



# Global Energy and Natural Resources Report 2022

**BAIN & COMPANY** 



## Acknowledgments

This report was prepared by the leadership team of Bain & Company's Global Energy & Natural Resources practice, with special direction from Alasdair Robbie; Peter Parry, practice chairman; Joe Scalise, global practice leader; and Neelam Phadke, practice executive vice president.

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# Toward a Deeper Understanding of the State of the Energy and Resource Transition

Bain's second annual report taps our research with executives and investors to paint a picture of progress, mixed with problems, on the road to a more sustainable future.

By Joe Scalise



Dear Colleague,

What a year it has been, with Covid continuing, supply chains disrupted, the shocking invasion of Ukraine, and the return of inflation levels not seen in 40 years. Throughout, we've had the continued honor and pleasure to work with you, our clients across the energy and natural resources (ENR) sectors, on your most important issues. We believe these are the world's most important issues, and we're grateful for the opportunity.

This is our second annual report on the energy and resource transition, and our chance to share with you what we're seeing and learning in our work and research. As we highlighted last year, we see three themes framing our work with you.

- **Innovation.** Harnessing transformative technologies and practices will help companies continue to thrive while preserving the planet for future generations.
- **Impact.** Working with customers and other stakeholders has never been more important to ensure that companies



maintain the social license to operate complex businesses in our communities and fragile environments.

- **Economics.** Funding these transitions demands new levels of investor management and regulatory engagement. Companies will need to create extraordinary economic value to draw the capital and access the resources necessary to tackle these challenges.

This year's report includes new proprietary data and analysis from several Bain research initiatives, to better understand the depth of our collective ambition, the progress we're making, and the challenges we still face. The findings make us cautiously optimistic. ENR companies are investing as much in innovation and impact, combined, as they are in economics—a good sign that executives are investing in the future. Fewer than 15% of capital investment decisions are characterized as made solely on an economic basis. The large profits that some energy companies earned during the first months of 2022 are likely to sharpen focus on capital decisions, as executives work to get the balance right between funding the current business, investing in the future, and rewarding shareholders.

The report has three sections:

- **Data-based insights.** Our surveys of more than 1,000 executives, a new database tracking the investment decisions of the top 125 ENR companies (covering more than \$6 trillion in market capitalization), and more than 30 hours of interviews with investment professionals give us a full-spectrum view of the energy and natural resources sector's intent, actions, and reactions.
- **Meaningful trends.** We take a closer look at three critical areas where developments are reshaping the way ENR companies approach their business: talent management, engaging with stakeholders, and circularity.
- **Essential capabilities.** We report on the evolving nature of five critical capabilities essential to navigating the transitions underway. These include flexible and more nimble strategies, an openness to M&A and partnerships, and new perspectives on operations, inflationary pricing, and sustainability.

Based on our work with clients and observations of the dramatic progress made by the readers of this report over the past year, we're sanguine about the outlook for the value to be created and the contributions to be made in the ENR space in the coming decades. It will surely continue to be a challenging ride, but we look forward to continuing to work with you and continuing the discussion.



Joe Scalise  
Global Head of Energy & Natural Resources





# Data-rich perspectives

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Data-rich perspectives

# How Energy and Resource Executives Think about the Transition

Bain's second annual survey finds that progress is underway, but the landscape is more challenging than many expected.

**By Peter Parry, Neelam Phadke, Alasdair Robbie, and Joseph Scalise**

In conversations with our clients over the past year, we've seen a marked shift in what the energy and resource transition means for their businesses. Not so long ago, the energy transition was a set of challenges that could compromise long-term strategic planning. Over the past 12 months, the change-oriented executive teams we work with have moved from just thinking about the challenges to taking action along a path they now see with greater clarity. However, after an optimistic start, many are beginning to hit heavy traffic as they grapple with the increased complexity of delivering on ever greater resource needs with a green footprint.

To quantify what we're seeing, we surveyed more than 1,000 client executives across the energy and natural resources sector. We wanted a better understanding of their views on the energy and resource transition; new technologies and opportunities; and where they see environmental, social and corporate governance (ESG) challenges in addition to decarbonization. The results confirm many of the trends we see, with more richness.

- Industry is moving more quickly than policy.
  - Executives expect their companies to reduce carbon dioxide emissions 28% by 2030.
  - On average, they expect the world to reach net zero by 2057.



- Most are more bullish about their own companies' decarbonization, compared with what they expect from peers and the world at large, which might indicate a greater commitment than the outside world can see.
- Half of oil and gas executives expect their core business to decline in the next 10 years. And 72% of O&G respondents believe they'll have a new growth business that will complement (62%) or replace (10%) their core by 2030.
- Across sectors, companies now report allocating 23% of their capital to new business ventures, mostly in response to the energy and resource transition, up from 16% when asked in 2020. If this trend continues, it suggests many could reach net zero well ahead of 2050.
- And, they expect it to make a difference: just under half expect their companies to be "materially different" by 2030, up from 36% in 2020.
- Most are still struggling to figure out business models for their new businesses that will deliver adequate returns, attract talent, and strengthen their organizational capabilities.
- Compared with their European counterparts, North American oil and gas respondents are nearly twice as likely to be delaying investment in new business areas due to policy and regulatory uncertainties.
- The data also reveals a growing consensus that, in light of these many challenges, the transition will be disorderly.

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We see excitement and ambition across the board, with individuals having greater faith in their firms' abilities and plans than the market at large.

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In the data that follows, we dive into these topics. The results represent a global view of our clients' perspectives, with responses from 45 countries across three major regions: the Americas; Asia-Pacific; and Europe, the Middle East, and Africa. At least 10% of the responses come from each of these five sectors: oil and gas, utilities and renewables, mining, agribusiness, and chemicals. This data also covers a range of perspectives within companies. Just over half of responses came from vice presidents or higher, including C-level executives and board members, with the rest from individual contributors and frontline management. From these responses, we see excitement and ambition across the board, with individuals having greater faith in their firms' abilities and plans than the market at large.

However, the data underlines that there's still a tremendous amount of ground left to cover. And as executive teams ramp up to deliver even more output, some are finding it challenging to square the traditional demands of their business—delivering products safely, securely, reliably, and affordably—with new demands to operate more sustainably and with a smaller carbon and ecological footprint. For example, within the utilities sector, greater competition has squeezed returns from renewables, and the importance of grid reliability has become clearer with intermittency issues in Texas and Europe. Consumers around the world are feeling the pain of high energy costs. As companies try to succeed in new markets, they're facing new challenges such as finding the right talent and navigating the policy regimes.

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As executive teams ramp up to deliver even more output, some are finding it challenging to square the traditional demands of their business—delivering products safely, securely, reliably, and affordably—with new demands to operate more sustainably and with a smaller carbon and ecological footprint.

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Our survey provides keen insight into what's on the minds of energy and resource executives as they navigate difficult and disrupted paths through the energy and resource transition. Their views show evidence of positive trajectories for investment, technology, and new business growth, but also highlight the need for more attention on how to deliver, as well as the sometimes-fragile link between policy and providers.

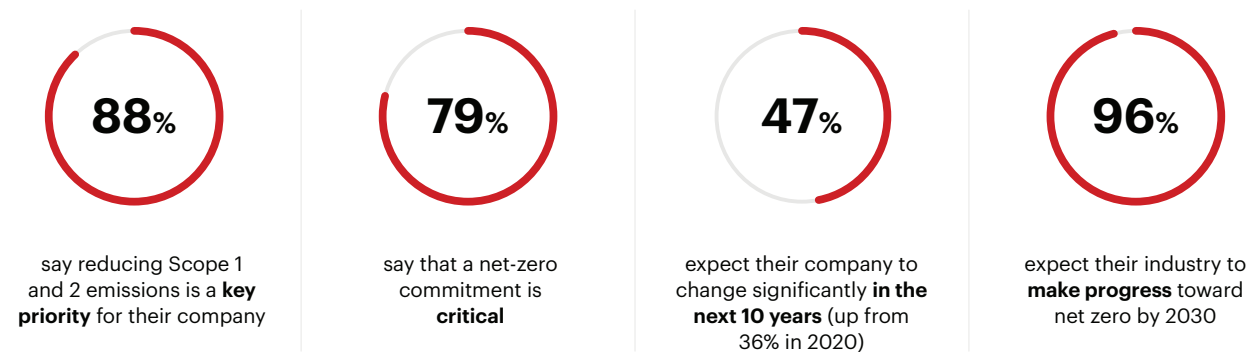


## 10 Takes on the Energy and Resource Transition

The shift to a greener future is underway, but our survey shows it's tough out there. Here's what more than 1,000 energy and resource executives had to say.

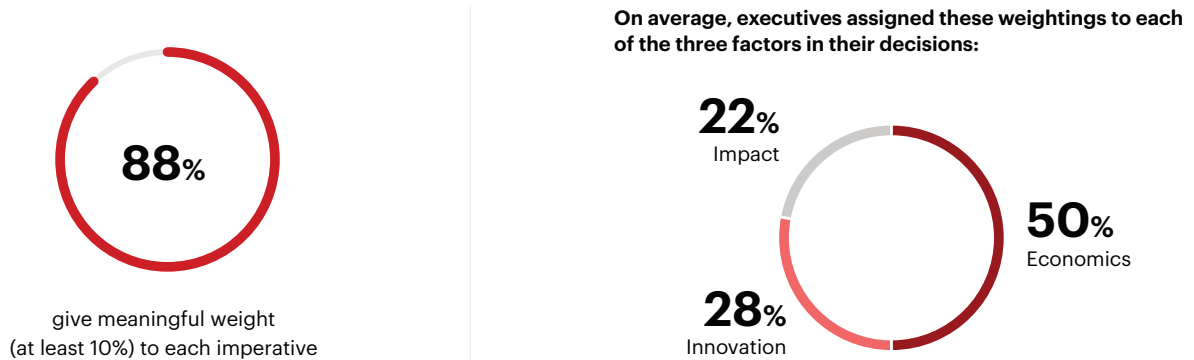
### 01 Emissions reduction

Executives overwhelmingly believe that reducing carbon emissions and reaching net zero are top priorities.



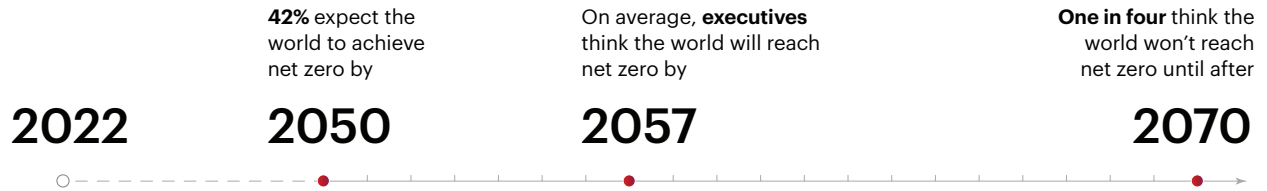
### 02 Innovation, impact, and economics

Executives believe all three are important.



### 03 Net zero

Executives have very different ideas about when the world will reach net zero.



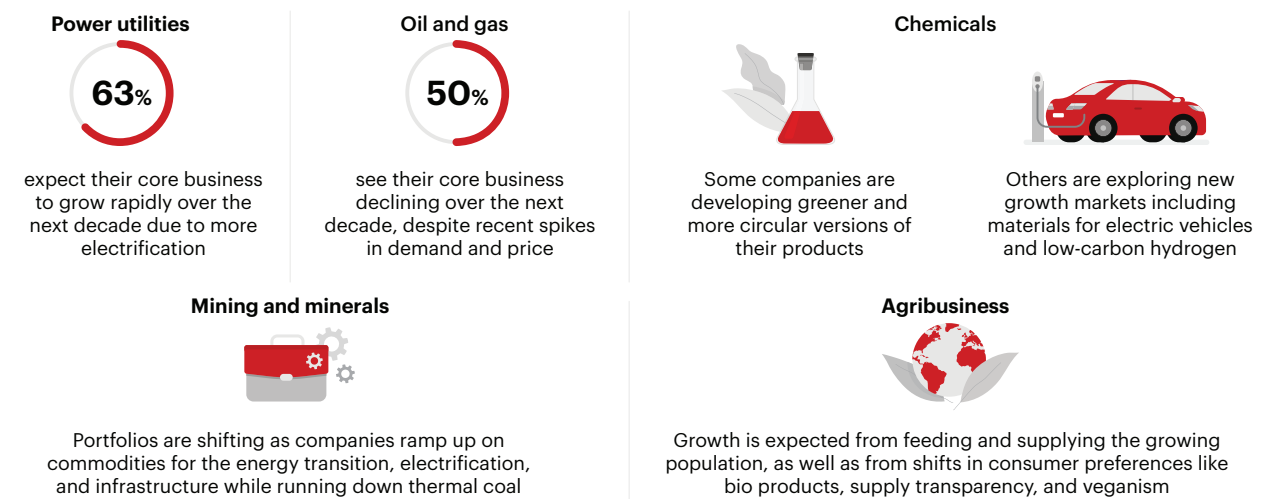
### 04 Comparing progress

Most expect to reduce emissions significantly by 2030, faster than their peers.



### 05 Core business

Electrification will boost some sectors, but the energy and resource transition will prove more disruptive to others.

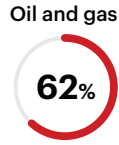


## 06 Low-carbon assets

Some have had to move quickly and substantially, while others facing different challenges will take longer.



expect significant progress from their investments in low-carbon assets or solutions by 2030

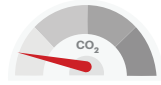


expect real progress from their low-carbon investments by 2030



expect to see real progress in decarbonization by 2030. Many are expanding into new markets related to the energy transition

**Agribusiness**



Most are focused on decarbonizing operations

**Mining and minerals**



Many are divesting from coal, focusing on minerals for the energy transition, decarbonizing operations

## 07 2030 technologies

Executives expect these seven technologies and practices to have a big impact on their business by 2030.



Three out of four chemicals executives expect **circularity** to become more important



expect **AI and other digital technologies** to have a big impact



of oil and gas executives see **carbon capture, use, and storage** as critical



Three out of four utilities and renewables executives expect **energy storage** to have a significant effect



of executives across sectors expect **renewables** to have a big impact



About two-thirds of executives in chemicals, food, and agribusiness expect **bio-based products** to become more important



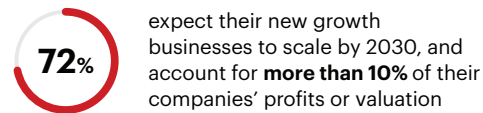
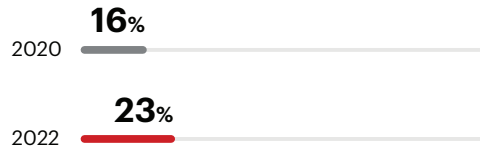
of food and agribusiness executives think that **organic and regenerative agricultural practices** will significantly affect their industries



## 08 Engine 2

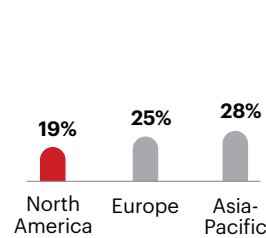
Executives are bullish on their prospects for developing new growth businesses.

Across sectors, executives are increasing **capital allocations to new growth areas**

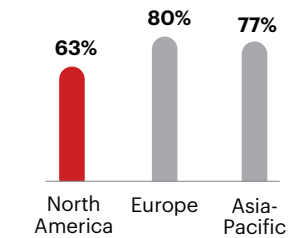


North American companies are investing less in new growth businesses than their peers in Europe and Asia. They're expecting less too

Share of capex for Engine 2



Share expecting significant contribution from Engine 2 by 2030



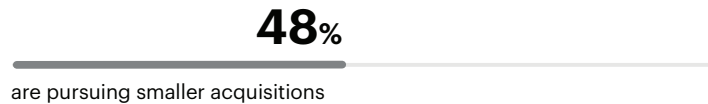
Europe is moving ahead quickly, but North American companies could catch up quickly, based on their record

## 09 Partnerships and acquisitions

Partnerships are emerging as the preferred way to manage transition risks, in part because there aren't enough scale acquisition targets.



Most see partnerships as more viable and a better way to share risk than M&A, particularly since there are so few good candidates for acquisition



Executives see these three issues as the biggest impediments to success and returns.

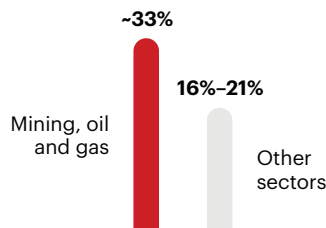
## 10A Talent

Executives see the need for new expertise, but a skill shortage hampers their efforts, and too many companies are drawing from the same well of talent. As companies scale up new ventures, competition will become more intense, making retention even more important.

**45%**  
say they **don't have enough people** with the right capabilities for their new growth businesses

That rises to **50%**  
among executives who expect their companies to see **transformational change** by 2030

About one-third of companies in mining and oil and gas say they're having difficulty **attracting and retaining talent** for their core businesses, compared with 16% to 21% in the other sectors

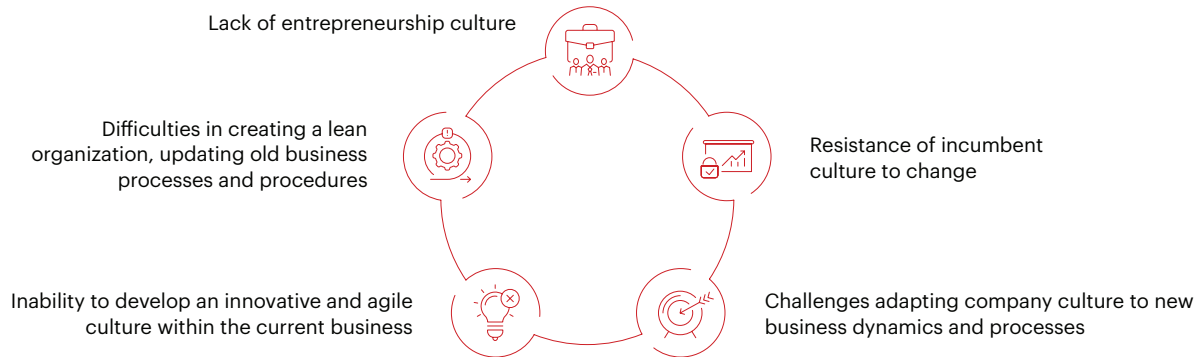


**93%** of companies are already adapting their **talent strategy**

**57%** see **diversity, equity, and inclusion** as important for improving outcomes

## 10B Culture

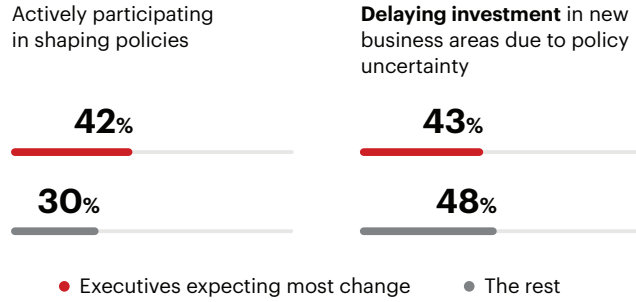
Across most sectors, executives see culture as the most pressing barrier after talent. Drilling down on specifics, executives said the biggest roadblocks for creating a successful Engine 2 business include:



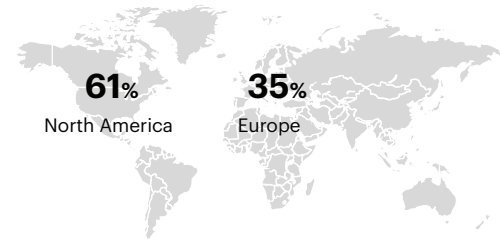
## 10C Policy

Government policy is less certain in some places than others. But across regions, executives tell us that the speed of processing approvals, rather than uncertainty, is the first barrier to progress.

Executives expecting the most transformational change by 2030 are outperforming peers by:



North American oil and gas companies are almost **twice as likely** to be delaying investment in new business areas as those in Europe, perhaps due to greater clarity on regulations in Europe







Data-rich perspectives

# Investing in New Growth Businesses

Most companies are already building several Engine 2 businesses.

By **Brian Murphy, Peter Parry, Neelam Phadke, and Alasdair Robbie**

## At a Glance

- ▶ For many companies in the energy and natural resources sector, the path to success depends on investing in new growth businesses—what we call Engine 2.
- ▶ Companies whose core businesses are most affected by the energy and resource transition are investing most aggressively.
- ▶ Many of these Engine 2 businesses are low-carbon ventures, including renewable power generation, carbon capture and storage, green hydrogen, and new forms of electric mobility.
- ▶ These investments are blurring business boundaries, such as European oil and gas companies investing heavily in renewable power generation and electric vehicle charging stations.

For many energy and mining companies, big reductions in emissions in recent years have resulted from divestments: selling their most carbon-intensive assets to new owners, often with less-visible portfolios. Of course, this did nothing to reduce global emissions, since most of these assets will continue to operate under new owners.

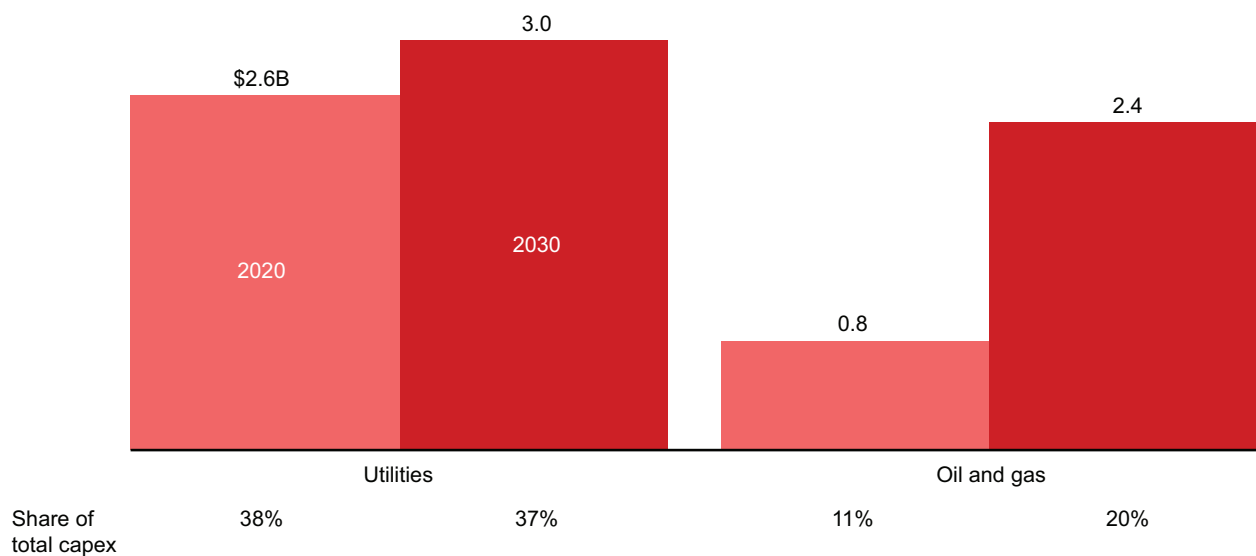
It did, however, provide capital to the sellers, more than \$100 billion per year that the sector could invest in a number of ways, including new growth businesses that might have a smaller carbon footprint than the assets that were sold. That would line up with what we’re hearing and seeing from our large energy and natural resources clients, as more of them start to develop opportunities in low-carbon business. Some are moving faster than others, hoping to establish leading positions in these new growth businesses, which Bain calls “Engine 2.”

We set out to quantify this movement by developing a definitive data set on the strategy and resource allocation of 125 of the top energy and natural resources (ENR) firms by market capitalization, analyzing their public statements, annual reports, and analyst reports. We wanted to determine how much their actions support what they’re saying publicly and what they told us in our recent survey (see the first chapter in this report, “How Energy and Resource Executives Think about the Transition”).

