



Aftershock: Managing through Disruptions in Energy and Commodities

Uncertainties in energy and other commodity markets are cascading across the value chain and hitting consumers who depend on them.

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Acknowledgments

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At a Glance

- ▶ As the war in Ukraine continues, companies across sectors are moving past their initial shock and beginning to integrate new economic realities into their planning.
 - ▶ For most, building resilience in operations and supply chains will be critical. But resilience can be expensive, so companies need to determine where it makes the most sense to invest.
 - ▶ Trade interruptions and sanctions will affect the supply, cost, and trade routes of many commodities that are key inputs to much of the economy.
 - ▶ By understanding these impacts and by forming a set of plausible scenarios based on different levels of disruptions, companies can prepare for a range of possible outcomes.
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For most companies, a critical component of their response to the Ukraine 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 "Just in time" has been replaced by "just in case."

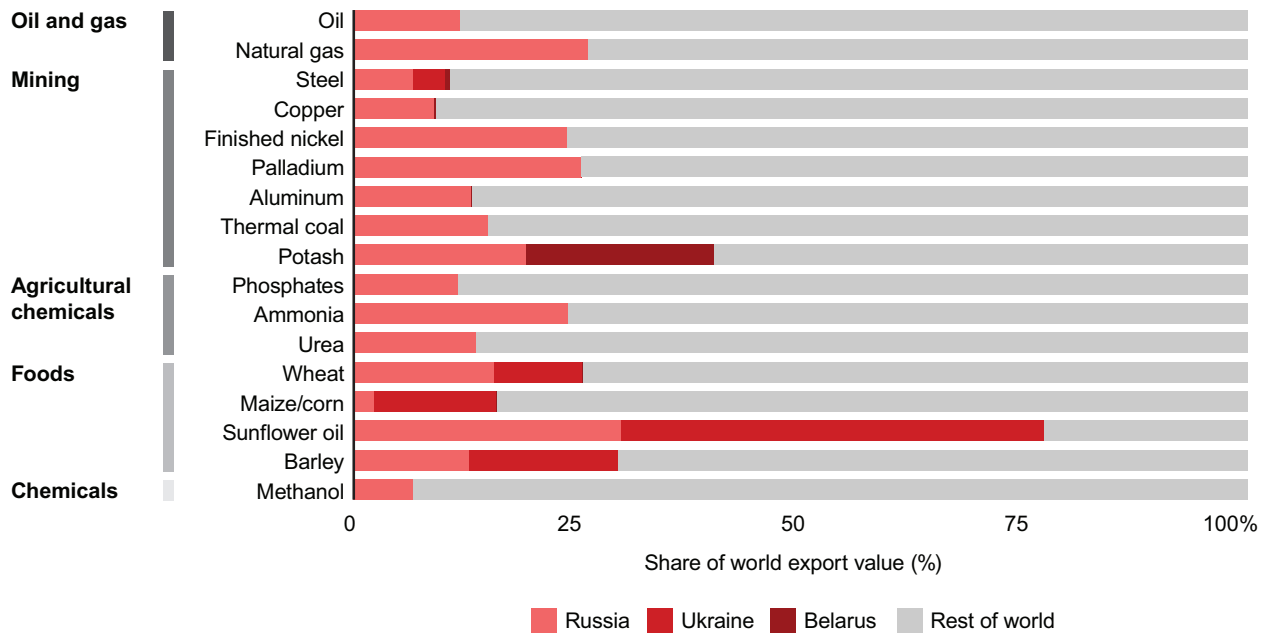
Resilience is critical, but resilience is also expensive. For longer-term survival, companies still need to pay attention to the basic principles of leadership and strategy. But as they recover from the initial shock and begin to make longer-term plans, companies need to answer the question: Where is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

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 many companies, the immediate response requires understanding the supply-side shocks, including the commodities for which Russia, Ukraine, and Belarus play a key role in production and trade (see *Figure 1*). These mounting supply challenges could 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, "Should 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.

