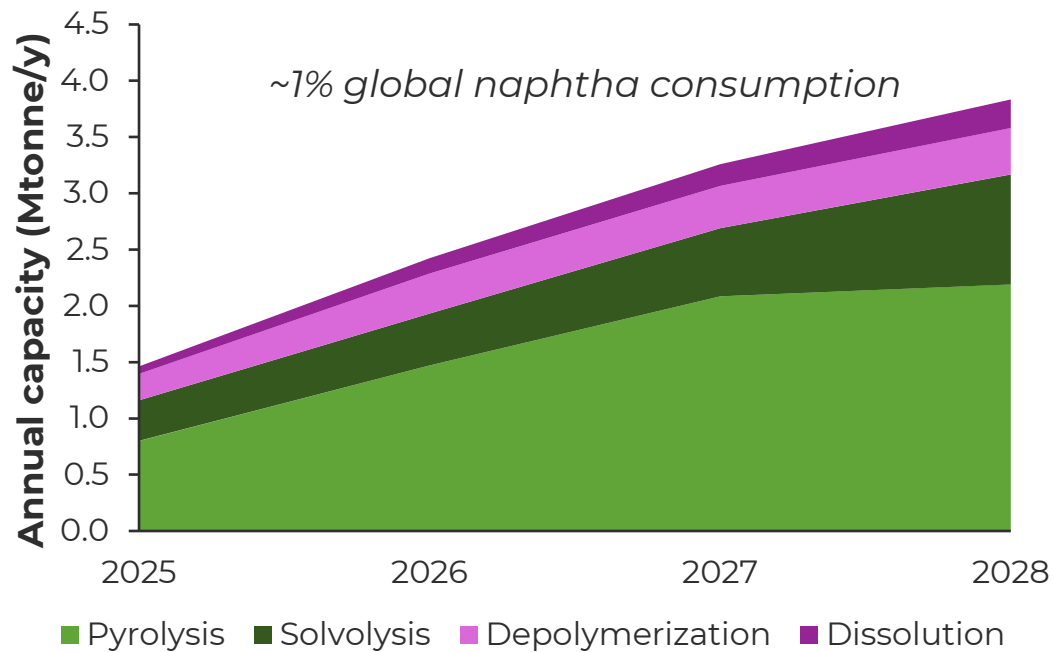


Global Electric Vehicle Sales

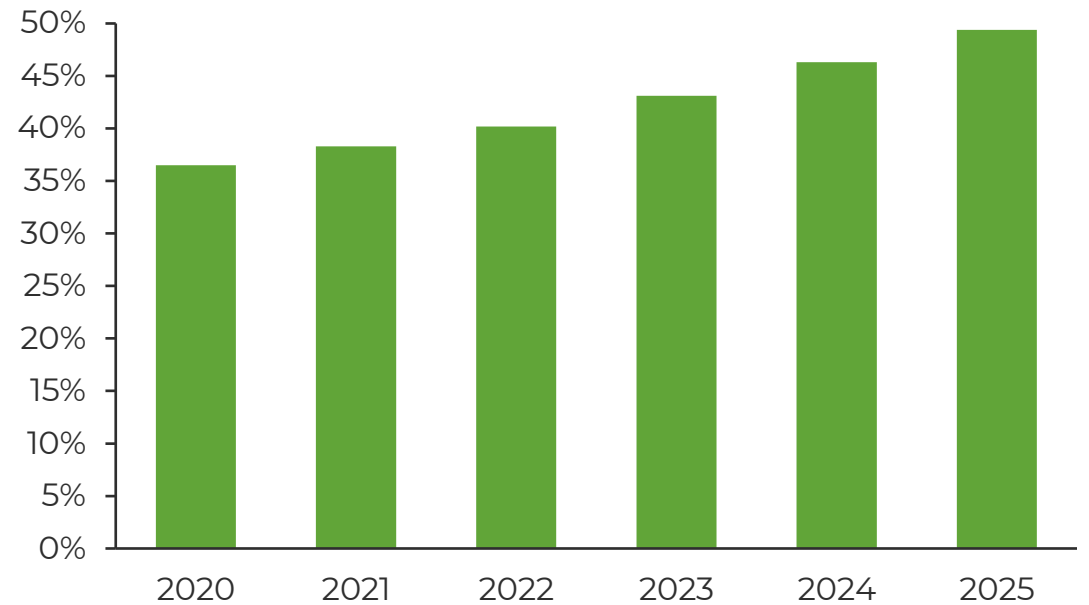


Widespread adoption to establish a new energy system has yet to be reached

Global Advanced Recycling Capacity



Renewable Energy Share of Global Electricity Capacity





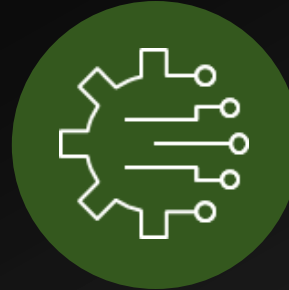
Technology is only the first lever for the structural changes to come.