Our research found that over the past two years, these companies have become more ambitious in new markets and are allocating resources toward their lower-carbon goals (see Figure 1). Utilities are

**Figure 1:** Utilities and oil & gas companies expect to spend more on new growth businesses over the next 10 years

**Average capex on Engine 2 per company (\$B)**



Notes: Not all companies announce Engine 2 investment; data shows average capex for companies that report spending on new growth businesses  
Sources: Bain analysis of 125 top energy and natural resource companies; S&P Capital IQ; company and analyst reports; Dealogic

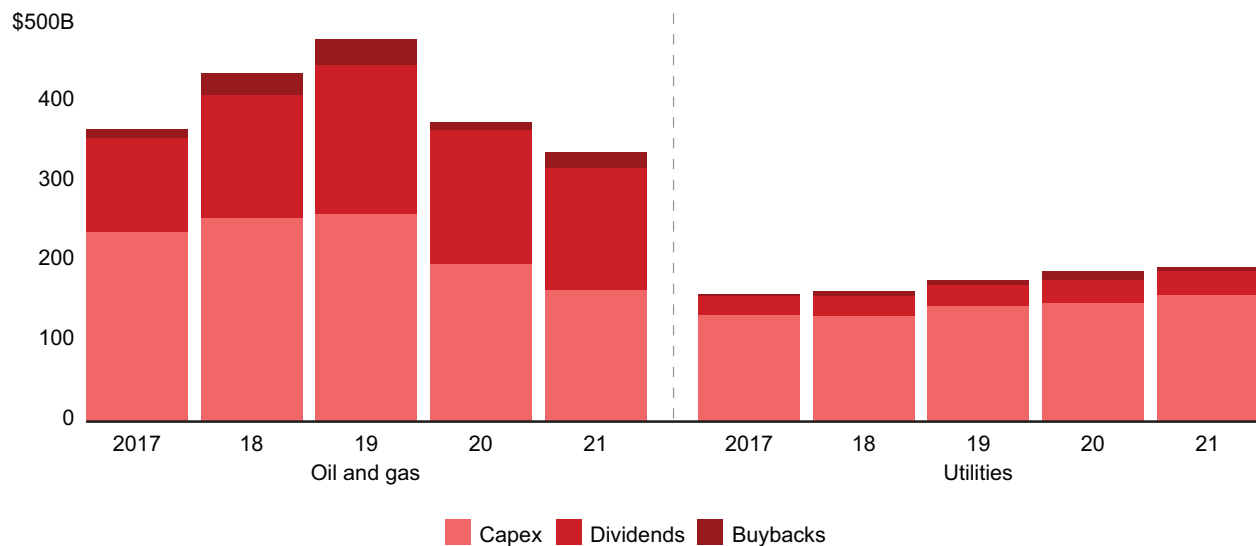
already spending a lot, oil and gas companies are scaling up, and companies in mining, chemicals, and agriculture are still in the early phases of change. The greater resources of large oil and gas companies could enable them to catch up quickly with the utilities sector, once their plans solidify (see Figure 2). More investment will be needed over the next decade to reach their targets and net-zero carbon emissions, but their plans are coming into sharper focus. If oil prices remain high, these companies will have more funds to deploy, which could accelerate investments in new growth businesses.

Sectors are responding differently, depending on how their core products are threatened.

- **Utilities and oil and gas** companies are in the eye of the storm, under intense pressure to change their methods of production or products. They’re investing in and converging on some of the same end markets, with companies reporting an average of four or five Engine 2s in development (see Figure 3).
- **Chemicals firms** are concentrating much of their effort and research investments on circularity—specifically, how to address the plastic waste problem by recycling more plastics or developing bio-based products. Some of these solutions will invite new collaborations with companies in customer sectors, including automotive and consumer products. This challenge may not be an existential threat to their industries, as carbon reduction is in oil and gas. But the chemicals and plastics producers are probably the natural owners of the solutions.

**Figure 2:** Oil and gas has the resources to match and exceed the utility sector’s investments in renewables

**Industry spending (\$B)**

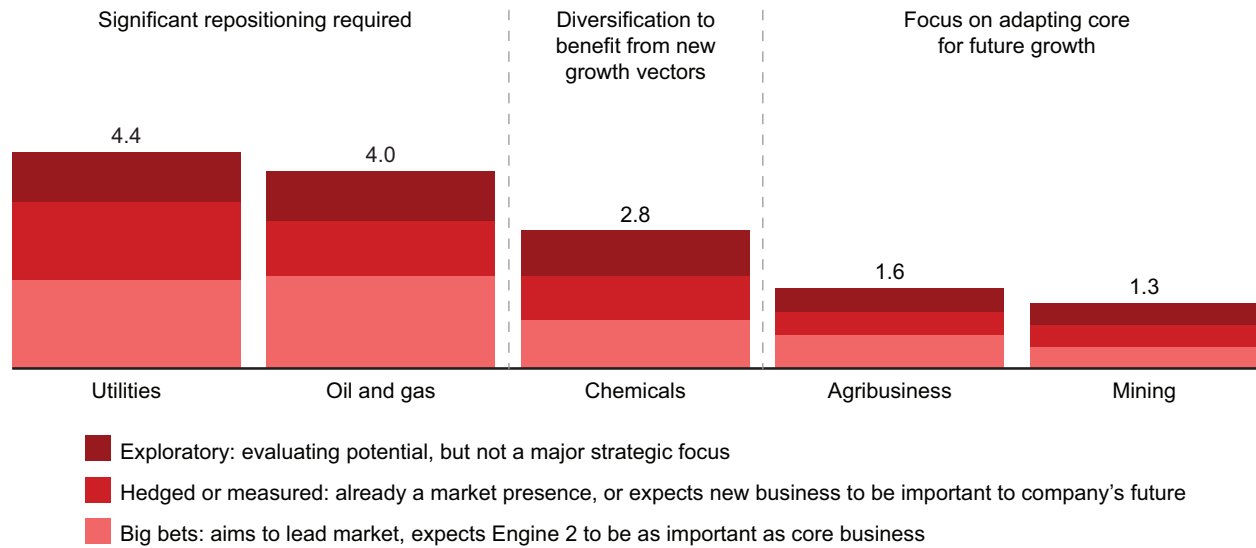


Sources: Bain analysis of 125 top energy and natural resource companies; S&P Capital IQ



**Figure 3:** Sectors are investing in line with the effects that the energy and resource transition will have on their core businesses

**Average number of investments in new growth businesses per company**



Notes: Not all companies announce Engine 2 investments; data shows investments for companies that report spending on new growth businesses  
 Sources: Bain analysis of 125 top energy and natural resource companies; S&P Capital IQ: company and analyst reports; Dealogic

- **Agribusiness and mining** are under less direct threat, except for coal. Both sectors are focused on reducing carbon in operations and otherwise improving sustainability in operations, including using less water. Companies are also investing in new, sustainable products. In agribusiness, that could be alternative proteins or digital platforms that help with food chain traceability. In mining, it may be supplying transition commodities, low-carbon inputs to metals, or even metal recycling.

The takeaway is that companies that aren't yet investing seriously in new growth businesses may be falling behind. But it's still early in the game. A look at how other companies and industries are investing can help companies develop their next moves (for more on developing Engine 2, see Chapter 8, "How to Do Engine 2").

**Where ENR firms are placing bets**

Our analysis of these leading energy and natural resource companies reveals three types of investments in Engine 2.

- **Big bets.** Aiming for market leadership or expecting Engine 2 to be as important as the core business.
- **Hedged or measured.** Investing in a new market, but with less grand ambitions than for their big bets.
- **Exploratory.** Evaluating the potential in a new market, but it's not yet a major strategic focus.

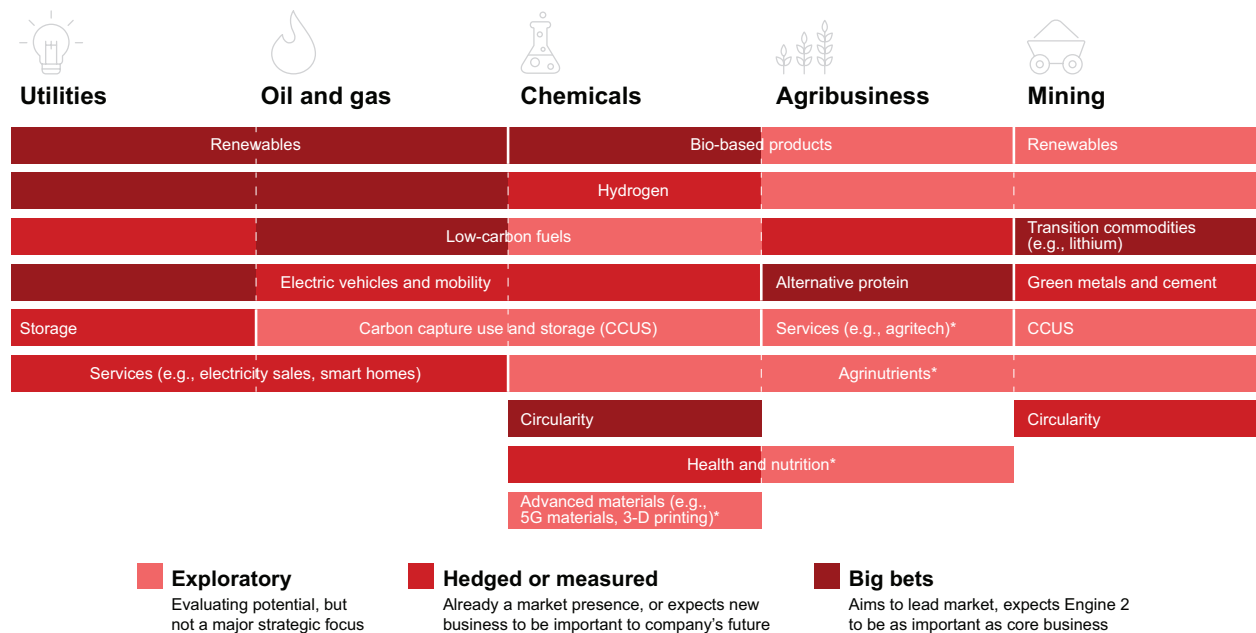
We see big bets, the most aggressive investments, most commonly in areas where an incumbent sees enough potential to replace its legacy business in the future, or where there’s a natural adjacency that offers a viable path to meaningful scale (see Figure 4). Hedged or measured bets are on businesses that will be part of the future portfolio but aren’t expected to displace the core. Exploratory plays are seen in more nascent profit pools, or where the potential is still undefined.

**Utilities.** Utilities continue to invest in renewable power generation, which is already an economical alternative for them to provide their core product (electricity) with fewer carbon emissions—albeit typically with lower returns. Meanwhile, many are exploring new businesses in services and distributed systems. Enel, for example, is investing to fully decarbonize its power generation by 2040 through expanding renewables, and simultaneously expanding into efficient energy management through tech and services via its Enel X platform.

**Oil and gas.** New policies and social pressures are shaping the investments of oil and gas companies.

- European majors, facing greater regulatory pressure on Scope 3 emissions, are investing aggressively in renewables, hydrogen, and biofuels. Shell, for example, aims to produce 560 terawatt hours of renewable electricity and establish a network of 2.5 million electric vehicle (EV) charging points globally, while also building out hydrogen, carbon capture use and storage (CCUS), and a sustainable aviation fuel business. TotalEnergies aims to generate a combined

**Figure 4:** Companies facing the greatest threats to their core are investing most aggressively in new businesses



Note: Categories with asterisks represent themes not primarily motivated by the energy transition  
Sources: Bain analysis of 125 top energy and natural resource companies; S&P Capital IQ; company and analyst reports; Dealogic

20% of its revenue in 2030 from renewables, biomass, and hydrogen, and another 50% from gas to reduce its reliance on oil.

- Oil companies in the US are focused on producing more and cleaner oil, gas, and refined products, while making bets on biofuels and CCUS. Chevron aims to capture 25 million metric tons of carbon dioxide per year and recently announced its acquisition of Renewable Energy Group for over \$3 billion to help reach its goal of producing 100,000 barrels per day of renewable fuel by 2030.
- National oil companies follow the priorities of their parent government. Saudi Aramco, for example, is pursuing low-carbon hydrogen.

**Chemicals** is a diverse sector, but we're seeing two broad themes. Some companies are investing in more sustainable ways to make or market current products, such as making plastics more recyclable or bio-based. We're also seeing investments in new products and markets, some resulting from the energy transition and others from new technologies (such as materials for 5G networks). BASF aims to double the sales from its circular economy solutions business to €17 billion by 2030.

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The takeaway is that companies that aren't yet investing seriously in new growth businesses may be falling behind. But it's still early in the game. A look at how other companies and industries are investing can help companies develop their next moves.

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**Agribusiness** is a more highly fragmented growth industry and may not face the same existential threat to its core business as oil and gas does. But these companies are investing in new business to capture some new opportunities and improve operations. Specifically, we see new investments along three themes. First, they're investing in greater sustainability, in food products like alternative proteins, and in inputs, like renewable fuel feedstock and bio-based fertilizers. Second, they're investing in markets that promote better health and nutrition, in part to appeal to consumers who want more transparency in their food sourcing. And they're building up their digital capabilities to tap into new asset-light business models like Olam's AtSource, which traces the supply chain from grower to customer.

**Mining.** Many coal assets have been divested by larger companies, and those that have retained them have clear plans to ramp down. Outside of coal, there's limited direct threat to mining's core business. Some of the global mining majors are orienting their portfolios to take advantage of rising demand for minerals associated with the energy transition, including staples like copper, aluminium, and nickel, along with new moves into lithium and rare earth minerals.

## Blurred business boundaries and the basis for competition

This rapid redefinition of the energy landscape is blurring traditional boundaries between sectors, particularly in five areas (see Figure 5).

- **Renewables.** European oil and gas firms like BP and Total are investing in power generation, competing with incumbent utilities. Some chemicals and mining companies are collaborating with utilities to develop clean energy for their operations.
- **Hydrogen infrastructure.** Oil and gas, utilities, chemicals, agribusiness, mining, and industrial gases are all investing to capture share at various points along the value chain.
- **Electric vehicle charging stations.** In Europe, utilities are racing with oil and gas companies to build networks of stations. (In the US, some states limit utilities’ abilities to pursue retail recharging stations or other downstream opportunities.) Many European utilities (Eon, Iberdrola, Enel) have ambitions to serve this end of the value chain. At the same time, oil and gas players (BP, Total, Shell) see a natural opportunity here; instead of providing gasoline through a pump to a fuel tank, they want to convert their retail network to provide electrons to EVs.

**Figure 5:** Companies across sectors are converging on a limited set of opportunities, creating new arenas of competition

Profit pool	Sector	Examples
<b>Renewables</b>	Oil and gas	TotalEnergies targets 100GW of renewable generation capacity by 2030
	Utilities	Iberdrola seeks to nearly triple its renewable capacity to 95GW by 2030
<b>Hydrogen</b>	Oil and gas	Shell aims to possess 10%+ share of global green hydrogen sales by 2030
	Utilities	Engie targets 4GW of green hydrogen production capacity by 2030
	Chemicals	Air Products partnering with Saudi Aramco and ACWA Power on \$12B hydrogen and power project including \$5B green hydrogen plant
	Agribusiness	Yara and partners providing renewable energy to produce green ammonia for fertilizer and industrial markets, and new applications such as marine shipping fuel
<b>Electric vehicle charging</b>	Mining	Fortescue Future Industries, subsidiary of Fortescue Mining Group, aspires to produce 15M tons of green hydrogen by 2030
	Oil and gas	Shell plans 500K charging points globally by 2025 and 2.5M by 2030, from 90K today
	Utilities	Engie aims for 1M charging points by 2025, from 350K today
<b>Low-carbon fuels</b>	Oil and gas	BP seeks 20% share of the global market for synthetic fuel by 2030
	Utilities	Engie is aiming for 10% share of biomethane market in France via Engie BioZ
	Chemicals	Albemarle’s ReNewFine is a chemical used in the hydrotreating step of the biorefining process
	Agribusiness	Bunge recently partnered with Chevron on a biofuel joint venture
<b>Carbon capture use and storage</b>	Oil and gas	Occidental recently sold the first barrel of net-zero oil, with carbon emissions offset via direct-air capture
	Chemicals	BASF’s OASE Blue is a gas-treatment chemical used to capture CO <sub>2</sub> in chemical processes

Sources: Bain analysis of 125 top energy and natural resource companies; S&P Capital IQ; company and analyst reports; Dealogic



- **Low-carbon fuels.** Here again, we see interest and ambition from oil and gas, chemicals, utilities, and even agribusiness companies.
- **Carbon capture use and storage.** Oil and gas players are most active in the CCUS landscape, but the ambitions for technologies vary. Some see CCUS as an opportunity to virtually decarbonize their existing product; by capturing atmospheric carbon as an offset, they can go to market with “net-zero oil.” Others are seeking to commercialize CCUS as a service. Chemicals companies are also providing the inputs needed to capture carbon.

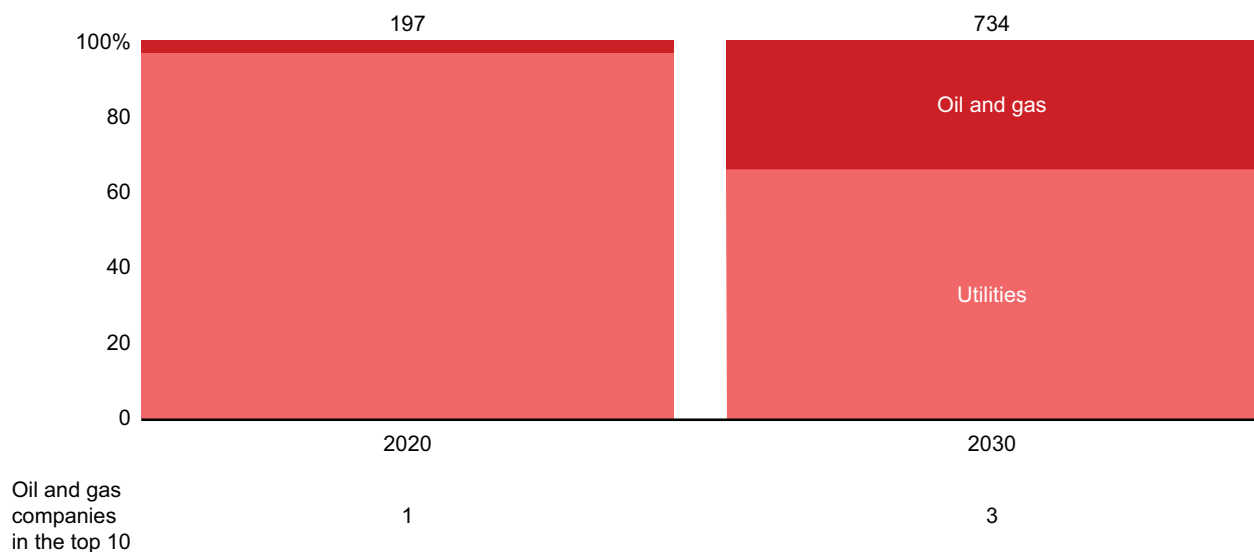
The basis of competition in each market isn’t clear yet, and companies that haven’t traditionally been competitors are now elbowing for market leadership positions. For example, 9 of the top 10 players in renewable generation capacity in 2020 were large power utility companies, but by 2030 at least 3 of the large oil majors are expected to move into the top 10 renewable players, per announced investment plans (see Figure 6).

Moves like this will require new capabilities, and incumbents are increasingly turning to partnerships, joint ventures, and acquisitions as an important tool to develop their Engine 2 businesses (see Figure 7).

Scale M&A can be challenging, given the nascent nature of new energy markets, but smaller acquisitions (below \$5 billion) and effective partnerships remain important for developing new

**Figure 6:** Some oil and gas companies are investing heavily in renewable power generation, which will change the makeup of the leader board

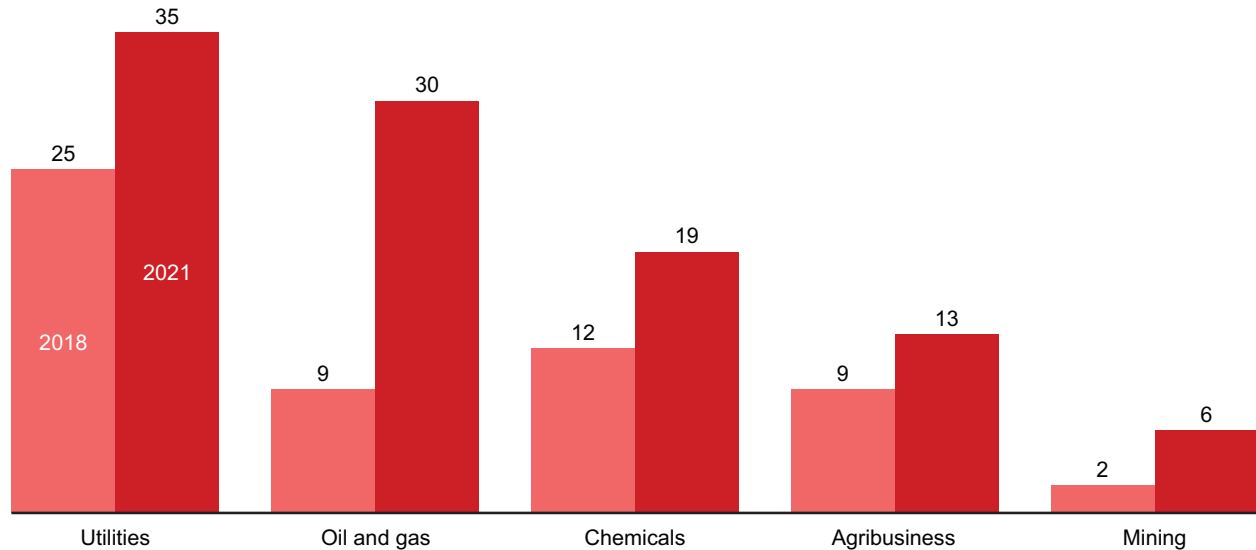
**Renewables capacity of 10 largest providers of renewable energy (GW)**



Sources: Bain analysis of 125 top energy and natural resource companies; S&P Capital IQ; company and analyst reports; Dealogic

**Figure 7:** M&A is emerging as a critical tool for accessing talent, capabilities, and markets for new growth businesses

**Number of merger and acquisition deals in Engine 2 growth areas**



Sources: Bain analysis of 125 top energy and natural resource companies; S&P Capital IQ; company and analyst reports; Dealogic

businesses. The high valuations for some clean tech assets can be difficult to justify when weighed against potential returns for deploying capital in the core business. Partnerships are critical but are no substitute for a clear, well-developed strategy.

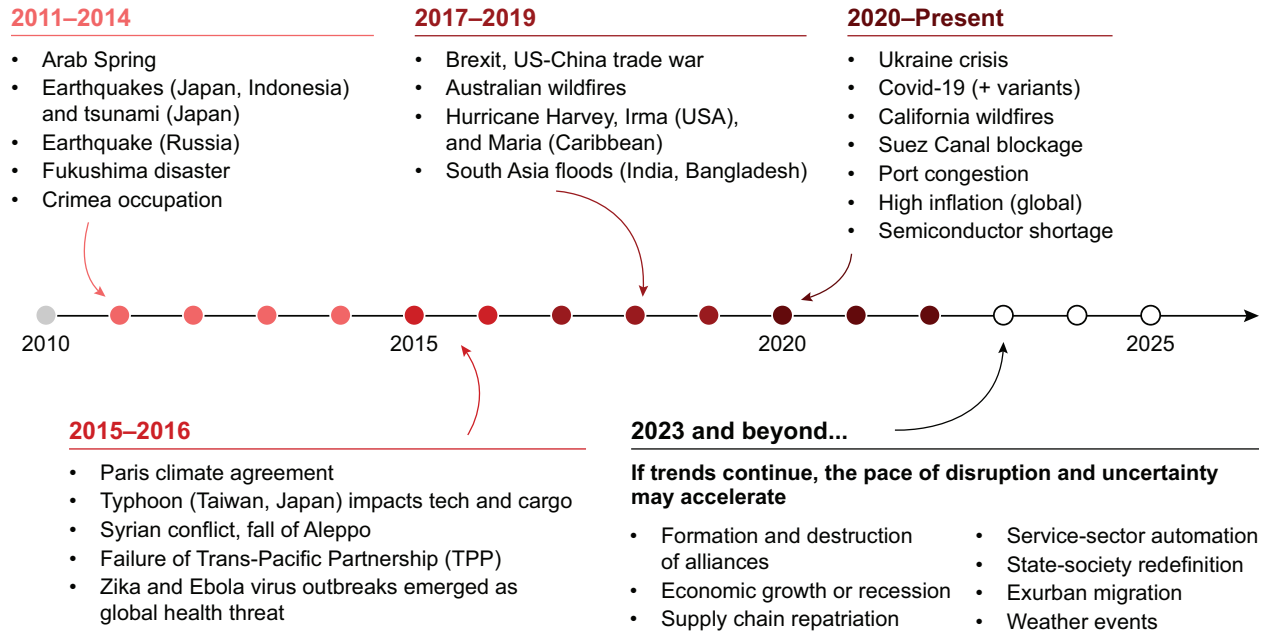
**Challenges greater than expected**

While companies are aggressively investing, it’s too early to declare success, and there are plenty of challenges in executing to deliver these ambitions. As noted in our survey, executives are grappling with the challenge of generating returns from these new ventures.

Even on its own, the task of navigating the energy and resource transition would be an unprecedented challenge for most energy and natural resources companies (see Figure 8). The added complexities of pandemic-induced supply chain disruptions, rising trade barriers, the Russian invasion of Ukraine, dramatic spikes in commodity prices, and accelerating pressure from investors and capital markets are testing the abilities of every senior team and executive in these industries. The landscape is far more challenging than anticipated, and it’s not going to get any easier.

Nevertheless, our research shows that many Engine 2 successes have sprung from turbulent times, rewriting the rules and revealing new profit pools. Within many large ENR companies, Engine 2

**Figure 8:** An accelerating string of dramatic disruptions is exacerbating the challenge of the energy and resource transition



Note: Brexit referendum held in 2016, and separation took effect in early 2020  
Source: Bain & Company

organizations are being established and equipped with the talent and resources needed to meet customer needs, scale quickly, and obtain the capital necessary to deliver on 2030 targets. For them, the status quo won't be good enough.

