

A CALL TO CLEAN



ENERGY

The global energy crisis highlights the need for a massive surge in clean energy investment

Fatih Birol

The global energy crisis is fueling fierce debate around the world over which new energy projects should or shouldn't go ahead.


Conversations about energy and investment often fail to take into account the considerable lag between investment decisions and when projects actually go live. At the International Energy Agency (IEA), we warned years ago that global investment in clean energy and energy efficiency was not sufficient to put us on a path to reach our climate goals. Without a surge in clean energy spending, the amounts invested in conventional energy projects also risked falling short of what would be needed to meet potential increases in demand.

Even though the current energy crisis was triggered by Russia's invasion of Ukraine, we must still pay close attention to these underlying investment imbalances as we emerge from the crisis, or we risk more volatility ahead. Are today's sky-high fossil fuel prices a signal to invest in additional supply or further reason to invest in alternatives?

Energy investment decisions are being clouded by the fog of war. Russia's invasion has thrown investment plans across all energy sectors into turmoil and exacerbated strains in global commodity markets that were already visible. Energy-importing countries are now scrambling to replace disrupted supplies of fuels, and soaring costs have wreaked havoc in many economies and forced millions of people back into poverty and energy insecurity.

Of course, countries need to find immediate substitutes for the fuel imports that were suddenly cut off. If not, factories will close, jobs will be lost, and people will struggle to heat or cool their homes. But today's energy crisis—the first truly global energy crisis—has given rise to a false narrative that now is not the moment to invest in clean energy.

This could not be further from the truth. We do not have to choose between responding to today's energy crisis and tackling the climate crisis. Not only can we do both, we must do both because they are intimately linked. Massive investment in clean energy—including energy efficiency, renewables, electrification, and a range



of clean fuels—is the best guarantee of energy security in the future and will also drive down harmful greenhouse gas emissions.

A worrying divide

Global-energy-related CO₂ emissions rose by a record amount in 2021, and investment in clean energy technologies is still well below what it will take to bring emissions down to net zero by mid-century or soon thereafter. The \$1.4 trillion we expect the world to spend on energy transitions in 2022 would have to rise to well over \$4 trillion by 2030 to get us on track to limit global warming to 1.5 degrees Celsius while also ensuring sufficient energy supply.

At the same time, lower investment in recent years has left some oil and gas producers unable to quickly ramp up production to meet today's demand, even with the incentive of record high prices. We risk seeing the worst of both worlds: the inability to provide for current energy needs and falling woefully short of what is needed to meet international climate goals.

We do not have to choose between responding to today's energy crisis and tackling the climate crisis. Not only can we do both, we must do both.

Published earlier this year, the *World Energy Investment 2022* report shows some encouraging trends—but also plenty of cause for concern.

The good news is that investment in clean energy transitions is finally picking up. In the five years following the 2015 Paris Agreement, clean energy investment grew only 2 percent a year. However, since 2020, this rate has risen to 12 percent a year, led by increased spending on solar and wind power, including a record year for offshore wind power in 2021.

There is strong momentum in other new areas, like low-emission hydrogen; new battery technologies; and carbon capture, utilization, and storage

(CCUS), even if this impressive growth is coming from a small base. For example, in 2021 plans for about 130 commercial-scale carbon capture projects in 20 countries were announced, and six CCUS projects were approved for final investment. Meanwhile, Russia's war against Ukraine has bolstered policy support for low-emission hydrogen, especially in Europe. And investment in battery energy storage is hitting new highs and is expected to double in 2022.

But this investment is concentrated in advanced economies and China, leaving many emerging market and developing economies, particularly in Africa, unable to attract the clean energy investments and financing they need, widening an already troubling divide. Except in China, clean energy spending in emerging market and developing economies is stuck at 2015 levels, which means it hasn't increased since the Paris Agreement was reached. Falling clean technology costs mean that this money goes further, but the overall amount—about \$150 billion a year—is far short of what is needed to meet rising energy demand in developing economies in a sustainable way.


In these economies, public funds for sustainable energy projects were already scarce and have become scarcer still since the COVID-19 pandemic. Policy frameworks are often weak, the economic outlook is uncertain, and borrowing costs are rising. After the pandemic hit, the number of Africans without access to electricity rose, wiping out years of progress on that crucial front.