Market leaders are taking actions in factors beyond technology for scale-up



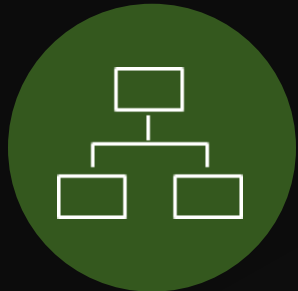
Product

The function, differentiation, and potential role of the technology relative to existing solutions.



Technology Readiness

The technology maturity indicated by advancements and technical milestones.



Market Organization

How structured the market is for deployment, including regulatory and value chain dynamics.



Market Readiness

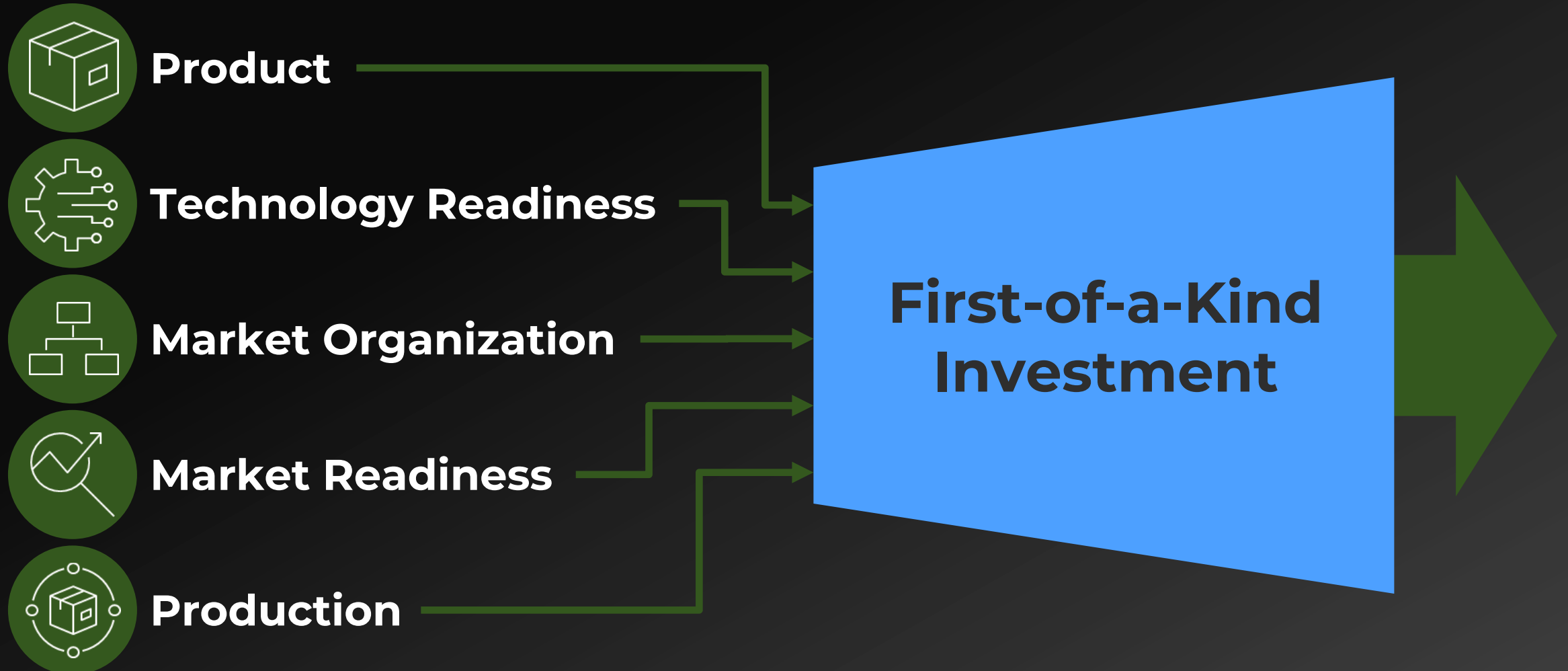
Current market needs and overall appetite for the technology.