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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

Companies 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 the speed of technology development and the role of government spending and regulations.

Commodity shortages and resulting price spikes will flow through 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 some of the broadest inputs into the overall economy, all consumers will have to 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.

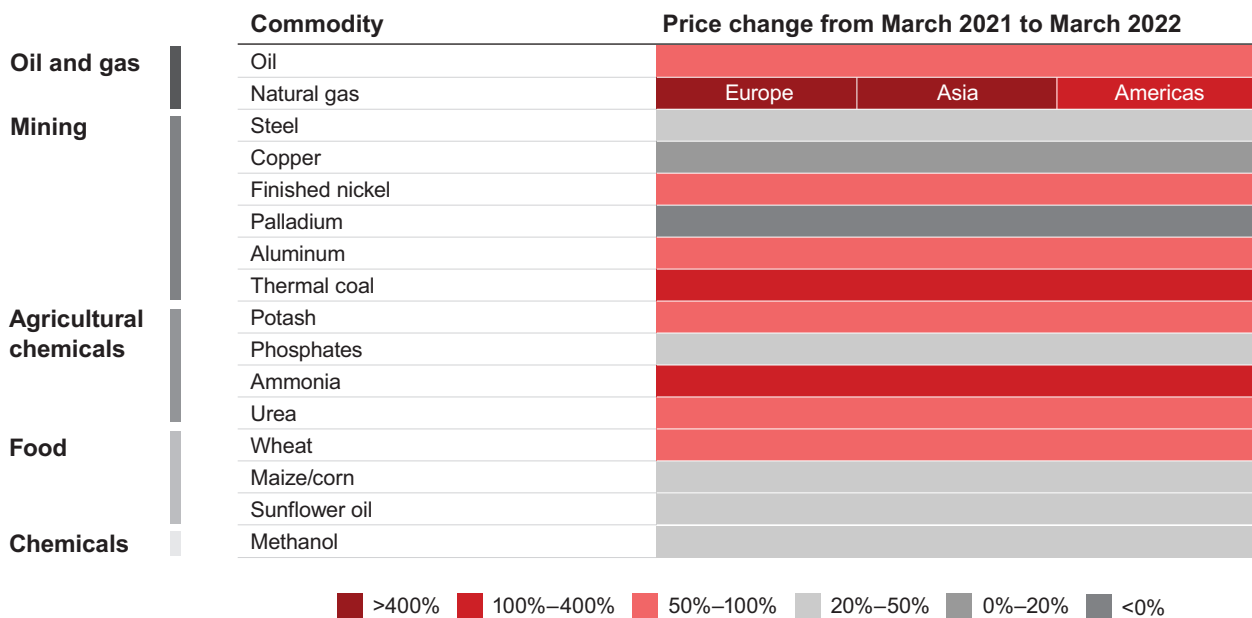
Commodity level

In the face of these disruptions, commodity producers will look to increase capacity to displace Russian exports, customers and finished-product companies will have to absorb price shocks and supply constraints, and midstream traders will need to forge new connections as markets react and evolve (see Figure 2). Some business customers are already experiencing shortages.

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

- **New sources of supply** to 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** that provide alternatives. When Russian sunflower oil fell under sanctions, prices for Malaysian palm oil surged.

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

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- **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. For example, Russia and India are negotiating for delivery of discounted oil shipments rejected by European markets.

For each commodity, these changes carry risks, but also create new opportunities that companies will need to navigate in an uncertain and rapidly evolving market environment. We'll consider three fundamental inputs to the economy: gas, oil, and wheat.

European Union proposals rely heavily on bringing in more LNG, and more European purchases of LNG on the spot market will raise demand and prices beyond usual patterns.

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 more LNG, and more European purchases of LNG on the spot market will raise demand and prices beyond usual patterns.

