How do recent events in Europe affect the opportunities in transitional energy?

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The invasion of Ukraine by Russian armed forces has destabilised security in Europe, creating a humanitarian crisis and market turmoil. With half of Europe's oil and 30% to 40% of its gas imported from Russia, the invasion has escalated concerns over what Europe's existing and long-term energy mix will look like in providing the region with dependable, affordable and climate-friendly access to energy. Here, we look at some considerations for investors assessing the energy market.

In recent decades, Europe has grown highly dependent on Russian oil and natural gas, and the invasion of Ukraine by Russian armed forces has put Europe in a difficult position. The price of energy has soared even as Europe feels growing pressure to increase economic sanctions against Russia. This has reignited a discussion about Europe's energy mix, the impact of rising costs and how to make a faster transition to clean energy.

- **The energy mix:** Europe has been grappling with a sustained, widening gap between its investment in energy infrastructure and its dependence on energy – a trend that is replicated globally (see **Exhibits 1** and **2**). Since 1990, Europe's total energy supply has contracted overall. And while its dependence on coal, oil and natural gas has fallen from 84% to 71% since 1990, its use of gas has risen from 20% to 26%.
- **The impact of rising costs:** Given the disruptions to the supply chain caused by events in Ukraine, the impact on energy pricing is already very evident. At current price levels, it is now cheaper for many power stations to burn coal than gas. And costs aside, to maintain current energy levels while burning less Russian gas, it may be necessary to burn more coal – hardly a sustainable proposition.

Key takeaways

- The implications of the current crisis extend beyond fossil fuels into renewable energy and climate solutions
- Europe needs to remedy the significant underinvestment in energy infrastructure to counter a risk of sustained energy poverty
- The decline in fossil fuel use is likely to be slower, so opportunities exist in carbon capture and energy storage solutions, energy efficiency technologies and local sourcing of strategic metals and minerals

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– **Investing in clean energy:** Given this backdrop, European governments are under pressure to increase the use of clean energy and accelerate the delivery of green technologies. They are also assessing where nuclear power stands in the long-term energy mix, and they are looking to invest in carbon capture technologies to compensate for slow progress in reducing carbon emissions.

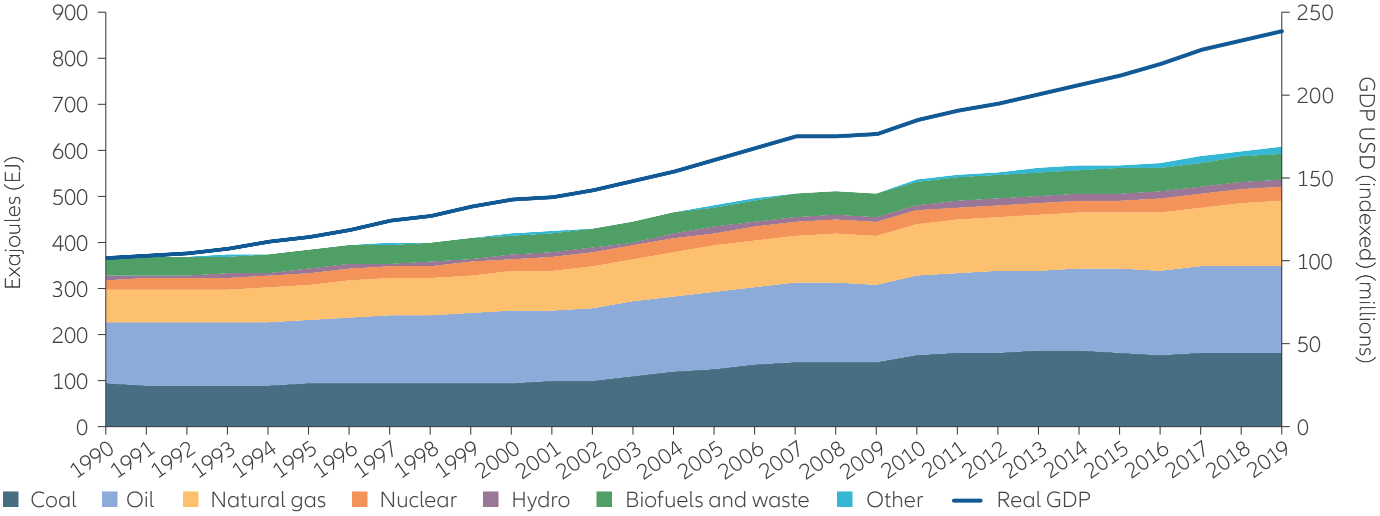
How Europe plans to speed up the transition to clean energy

Rising energy costs are making the already politically charged topic of energy even more political. Policymakers must find a balance between making energy affordable in the near term and investing in alternative energy sources over the long term. The European Commission has already commented that "terminating our dangerous overdependence on fossil fuels from Russia can be achieved well before 2030". But getting there may involve acting on several fronts.

– **Reclassifying nuclear as "green"**. Nuclear power's contribution to Europe's energy mix has risen only marginally in the last 30 years, to 12.5% in 2019. The European Commission had already approved draft rules for classifying nuclear (along with gas) as "green" in the EU taxonomy – a classification system for environmentally sustainable economic activities. However, the greater acceptance of nuclear as a possible core clean energy source (albeit with waste disposal issues) was put to the test with the shelling of Ukraine's Zaporizhzhia nuclear plant by Russian armed forces.