Production

Manufacturing scale-up and offtake agreements indicating real-world adoption.

Innovation success depends on the convergence of all five factors



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Pivot Bio launched gene-edited nitrogen-fixing microbes to reduce consumption of fertilizer



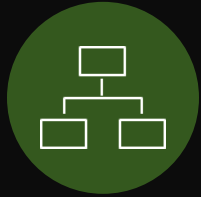
Product

Pivot Bio's microbial crop nutrition products alleviate the vulnerability of the agriculture industry to geopolitical conflicts.

Its multiple field trials across corn and cotton crops in diverse soil conditions will help gain regulatory approval and establish nitrogen-fixing microbes in the industry.



ExxonMobil built out its waste feedstock supply chain before expanding capacity



Market Organization

ExxonMobil's Exxtend Technology has made it one of the world's largest advanced recycling companies in the world.

ExxonMobil's direct stake in feedstock management company Cyclyx completes its winning formula for plastic pyrolysis.



Air Liquide secures cross-border offtake agreement for its green hydrogen facility



Production

Air Liquide's 200-MW electrolyzer plant at the Port of Rotterdam is the successful convergence of regulatory support, value chain coordination, and infrastructure development

Despite headwinds for green hydrogen, this project is a blueprint for the importance of factors beyond technology.



Volatility and instability increases market readiness for alternative technologies



Key takeaways

1

Shift the narrative for alternative technologies.

Use this moment to shift the narrative that the primary driver for alternative energy technologies is energy security — not decarbonization.

2

Build the “cost” of inaction into business cases.

Account for the costs of plant shutdowns, supply disruptions, and foregone revenue, recognizing that the cost of alternative technologies extends beyond purely economic terms.

3

Focus activities on technology enablers.

Recognize that structural changes to the global energy system will require new value chains and infrastructure, with commercially available technologies serving as the first domino.

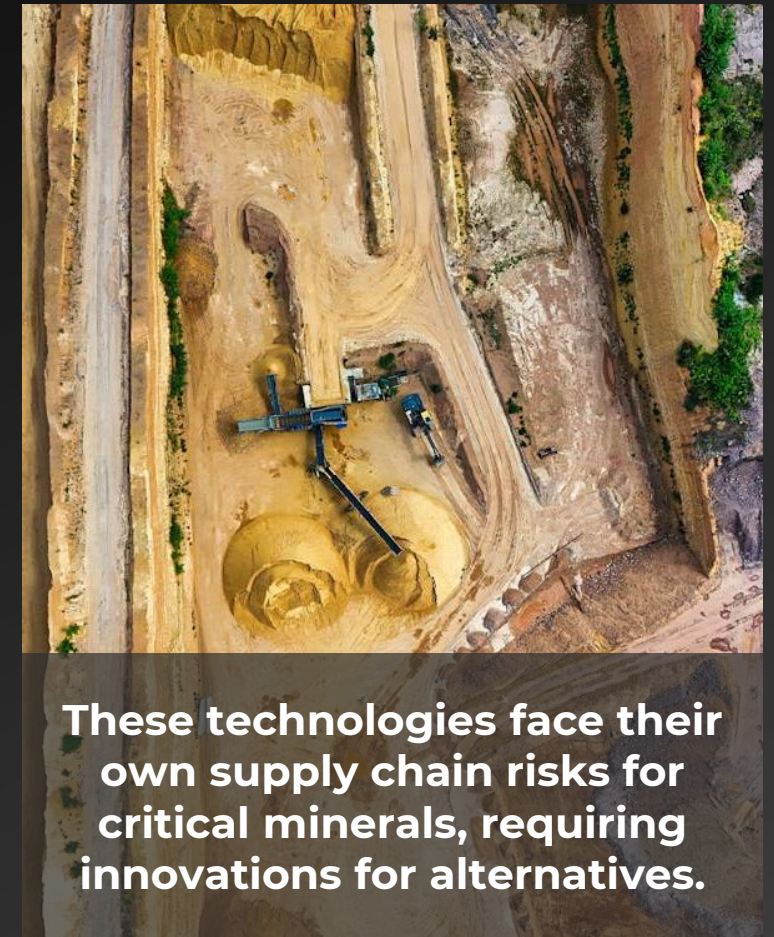
Committing to a technology



Committing to a new value chain



Committing to innovation





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