Europe will also rely on other ways to generate electricity. Countries may decide to extend the lives of nuclear plants that had been scheduled to shut down. They may accelerate wind and solar projects, although because renewables remain intermittent power sources without scale power storage, these aren't perfect substitutes for gas-powered generation.

On the other hand, some substitute sources could cause Europe to backslide on its environmental goals. Swapping coal or oil for gas could reduce dependence on Russian gas supplies, but at the cost of increasing carbon emissions.

Higher prices for gas could decrease demand for it. They also could present challenges for gas-intensive European industries and provide opportunities for manufacturers in lower-cost markets, especially those that can export to Europe.

Even with these more painful measures, it will be difficult for Europe to reduce its dependence on Russian gas by much more than 60%, 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 is a harsh prospect for the winter of 2022–23, and the potential threat to this critical energy source has left already tight markets on edge, manifest as increased volatility and a premium for secure supply. There are only so many wind and solar plants that can be accelerated in 2022, only so much uncontracted LNG available to reroute, and only so much new global liquefaction capacity (for converting natural gas to LNG for transport) under construction and set to come online in the next three to four years.

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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 usual price.

Oil. Russia supplied about 7.8 million barrels per day (mbd) of crude oil and refined products. About two-thirds of that flows to countries that have backed the idea of sanctions, while the rest flows to countries that have not, including China 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 \$110 per barrel. 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, all of which are likely to find markets.

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.

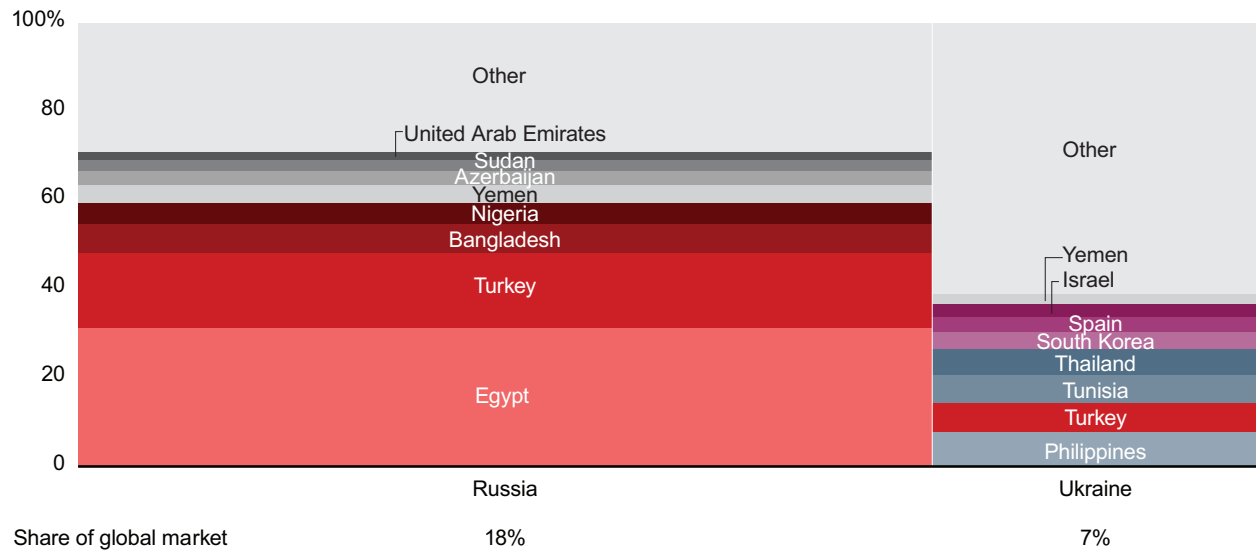
Given this, in a cautious scenario, perhaps 1 million barrels of Russia's daily export volume would be curtailed, an amount that's relatively easy for the global market to adapt to. Sanctions from the US and European Union may be relatively easy to circumvent, even by lower- and middle-income countries that may be able to buy Russian liquids at a discount.