One truth already seems clear: Successful new businesses will require many large companies to adopt an insurgent position. If some fast-moving, forward-looking, nimble attacker is going to cannibalize your business, better that it be one from inside your own organization.



Data-rich perspectives

# Meeting the Needs of Capital and Energy Markets

Energy executives must deliver strong financial performance while satisfying the rising demands of investors.

By Grant Dougans, Debra McCoy, Peter Parry, Luis Uriza, and Chung Yen Wong

## At a Glance

- ▶ More investors are considering the energy transition and other ESG issues in their investment decisions. We asked 89 energy investors (45 focused on utilities and 44 on oil and gas) how these factors affect their portfolios.
- ▶ Investors are bullish on the utilities sector. They see electrification as a growth opportunity, and they want management teams to capture the moment.
- ▶ Despite the recent rise of oil and gas prices, investors are more restrained about the long-term prospects for that sector. They want management teams to continue generating cash and exercising capital discipline.
- ▶ Many investors are considering using carbon emissions limits, reduction targets, or ESG rankings to guide their portfolio decisions in the future.



With changes in capital markets coming to the forefront of executive agendas, we and our partner Rivel, an investor research firm, recently interviewed 89 investors and analysts about how the energy transition is shaping investment decisions in the energy sector.

We found that the transition is squarely at the center of the agenda for investors, and that it shapes perspectives on individual companies as well as sectors. As a result, the “to dos” for executive teams in utilities and in oil and gas are very different.

For all companies, we found that environmental, social, and corporate governance (ESG) goals are important, and every company must bring a compelling story to the table. Investors expect companies to reduce carbon emissions, particularly the Scope 1 and 2 emissions that they largely control. Most of the investors we spoke with aren’t placing fixed limits or exclusions in portfolios on the basis of their carbon emissions, but that could change.

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For all companies, we found that environmental, social, and corporate governance (ESG) goals are important, and every company must bring a compelling story to the table.

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Ensuring that strategy—and the execution of the strategy—remains aligned with evolving capital market expectations is a critical and increasingly central task for executive teams.

### **Investor perspectives on utilities**

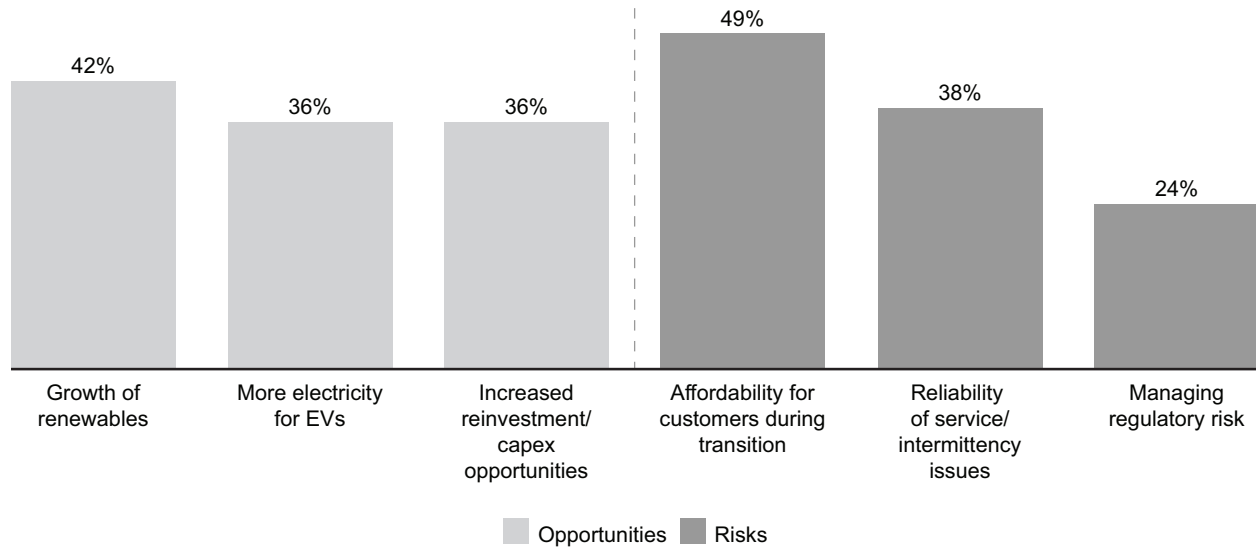
Electrification plays a leading role in achieving a net-zero future, and utilities worldwide stand to benefit from ample investment opportunities (see *Figure 1*). Investors and analysts believe in the long-term growth potential of the utilities sector, and they’re looking for management teams with the strategy and execution capabilities to capture the moment.

Investors want leadership teams that can:

- capture opportunities from the growth in renewable power generation;
- accelerate electric vehicle adoption; and
- maximize returns for every dollar of capital deployed.

**Figure 1:** In utilities, investors see opportunities in renewables and electrification, but are most concerned about affordability and reliability

**Percentage of respondents who cited these factors**



Sources: Rivel survey of North American and European investment professionals, 2021 (n=89); Bain & Company

In order to do this, executive teams need to mitigate three critical risks.

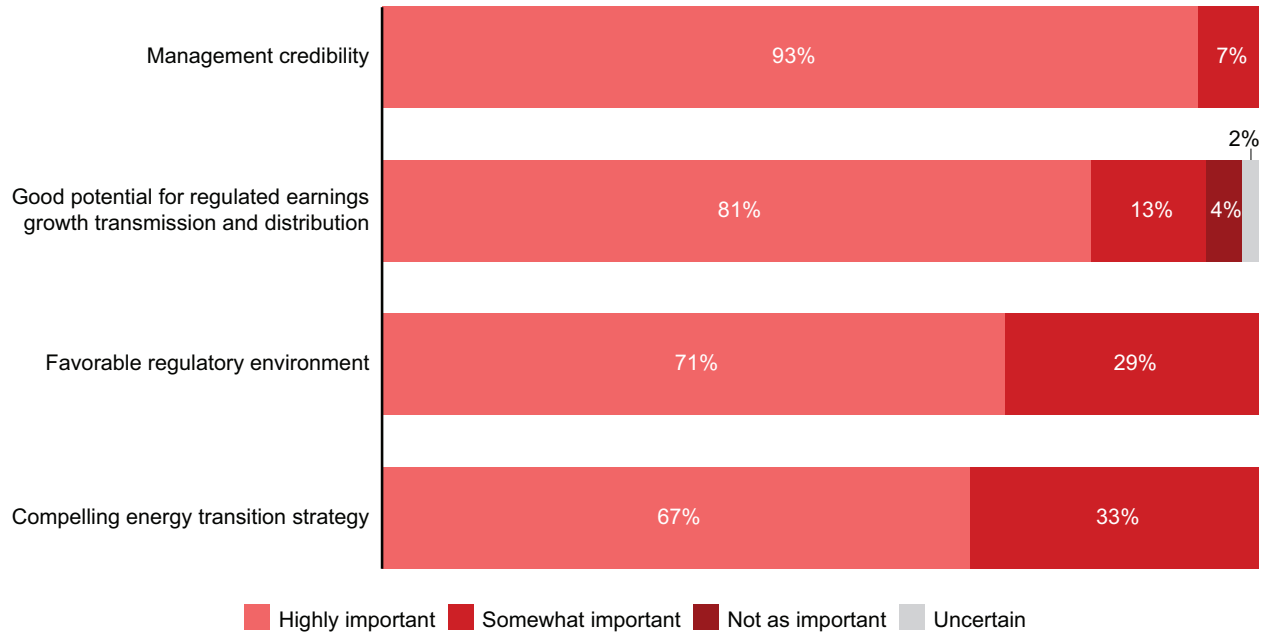
- Affordability for customers
- Reliability of service and intermittency issues
- Regulator and stakeholder risk

The investors we interviewed believe in the utility sector and the stability of the utility model (see Figure 2). The most commonly cited factor determining investment decisions is management credibility (93%).

**Investor and analyst perspectives on oil and gas**

Over the past 18 months, the oil and gas sector has witnessed a landmark set of shareholder votes, a critical court ruling directing Shell to accelerate carbon reductions, the COP26 climate conference, and the expansion of net-zero financial alliances. At the same time, commodity prices have surged, pressures to expand production have intensified, and oil and gas companies’ share prices have outperformed broad indices.

**Figure 2:** Most investors agree on the factors that influence their decisions in utilities



Sources: Rivel survey of North American and European investment professionals, 2021 (n=89); Bain & Company

In this dynamic environment, three core messages emerged from our discussions with investors and analysts that should have long-term resonance for oil and gas executive teams. First, investors and analysts are clearly looking for oil and gas executive teams to remain focused on cash generation and maintain disciplined deployment of capital. Of the 10 factors we tested in our conversations, oil and gas production growth was the least important factor determining investment decisions (see Figure 3).

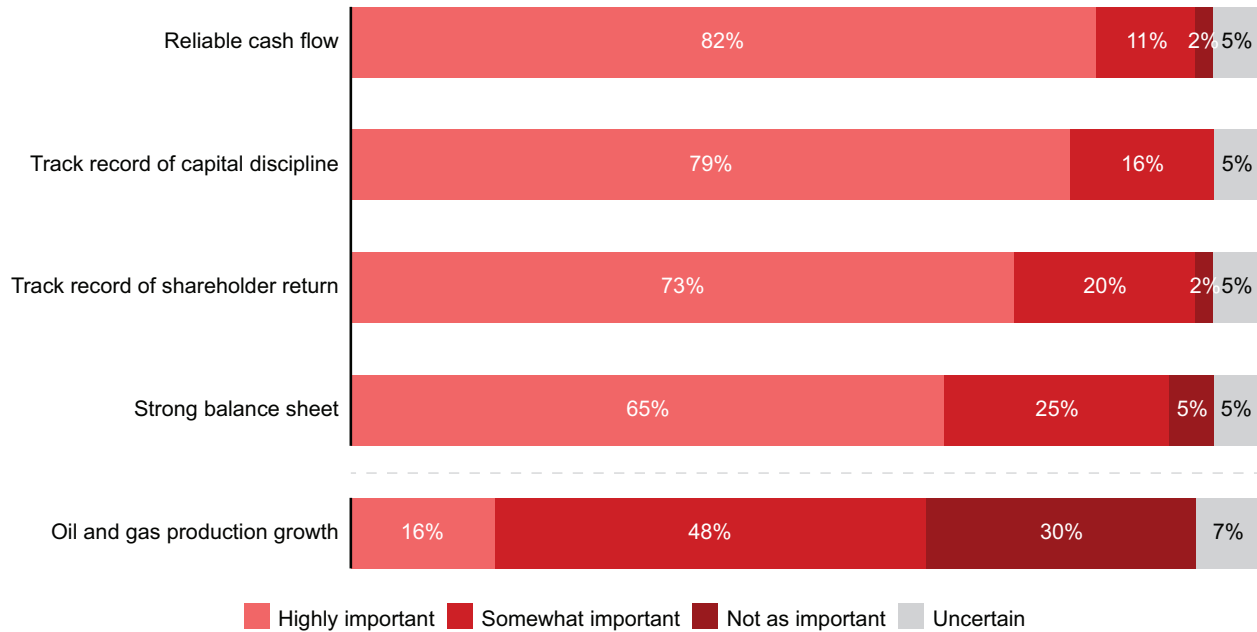
Second, investors see both opportunities and risks associated with how oil and gas companies respond to the energy transition (see Figure 4). They see the potential to use the industry’s capabilities in new, lower-carbon markets, but they’re also concerned about how capital is allocated. Demonstrating how strategy and execution respond to these perspectives should be at the center of oil and gas strategies and investor communications.

Third, investors are open to oil and gas companies participating in lower-carbon markets (see Figure 5). In the context of uncertainty about the pace and shape of the energy transition, there’s value in showing investors the company has plans for growth in a lower-carbon world.

### Rules and limits in portfolios: carbon budgets and ESG

We’ve been wondering about carbon emissions and whether they play a consistent role in portfolio construction. We’re specifically interested in potential portfolio rules governing carbon emissions,

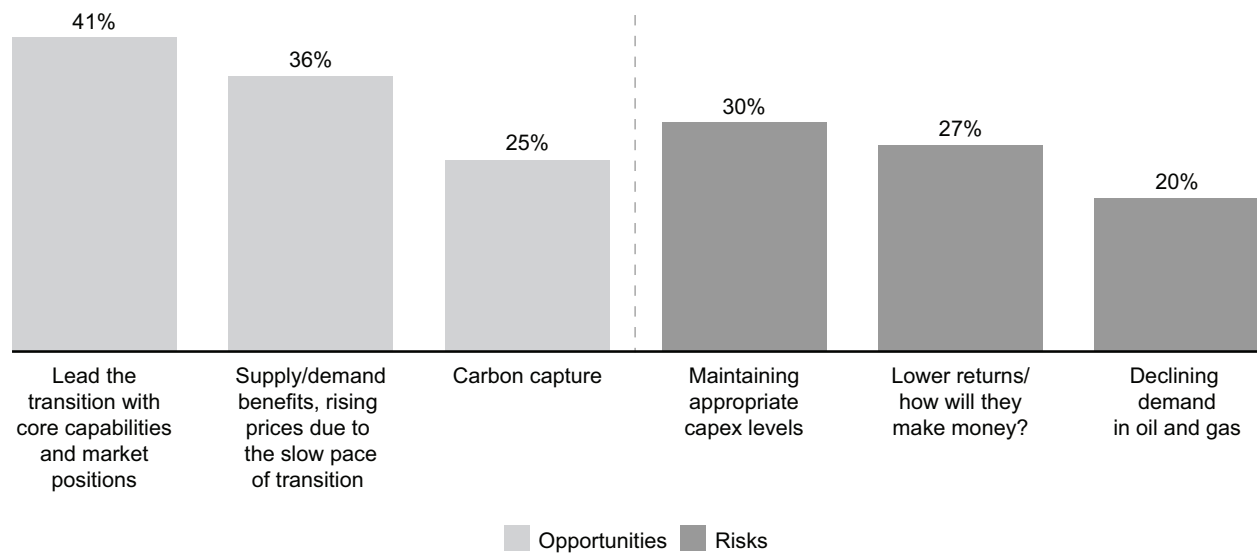
**Figure 3:** For oil and gas, cash flow is the most important investment factor and potential growth in production ranks 10th



Sources: Rivel survey of North American and European investment professionals, 2021 (n=89); Bain & Company

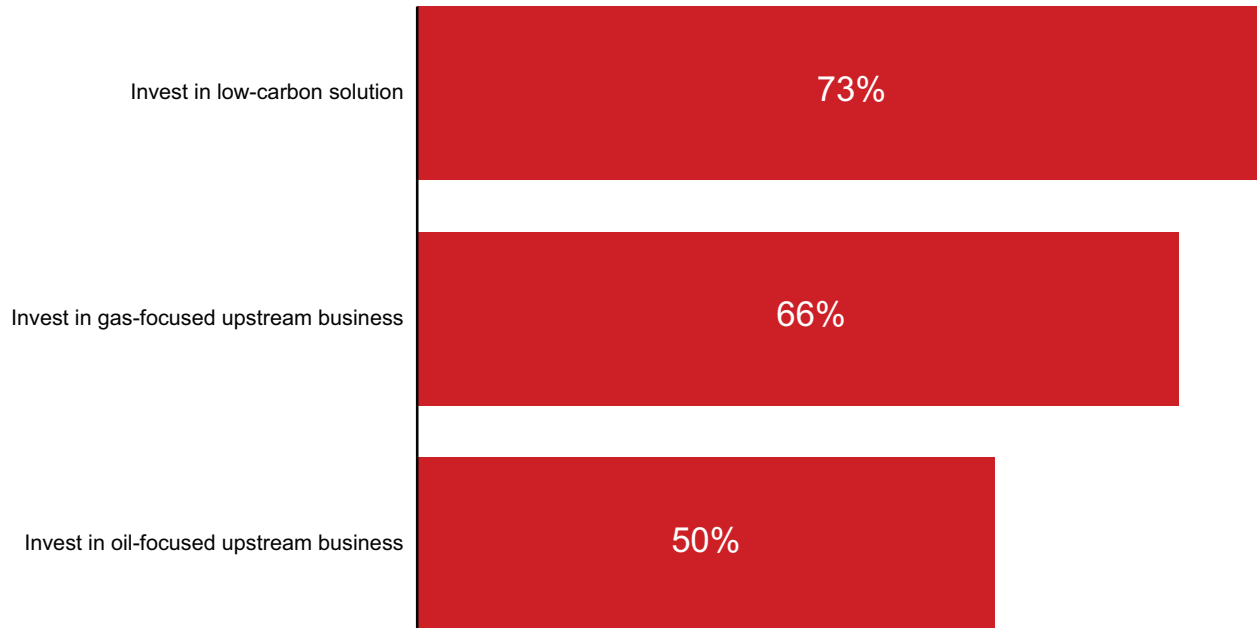
**Figure 4:** For oil and gas, investors see opportunities in lower-carbon markets, but are concerned about capital allocation and declining demand

**Percentage of respondents who cited these factors**



Sources: Rivel survey of North American and European investment professionals, 2021 (n=89); Bain & Company



**Figure 5:** Investors want oil and gas companies to explore lower-carbon markets

Note: Options did not include share buybacks

Sources: Rivel survey of North American and European investment professionals, 2021 (n=89); Bain & Company

and efforts to target and reduce them. To learn more, we asked a series of questions to uncover possible changes in investor decision making.

We learned that nearly 20% of utilities investors and 13% of oil and gas investors have fixed, emissions-based guidelines that use limits or exclusions in their portfolios to set parameters for what they can own (see Figures 6 and 7). When asked about carbon limits or reduction targets in portfolio guidelines, 13% of utilities investors and 6% of oil and gas investors reported already having such goals. In both sectors, 16% of investors are considering limits or reduction targets.

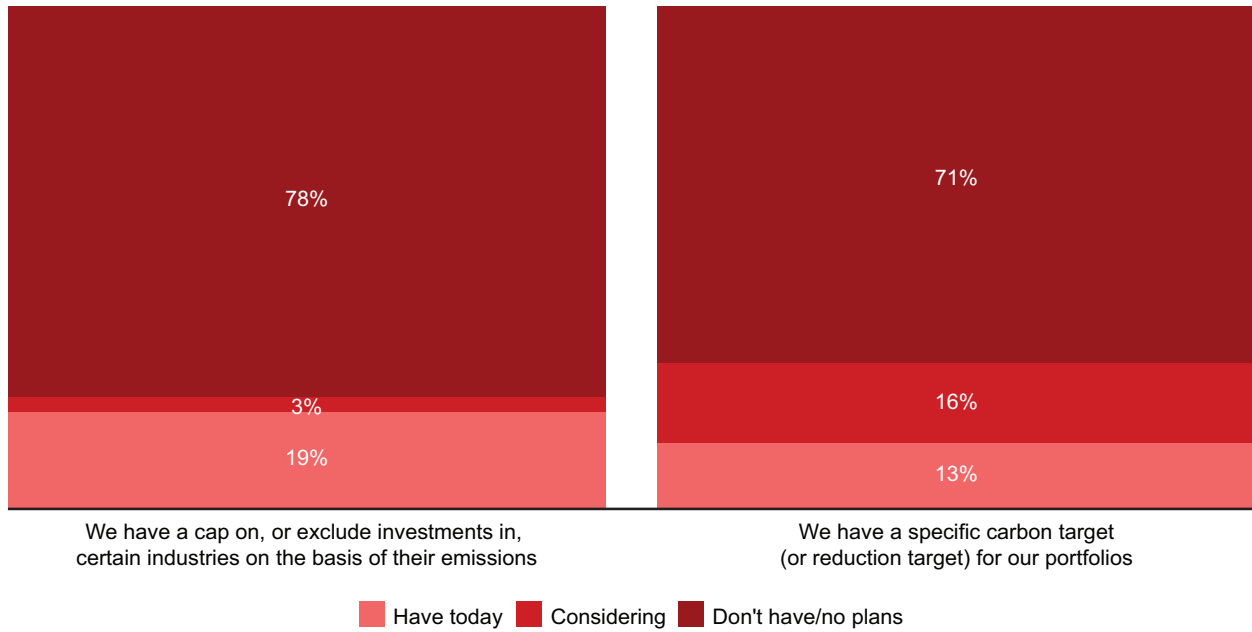
While carbon limits aren't a determining factor in portfolio decisions today, we found it important to learn that some investors are considering it for the future—and not just in these two sectors, but across investment choices.

The investors we spoke with give ESG prominent consideration in their investment decisions, but there are differences in how important they believe these factors are and how they use ESG ratings and rankings in their portfolios. More than 70% of investors across utilities and oil and gas described ESG as either very important or important (see Figure 8).

ESG ratings are sometimes used to create rules and limits. Utilities investors are more likely to embed ESG ratings into portfolio decisions: 29% vs. 10% of oil and gas investors (see Figure 9).

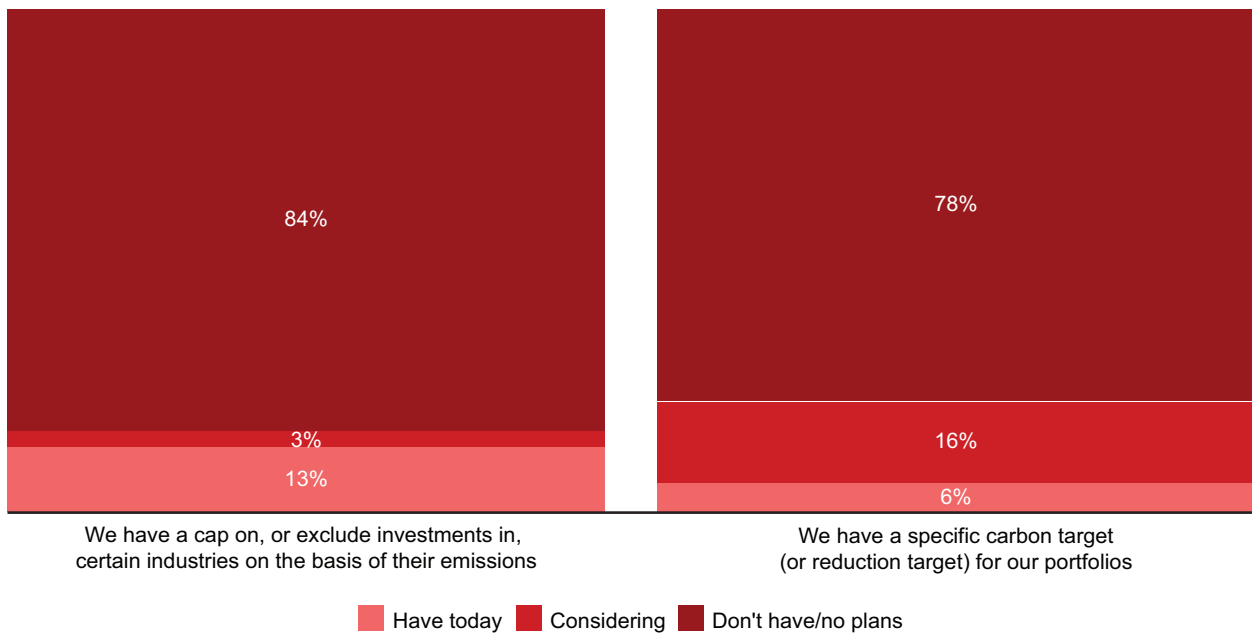
Global Energy and Natural Resources Report 2022

**Figure 6:** Some utilities investors already have caps or targets for their portfolios, while others are considering it



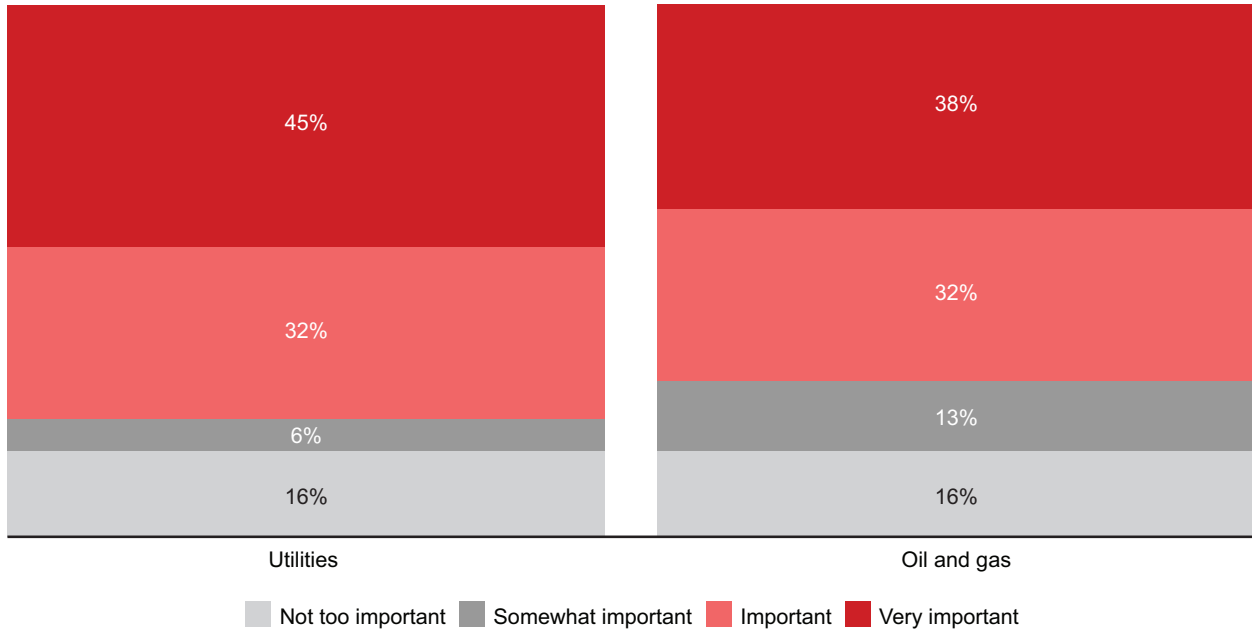
Note: Percentages may not add up to 100% due to rounding  
 Sources: Rivel survey of North American and European investment professionals, 2021 (n=89); Bain & Company

