Opinion – Ukraine's Post-War Energy Future

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CHRIS PALLETT, MAR 20 2025

At the start of the year, Ukraine ceased the transit of Russian natural gas to the European Union (EU). With gas agreements expired, diplomatic turbulence stretching across the Atlantic, and perpetual strikes on its energy installations — Ukraine is living through a complex and deeply uncertain moment.The period also represents a shift in European energy dynamics, underscoring the importance of energy diversification for EU security. Russia's relentless assault on energy infrastructure has put untold hardship on Ukrainian citizens and immense strain on wartime energy supply. But, despite the considerable destruction, Ukraine's post-war energy future holds remarkable promise.

The extensive damage to Ukraine's energy infrastructure, while devastating, presents a unique opportunity to modernize, according to Andrew Favorov and Oleksandr Kharchenko of the Wilson Center, a nonpartisan US think tank. They argue that Ukraine can leverage this crisis to its advantage:

The clouds of war, however, may bear a silver lining: the devastation of energy infrastructure has forced Ukraine into a kind of 'fast-track decarbonization,' leaving it well-positioned, after reconstruction, to be among the cleanest energy producers in Europe.

Ukraine currently has a 2,500 MW energy export capacity to its European neighbours, with plans to raise this soon to 4,000 MW. And indeed, by adopting a forward-looking approach that incorporates American and western European expertise, technology, and investment, Ukraine can reinvent itself as an energy powerhouse. Wisely, the Ukrainian government aims to add around 10,000 megawatt of new generation facilities by 2030. Russian attacks have forced Ukraine to rely on renewables, such as solar, and wind generation. The goal is to overhaul the share of renewable energy: in heat and cold supply systems the target is 33%, in electricity generation 29%, and in the transport sector 17%.

Nuclear is Ukraine's largest source of low-carbon energy — with a total of 15 reactors generating about half of its electricity from four sites. However, one of these, Zaporizhzhia, became the first civil nuclear power plant in operation to come under armed attack, when Russia began its full-scale invasion. The plant remains under Russian control, representing a potentially catastrophic means of nuclear blackmail against Ukraine. For obvious reasons, nuclear plants have become a source of anxiety. Most recently, Russian targeted strikes on the Chernobyl nuclear site. Even after the war concludes, nuclear power plants could remain a worrisome vulnerability in the face of Russian agitation and greyfare.

Natural gas is one less risky area with considerable potential for development, though operating during a war still remains exceptionally difficult. "Naftogaz Group, like all energy companies, operates under extremely challenging conditions. Energy security has never been more critical than it is today, nor has it required such immense efforts and investments in protection and restoration," said Roman Chumak, CEO of Naftogaz Group, the largest national oil and gas company in Ukraine.

Amid Ukraine's herculean challenges, there is an opportunity, however, writes Nataliya Katser-Buchkovska, founder of the Green Resilience Facility and former member of the Ukrainian Parliament:

In the coming years, Ukraine can play a key role in efforts to improve European energy security and connectivity. The country is thought to have the second highest gas reserves in Europe. It also has the continent's largest gas storage facilities and an extensive pipeline system for oil and gas transit.

Once the war ends, Ukraine has a path to rebuild and expand its domestic gas industry. Ukrainian gas production is relatively modest, increasing to 18.7 billion cubic metres in 2024. But optimistic estimates of gas reserves suggest that there are as much as 1.09 trillion cubic meters of natural gas in the country. In theory, Ukraine is well-positioned to increase production and become a net exporter.

But exploring gas fields or introducing new companies to the sector are not feasible during war. Conditions are so challenging that all foreign energy companies have exited Ukraine. All but one: Expert Petroleum (XP) from France, is the only foreign energy company still operating in partnership with Naftogaz. Despite the war – and before that, Covid 19 – XP continued its investment and operations, supporting Naftogaz effort to provide gas to ensure heating for many Ukrainians. Specialising in enhancing mature gas fields, XP's ongoing investment in modern extraction technologies has ensured a steady supply of gas from some of Naftogaz depleted gas fields.

"Our success would not have been possible without the resilience and technical expertise of our local Ukrainian team (more than 200 people) on the ground. Once again, this demonstrates that relying on local resources and training them is the best way to achieve our goals", explains XP's CEO, David Martinon. XP's business is based on Production Enhancement Contracts (PECs), a hybrid model somewhere between traditional production-sharing agreements and oilfield service contracts. "At the heart of our operational model is digital transformation that includes field data acquisition, digitisation, integration, real-time monitoring, and advanced analytics with the support of artificial intelligence," Martinon says.

This model enables faster and smarter decision making. Unlike oil majors that own production rights, or service companies that get paid regardless of results — XP is only compensated if production is enhanced. Contracts typically last 15 years and promise to leave the sites transformed, through footprint reduction, upgrades, automation, and digitalisation.

As Ukraine navigates its energy challenges, US LNG is playing a crucial role in stabilizing supplies. American liquefied natural gas shipments, delivered via European terminals, have helped to fill the gap left by the loss of Russian transit gas. The EU, too, has offered its support, not just by facilitating gas and LNG imports, but through financing and technical assistance. However, imported LNG comes at a cost. Relying on this foreign energy is neither sustainable nor economically favourable for Ukraine in the long run. Maximizing the country's own gas production is, therefore, even more worthwhile. Attracting foreign investment will be key.

Western companies have demonstrated that Ukraine's gas sector can be profitable even in challenging times. If the government implements investor-friendly policies, including regulatory reforms and tax incentives, other international energy firms could follow suit. Additionally, Ukraine's vast gas storage capacity, a liability at present, could serve as a strategic asset for Europe. By offering storage capacity for European countries, Ukraine can further solidify its role in the region's energy security picture. The war has inflicted severe damage on Ukraine's energy infrastructure. But, with the right approach, Ukraine could transform itself into a key player of the European gas market.

About the author:

Chris Pallett, now retired, spent a career teaching History and English as a foreign language. He lived in Ukraine in the 2000s.