In more extreme scenarios, as much as 4 mbd could struggle to find a market. Western capital could dry up, and major Western energy companies could withdraw 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.

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 gone up 40% to 60%, 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.

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

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. If the war continues, Northern Hemisphere farmers could face the same decisions in the next planting year, continuing the ripple effects on these commodity crops.

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 must 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 sure to cascade 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.

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.

Macroeconomic factors

In an extreme scenario, persistently high and frequently spiking commodity prices and deepening supply shortages could 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, commodity prices will be higher.

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 more extreme scenarios, 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. 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 the more extreme scenarios, 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 would resume, but a premium would remain for domestic or secure supply lines.

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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.

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. These companies 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.

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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 away 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 immediate next task must be to reposition the organization 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.

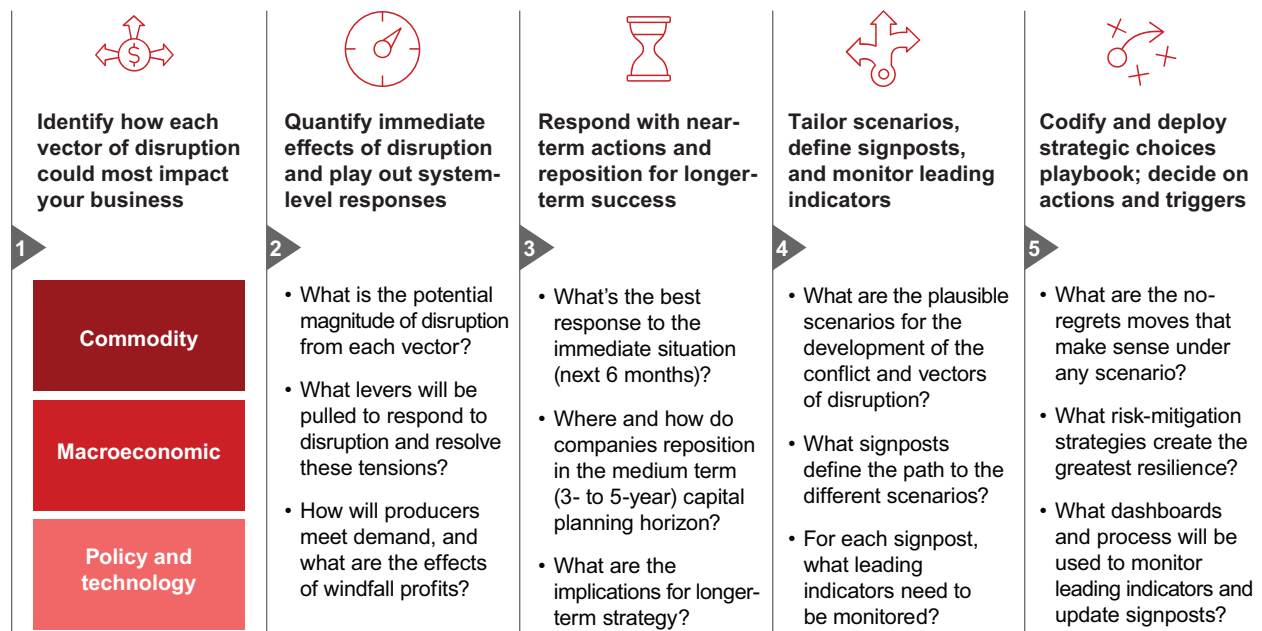
- **Innovation.** How can the company adapt and evolve to changed conditions? As with the ongoing energy transition and the Covid-19 pandemic, new technologies and ways of working may be critical assets in setting up new models.
- **Impact.** How will supply disruptions impact the company's ESG ambitions? Some emissions-reduction ambitions could see a setback in the immediate rush to substitute energy sources, but could then accelerate as companies and countries invest in renewables to shore up energy security.
- **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 value in order to draw the capital and access resources necessary for success.

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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) affect 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.

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



Source: Bain & Company

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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 extreme 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.

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