**Figure 7:** Some oil and gas investors have caps or targets for their portfolios, while others are considering it



Sources: Rivel survey of North American and European investment professionals, 2021 (n=89); Bain & Company

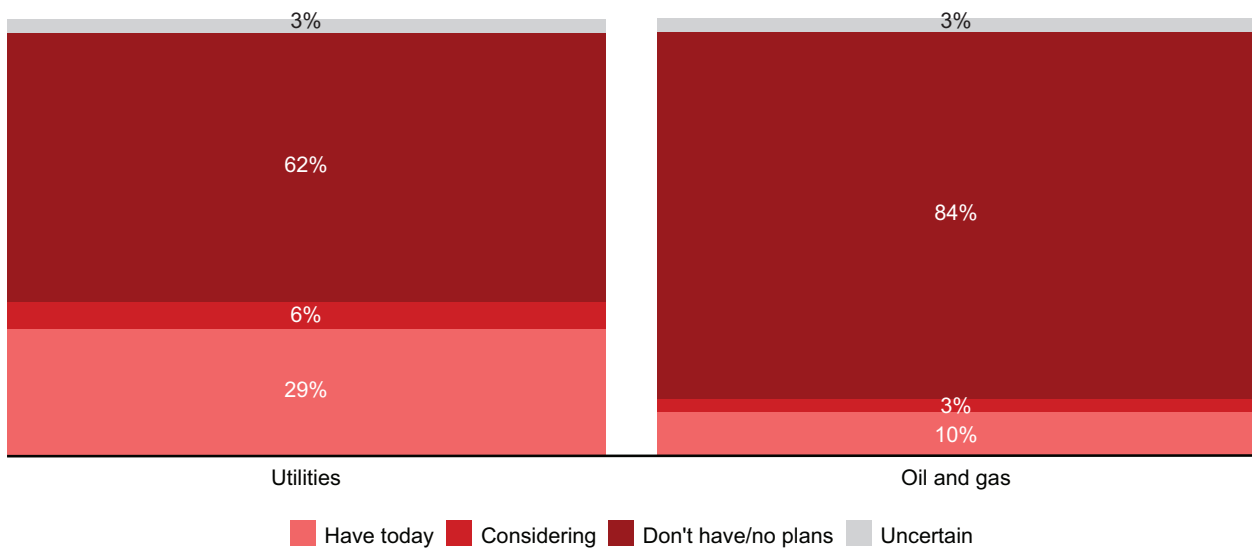
**Figure 8:** Four out of five investors say ESG is important in their decisions



Note: Percentages may not add up to 100% due to rounding  
 Sources: Rivel survey of North American and European investment professionals, 2021 (n=89); Bain & Company

**Figure 9:** Some investors have ESG rating rules for their portfolios

**Investors who have rules to include only companies that meet specific ESG ratings thresholds**



Sources: Rivel survey of North American and European investment professionals, 2021 (n=89); Bain & Company

For executive teams, the mission on ESG is clear: Demonstrate real progress and consider a world in which carbon limits and exclusions are broadly adopted by some investors.

## The path forward

Our research with Rivel shows that the energy transition is increasingly central to how investors and analysts view energy and natural resources.

For utilities, this is the time to be on the front foot with investors and to deploy bold, innovative strategies to enable more investment in their jurisdictions. Oil and gas companies, on the other hand, will want to manage and evolve their investor value propositions carefully. Investors are looking to the sector to generate cash; some companies may exploit near-term demand for oil and gas to build capital. Investors are waiting to see if the capital will be returned or used for transformative change.

For executives in both sectors, embarking on any new, low-carbon energy businesses will require a clear connection to the principles of the core business. Now more than ever, they'll need to show how their capabilities, expertise, and customer relationships make them the best owner of the new business.

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These findings represent a snapshot in time. The capital markets and energy transition landscapes remain dynamic. How will asset managers in the net-zero financial coalitions incorporate ESG, carbon, and science-based targets into their investing decisions? Will certain companies or categories of energy infrastructure become less “investible” as a result? What happens then, to individual companies and energy markets? (For more, see the Bain Brief “Managing Stranded Costs on the Long Road to Net Zero.”)

Executive teams should stress-test their strategy and decisions against the answers to these questions, while keeping a close watch on developments in capital markets.



Data-rich perspectives

# How Companies Are Responding to the Crisis in Ukraine

Forming a series of tailored scenarios can help prepare for volatility in commodity supplies and shifting trade blocs.

By Jorge Leis, Stuart Love, Peter Parry, Dave Rennard, and Michael Short

## At a Glance

- ▶ Energy and natural resources companies have moved past their initial shock over the war in Ukraine and are integrating new economic and commodity-flow realities into their planning.
- ▶ Resilience can be expensive, so executives need to determine where it makes the most sense to invest, particularly in long-term investments in energy and resources.
- ▶ Identifying disruptions at three levels—commodity, macroeconomic, and policy—helps companies see how their businesses will be affected.
- ▶ By tailoring scenarios of plausible disruptions and outcomes, companies can prepare for a range of possible outcomes.



As the war in Ukraine grinds on, companies and their leadership teams have moved past their initial reactions of shock in order to integrate the crisis into their medium- and long-term planning. The war is a continuing tragedy, but also—when viewed through the lens of corporate strategy—an extreme example in a string of global disruptions that seem to be coming faster, more frequently, and with greater intensity than they once did.

For most companies, a critical component of their response to the crisis is finding ways to make their businesses, operations, and supply chains more resilient. It's becoming increasingly prudent to prioritize resilience over low cost or efficiency. "Just in time" has been replaced by "just in case."

Resilience is critical, but resilience is also expensive. For longer-term survival, companies still need to pay attention to the basic principles of leadership: innovation, impact, and economics. But as they recover from the initial shock and begin to make longer-term plans, companies need to answer the question: Where is resilience worth the cost?

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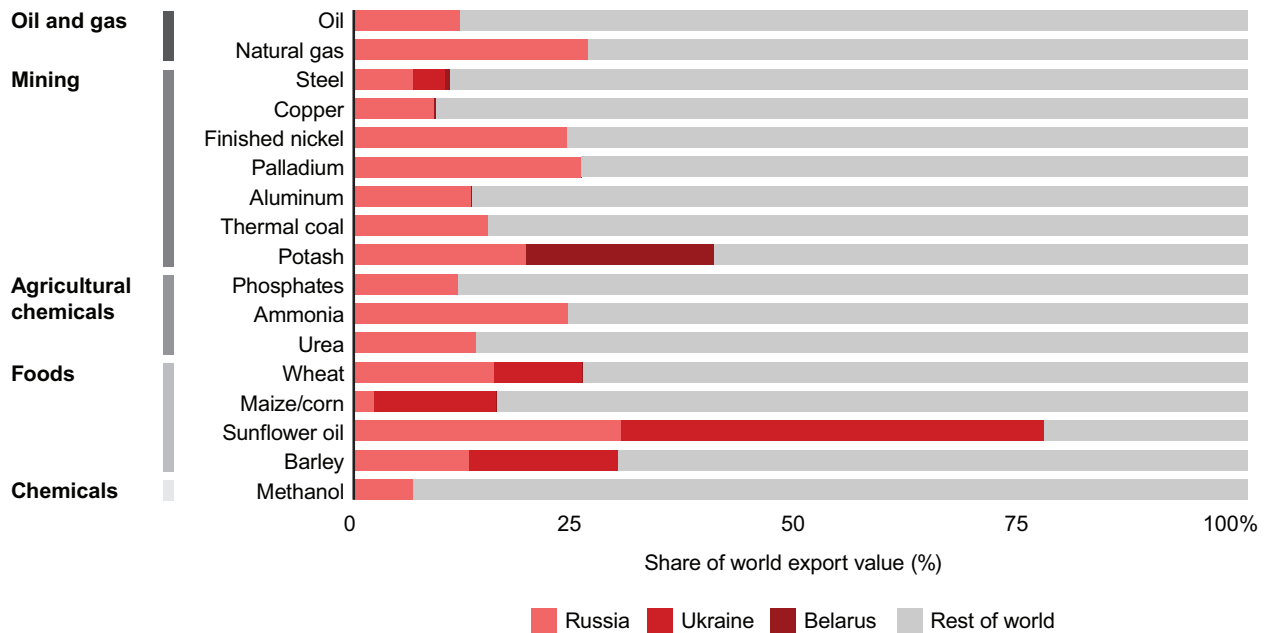
For most companies, a critical component of their response to the crisis is finding ways to make their businesses, operations, and supply chains more resilient. It's becoming increasingly prudent to prioritize resilience over low cost or efficiency. "Just in time" has been replaced by "just in case."

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The answers differ for each company. Getting it right requires at least two things. First, companies need to develop a comprehensive understanding of their vulnerabilities to a range of disruptions, including risks to people, business continuity, asset economics, and financial performance. In some cases, these risks may originate two or three steps away from their typical planning view. For most companies in the energy and natural resources sectors, the response requires understanding the supply-side shocks affecting the commodities for which Russia, Ukraine, and Belarus play a key role in production and trade (see *Figure 1*). These supply challenges will restructure trade flows while also invigorating domestic alternatives.

The second step aims at longer-term insights and better decision making. Questions like, "Where is resilience worth the cost?" and, "Can I respond to today's shortage with a major new capital investment?" are best considered in the context of scenarios that reflect a set of plausible outcomes. By developing a set of tailored scenarios specifically anchored on those potential disruptions and their associated uncertainty, companies lay the groundwork for repositioning their organizations to thrive in a rapidly shifting business environment.

**Figure 1:** Percentage of global commodities produced by Russia, Belarus, and Ukraine



Sources: UN Comtrade; Refinitiv; US Department of Agriculture; BP; International Fertilizer Association; Nutrien; DTN; US Geological Survey; Bain & Company

## Scenario planning

Companies can map out potential impacts using scenario planning to aggregate different trajectories of the business environment. For example, a return to globalized trade would be characterized by short-term disruption to commodities, modest macroeconomic effects, and a renewed emphasis on environmental, social, and corporate governance (ESG) considerations. Although similar to conditions a year ago, this scenario would still be more cautious than before Russia invaded Ukraine, recognizing resource security as a priority.

In a fractured scenario, the world is changing, and the invasion would be the latest manifestation of that change, marking an end to the efficient trade of a globalized world, and the beginning of a world fractured into nearly independent trade blocs. In this scenario, loss of efficiency drives up commodity prices. Trade blocs would focus on security of supply, creating redundancy and increasing global demand. Supply chains and global trade would be severely disrupted, but growth possible. Companies would find that sanctions and national interests govern their operations more than in the past.

Companies in the energy and natural resources sectors will feel the disruption of these scenarios at three different levels.

- **Commodity level**, affecting the local and global market conditions specific to each commodity and market (for example, European gas demand, global wheat pricing).

- **Macroeconomic level**, reflecting how commodity disruptions can affect the broader economy, including inflationary pressure or recession risk.
- **Policy and technology implications**, including changes in taxes, the role of government spending and subsidies, and new technology developments.

Commodity shortages and resulting price spikes quickly flow to downstream customers for whom these are key inputs (including manufacturing, power generation, fertilizers, and many others). Because some of these commodities (notably oil, gas, and food) are among the broadest inputs into the overall economy, all consumers will pay higher prices for consumer goods. The pressure on household budgets will drive government responses in the form of subsidies, tax relief, and other measures, to try to ease the burden on the general public, and those regulatory responses will feed back into the dynamics that companies face as they decide how to navigate this set of disruptions.

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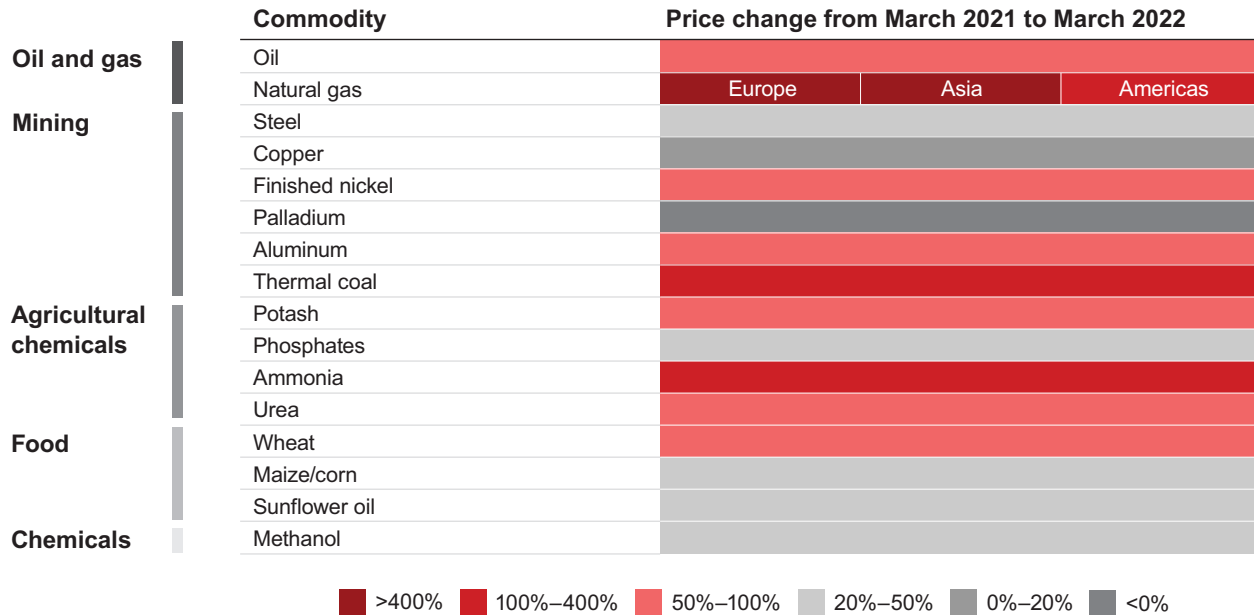
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Companies have been responding in real time and planning how to optimize their infrastructure and relationships for the near term. Now, for many, the planning cycle introduces an opportunity to explore how the conflict will alter near- and long-term decisions, especially influencing both the capital cycle and portfolio views. Over the next few months, it will be critical for companies to reexamine recent events through the lens of risk and opportunity. Some CEOs may determine that increasingly volatile business environments merit investing in greater resilience, while others may look for ways to pursue efficiency to undercut competitors when markets are favorable.

## Commodity level

In the face of these disruptions, primary commodity producers are looking to increase capacity to displace Russian exports. Customers and finished-product companies are having to absorb price shocks and supply constraints, and midstream traders will need to forge new connections as markets react and evolve (see *Figure 2*). Business customers and governments are acting to address acute shortages.

**Figure 2:** Prices have risen dramatically for many commodities that are major exports of Russia and Ukraine



Notes: Data as of March 31, 2022; copper and palladium prices have been trending higher over the last few years, but high prices in March 2021 mean the year-on-year change was minimal  
 Sources: UN Comtrade; Refinitiv; US Department of Agriculture; BP; International Fertilizer Association; Nutrien; DTN; US Geological Survey; Bain & Company

Markets will respond to the threat of commodity supply interruptions in four ways.

- **New sources of supply** will replace those affected by sanctions or shifting trade routes. For example, European countries are making new agreements with Qatar and the US for liquefied natural gas (LNG) to replace piped gas from Russia.
- **Substitute goods** provide alternatives. When Russian sunflower oil fell under sanctions, prices for Malaysian palm oil surged.
- **Reduced demand**, whether resulting from high prices (as with some ammonia producers in Eastern Europe) or coordinated demand responses (such as the IEA’s call to set thermostats 1°C lower, to consume less gas).
- **Rerouting trade routes** in response to sanctions and to supply emerging trade blocs. Japan and the EU, importers of both metallurgical and thermal coal from Russia, have begun sourcing from other locations such as Colombia, the US, Australia, and Indonesia.

These changes carry risk for each commodity but may also create new opportunities that companies will need to navigate in an uncertain and rapidly evolving market environment. We’ll consider three fundamental inputs: gas, oil, and wheat.

**Natural gas.** Europe depends on Russia for 60% of its imported natural gas, and its imports consume 75% of Russia's exported gas volume. The European Union has reacted quickly with proposals that could cut that dependence in half relatively quickly, even in a cautious scenario, reflecting Europe's newfound concerns for energy security. The proposals rely heavily on bringing in alternative supplies in the form of international LNG, and more European purchases of LNG on the spot market will raise demand and prices beyond usual patterns.

Substitution is possible in the near term by prolonging the life of nuclear plants that had been scheduled to shut down, and accelerating the queue of wind and solar projects (though these renewable sources remain intermittent without at-scale power storage, so they aren't perfect substitutes). These substitutes can introduce power to the grid and partially offset demand for gas.

Demand reduction is also in scope. Higher prices will reduce demand for natural gas. These high costs will present stiff challenges for gas-intensive European industries and provide opportunities for low-cost manufacturers, especially those that have cheaper gas and can export to European markets.

Additional offsetting will be painful. In more extreme scenarios, this could mean not just higher costs, but also the risk of backsliding on environmental goals. Swapping coal or oil for gas could reduce dependence on Russian gas supplies, but at the cost of increasing carbon emissions.

Even with these more painful measures, it will be difficult for Europe to reduce its dependence on Russian gas by much more than 60% within a year, meaning continued dependence on some 50 billion to 70 billion cubic meters (bcm) of Russian gas per year. Because Russia's government is disproportionately funded by oil and gas, which together comprise only 7% of Russian GDP but about 40% of the government's budget, both parties will want to see gas continue to flow, at least to fulfill existing contracts. It could take at least five years to fundamentally change this relationship, partly because the infrastructure will take that long to build.

This mutual dependence explains Russia's hesitation in terminating gas flows. Russia has tested the effectiveness of using its gas flows as a negotiating tactic in penalizing Poland and Finland, but market stability despite these moves indicates they are too small in the summer demand season to have a material impact. The invasion of Ukraine coincided with the end of the winter gas season, so low stocks and winter demand patterns created dramatic price spikes. The price of gas has subsequently settled at a high price, supporting a European program to acquire LNG and piped gas to restock storage. This effort has created a cushion to temper price effects from recent physical gas pipeline disruptions from both Russia and Ukraine. A prolonged or expanded outage, or an outage at another time of year, could have much more dire effects, however, and the market remains strained.

The acute awareness of the importance of energy security clearly affects opportunities and risks for energy players. Gas and LNG suppliers may find good terms for contracting new capital projects. New pipelines that would have encountered public resistance a year ago may find a more hospitable regulatory process. Power rates, buoyed by gas prices, may help accelerate economics for new renewable



power projects. These tailwinds will run up against increased demand for hardware and energy services. In addition to other sources of inflation, this will drive higher costs of labor and materials, all of which will distort historical project economics.

For energy consumers, especially those heavily dependent on gas, project economics will also shift. Companies weighing a potential move toward electrification to reduce their carbon footprint may find the decision easier in a world where gas prices are subject to occasional and prolonged spikes up to five times the historic average price. The value of hedging and long-term contracts may be greater going forward. And security of supply doesn't necessarily translate to domestication of supply lines; expansion into lower-priced energy markets may present new avenues for growth.

**Oil.** Russia supplied about 7.8 million barrels per day (mbd) of crude oil and refined products. About two-thirds of that flowed to countries that have backed the idea of sanctions; the US and the UK, followed by the rest of the G7, have already pledged to eliminate Russian imports, and the European Union may follow. The rest flows to countries that have not, including China, India, and some Central and Eastern European countries.

Before Russia's invasion, the price of oil was already rising as economies recovered from the Covid-19 pandemic. Crude oil prices rose from about \$54 per barrel in January 2021 to \$74 in December.

Uncertainty in the wake of the invasion pushed crude oil prices over \$120 per barrel, indicating a highly stressed market. If a substantial portion of Russia's oil exports were to stay off the market indefinitely, prices could go higher.

But it's unlikely that a significant amount of Russian oil would disappear from global markets, which are fluid and porous. Oil tankers can be easily rerouted, and even sanctioned oil has a way of finding its way to market. Refined products are even easier to reroute than oil, and they make up about 2 mbd to 3 mbd of Russia's total exports, much of which is likely to find markets. The share of Russian exports shipped with an unknown destination has increased dramatically, with much of this blended at sea to conceal its origin.

Given this, in a cautious scenario, perhaps 1 million barrels of Russia's daily export volume would be curtailed, an amount that's relatively easy for the global market to adapt to. Sanctions from the US and European Union may be relatively easy to circumvent, even by lower- and middle-income countries that may be able to buy Russian liquids at a discount. Indeed, India has already increased its purchases of Russian crude, which trades at a discount of \$30 or more per barrel.

But Russian refineries are already reducing output due to the resistance in markets. In more extreme scenarios, as much as 4 mbd could struggle to find a market. Western capital could dry up, and we have already seen BP, Shell, Equinor, and Exxon announce their withdrawal from Russia. As depletion and depreciation take their toll, and as foreign know-how, expertise, and hardware become scarcer in the region, supply could decrease by 3 mbd, even without direct sanctions on the industry.

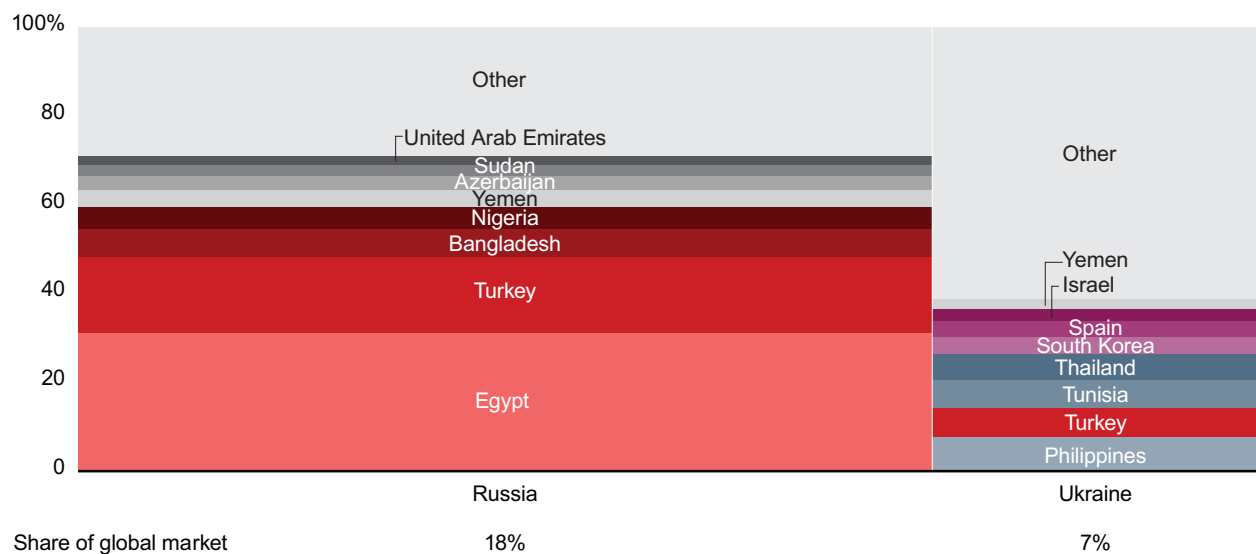
It doesn't take a lot to move the market, though, and some markets are particularly vulnerable. Diesel was already in high demand due to Covid-related supply chain issues. Now, as European refiners turn down Russian crude and distributors forgo Russian diesel, European supply constraints become more pronounced. On top of this, desulfurizing diesel requires hydrogen from currently expensive natural gas. The result is a high and scarce diesel market that drives up logistics and machinery costs.

**Wheat.** Russia and Ukraine play an important role in the global food chain (see Figure 3). In addition to exporting critical fertilizer ingredients such as ammonia, phosphate, and potash, they together make up about 14% of global wheat production and one-quarter of the global wheat trade. Much of this wheat ships to North Africa and the Middle East. Egypt, for example, is the world's largest importer of wheat, importing nearly 60% of its wheat consumption, with about 80% of imports coming from Ukraine or Russia. Prices on the types of wheat that Russia and Ukraine export have risen, so Egypt and other importing countries will need to pay higher prices for wheat on the global market to feed vulnerable populations—one of many causes for concern.