Exhibit 1: Fossil fuels are still a major source of the global energy supply

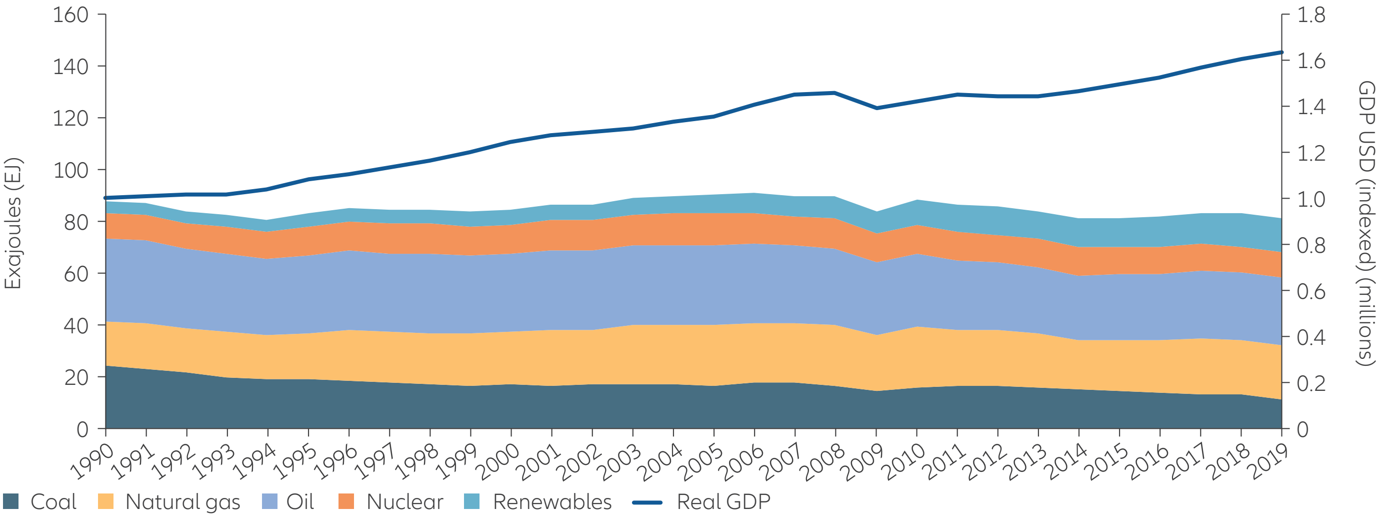
World total energy supply by source versus real GDP (1990-2019)



Note: The exajoule (EJ) is equal to 1018 (one quintillion) joules.
Source: IEA, World Bank. Data as at 2019.

Exhibit 2: Europe is more dependent on natural gas than 30 years ago, while the overall energy supply has fallen

Europe total energy supply by source versus real GDP (1990-2019)



Note: The exajoule (EJ) is equal to 1018 (one quintillion) joules.
Source: IEA, World Bank. Data as at 2019.

- **Expanding renewable energy sources**. Europe's renewable energy expansion appears on track, but will need to accelerate to respond to the current crisis. Its contribution to the European mix reached 22.1% in 2020[1] compared with only 4.3% in 1990.[2] The European Union has targets of 32% and 60% market share for renewables for 2030 and 2050, respectively.
- **Investing in "clean tech"**. An ambitious pathway to achieving "net zero" carbon emissions by 2050 includes the significant expansion of renewable energy sources, increased carbon capture technologies and better energy storage.

What it may mean for investors

Clean tech is evolving rapidly – and needs investment
Even before the situation in Ukraine brought energy issues to the fore, clean-tech investments were already a critical solution for the climate crisis. Companies that help enable both climate mitigation and adaptation may benefit significantly from Europe's energy transition. This includes firms that work on rapidly evolving technologies like energy storage, green and blue hydrogen, and grid technology, as well as more mainstream forms of renewables eg, solar and wind.

Be mindful of shrinking availability of "rare earths" and other raw materials
The current crisis touches upon the access to key strategic metals and minerals required for the production of renewable energy solutions. Rare-earth elements are essential for capturing wind power; magnesium is a key component of fuel cells, plus wind and photovoltaic technology; and cobalt and natural graphite are critical for batteries and fuel-cell technology. China and Russia are responsible for most of the EU's imports of these metals and minerals. As such, given ongoing geopolitical tensions, it is difficult to ignore the scope for supply chain disruption. At the same time, as prices rise for these raw materials, previously shuttered mines outside of Russia and China may be able to restart and profitably provide local sourcing. This is a longer-term change, but it could significantly improve the scope for renewable energy development.

Look into carbon capture solutions
During our AllianzGI 2021 Sustainability Days conference, we heard from Professor Johan Rockström, a director of the Potsdam Institute for Climate Impact Research in Germany and one of the world's most influential Earth scientists. Professor Rockström highlighted the importance of "carbon sinks" to achieving net zero. (Carbon sinks are natural or human-made systems that can trap and store carbon emissions.) This is where the opportunity sits in carbon capture utilisation and storage (CCUS) solutions and technologies and energy storage. According to recent International Energy Agency (IEA) estimates:

- CCUS facilities in operation more than tripled between 2010-2021, with the ability to capture 43.7 million tonnes of CO2.
- Global CO2 emission reductions from CCUS retrofits in power generation and heavy industries could reach more than 2 gigatonnes CO2 annually by 2050.
- The global CCUS market was USD 1.9 billion in 2020, with the capacity to grow to USD 7 billion by 2030.

The current crisis has raised risks to energy security, affordability and the expansion of renewable energy sources. But it has also highlighted the necessity for accelerated investment in the European – and indeed global – energy infrastructure and mix, which provides a breadth and depth of opportunities. These extend across carbon capture and energy storage solutions, energy efficiency technologies, and local sourcing of strategic metals and minerals. Many solutions exist but need investment to achieve scalability – the growth opportunities are significant.

1. Source: EEA. Data as at 4 March 2022
2. Source: IEA World Bank. Data as at March 2022.

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Data as at 31 December 2021

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