No shortage of capital

This is where international financial organizations and development institutions have a major role to play. They can work with local governments to develop policies to improve the investment environment, and their financing can help de-risk private sector involvement.

There is no shortage of capital globally. The amount of sustainable financing available worldwide has surged in recent years and is a strong tailwind for solar and wind projects in particular. But far more needs to go to emerging market and developing economies. For example, sustainable debt issuance in 2021 hit a record \$1.6 trillion, but more than 80 percent was in advanced economies.

Sustainable finance, and the wider world of environmental, social, and governance (ESG) investing, would greatly benefit from clearer standards,



definitions, and reporting obligations, and there has been progress. For example, the European Union has introduced risk management and reporting requirements for financial market participants regarding climate risks and sustainability practices. Clearer guidelines and opportunities to finance credible transition plans in carbon-intensive sectors would ensure that ESG requirements do not prevent financing for essential-but-emitting energy sectors. Finally, the entire ESG ecosystem must engage more with emerging market and developing economies and take account of their needs and circumstances. Institutions such as the IMF have a major role to play.

In the IEA's landmark road map to net zero emissions by 2050, we said a massive surge in investment in clean energy technologies and energy efficiency could cut global demand for fossil fuels so much that there would be no need for investment in new oil and gas fields. At the same time, continued spending on existing assets—including investments to reduce upstream emissions—remains essential in this pathway. Moreover, Russia's war against Ukraine has brought major disruptions to the global energy system. Immediate shortfalls in fossil fuel production from Russia obviously must be replaced by production elsewhere—even in a world working toward net-zero emissions by 2050.

Balancing these demands requires judicious investment, and the IEA is helping decision-makers around the world with data, analysis, and policy advice. The key is to avoid spending on infrastructure that would either lock in heavy emissions for years to come or quickly turn into stranded assets. Suitable options include extending production from existing fields and making better use of natural gas that is currently flared or vented. Some new infrastructure may be needed, especially liquefied natural gas import terminals in Europe, to diversify supply away from Russia. But with careful investment and planning, these terminals could facilitate future imports of low-emission hydrogen or ammonia. In countries open to it, nuclear power has a role to play, especially the promising new small modular reactors that are in development.

A historic turning point

The current situation offers a crucial opportunity for the oil and gas sector to show it is serious about

the transition to clean energy. The run-up in prices is set to generate an unprecedented \$2 trillion windfall for oil and gas producers this year, bringing their total income to a record \$4 trillion in 2022. Yet the oil and gas industry is still spending only modestly on energy transitions: on average, clean energy spending accounts for about 5 percent of total oil and gas company capital expenditure. That is up from 1 percent in 2019, but still far too little. Today's windfall gains are a once-in-a-generation opportunity for oil- and gas-producing countries to diversify their economies and prepare for a world of lower fossil fuel demand—and for major oil and gas companies to seize leadership roles in some of the clean energy sources that the world will rely on for decades to come.

Let's not forget that energy security is not just about increasing the supply of power and fuels. It is also about efficient use of energy—especially given today's array of technologies that can help. The IEA's 10-point plan to reduce the European Union's reliance on Russian natural gas, published in March—one week after Russia's invasion—includes steps to replace Russian gas but also calls for a major push on renovating building stock to reduce demand. Better materials and insulation, newer technologies, and more efficient appliances greatly reduce the energy needed to heat, cool, and light our homes and workplaces. Smart electrical grids will better manage and reduce power demand. Consumers can take immediate and simple steps such as adjusting the thermostat to avoid overheating or overcooling, which can collectively add up to massive savings.

The current global energy crisis presents huge challenges, especially for the coming winters. But after the winter comes spring—and the right investment decisions can transform this crisis into a historic turning point toward a cleaner and more secure energy future. We are already seeing encouraging steps in this direction—such as the Inflation Reduction Act in the United States; the REPowerEU package in the European Union; Japan's Green Transformation plan; and the growth of renewables in China, India, and beyond. A new global energy economy is emerging, and the governments and businesses that invest early and wisely stand to reap the benefits. [FD](#)

FATIH BIROL is executive director of the International Energy Agency.