Wheat farmers in the Southern Hemisphere may be in a position to supplement some of the shortfall, benefiting from higher prices as they do. Shifting production from other crops to wheat could affect the prices of other commodities such as soy, barley, corn, and sunflowers, reducing volumes and raising prices. As the war continues, Northern Hemisphere farmers will soon face the same decisions in the next planting year, spreading the ripple effects on these commodity crops.

**Figure 3:** Disruption to agricultural trade flows could lead to major challenges in supplying food, especially in the Middle East and North Africa

**Russian and Ukrainian wheat exports, by destination (2019)**



Sources: OECD; Bloomberg; International Monetary Fund

In thinking about whether and how to sanction Russian exports, it's important to remember that many food and agricultural companies and organizations feed the world as part of their mission. When food companies weigh whether to continue operating in Russia and other countries in the region, they will have to consider the human cost borne by people uninvolved in the conflict, such as the vulnerable communities in Egypt that rely on Russian and Ukrainian wheat for their (subsidized) daily bread.

For sectors depending on these and other commodities, the supply disruptions are cascading down the value chain, creating volatility in price and supply for many products that might not seem to be immediately affected. In some cases, the effect on downstream industries may be dramatic as companies struggle with shortage-driven business-continuity risk and spikes in input costs well beyond anything they've planned for. The impacts downstream can also be hard to see when considering just the commodities. For example, palladium shortages could affect the production and costs of catalytic converters, hampering the auto industry. Companies across sectors—not just in energy and natural resources, but also in consumer goods, manufacturing, technology, retail, and logistics—should be running scenarios to prepare for uncertain outcomes.

## Macroeconomic factors

In a fractured scenario, persistently high and frequently spiking commodity prices and deepening supply shortages will accelerate the inflation that was already underway before the war began. Consumers are likely to cut back on nonessential spending, depending on their sensitivity and exposure to price increases, and central banks will fall under greater pressure to raise interest rates. Even in a cautious scenario, elevated commodity prices will prevail.

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In a fractured scenario, persistently high and frequently spiking commodity prices and deepening supply shortages will accelerate the inflation that was already underway before the war began.

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Across all scenarios, financial markets are likely to see even greater volatility as investors react to developments in the war and affected economies. Capital flows to Eastern Europe will diminish, and in a fractured scenario, a liquidity crunch could escalate as investors exercise greater caution and respond to central bank moves.

The combination of reduced consumer spending and deteriorating financial conditions leads to an economic slowdown or recession in extreme scenarios. US GDP contracted 1.4% in the first quarter, and while this isn't wholly attributable to the war, it's the clearest signpost yet of danger ahead for

the US economy. This could put governments back in the position of introducing economic stimulus measures, as they did during the Covid-19 pandemic—all while stubbornly high commodity prices could suppress any economic boost that would help consumers cope with recession.

## Policy and technology implications

In a fractured scenario, sanctions and trade interruptions would realign geopolitical blocs, with trade and investments blocs decoupling. Europe and the US are already rekindling trade relationships with some regimes that had been out of favor, including Venezuela and Iran, in order to shore up crude oil inventory. In a cautious scenario, global trade resumes, but a premium would remain for domestic or secure supply lines.

Governments are likely to implement more active industrial policies, along with interventions aimed at counteracting the harm from the conflict or to accelerate their response, particularly in nations that rely on resource imports from the conflict region. The European Union's REPowerEU initiative, for example, aims to speed up and streamline the process for developing renewable energy infrastructure.

In the private sector, investors and consumers are likely to further increase scrutiny on energy and supply chain issues across scenarios. Cybersecurity will receive added attention, especially in a fractured world, and the investments in protection and amelioration will increase.

## Windfall profits and the energy transition

The crisis is likely to accelerate the energy transition, as markets race to increase their reliance on renewables as part of a broader strategy to reduce their dependence on Russian hydrocarbons. Green energy will increasingly be associated with localization of energy supply.

The immediate increase in energy prices makes renewables more attractive. For example, green hydrogen may be more competitive in some markets, given higher gas prices. In the near term, however, high prices for some commodities (for example, nickel, palladium, and polysilicon) could blunt demand for renewables and energy storage. There will likely be a growing recognition of the inherent volatility of the energy transition, leading to a recognition that fossil fuels will be needed as bridge fuels (particularly natural gas, and even coal) and a potential renaissance of nuclear energy.

The rise in energy prices will also deliver windfall profits to many fossil fuel energy companies far from the conflict. Executive teams will have to decide whether to reinvest these profits in producing more traditional fuels, invest them in new businesses focused on renewables, or distribute them to shareholders. Scrutiny from policymakers will increase the pressure to make visible, productive use of these windfalls.

At the same time, energy security is likely to be more prominently linked to national security, with calls to redesign global supply chains and diversify away from hostile states. These shifts and the transition from fossil fuels will clearly result in higher prices for consumers, either directly or in the

form of taxes, at least over the medium term. It remains an open question how much consumers will be willing to bear, particularly in the context of underlying and accelerating inflation.

## Respond and reposition

Responding to an unfolding crisis, ensuring the safety of employees, and protecting the continuity and resilience of operations has been the first order of business for companies affected by the war in Ukraine. The next task must be to reposition organizations to thrive in a changed environment. In approaching this, executives can use the same themes that have guided them through the uncertainty of the past few years.

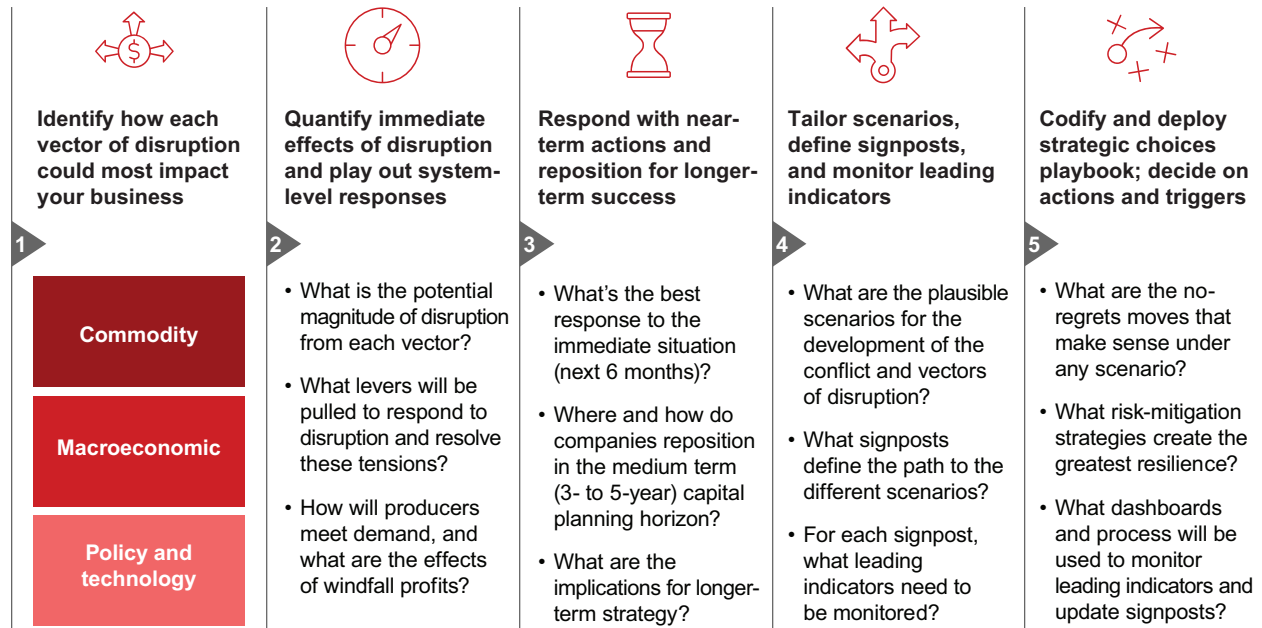
- **Innovation.** How can the company adapt and evolve to changed conditions? As with the ongoing energy transition and the Covid-19 pandemic, new technologies and ways of working may be critical assets in setting up new models.
- **Impact.** How will supply disruptions impact the company's ESG ambitions? Some emissions-reduction ambitions could see a setback in the immediate rush to substitute energy and commodity sources but could then accelerate as companies and countries invest in renewables to shore up energy security and more sustainable commodity supplies.
- **Economics.** Identifying where to invest in strengthening resilience is critical in the short and medium term. But long-term viability demands that executives continue to focus on generating short- to mid-term value in order to draw the capital and access resources necessary for success.

In the near term, executives can follow a simple, five-step approach for determining how to respond and begin to reposition (see *Figure 4*).

1. Identify how each of the three levels of disruption (commodity, macroeconomic, political and technological) affects your business operations. For example, companies should evaluate how the renewed focus on energy security might affect their own energy transition and how inflation could raise the costs of capital projects.
2. Quantify immediate effects of disruption and play out responses for each level of disruption. For example, companies should consider which alternative sources could come online to disrupt any benefits from a potential windfall. Testing the more extreme edge, they must also consider what commodity price would compel them to shut down operations, or when they might need to break contracts to find new vendors.
3. Respond with near-term actions and reposition for longer-term success. For example, companies should determine which capital projects in the queue they should accelerate to take advantage of a changed business environment. Companies also need to evaluate supply chain and stranded-asset risks and determine where they should invest in resilience (for more, read the Bain Brief "Managing Stranded Costs on the Long Road to Net Zero").



**Figure 4:** A five-step approach helps develop concrete actions to respond and reposition in the immediate and medium terms



Source: Bain & Company

4. Tailor scenarios and define signposts and leading indicators. Most executives will want to know how quickly they can get their business back to normal. Identifying the right indicators will help them determine whether they're moving through a cautious or fractured scenario. That will shed light on what changing conditions they need to understand—for example, assessing what would happen if a competitor in China can access low-cost Russian oil while others have to pay more for nonsanctioned crude.
5. Codify and deploy a strategic choices playbook. Identify no-regrets moves and risk-mitigation strategies to create more resilience in their operations.







# Transition trends

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## Transition trends

# Developing Talent Strategies for the Energy Transition

Energy and natural resources companies will need to create an inclusive environment for new and diverse employees, while also valuing legacy talent.

**By Brenen Blair, Anders Bruhn, and Emily Emmett**

## At a Glance

- ▶ Energy and natural resources companies will need to find and integrate talent with a wide range of skills to guide them through the energy transition and help build new, greener businesses.
- ▶ Many organizations are struggling to balance acquiring talent needed to pursue new opportunities and retaining employees with the skills necessary to support legacy businesses.
- ▶ Bain's recent research on inclusion found that about 80% of employees in oil and gas view inclusion as very important in their workplace, but the oil and gas sector lags other industries in fostering inclusion.
- ▶ Leaders can help with retention and integration across talent pools by clearly signaling their commitment to the energy transition, promoting growth for individuals, and facilitating connections among employee groups.

Navigating the energy transition will be a generational challenge, requiring top-tier talent to solve incredibly complex problems. Meeting this challenge will require retaining and reskilling today's workers, while integrating new people with varied backgrounds and capabilities. Leaders will need to invest in creating inclusive organizations where everyone feels like a valued contributor with a shared purpose.

Generations of talented individuals have pursued careers in energy because it offered opportunities for learning, teamwork, and impact in the service of powering our communities. This will be as true in the future as it was in the past. Looking backward, the talent that made the difference was concentrated in engineering and operational disciplines. But as the energy transition expands the range of business activities that energy companies pursue, that talent base is expanding and diversifying. Engineering proficiency is no less critical to success, but companies also need to integrate expertise in new areas such as product development, human-centered design, and regulatory affairs.

“Working in energy gives me a sense of purpose. It makes me feel I’m working on something bigger than myself, something bigger than my company.”

—Battery engineer, renewable energy, 33

Talent strategy is becoming an existential priority in the energy sector. This is the result of several pressures challenging the ability to find, hire, and retain talent: a wave of retiring professionals, demand for new roles to build out new businesses, and a talent drain from the energy sector to technology, to name a few. To address these gaps, companies are rethinking how and where to expand the funnel for potential new hires, while also innovating and experimenting with new strategies to retain and reskill the workforce that keeps their current businesses running. Power utilities, for example, will need new teams to build out wind farms and battery arrays, but will also continue to require teams that can keep thermal plants running.

This isn't the first time that the energy industry had to adapt its workforce to major changes in technology, regulation, and economics. Establishing the business models that built the modern energy landscape and building the infrastructure that delivers energy at a massive scale to power the global economy required a broad range of talent.

In more recent decades, however, as many companies' strategies focused on incremental growth and continuous improvement, the workforce evolved to be more geared to deliver operational excellence and prudent capital management, rather than building disruptive and innovative new businesses. In the decade ahead, both are priorities.

As economies confront the need to reduce carbon emissions, the energy workforce is once again transforming. Energy companies must design employee value propositions that invite and appeal

to the new talent needed for new capabilities and businesses, without threatening or alienating their current workforce.

“Multinational oil and gas companies are competing with every other big company out there for talent and need a real value proposition.”

—Subsea engineer, oil and gas, 29

## Winning new talent with diverse new perspectives

Energy companies know they need to attract employees with new skills and capabilities, often from more diverse demographics than the current workforce. Some of this talent will need to be won over from the technology, finance, and public sectors, and they’ll bring new perspectives on teaming, compensation, and location (including remote options). Like current employees, they want to feel included in the companies they work for, and they want to know they’re experiencing an equitable talent journey, no matter their role. But in our interviews over the past year with the people that energy companies are trying to win over, many are skeptical of the motives of the industry, and doubtful of their ability to succeed in incumbent energy companies. Senior managers will need to find ways to reassure these new workers that they’re an essential part of the team, valued for their unique capabilities and perspectives.

“I want it to be clear that green investments are not just a PR stunt . . . trust would be the No. 1 factor to determine if I am interested in a job or not.”

—PhD student, organometallic chemistry, 29

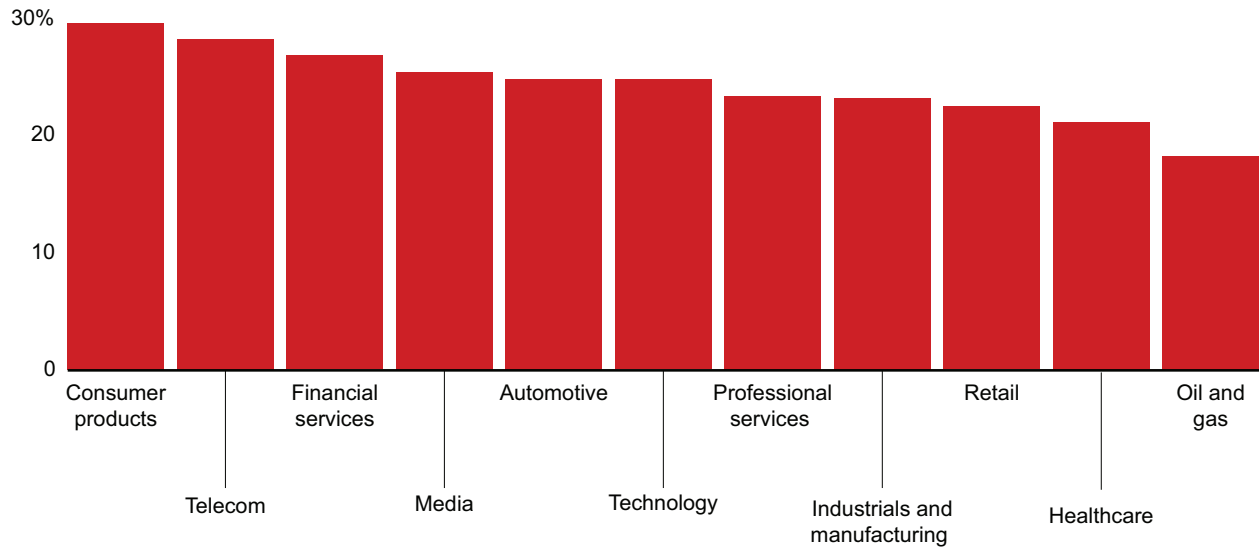
However, in going for this new cohort, energy companies find themselves in a challenging starting position. In addition to weak representation of diverse talent, the industry lags on overall measures of inclusivity (see *Figure 1*).

While most energy executives are aware of the talent crunch in their sectors and the obstacles preventing them from drawing in more diverse talent, they may be overlooking some important keys to success. Inclusivity is an important factor for career success in every sector, but especially in some energy and natural resources (ENR) industries. Bain’s recent research found that nearly four out of five employees in the US oil and gas sector rate inclusivity as very important in an employer, the most of any sector we surveyed.



**Figure 1:** Oil and gas trails other industries in measures of inclusivity

**Percentage of employees who feel fully included, by industry**



Note: Employees surveyed in Australia, Canada, France, Italy, Germany, United Kingdom, and United States  
 Source: Bain Inclusive Organization Survey, 2021 (n=9,494)

“I want diversity in thinking, diversity in gender . . . more inclusion of people from different cultures and backgrounds is necessary for getting different ideas on the table.”

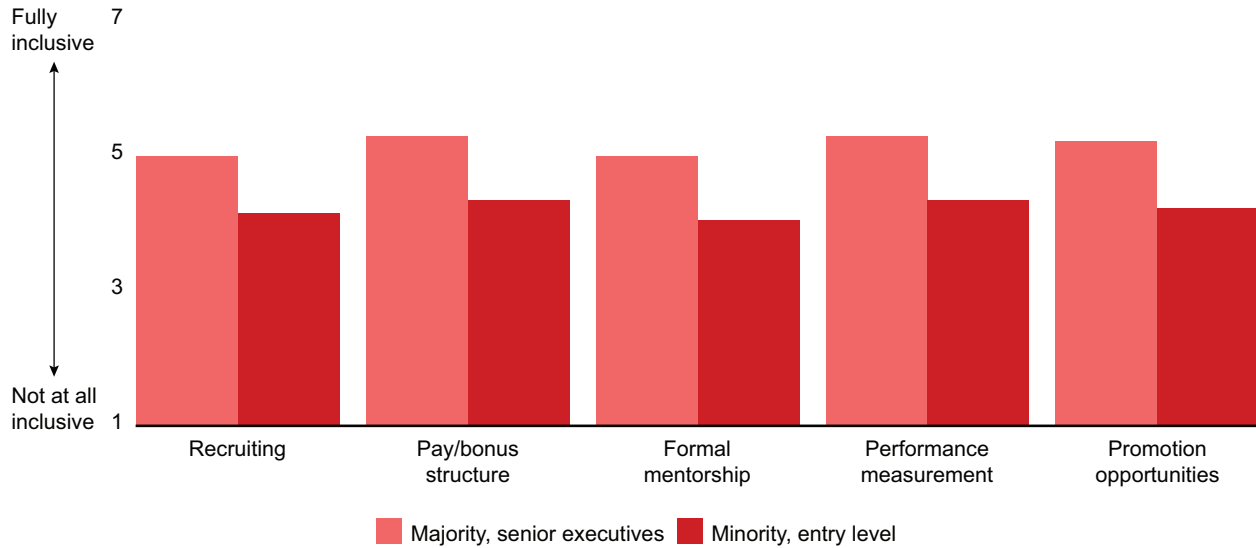
—Undergraduate student, mechanical engineering, 22

However, Bain’s research also found that many senior leaders may have a rosier picture of inclusivity in their companies than the new hires they’re hoping will build their careers there (see Figure 2). Across factors, senior executives rated their organizations as more inclusive than did more junior team members.

These blind spots make it harder for energy and natural resources companies to know how to make their organizations more inclusive to a more diverse pool of talent. They can make it hard to stem the “leaky bucket” effect, in which well-intentioned recruiting efforts bring in racially or gender-diverse employees—who then leave soon after because they don’t feel like they belong or are included.

**Figure 2:** Unconscious blind spots among senior leaders can limit their ability to design the right solutions for inclusivity

**Extent to which respondents believe systems are inclusive in their organization**



Notes: Majority defined as straight, white, male; minority includes racial and sexual minorities; respondents were asked to rate each system on a scale of 1 to 7  
 Source: Bain Inclusive Organization Survey (n=9,494, ENR sector n=406)

“My perception is that traditional energy companies right now are misaligned with what I believe.”

—Associate engineer, renewable energy, 22

Bain’s recent research on inclusivity identified the factors that make ENR employees feel included. Top factors included growth opportunities, transparent feedback, a mindset for growth among leadership, and strong coaching and professional development rituals—things that would be important to anyone navigating a career path. People in underrepresented groups (including women, Black, Asian, Hispanic, and LGBTQ+) reported greater inclusion if they saw inclusion in the company’s diversity mission and goals and experienced it in team meetings, performance reviews, and team building. They also felt more included if they worked with leaders who had a growth mindset and a commitment to transparent feedback and were open to unique points of view.

**Supporting current talent**

While energy companies scrutinize and adapt talent strategies to include new sources and types of skills, it would be a mistake to assume that “legacy” talent profiles and preferences will remain unchanged. Most of the current energy workforce is highly motivated to support the energy

transition and eager to apply their current capabilities and new skills to new missions. They're also keen to remain relevant and valuable in an uncertain future.

“You wouldn't want to be stuck in an industry that is potentially going to be gone in 20 years; you're looking at building a 30- to 40-year career.”

—Subsea engineer, oil and gas, 29

The energy sector needs a skilled workforce doing many of the same things that have kept the industry running for decades—and will remain important for years to come. Yet even established roles are changing. Leaders need to continually inspire and motivate the workforce, making sure skills don't erode, and showing these workers they remain important, valued, and included, even as their companies are transformed.

“How will the company help me transition my knowledge and experiences into something that could help the energy transition?”

—Telecom engineer, oil and gas, 30

## The inclusion imperative

There's no simple solution for the complex talent challenges facing the energy sector. Success will require companies to deeply engage with and draw out the full potential of new and current talent populations, and to inspire them to innovate and solve problems together, not just in parallel. We believe that improving the sense of inclusion for all employees, old and new, will be a critical enabler of the evolving talent engine required to power the energy transition.

A sincere commitment to inclusion makes organizations both higher performing and more welcoming for all workers, across lines of capability, demographics, and tenure.

Bain's recent report on inclusion shows that employees who feel fully included are up to six times more likely to remain with their current employer, and are much more likely to promote their place of employment to others (+71 vs. -83, using Bain's employee Net Promoter Score<sup>SM</sup> methodology of calculating the percentage of promoters minus the percentage of detractors) than those who feel “not at all included.”

New employees want to have a seat at the table—to be invited to help solve the challenge of how to serve their communities in more environmentally sustainable ways. Existing employees also want to contribute to new priorities and want to know their unique skills and experiences remain valuable in an uncertain future. Inclusion won't solve all of the complex talent challenges, but it will play a foundational role in any strategy.

Getting this right as an organization is complex in any scenario, even more so in an industry undergoing major disruption. The tactics that support and improve inclusion are nuanced. But we've found a few common themes across industries that feel especially relevant to today's energy landscape.

- **Signal commitment.** People working in energy, both new and existing employees, are looking to know that they're a part of the solution; that their organization is committed to thoughtfully navigating the transition; and that their perspectives are valued. Leaders should listen deeply, then talk openly and frequently about a sincere commitment to both the transition and fully including a diverse talent base.

"I want to see a clear roadmap to decarbonization and actual metrics to measure that . . . words without measurable metrics are not as convincing."

—Development engineer, renewable energy, 25

- **Promote growth.** Everyone wants to build skills to navigate to the other side. Everyone wants to look ahead to a rewarding career path, characterized by deeper skills and expanding autonomy and authority. Invest in building clear, transparent career paths for new talent and helping existing talent understand lateral opportunities. Cultivate a growth mindset in leaders and give decision-making authority and leadership opportunities to the next generation to help build skills and confidence. Recognize that making this successful will require a complex set of changes to both ingrained behaviors and standard talent operations.

"I do think the scale up of energy technologies is going to require new skills that have to be learned and developed."

—Analytical scientist, renewable energy, 30

- **Facilitate connection.** Scrutinize the organizational silos that exist today, and guard against reinforcing them or creating new ones. New and existing employees need to be truly integrated, with an appreciation for the roles everyone plays in serving the organization's long-term purpose and near-term strategy. Identify and experiment with tactics to strengthen connection across potential silos, for example, through Agile teaming, cross-training, mentoring programs, and diversity affinity groups.

Navigating the energy transition will require the deliberate marriage of new and existing talent communities over many years, joining together to adopt new ways of working in support of new products and services as well as legacy business models. These are the building blocks of inclusion for a diverse population, which we see as essential to attracting, retaining, and benefiting from the full potential of the diverse talent base needed to thrive in the energy transition.



## Transition trends

# Creating a Coordinated Approach to Decarbonization

Energy and natural resources companies are building broad coalitions to develop policies that accelerate decarbonization.

**By Julian Critchlow, Aaron Denman, Dale Hardcastle, and Cate Hight**

## At a Glance

- ▶ Companies have always needed to pay attention to stakeholders, but more sophistication is required now since the changes required by the energy transition touch many aspects of industry and society.
- ▶ Executives of ENR companies are focused on decarbonization but see the lack of clear and stable government policy as a major barrier to investment in new growth businesses and transformational change.
- ▶ A comprehensive decarbonization effort demands a coordinated approach. Coalitions of companies, government agencies, citizen groups, and other nongovernmental organizations can be catalysts to accelerate essential policy changes.

Europe's efforts to reduce dependence on Russian oil and gas have highlighted the issues of energy security and supply to a degree not seen in decades.

For many, the impetus to decouple Europe's energy demand from Russian supply creates a logical incentive to accelerate the energy transition. The European Union's REPowerEU program, for example, includes a broad collection of measures, including diversifying the supply of natural gas, speeding up electrification of mobility, and improving the electrical system by removing bottlenecks in infrastructure.

At the same time, others see the current moment as requiring a step back from the race to decarbonize, encouraging more fossil fuel development and use as a way of offsetting the lost supply of Russian oil and gas—lost, at least, to Western nations imposing sanctions. Some coal share prices rose as much as 400% in the first weeks of the war, as traders prepared for global demand to spike.

Most of the energy executives that we speak with agree that the long-term direction is clear: We must continue to decarbonize and create a more sustainable, lower-carbon economy. Everyone seems to agree that's where we want the world to go by 2050.

But 2050 is long way off. The more imminent question is, "How do we navigate the transition in the next 5 to 10 years?"

## **Delivering the energy transition is complex**

We've already come a long way. In most places, the cost of renewable energy is already competitive with fossil fuel power. With the precipitous fall in battery prices and longer lifetimes, electric vehicles (EVs) have reached lifetime cost parity in key markets.

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Executives are focused on decarbonization, but they see the lack of clear and stable government policy as a major barrier to transformational change.

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What's more, energy executives tell us they're eager to invest more (and more rapidly) in sustainable, lower-carbon assets. They're under pressure from investors, customers, suppliers, employees (current and future) and a wide range of nongovernmental organizations (NGOs) asking them to lead on climate change. Indeed, with more than \$130 trillion of global capital now under management that has agreed to consider carbon in their investment decisions, these companies have little choice but to pursue a more sustainable future, if they want it funded.

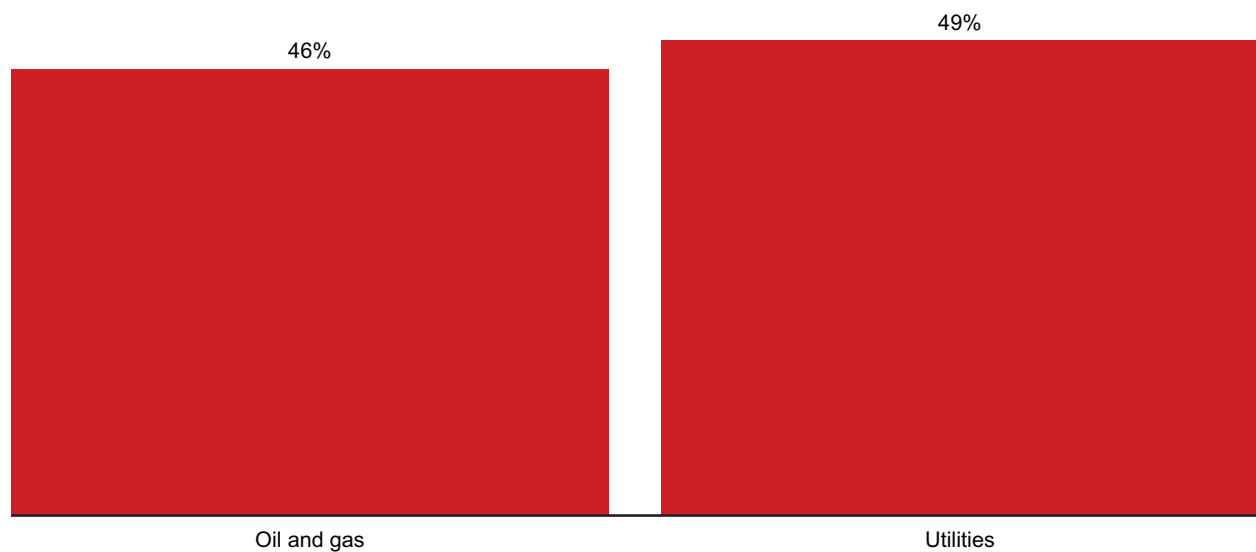


Executives are focused on decarbonization, but they see the lack of clear and stable government policy as a major barrier to transformational change. In the US, some policies have been enacted, like the 2021 infrastructure package that injected capital to speed up the transition—updating electric grids, adding EV charging stations, investing in green hydrogen and direct air carbon capture. But in general, a lack of comprehensive federal carbon policy dampens the private sector’s ability to invest with confidence in decarbonization; nearly half of executives in utilities, oil, and gas cite policy uncertainty as a reason for delaying investment (see *Figure 1*). A patchwork of state climate policies remedies this to some extent, but this fragmented landscape isn’t a reliable foundation for the long-term, capital-intensive change that’s required.

Delivering the energy transition requires navigating a complex environment where many parties want to be involved in every decision. Consider the electrification of mobility. The European Union and some states in the US have set target dates to stop selling cars with internal-combustion engines, to speed up adoption of electric vehicles. But auto manufacturers can’t produce more EVs without enough batteries, and the battery makers can’t produce enough batteries without a much larger supply of lithium and more gigafactories to build them. Once the EVs are on the road, who will ensure there are enough charging stations in the right places? And as the charging stations appear, how will the grid be fortified to handle the transmission and distribution of far more electricity than the power utilities were expecting just a few years ago? The lack of coordination across this complex landscape

**Figure 1:** Policy uncertainty is delaying investment in new businesses by oil and gas companies and utilities

**Percentage of executives delaying investments in new businesses due to uncertainty about policy**



Source: Bain ENR Transition survey, 2022 (n=1,037, oil and gas n=297, utilities n=229)

threatens the pace of change required for the energy and resource transition, which explains why it's ever more important for companies to engage with stakeholders across the value chain.

## Stakeholders provide the catalyst

Companies have always needed to pay attention to stakeholders, but more sophistication is required now. Setting clear targets and showing progress toward them will become more important. Getting this right will go a long way toward giving companies license to transform their business and launch new growth businesses. Getting it wrong can upend companies and risk the wrath of investors and the scorn of consumers.

- **Civil society.** Greta Thunberg is just one person, but she represents millions of other young people in the “climate anxiety” generation. A study published in *The Lancet* last year reported that half of kids studied were worried about climate change, and nearly half said it had affected their daily life and functioning. They haven't known a world where climate change wasn't a major issue, and they're skeptical of companies as part of the solution. Setting targets for reducing emissions is a step in the right direction, but few skeptics will be won over until companies start reporting significant emissions reductions aligned with Paris Agreement targets.
- **Investors.** Vast portfolios and assets are being committed to climate goals. At COP26 last November, the Glasgow Financial Alliance for Net Zero brought together more than \$130 trillion of private capital to support reaching net zero by 2050. Investors want transparency and international standards to measure progress. Organizations like the Science-Based Targets initiative, CDP, and the Task Force on Climate-related Financial Disclosures are stepping in to fill those needs, supported by an ecosystem of software players. Private equity could play a large role. As public companies and banks move away from “gray” investment, private equity and smaller firms are gathering up these assets, which will continue to serve consumer demand for many years.
- **Customers.** Corporate customers are making their own sustainability commitments, and they want greener supply chains—both fuels and material. Individual customers want greener goods and food products. But how much of a premium are they willing to pay? What are the equity implications? Coalitions that pool demand could speed up the development of green products and bring prices down. Groups like the First Movers Coalition, the Sustainable Aviation Buyers Alliance, and Breakthrough Energy's Catalyst Program could help make green technologies a better financial bet than gray assets.
- **Mineral and fuel suppliers.** A growing focus on Scope 3 emissions is putting more pressure on these suppliers. Projects like Pathfinder and Horizon Zero are working to make the carbon embedded in products more visible, even as the US Securities and Exchange Commission considers which Scope 3 emissions are considered material in financial reporting. Commodities companies are trying to figure out how to improve existing operations while still providing the fuel and materials that the world's economies need to keep running. Many are investing in second

engines of growth—including fuels, technologies, and projects like green hydrogen, direct air capture, and nature-based offsets—to strengthen their business across the energy transition.

- **Talent.** Young workers, in particular, say they want to join firms with clearly articulated values, including commitments to reducing carbon emissions and addressing climate change. Three out of four US adults ages 18 to 34 expect their employers to take a stand on important issues including climate change, and 40% of millennials report taking a job because the company performed better on sustainability than alternatives.

## Policy takers to shapers

Coalitions can be catalysts to accelerate the policy changes essential to the transition. We see companies bringing together stakeholders from many groups to send clear messages about climate policy. One international example is the Mission Possible Partnership, a coalition of corporations, investors, and customers focused on aligning supply chains and investment to decarbonize some of the world's hardest-to-abate sectors, such as cement, steel, and chemicals.

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Coalitions can be catalysts to accelerate the policy changes essential to the transition. We see companies bringing together stakeholders from many groups to send clear messages about climate policy.

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In the US, coalitions are playing out at the state level. In Michigan, Consumers Energy formed a coalition with the Natural Resources Defense Council, the Sierra Club, Vote Solar, and the Citizens Utility Board of Michigan to settle a landmark integrated resource plan that would accelerate coal retirements from 2040 to 2025, enable net zero on the electric system by 2040, and save customers \$600 million.

Traditional government or corporate affairs approaches may not be enough to manage the complexity of the stakeholder landscape that has emerged around the energy and resource transition. Executives who are able to use coalitions as a catalyst to bring stakeholders together do a few things well:

- Develop a full map of their stakeholder landscape and develop relationships with each key group. Treat stakeholders like customers. Develop personal relationships to understand stakeholders' motivations and identify areas of common ground.
- Engage early and often with policymakers at different levels to raise awareness about what the company is doing and ask for discrete support that can help accelerate it. Consider how a coalition-based approach might further these objectives.

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- Recognize that, in many places, they'll need to engage at both federal and state or province levels. Federalist countries often pilot new approaches at regional levels before the federal government adopts them.
- Are transparent about where they're spending on lobbying, to avoid any risk of appearing to say one thing while funding a conflicting objective.

Corporations can't plan effectively for the future without clear policy direction, and policy is a team sport. A comprehensive effort to decarbonize the energy and natural resources sectors demands a coordinated approach. Assembling coalitions of stakeholders is the surest way to develop policies and programs that are built to endure and less vulnerable to the winds of political change.



Transition trends

# Improving Sustainability and Circularity in Plastics

Recycling rates are growing, but still far from where they need to go.

**By Sabine Atieh, Jayant Gotpagar, Peter Meijer, Harry Morrison, and Mark Porter**

## At a Glance

- ▶ Improving the circularity of plastics—returning used plastic to the supply chain rather than having it become waste—will be critical to meet sustainability goals.
- ▶ At the current pace, only 10% to 14% of plastics will be recycled by 2030, falling well short of announced targets.
- ▶ Companies that make and use plastics need to establish partnerships and change the way they operate to develop joint solutions that improve circularity.
- ▶ Supportive legislation and industry standards are also needed to help change behaviors and strengthen circular economics.

As attention has focused on the problem of plastic pollution in the environment, governments and the private sector have taken steps to promote recycling and reduce plastic waste. These measures include phasing out certain single-use plastics and setting specific goals on plastics recycling. Targets vary by region. For example, the European Union aims to recycle all plastic packaging by 2030, whereas the US aims to recycle half.

In the private sector, companies that make and use plastics are making new commitments to expand the use of recycled and bio-based plastics, reducing the amount of plastic used, and increasing recycling through better design and new investments in infrastructure. There are also many new recycling initiatives and partnerships, along with innovation in new plastic types such as low-carbon plastics made from biomaterials.

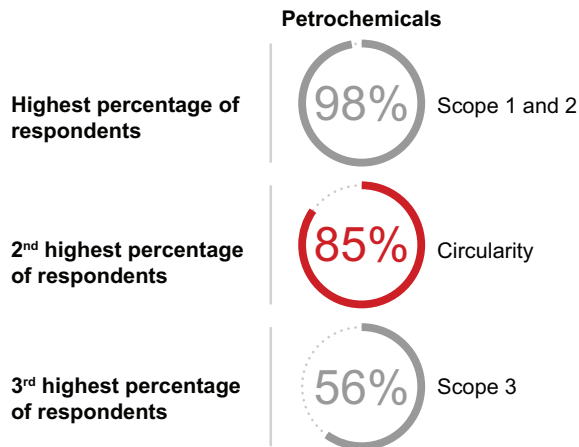
Our clients tell us they understand that more needs to be done to improve the sustainability and circularity of plastic products, that is, the ability to put materials back into the supply chain rather than depositing them as waste. Plastics producers and users know that if concerns aren't addressed, they risk facing more stringent regulation and more pressure from customers.

But they've also said this is one of their many priorities, along with broader environmental, social, and corporate governance (ESG) commitments, including emissions reductions (see Figure 1). In many cases, improving plastic circularity will also reduce emissions, making it essential for delivering

**Figure 1:** Petrochemical executives see circularity as a top ESG priority, more so than users of plastic

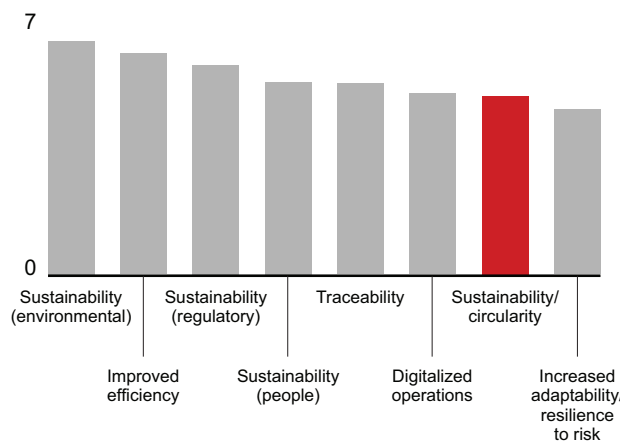
**Plastic producers**

Of the following, which are the 3 highest priority ESG topics for your company?



**Plastic users**

How does circularity rank in priority compared with other supply chain initiatives (on a scale from 0 to 7)?



Notes: Scope 1 measures greenhouse gases directly emitted by an organization or by activities under its control; Scope 2 measures indirect emissions from electricity or other power used by an organization; Scope 3 measures other indirect emissions related to an organization, including those resulting from the use of its products; ESG refers to environmental, social, and corporate governance  
 Sources: Left chart, Bain Energy & Natural Resources survey, 2021 (n=175); right chart, Bain Circularity survey, 2021 (n=191)



on the industry’s decarbonization goals and ensuring the license to operate among growing concern about plastic waste.

### Circularity efforts fall short

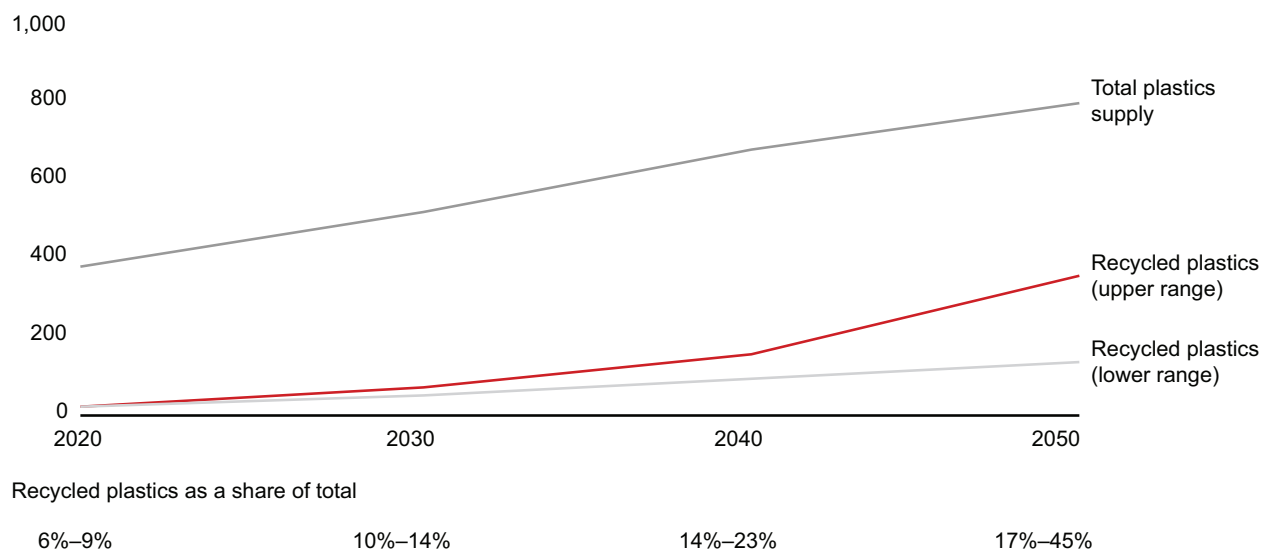
There’s a lot of activity underway on recycling and circularity, but it’s still not enough to provide the amount of recycled material that industry will need. Our recycling scenarios, based on current industry efforts and trajectories, suggest that by 2030, between 50 million and 70 million metric tons of plastics will be recycled annually, or 10% to 14% of total plastic consumption (see Figure 2), well below the targets set by companies and governments in, for example, the US and the EU.

This misalignment between what companies want to buy and what will be available could inflate prices for recycled plastics, as competition heats up for the limited supply. Also, as the feedstock required for producing recycled plastics becomes bottlenecked, plastics producers will need to secure supplies to remain competitive as the market scales. These dynamics add to the uncertainty of the prospects for recycled plastics growth and will hinder investment.

A shortage of recycled and renewable plastics could also permanently reduce demand for these products if users shift to alternatives to meet their recycling targets. This will be in addition to customer efforts to reduce the amount of plastics used, and the risk of cost increases for virgin plastics due to new

**Figure 2:** The market for recycled plastic could grow significantly, but is likely to make up less than 15% of total plastics supply by 2030

#### Million metric tons of recycled plastic, global



Source: Bain & Company analysis

taxes like the UK's plastics tax or other extended producer responsibility measures. So it's important for plastics producers to scale up their recycling efforts and develop solutions to meet their customers' needs for sustainable and low-carbon solutions at scale. Faster industrialization of the recycling industry, better waste-sorting solutions, and more technical expertise, especially in chemical recycling, will all be needed.

## Accelerating plastics circularity

As we talk with our clients, we're seeing three types of actions aimed at accelerating the momentum behind plastics recycling.

- Innovation and new technology
- Partnerships and new business models
- Legislation and standards

**Innovation and new technology.** One reason that recycling rates are so low is that the technologies involved aren't well-developed. Recycling rates are higher in categories where technology, infrastructure, and public and consumer engagement are more mature—for example, mechanical recycling for PET bottles in Europe, which is around 50%. Scaling up recycling also comes with challenges, though, as it gets increasingly difficult and costly to increase collection rates while also capturing smaller and less-efficient volumes of used plastic.

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In the private sector, companies that make and use plastics are making new commitments to expand the use of recycled and bio-based plastics, reducing the amount of plastic used, and increasing recycling through better design and new investments in infrastructure.

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Most plastic recycling today is mechanical—processing the material, but keeping the molecule intact. Chemical processing—changing the chemical structure of polymeric waste—can recycle more plastic. But chemical recycling remains mostly at R&D levels (1 kiloton or less) or pilot-program scale (10 to 30 kilotons), focused mostly on polyolefins. Pilots help overcome technical challenges, demonstrate scalability and commercial viability, and provide experience that improves process stability and yield. We expect some of these efforts to scale to commercial levels over the next five years.

Advances in chemical recycling technologies targeting other plastics, such as polystyrene and PVC, are also gaining traction. Improving circularity for those plastics will be an important building block to boost overall plastics ESG performance and circularity across such end markets as electronics and automotive, where more companies are thinking about circularity.

Recycling advances aren't limited to technology, but also extend to collection, sorting, and processing to improve the quality of waste streams—a necessary step to boost recycling rates. Some companies are building up these capabilities. For example, before divesting the asset to PreZero Recycling, waste management company Suez (now Veolia) opened Europe's most advanced facility for sorting used packaging in Germany. That plant can process 100 kilotons annually, using an innovative optical system to improve waste recovery. Another advancement under discussion is secondary material recovery facilities (MRFs), which aggregate residual waste streams from primary MRFs to pull out lower-value plastics and paper cartons more effectively.

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This misalignment between what companies want to buy and what will be available could inflate prices for recycled plastics, as competition heats up for the limited supply.

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Several material innovations have also been pushed by resin producers to improve circularity, which are now being adopted by plastic converters. These innovations include better-performing monomaterials, which improve the recyclability of the application, and lightweight polymers to help reduce packaging volume. Finally, low-carbon solutions are also developing quickly, with greater emphasis on producing chemicals from renewable sources. For example, Origin Materials focuses on improving production of plant-based building blocks for PET as a negative-carbon solution to replace fossil-based PET.

**Partnerships and new business models.** Scale, sustainable solutions will require partnerships that ensure a steady supply of renewable materials and a market for recycled material. Supply chain partnerships can help ensure a consistent flow of renewable inputs, which is essential to develop a market. These partnerships need to extend beyond the local initiatives that have emerged in some regions. Plastics users are also forming partnerships. Mondelez International is working with waste management start-up Plastic Energy to use its polypropylene feedstock made from postconsumer plastics for Philadelphia Cream Cheese containers.

Offtake agreements are critical to ensure demand for recycled materials as production scales up. These agreements, which ensure delivery of the recycled materials produced, give producers a runway to gain experience, become more efficient, and reduce costs. We typically find that early offtake

agreements are with customers willing to pay a premium for better ESG performance, whether because of individual commitments or local regulation. Companies like The Coca-Cola Company, Nestlé, and PepsiCo have made commitments to increasing recycled content in plastic bottles. Our customer research has found that brands are typically willing to pay initial premiums of up to 25% above virgin pricing for these applications. Depending on the application, the relative change in product price will be much lower as the plastic forms only a small part of the total cost. In plastic resins for bottles, for example, a premium of around 20% for recycled plastics raises the price of the end product by about 2%. A Bain survey across the UK, France, and the Netherlands found that 75% of consumers said they'd pay more for sustainable products.

**Legislation and standards.** Plastic producers, recyclers, and consumers will need to work together to build support for change. They'll need to develop better policies for collecting and managing plastic waste, supported by better consumer education and behavior on waste sorting. They'll need to encourage investments and funding for new technologies, for example, through the OECD's Extended Producer Responsibility project. They'll need to agree on taxonomy as well as standards, for example, around using a mass balance approach or segregated supply chains for virgin and recycled plastics.

Governments can also take specific actions to support growth in recycling. For example, they could restrict the use of, or tax, virgin plastics, thus promoting the use of recycled content. They could also consider minimum requirements of recycled content in plastics by extending renewable blending requirements to chemicals, similar to renewable fuel standards, which will help promote the use of renewable hydrocarbons in petrochemicals.

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The outcome, with internationally binding commitments, could be an important step in creating a global environment with investments channeled toward building up recycling infrastructure.

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Support is also developing around the world. In March 2022, the UN agreed to develop a treaty designed to end plastic pollution. Details are still to be ironed out, but the specific resolution is likely to address the full life cycle of plastic, including production, design, and disposal. The outcome, with internationally binding commitments, could be an important step in creating a global environment with investments channeled toward building up recycling infrastructure. Companies and associations, such as the International Council of Chemical Associations, have endorsed the treaty as an important step to address plastic pollution.

• • •

Although current efforts aren't yet at the scale required, plastics recycling, the use of recycled content, and the use of low-carbon plastics are sure to increase. Companies that prepare now to scale up, connect to high-quality waste streams, and ensure a long-term supply of feedstock can put themselves in a stronger position in sustainable plastics.





# Strategic capabilities

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Strategic capabilities

## How to Do Engine 2

Energy and natural resources executives need to be clear on their mission and model.

**By Steve McGrath, Brian Murphy, Dunigan O’Keeffe, and Neelam Phadke**

### At a Glance

- ▶ Energy and natural resources companies are ramping up spending in new growth businesses to complement or replace their core.
- ▶ Success depends on mission clarity, a bold vision that pragmatically lays out the objective.
- ▶ Model clarity is essential, too, defining how a new entrepreneurial venture can thrive alongside the legacy business.

Few sectors have ever had to change as quickly and completely as the energy and natural resources (ENR) sectors are changing now.

Executives know they need to develop new growth businesses that are in some cases very different from their core. Most have already moved past talk: We found that ENR companies increased the capital allocated to growing new businesses by about 50%, on average, from 2020 to 2022—a huge jump.

Senior leaders expect to see results quickly from such a large investment: 72% told us they expect to move these investments to scale by 2030—not far away.

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Executives know they need to develop new growth businesses that are in some cases very different from their core. Most have already moved past talk: We found that ENR companies increased the capital allocated to growing new businesses.

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Challenge acknowledged, goals set, capital allocated. Now comes the hard part. How do they grow these new businesses, which we call Engine 2? What are the preconditions for executing successfully?

### **Essential clarity on mission and model**

For most ENR sectors, there's a limited set of promising growth opportunities that make good use of the incumbents' capabilities and offer a compelling story for investors. As a result, many ENR companies are pursuing the same Engine 2 growth areas. They can't all win in the same space. It's OK to have an Engine 2 mission that overlaps with others', but it's not OK to lack clarity on what your mission is.

**Mission clarity.** Mission clarity starts with a bold objective. No one gains a leading position in a new profit pool by dipping their toe in the water. Still, the mission needs to be pragmatic and strike a balance between being bold enough to change the world's energy infrastructure, while not spending capital imprudently.

Mission clarity is also not as simple as just choosing green hydrogen, sustainable agriculture, or carbon offsets. The mission must include a clear sense of which customer needs you're addressing, whether you have the capabilities to achieve it, or whether you'll need to find those through M&A and partnerships.

**Model clarity.** Traditional energy and resource companies, the incumbents, usually move at a slower pace than their start-up competitors. That's part legacy infrastructure and operations, and part company culture.

Successful Engine 2 efforts play by a different set of rules. They find ways to operate in a middle zone, taking advantage of all the benefits of a large company (access to capital, deep experience, large networks of suppliers and customers) while steering clear of the drawbacks (excessive caution, bureaucratic bottlenecks, a wait-and-see attitude).

To make this happen, Engine 2 initiatives need to design for growth from the start.

One of the elements we see ENR incumbents struggle with most is what we call the Founder's Mentality®. This means setting up a team that can act like insurgents, not incumbents, and clearing the way so that they can do that.

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Successful Engine 2 efforts play by a different set of rules. They find ways to operate in a middle zone, taking advantage of all the benefits of a large company while steering clear of the drawbacks.


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Some companies have found ways to launch Engine 2s where mission and model clarity work well together. For example, Italian energy provider Enel set a bold vision to replace its core business. It approached several new markets with a mindset of "why not us?" and found customers as it developed its Engine 2 capabilities in hydroelectric, onshore wind, and solar power. Enel's leadership combined all its renewable assets into one business unit, along with the people who knew them best. That allowed Enel Green Power to start with a sizable base of about \$1 billion in earnings, going from 4.5 gigawatts of installed capacity in 2008 to more than 50 gigawatts by 2021. The company has maintained its bold ambition and plans to dedicate 43% of capex to affordable and clean energy, adding 105 gigawatts of renewables capacity by 2030.


In another example, Australian iron ore producer Fortescue has set out to become a leading player in green hydrogen, aiming to produce 15 million tons by 2030. Fortescue Future Industries (FFI), a distinct entity in the company, is building collaborative relationships around new hydrogen projects, including an electrolyzer manufacturing plant in Queensland, Australia, which will provide green hydrogen to power a manufacturing hub. FFI moves rapidly while benefiting from the parent company's cash flow and relationships.


**Figure 1:** Successful Engine 2 initiatives demonstrate mission and model clarity

**Mission clarity**

- 


**Bold ambition**  
Balance ambitious goals with pragmatism.
- 


**Customer-led**  
Focus on customer needs, rather than the resource or the infrastructure. Beware that you may have to help customers crystalize their needs.
- 


**Capabilities and conditions**  
Make use of the core business's expertise, and capitalize on favorable conditions.
- 


**Partnerships and M&A**  
Find the skills and capabilities that complement your own. Don't default to organic growth.

**Model clarity**

- 

**Operating model**  
Determine the right structure and systems to support Engine 2 growth. Set a model to inspire insurgency, not encumber it with incumbency.
- 

**Founder's Mentality®**  
Put in place talent and culture to grow like a challenger, some in-house, some from outside.
- 

**Scaling**  
Sustain your focus on moving quickly down experience curves, supported by judicious investment.
- 

**Repeatable innovation**  
Choose the right innovation and scaling models, and consider open innovation.

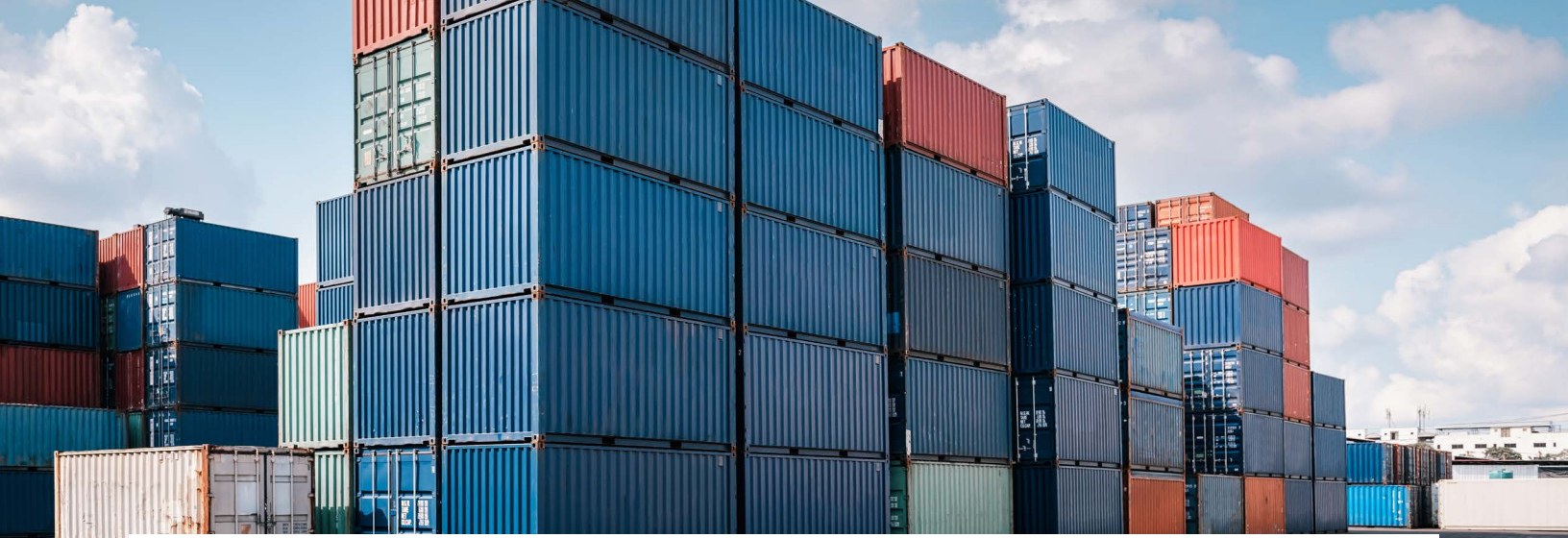
Source: Bain & Company

**Building mission and model clarity**

Among the companies that we see successfully executing Engine 2 strategies, mission and model clarity lead to better decision making on a range of factors that influence success (see Figure 1).

Many great ENR companies started out as insurgents. All great ENR companies have had to evolve with cycles and technology. The successful ones grew large and evolved their operating models to manage scale operations that often span the globe and a wide range of businesses. Developing Engine 2 initiatives offers incumbents the chance to ignite an entrepreneurial spirit in their DNA, in order to develop new growth businesses that will lead them to thrive in the energy transition.





## Strategic capabilities

# Managing Operations through Disruptions

Operations chiefs are more visible and under more pressure than ever before, as they balance traditional priorities with sustainability efforts.

**By Francesco Cigala, Pete Guarraia, Andrew Welch, and Jeff Wen**

## At a Glance

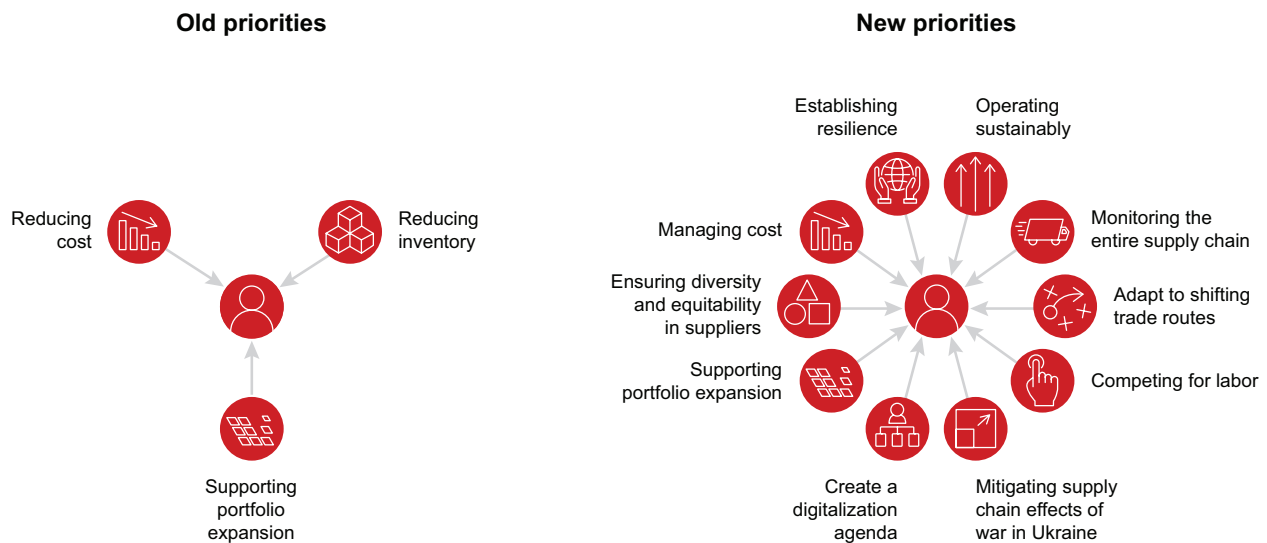
- ▶ Chief operating officers have never been more vital to corporate strategy—and never more visible.
- ▶ Supply chain disruptions, including those driven by the pandemic, inflation, semiconductor shortages, and war in Ukraine, have put operations in the headlines and made the COO's role integral to corporate strategy.
- ▶ As companies pledge to reach net zero, operations teams are balancing their traditional imperatives of delivering products and services with the need to decarbonize and meet investors' expectations about sustainability.

The role of the chief operations officer has always been essential, but for many years it was a low-profile role, charged with safely producing and delivering product on time and at a reasonable cost. That’s changed quickly. Over the past few years, the responsibilities and measures of success for COOs and their global operations have expanded significantly (see Figure 1). The COO’s role has become dramatically more complex as a series of global disruptions have made the role of operations chief more visible and more essential to corporate strategy.

These disruptions include Covid-19, the war in Ukraine, trade conflicts, semiconductor shortages, and inflation of commodity prices. But among operations chiefs in the energy and natural resources sectors, the most enduring and significant disruption is the energy transition and the accompanying drive to make companies and their operations more sustainable. Every day, we talk with COOs who are working to balance their traditional imperatives of delivering products and services reliably and at a price that customers can afford, along with the need to decarbonize and meet investors’ expectations about sustainability.

The high profile of these trends and disruptions, along with their influence on the availability of consumer and business goods, means that the role of operations can no longer be taken for granted. One indicator of this is the prominence of operations topics in the media. For example, over the past two years, the number of times “supply chain” was mentioned during corporate earnings calls more

**Figure 1:** The COO’s job has become much more complex



Source: Bain & Company

than doubled, highlighting investors' recognition of the criticality of operations. Supply chains and other operations are news.

All of this raises the stakes for the COO and reduces the margin of error. The smallest of missteps can create disruptions that can leave business customers without the inputs they need to run their operations, and customers staring at empty shelves.

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Every day, we talk with COOs who are working to balance their traditional imperatives of delivering products and services reliably at affordable prices, along with the need to decarbonize and meet investors' expectations about sustainability.

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But these shifts also mean that operations can become an even more powerful competitive tool. Being a low-carbon provider, for example, can become a competitive advantage when it enables companies to charge a premium for greener products. It can also provide other benefits to buyers. When a supplier reduces its carbon footprint, its buyers can reap the benefits as they tally the upstream, Scope 3 emissions of their own production. That can become a key benefit in sales discussions, just as the lack of progress on emissions reduction or other environmental, social, and corporate governance factors can become a barrier. Increasingly, suppliers won't make it past the RFP process unless they can attest to their own progress on issues like diversity, transparency, and emissions reductions.

## How COOs are responding

COOs are doing several things to successfully navigate this changing landscape.

First, many of our COO clients tell us they're more closely involved with setting corporate strategy than they were just a few years ago. This gives them a seat at the table and a voice in organizational decisions, including setting priorities, weighing financial trade-offs, and managing internal and external communications. This enables them to convey the possible effects on the supply chain and other operations of certain decisions before they're made. More important, the COO is increasingly in a position to determine how quickly the company can adapt to disruptions, and also help set strategic direction that can allow the company to make the most of external conditions.

Closely related, they're building up the capabilities they need to support effective strategic planning. Data has always been an important tool in operations, but many operations teams are doubling down on advanced analytics, which help them develop a wider range of more specific scenarios—essential for planning under uncertainty.

The COOs we talk with are also laser-focused on improving the resilience of their supply chains. In the short term, they're assessing the risks from immediate crises like the war in Ukraine, commodities inflation, and ongoing shortages due to Covid. Getting a handle on the primary risks, based on real data rather than conjecture, allows them to create realistic scenarios so they can react quickly when they see signposts indicating where conditions are headed. This is a challenging balancing act right now. Operations teams may need to invest more to ensure a reliable supply of inputs while at the same time finding themselves under pressure to manage costs tightly against the headwinds of inflation. There's no simple answer, and each situation requires thoughtful analysis and careful decision making.

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Operations teams may need to invest more to ensure a reliable supply of inputs while also under pressure to manage costs tightly against the headwinds of inflation.

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Over the longer term, ops chiefs are building resilience with a larger suite of tools, such as redesigning products and processes, finding backup and alternative sources, building capacity buffers, and continually improving logistics. A key part of resilience is just acknowledging that disruptions are happening faster and more frequently, so adaptation and recovery are capabilities that need to be developed and refined. Black swan events aren't quite as rare as they once were.



## Strategic capabilities

# Pricing for Inflation in Energy and Natural Resources

Companies are building dynamic pricing capabilities as they come to terms with the persistence of volatility and inflation.

By Jens Friis Hjortegaard, Emily Kasavana, Nimit Mehta, and David Schottland

## At a Glance

- ▶ Many executives at energy and natural resources companies thought inflation would be short-lived and that their positions on the value chain would protect them from increases.
- ▶ But inflation has persisted and looks likely to continue, along with pricing volatility. Companies need to adjust their pricing policies.
- ▶ The current crisis could spur companies to build up dynamic pricing capabilities that adapt to inflation spikes and prevent margin leakage.
- ▶ Carefully evaluating the profitability of customers and products, effectively enforcing contract terms, and centralizing pricing decisions are just some of the ways companies are responding.

No company is immune. After years of low volatility and stable inflation rates, energy and natural resources (ENR) companies have faced a steady stream of disruption: Covid-19 and its bounce back, unpredictable events like the Texas electricity blackouts or the container ship *Ever Given* blocking the Suez Canal, and now the war in Ukraine, which will reverberate in commodity markets for a long time.

Pair these disruptions with broad, continuing inflation, worker shortages, and rising labor costs, and it isn't news that many companies are struggling to recoup cost increases, leading to flat or even declining margins even as they post record top-line results and sell out their products (see Figure 1).

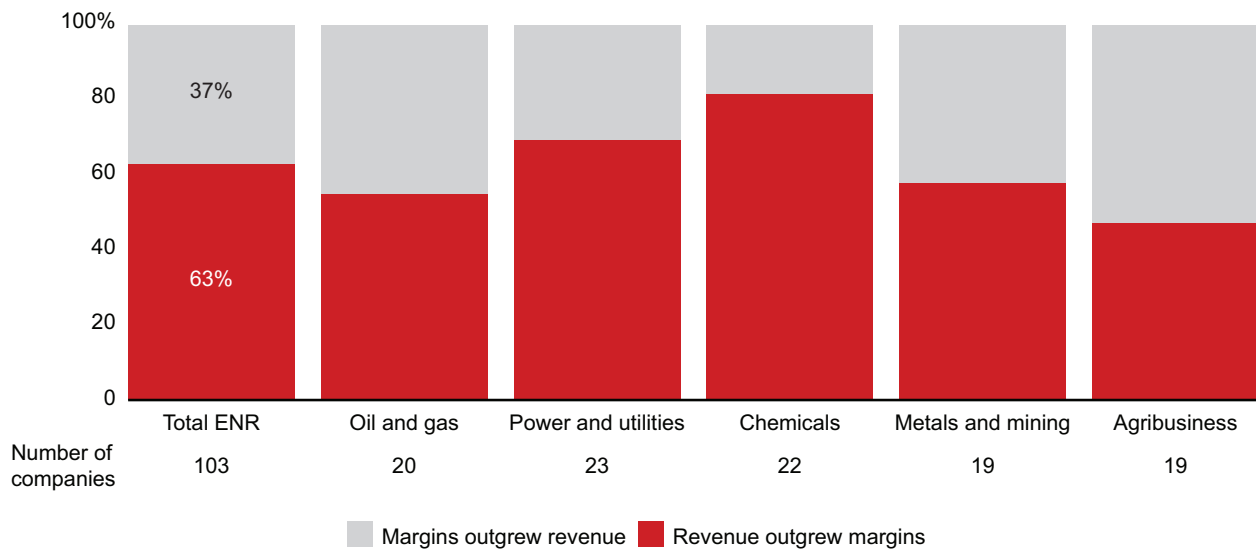
### Seeing the blind spots

Until recently, many executives have heralded two prevailing responses to this environment that, when taken together, create a blind spot for ENR companies and their approach to pricing.

**“This is temporary and will soon pass.”** Over the past year or two, many executives have taken the stance that they just need to get through the next three or four months, until business as usual returns. However, if history is a guide, while inflation spikes may resolve after a couple of years, possibly tempered by recession, volatility is likely to persist. Consider chemicals. Coming out of the 2008 financial crisis, price volatility continued for nearly seven years before the sector stabilized

**Figure 1:** Margin growth hasn't kept up with revenue growth for 63% of energy and resources companies

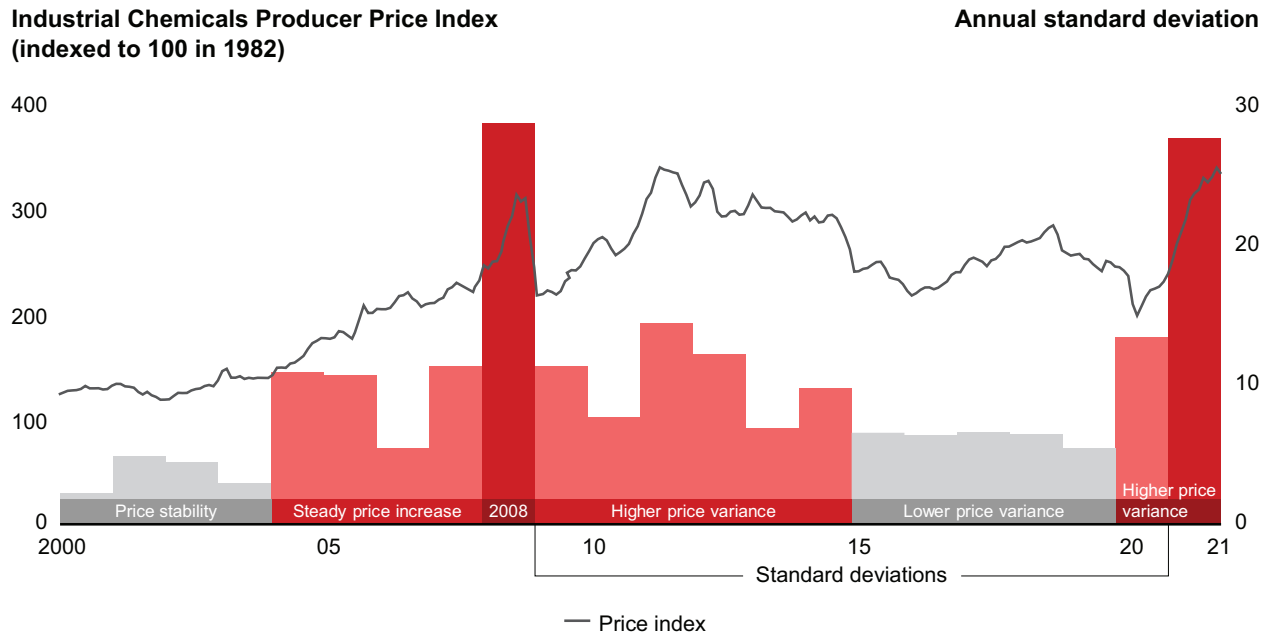
#### Share of companies with revenue growth higher than margin growth (H1 2021–H2 2021)



Notes: Data includes top 125 companies in the ENR sector; a few companies that are private or not reporting data have been excluded  
Source: Refinitiv



**Figure 2:** In 2021, pricing was more variable than in any year since 2008



Source: Federal Reserve Economic Research

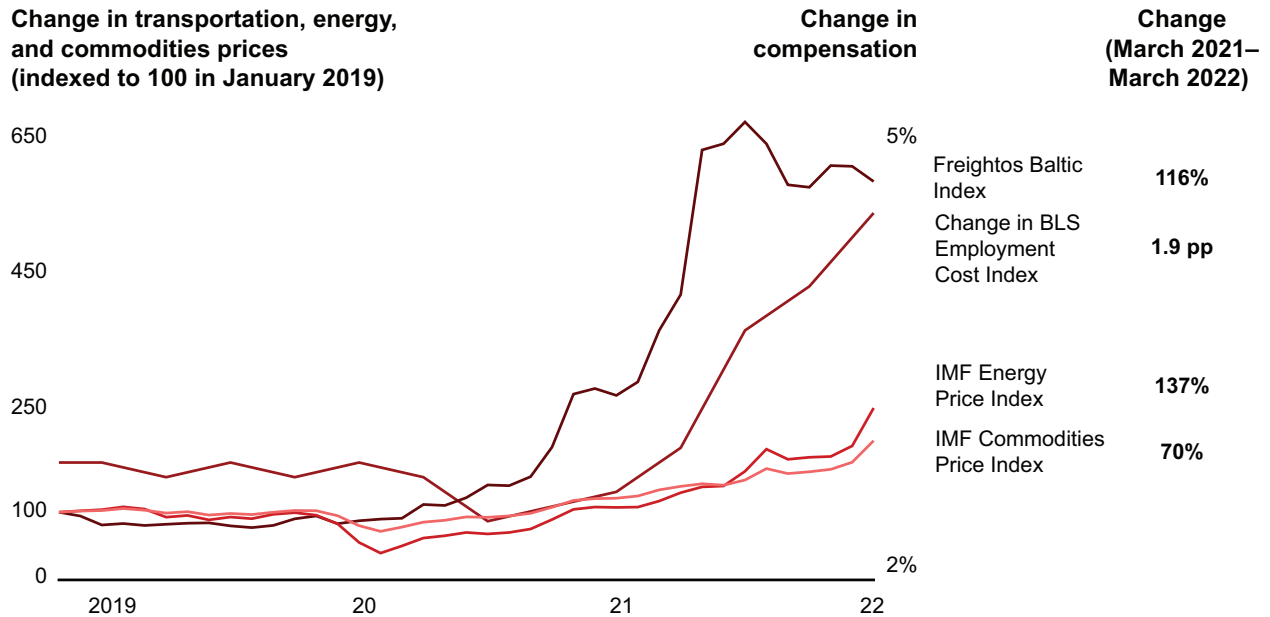
(see Figure 2). The reality is beginning to sink in for many executives: This may be more than a temporary phenomenon.

**“We’re structurally protected from this.”** Many ENR companies feel that their positions near the beginning of their value chains protects them from cost pressures. Even when the cost of inputs rises, they can usually make up margins in their sales. But this focus on raw inputs overlooks the other costs of doing business, which are also rising. Shipping costs have doubled since March 2021, and labor costs in the US were up 4.5% in the fiscal year ended March 2022, an increase from 2.6% the previous year (see Figure 3).

Amid all this turbulence, executive teams have been applying the same pricing playbooks, policies, and approaches that they used before this upheaval. Maybe it shouldn’t be surprising; prolonged inflation like this hasn’t reared its head since the 1970s. Most corporate leaders haven’t had to deal with macroinflation during their careers, leaving them unsure of how to proceed.

One thing is becoming clear, though: What worked before, no longer works as well. Dynamic pricing will become more important. Frequency of increases, decision rights, rigor of cost forecasts, back-order and freight policies, contract terms and conditions—everything is on the table as executive teams grapple with how best to protect margins without upsetting customers.

**Figure 3:** Companies face a perfect storm of rising costs for transportation, labor, energy, and raw inputs



Notes: The International Monetary Fund’s Energy Price Index includes crude oil, natural gas, coal, and propane indices; Commodities Price Index includes both fuel and nonfuel price indexes; compensation includes wages, salaries, and benefits  
Sources: US Bureau of Labor Statistics; IMF; Freightos

## The crisis as catalyst

Over the past year, executives have been trying out a range of actions to redefine their approach to pricing. Volatility and inflation may be the forcing mechanism of the moment. But by building pricing capabilities that allow them to react and adjust quickly, they’re positioning their companies for long-term success.

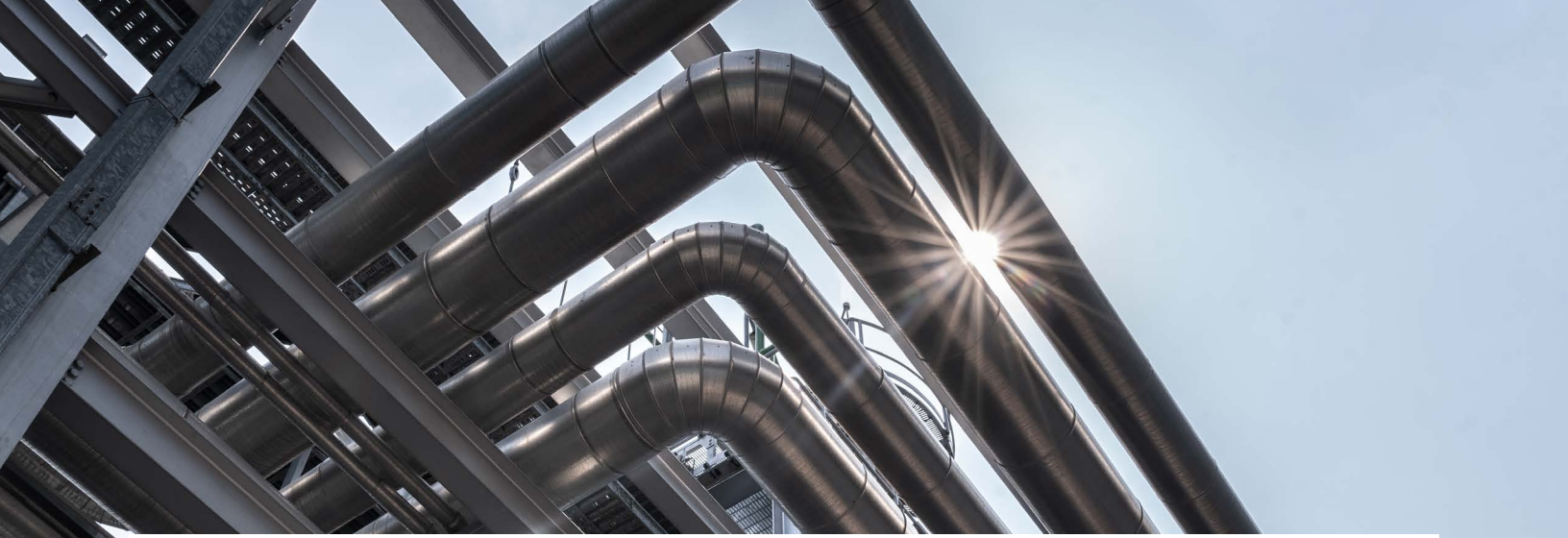
- Recognize not all customers are the same.** As economics change, so does the profitability of products and customers. In a volatile environment, companies need to understand those changes and take action. Some products cost more to deliver, and those increases need to be passed along. We’ve seen more companies willing to walk away from low-value customers, especially when capacity is constrained—although sales teams shouldn’t bear the brunt of this approach. At one power grid hardware company, a review showed where inflation was creating a gap between “sold” profitability and “delivered” profitability on many projects. By adjusting contracts and pricing to account for this, the company ensured they were capturing the value they intended.
- Exchange price for other valuable features.** As prices increase, some companies are offering other incentives to customers, like volume guarantees, exclusivity periods, or better service. When prices rose at one agrichemicals company, it began offering price hedging to customers. Developing

the capabilities to manage the hedging actually made pricing more predictable for customers and created a new revenue stream that helped stem a margin leak.

- **Enforce what’s already in the contract.** Price increase contingencies in contracts are of little value if companies don’t enforce them. Many are now going back to review those terms, estimating the value of enforcing them, and equipping their commercial teams with the right data and scripts to have these difficult conversations with confidence. One company found it had simply misapplied indexes on one contract, leading to more than \$10 million of missed revenue over several years.
- **Consider indirect increases.** In addition to price increases tied to inflation indexes, companies are getting more comfortable adding surcharges for fuel, expedited shipping, inventory holding, and longer payment terms. Cost-of-living adjustments (COLA) are also playing a meaningful role in recovering cost increases in recent months. Some are tightening up on special exceptions, like small or rush orders, that create margin leaks. The average industrial company loses over 6% of revenue through off-invoice discounts and leakage, according to a global sample analyzed by Bain and PricefxPlasma™.
- **Adjust the product mix.** During a period of inflation and supply shocks, deciding what to sell can be even more important than deciding whom to sell to. It’s critical to have a view of profitability by SKU, as well as by customer. One power producer has reacted to volatile costs by selling different types of power packages, while also rethinking the mix of its power-generating assets. Just as firing bad customers makes sense, so does shifting away from marginally profitable products.
- **Centralize pricing decisions.** Companies often push pricing decisions close to the customer, but in volatile or inflationary times, centralized decisions can make more sense. Individuals and sales teams can’t always make decisions that reflect companywide constraints and options. Data on cost increases may not show up in sales tools. We’re seeing companies organize global pricing programs that are far more directive to regional or business unit champions, to ensure that inflation costs are addressed.

No one can be certain, but history suggests that inflation bouts typically last about 30 months. However, the cure is often a recession, so volatility may persist even as prices level off. There are also plenty of signs to suggest structurally long-term inflation, including an aging workforce, investment costs of the energy transition, and repatriation of supply chains. Even after the high-single-digit inflation numbers are reined in, we may return to higher base levels than in the 2010s.

In any case, the various potential outcomes all lead to the same takeaway: Companies that acknowledge the persistence of volatility and rewrite their pricing playbooks are more likely to maximize price realization, expand margins, and take advantage of pricing as a competitive weapon.



## Strategic capabilities

# M&A Opportunities in the Energy Transition

Many energy and natural resources companies are turning to acquisitions to rebalance their carbon portfolio and to green their operations.

By Whit Keuer, Hyukjin Lee, and Arnaud Leroi

## At a Glance

- ▶ Despite low deal activity in 2021, more companies are turning to M&A to acquire lower-carbon assets, particularly in renewable power generation.
- ▶ Energy transition deals accounted for about 20% of all energy-sector deals greater than \$1 billion in 2021.
- ▶ More companies are using deals to green existing operations and strengthen ESG assets; build green energy hubs and an integrated value chain to assist the energy transition; reshape business models; and invest in start-ups to acquire disruptive technology.

M&A activity in the energy and natural resources industry remained sluggish in 2021, rebounding only around 20% from 2020 and not yet recovering to prepandemic levels. Partly, this was the result of companies looking for demand to stabilize. Then, as stabilization largely took place, a second factor came into play: Companies began sharpening their capital discipline, which slowed dealmaking as fewer deals met their higher hurdle rates.

We believe that conditions are primed for an upswing propelled by a resurgence in industry consolidation and portfolio management. The oil and gas industry is still highly fragmented in many sectors, and multiples remain depressed, setting the stage for consolidation to unlock new levels of efficiency. The conflict in Ukraine adds more complexity to the market, with many companies actively reviewing their portfolio and some exiting their Russian positions as BP has done.

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The oil and gas industry is still highly fragmented in many sectors, and multiples remain depressed, setting the stage for consolidation to unlock new levels of efficiency.

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Meanwhile, there will be growing opportunities for portfolio management across energy and natural resources, especially in chemicals. Over the years, companies have expanded their portfolios to the point that there's now a lack of natural synergies among assets and a high degree of complexity.

Above all, though, companies will turn to M&A to make more progress on the monumental journey of moving the world closer to a lower-carbon, sustainable future while also keeping their current businesses running. Many large companies have already pursued deals that accelerate their participation in the energy transition that, at its heart, requires all companies to reinvent themselves.

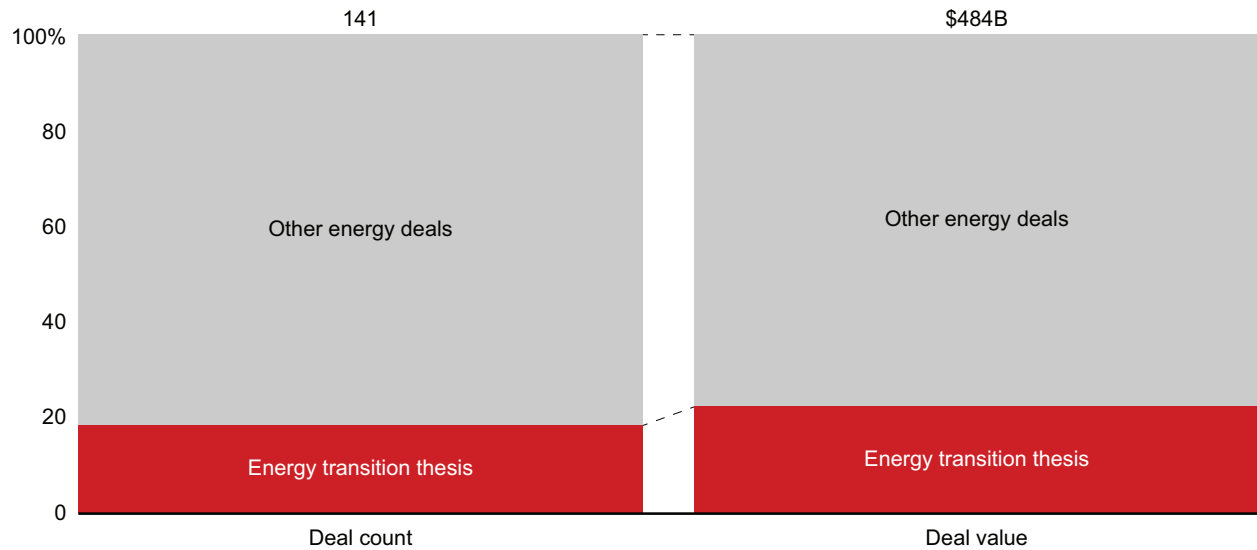
In 2021, energy transition deals accounted for about 20% of all energy-sector deals greater than \$1 billion (see *Figure 1*).

The energy and natural resources industry's reliance on M&A in 2022 to deliver the energy transition will play out across seven themes.

**Greening existing operations and strengthening environmental, social, and corporate governance (ESG) assets.** Companies are aggressively making deals aimed at reducing carbon production from their operations to meet net-zero targets. For example, Occidental Petroleum, one of the top producers in the US's Permian Basin, is acquiring solar generation assets to power its drilling and completions operations. At the same time, Suncor is partnering with other oil sands producers while investing to commercialize carbon-capture technology.

**Figure 1:** Energy transition theses accounted for about 20% of large deals in the energy industry in 2021

**2021 energy deals with deal value greater than \$1 billion**



Source: Dealogic

**Building green energy hubs.** Deals are also fueling companies’ efforts to move beyond greening their existing operations and toward fundamentally changing their inputs, production processes, or products. BP and Equinor’s strategic partnership, Northern Endurance Partnership, was formed together with Eni, National Grid, Shell, and Total to create a refinery of the future that will act as a green energy hub within an industrial cluster. It will maintain integrated sourcing and production of renewable energy, with new feedstock streams and lower greenhouse gas fuels and products.

**Repositioning portfolios toward the energy transition.** Companies are using M&A to accelerate shifts in their portfolios. This involves both divestments of high-carbon assets as well as investments in the energy transition. An example is Shell, which sold acreage in the Permian Basin to ConocoPhillips for \$9.5 billion, in a move to help accelerate the company’s portfolio shift driven by the energy transition. Another example is LyondellBasell’s joint venture with Suez (now Veolia) and acquisition of European plastics-recycling company Quality Circular Polymers to mechanically convert consumer waste into 25,000 tons of polypropylene and high-density polyethylene per year. Utilities have been acquiring more renewable assets, and at higher multiples than we’ve seen for traditional gas-powered assets. Some utilities also are seizing opportunities in smart grid technologies and distributed storage, such as Southern’s 2016 acquisition of PowerSecure, a provider of smart grid services. Private equity firms play a big role in this shift to green operations by buying energy companies’ traditional high-carbon assets.



**Establishing a critical position on the value chain to deliver energy transition products and services.** BP made a move in this direction when it acquired the UK's largest electric vehicle-charging company, which at the time operated more than 6,500 charging ports.

**Using M&A to reshape business models.** Some companies have found that fully monetizing energy transition assets requires them to buy new capabilities for transformed business models. For example, Shell has a license to sell power to industrial customers in the UK electricity sector.

**Carving out new growth businesses.** More companies are carving out, or “ring-fencing,” assets that take advantage of the energy transition opportunities. For example, LG Energy Solution, which LG Chem spun out as a separate entity in 2020, raised \$10.7 billion to reach a valuation of \$98 billion in a January 2022 IPO on enthusiasm for its EV battery business, a move that allowed the new subsidiary to trade at a multiple about eight times greater than its parent. The sector did something like this 10 to 15 years ago, when many companies put their infrastructure assets into master limited partnerships (MLPs), a trend that raised valuations across the board. Managing new growth businesses in this way can attract a new class of investors that are targeting this asset class in expectation of higher multiples than for the legacy business.

**Making strategic investments in start-ups to acquire disruptive technology.** Finally, more companies will make early-stage investments in, or partner with, young companies that can help them become disrupters themselves. That's the goal of a large petrochemical company's investment in a blockchain company, or BASF's corporate venture capital investment in LanzaTech, a carbon-recycling company.

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Above all, though, companies will turn to M&A to make more progress on the monumental journey of moving the world closer to a lower-carbon, sustainable future while also keeping their current businesses running.

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## How winning companies do it

In their effort to rely on deals to deliver the energy transition, some companies will emerge as leaders. Here's how M&A practitioners in energy and natural resources can boost the odds of success.

**Take an activist approach to portfolio management.** As portfolios change and become more diverse, companies need to undertake more frequent asset reviews to manage their business through this change. This review is critical in ensuring that the existing business continues to

meet current goals and would clear the same hurdles for investment today. Leaders need to be prepared to either invest in improvement or divest those areas where performance is falling short of what's needed for today's corporate strategy.

**Set a capital allocation strategy that's tied to the corporate strategy, and lean toward the energy transition.** That means recognizing that investments should target mature solutions like renewables, as well as less mature and more innovative solutions. It also means being disciplined about exploring profitable growth options in low carbon along multiple growth horizons.

**Incorporate ESG considerations into due diligence.** Buyers need to actively understand and assess the relative performance of the target across critical ESG dimensions. This benchmarking exercise allows companies not only to understand the target's true value, but also anticipate any costs associated with bringing the target in line with the buyer's ESG strategy. This needs to feed into value creation planning and integration in order to unlock the full potential of the combination (for more, see the Bain Brief "The ESG Imperative in M&A").

**Evolve the joint venture playbook to accelerate an energy transition strategy.** This is a historic area of strength for many energy and natural resources companies as they've used joint ventures to partner in the development of oil and gas fields or large petrochemical complexes, often with state-owned enterprises. In addition to these traditional uses of joint ventures, companies increasingly are favoring joint ventures to accelerate energy transition strategies and combine expertise along the value chain, as it's difficult for one company to have all the capabilities required. For example, there are several joint ventures globally related to the chemical recycling of plastic waste. These joint ventures involve three parties: traditional waste companies with expertise in the collection and preparation of waste and recyclable materials, a company with proprietary mechanical or chemical recycling technology, and a traditional chemical company with experience in processing and operating hydrocarbon and chemical plants (for more, see the Bain Brief "Delivering Results in Joint Ventures and Alliances Requires a New Playbook").

Fluid M&A market dynamics will provide myriad opportunities for resilient companies to transform their portfolios and reposition themselves for the great energy transition. The best companies view the industry's era of complex uncertainties and unprecedented change for what it is: a time of historic possibilities.



## Strategic capabilities

# Deliver Decarbonization with Visionary Pragmatism

Goals are set and targets have been announced. The next stages of the energy and resource transition depend on being bold and realistic.

**By Cate Hight, Torsten Lichtenau, Brian Murphy, and Nitesh Prakash**

## At a Glance

- ▶ Having set aggressive decarbonization targets, companies across sectors now face the challenge of executing at pace during a time of unprecedented turbulence.
- ▶ Many companies in the energy and natural resources sectors have been working toward these goals for many years, with varying degrees of success.
- ▶ Indicating the difficulty of achieving those ambitions, 31% of ENR companies missed Scope 1 and 2 targets they set for 2020.
- ▶ Companies that make the most progress will stay focused on their visionary net-zero ambition while showing ruthless pragmatism in delivering strategically.

If the year 2021 was about setting ambitions, 2022 is about coming to grips with how challenging the energy and resource transition is likely to be.

Over the past two years, the number of companies establishing science-based targets for reducing their carbon emissions accelerated dramatically, as many prepared for the COP26 climate change conference last November (see Figure 1).

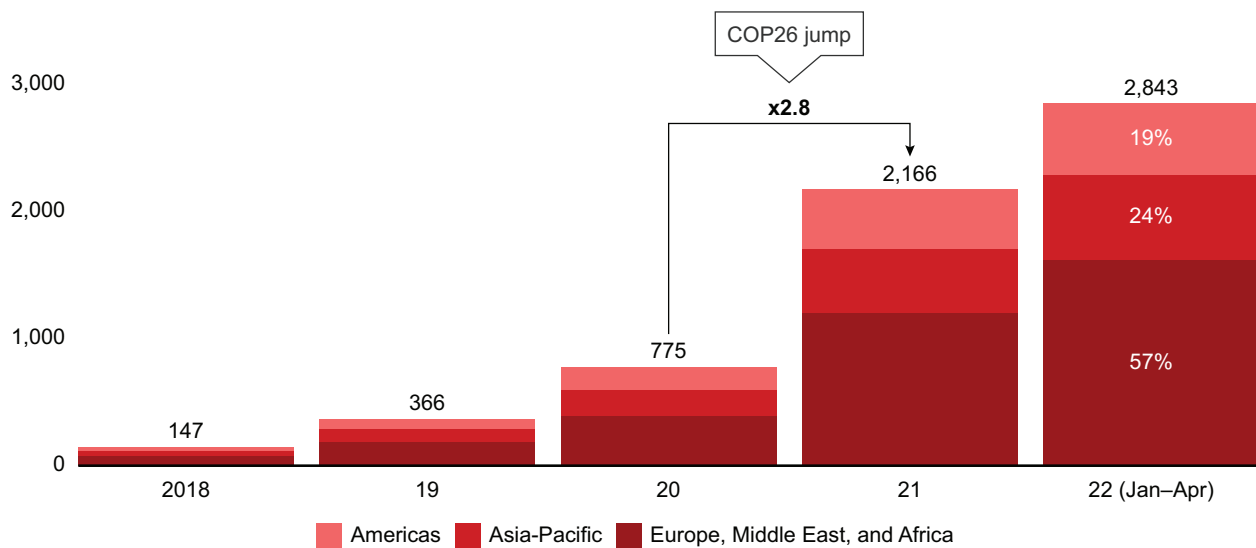
But for companies in energy and natural resources (ENR), decarbonization is hardly new. Decarbonization and sustainability have been high on their agenda for several years because these industries are among the highest and most visible of carbon emitters, and because they're under intense scrutiny to decarbonize.

As an indication of how difficult it is to turn ambition into reality, consider that 31% of companies missed the Scope 1 and 2 targets they set for 2020, even though these emissions are the most controllable, and addressing them often makes good economic sense (see Figure 2). For many ENR companies, most emissions are downstream Scope 3, when customers use their product.

None of this is happening in a green vacuum. Executives are trying to pursue their decarbonization targets during a period of turbulence that has created historic levels of uncertainty. They're learning

**Figure 1:** The number of companies pursuing science-based decarbonization targets has nearly quadrupled since 2020

**Number of companies with SBTi commitments or targets set**



Note: The COP26 UN climate change conference took place in Edinburgh, Scotland, from Oct. 31 to Nov. 12, 2021  
Sources: CDP; Science Based Targets initiative; Bain analysis

**Figure 2:** About one-third of ENR companies said they missed their Scope 1 and 2 targets in 2020

**Energy and natural resources companies' results for Scope 1 and 2 emission reductions**



Notes: ENR includes agricultural commodities, chemicals, coal, electric utilities, metals and mining, and oil and gas; Scope 1 measures greenhouse gases directly emitted by an organization or by activities under its control; Scope 2 measures indirect emissions from electricity or other power used by an organization  
Sources: CDP 2017–2020 data (n=67); Bain & Company

how to make an orderly carbon transition amid an unsettling geopolitical atmosphere, chronic supply chain disruptions, and rampant inflation.

Progress in the next stages of the transition will depend on visionary pragmatism. Our clients are experimenting with more flexible and nimble approaches that will help them work through the many disruptions. Here’s a short list of some effective strategies.

1. **Put a premium on strategic adaptability.** Companies don’t need more climate scenarios, just clarity on the relevant ones. They need to identify the signposts that show the direction of travel, especially regulations and advances on the technology experience curve. We’re seeing companies adopt a more adaptable approach to strategy. For example, instead of setting five-year strategic plans with yearly refreshes, strategy becomes a more continuous activity, taking account of delivery commitments and the development agenda. Continuously assessing the signposts can guide ongoing and quarterly discussions within the executive team and the board as part of a living strategy.
2. **Proactively address investor dissonance.** Investors and lenders are raising their expectations about decarbonization. Among utilities investors, for example, 13% say they already have carbon targets or limits that guide investment decisions, and another 16% say they’re considering it.



At the same time, they often aren't willing to compromise on near-term returns. This creates dissonance in capital markets, as companies balance the trade-offs between their green ambitions on the one hand, and their growth and financial aspirations on the other. Capital market days for many companies have become longer, but not necessarily clearer. Executives need to strengthen the investor dialogue. That means focusing on strategic clarity, with specific near-term plans for decarbonization and longer-term pathways to net zero. For many energy and resources companies, it also means showing plans for new growth, including Engine 2 initiatives (for more, see Chapter 2, "Investing in New Growth Businesses"). Both efforts should make the business more valuable. Companies need to demonstrate progress in everything from Scope 1 and 2 decarbonization to customer collaboration on green products and meaningful investments in new growth.

3. **Decarbonize "customer-back."** Customer preferences deeply influence the level of emissions generated during production and in the supply chain. Through procurement decisions, customers can have as much control over their upstream Scope 3 emissions as they do over Scope 1 and 2 activities. Leaders will set targets for all three levels. Downstream Scope 3 emissions also provide new opportunities, even though ENR companies sometimes view them with trepidation. Visionary pragmatists will work with customers to develop lower-carbon products that meet their needs and support their own decarbonization efforts. Beyond the well-known example of substituting renewable electricity for higher-emitting alternatives, other opportunities include responsibly produced natural gas, carbon-neutral LNG cargoes (through offsets), low-carbon copper, carbon capture services for cement producers, green hydrogen for steel producers, green methanol for shipping, and sustainable aviation fuel for airlines. Since customers will want to know what they're getting when they pay a premium for these greener products, transparency on materials and emissions will be important.
4. **Collaborate where it matters and for results.** Carbon transition is a problem far too big to be solved by any company on its own, and the need to engage the wider ecosystem of customers, suppliers, peers, governments, and civil society is increasing. Know where to collaborate and where to compete. Pick the few partnerships that can make a difference. Those partnerships should be made across the value chain, with peers and with key stakeholder groups, to reach a critical mass for change (for more, see Chapter 6, "Creating a Coordinated Approach to Decarbonization"). Avoid losing precious time on initiatives where there's a lot of talk but little action. Ruthlessly deliver results with a clear intent for the partnership, and with early proof points through experimentation.
5. **Create green heroes in middle management.** Top management may be fully convinced of the need for aggressive decarbonization, given interactions with investors, the board, and key customers. New recruits often have chosen an employer based on its green credentials. Yet some companies underinvest in empowering middle management to get the job done, sending confusing signals on how environmental, social, and corporate governance (ESG) considerations should connect with other goals for revenues, costs, and safety. Decarbonization can't be achieved



without managers who have the tools to make it happen. The only way to effectively empower these potential green heroes is to be extremely clear on what decisions they need to make differently and how to resolve trade-offs when they occur. The organization needs to be trained, guided, and aligned to embed its goals as realistic deliverables.

As an example, procurement is critical to address upstream Scope 3 emissions. Managers who have been trained for years to focus on optimizing cost for certain specifications need clear guidance on how to reflect carbon in procurement decisions, next to specs and price (for example, through internal carbon pricing) and the tools to pragmatically assess where to push in the supply chain.

Skills must be upgraded throughout the organization, but tailored to specific purposes and people. That starts by investing to understand who's most affected and who needs the most training, then rolling out support accordingly.

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While many companies raced to establish their targets in time for COP26, companies in the energy and natural resources sectors often were already managing the difficult task of delivering on those ambitions and building greener businesses.

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The importance and urgency of decarbonization and the need to limit global warming to 1.5°C are largely undisputed. While many companies raced to establish their targets in time for COP26, companies in the energy and natural resources sectors often were already managing the difficult task of delivering on those ambitions and building greener businesses. The leaders that combine vision and pragmatism will get there first.

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