

Investing in Energy Security

How Ukraine is transforming its energy system in wartime

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DTEK

Transforming Ukraine’s Energy System—One Partnership at a Time



Through three winters of Russia’s full-scale invasion into Ukraine, I led a [G7+ support group](#) established by the United States to bolster Ukraine’s energy resilience and ensure that Russian President Vladimir Putin’s energy war would fail. Through intensive, near-daily international cooperation, we were able to mobilize more than USD 5 billion in support for Ukraine’s energy system, with the United States contributing about USD 1.9 billion.

From its inception, this effort had two complementary areas of focus: short-term reconstruction and, separately, building for Ukraine’s future in the European Union. The first priority, by necessity, was keeping the lights on. That meant finding and delivering the transformers, cabling, grid equipment, and generators that Ukraine’s public sector and private energy companies needed to repair damage from relentless Russian drone and missile attacks.

Notably, this support included more than USD 120 million in assistance to DTEK—Ukraine’s largest private energy company—to restore its thermal power plants ahead of winter 2024. Some of this equipment was massive, like a decommissioned [power plant from Lithuania](#) and a [USAID-funded GE Vernova gas turbine](#), now operating far beyond its design specifications to support the grid around Kyiv. But just as important were the small backup power systems, mobile boiler houses, and cogeneration systems the G7+ procured to help communities, schools, and hospitals maintain heat during Ukraine’s often bitter winters.

Throughout this effort, Ukraine’s citizens have demonstrated inspiring resilience, and the country’s energy workers have performed miracles in maintaining the power and gas grids and defending the “second front line” of Putin’s war.

But even more inspiring has been Ukraine’s determination—even in the face of Russia’s attacks—to build back better, stronger, and more resilient by pressing ahead with the energy transition, implementing EU reforms, and accelerating the construction of a more decentralized (and therefore more defensible) power grid, fully integrated with Europe.

This transformation of Ukraine’s energy system represents a massive commercial opportunity. A great example is DTEK’s partnership with Virginia-based Fluence Energy to build Eastern Europe’s [largest battery energy storage system](#), which acts like a giant stabilizer for the Ukrainian power grid. In September, I joined U.S. Ambassador to Ukraine Julie Davis in [inaugurating](#) this system’s first phase near Kyiv. At a later meeting back in Washington, Fluence CEO Julian Nebreda described

how the project was completed in only six months—significantly faster than the industry average for projects of such complexity—based on the strength of the partnership with DTEK and a fully remote commissioning model that had never been used before.

This Fluence example is only one of many opportunities that will emerge as funding begins to flow into Ukraine’s long-term energy reconstruction from sources including the EU, European Bank for Reconstruction and Development, European Investment Bank, Japan, Norway, Canada, United Kingdom, and the United States. The [U.S.-Ukraine Reconstruction Investment Fund](#)—colloquially known as the “Critical Minerals Deal”—includes explicit authority to invest in new energy infrastructure, and teams from the U.S. International Development Finance

Corporation and Department of the Treasury have shown leadership and creativity alongside their Ukrainian partners to make this fund a success.

As Ukraine approaches the fourth anniversary of Russia’s invasion and Putin again seeks to enlist “General Winter” in his brutal war of aggression, it’s more important than ever that the United States, our allies, and the private sector look for ways to support Ukraine’s energy security while positioning for the reconstruction to come. This effort is not just a matter of strategic and humanitarian interests—it’s also a once-in-a-generation commercial opportunity.

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Introduction

Nearly four years into the war, Ukraine’s energy system is undergoing a fundamental transformation. Repeated Russian attacks on power infrastructure have accelerated Ukraine’s efforts to decentralize its grid by expanding the use of distributed energy sources such as batteries, solar, and wind power. By early 2024, the country had deployed small modular gas turbines and rooftop solar systems equipped with batteries, [adding](#) nearly 1,500 MW of solar capacity, enough to power roughly 400,000 households. And efforts to further decentralize and strengthen energy systems’ resilience continue.

However, this transformation, including grid modernization and stronger interconnection with the European Union, is far from complete. [Russian forces](#) have continued to target power plants and transmission lines, destroying or occupying about [two-thirds](#) of Ukraine’s pre-war power generating capacity. Ukraine’s energy system has been hit hard, with renewed attacks on its central power and gas systems throughout October 2025 forcing the country to impose [emergency blackouts](#) across most regions just as winter approaches. To this day, the country’s centralized power network continues to be vulnerable to attacks. Accelerating the country’s shift toward decentralized, more resilient, and diversified energy systems in the years ahead is therefore vital to Ukraine’s energy and national security.

As the revitalization of Ukraine’s power sector takes shape—and with the newly forged U.S.–Ukraine [Economic Partnership Agreement](#)—there is both an immediate need and promising opportunity for energy investments and related support from foreign companies and lending institutions. The U.S.–Ukraine Agreement aims to mobilize public-private partnerships to rebuild and modernize critical infrastructure, including Ukraine’s energy system. With untapped gas reserves, strong wind and solar potential, and vast gas storage and transmission infrastructure, Ukraine is well positioned to be an energy powerhouse.

Investing in Ukraine’s immediate energy needs, such as battery storage, offers short-term resilience while also laying the foundation for long-term modernization. Through innovative financing and insurance mechanisms, new investments have the potential to transform Ukraine’s energy sector, kickstart economic recovery, and strengthen energy security for international partners. Fully realizing this potential will require dedicated diplomacy, cross-sectoral collaboration, targeted policy reforms, and strategic integration of diversified and decentralized energy technologies.

This brief, produced by FP Analytics, the independent research division of The Foreign Policy Group, identifies key issues facing Ukrainian and regional energy security and assesses what it will take to accelerate the transformation of the energy system and strengthen international partnerships in the process. The analysis examines the wealth and diversity of Ukraine’s natural energy resources, highlighting the strengths and opportunities of its extensive energy infrastructure and the ongoing decentralization efforts to improve grid resiliency and attract foreign investment emerging from the war. The brief concludes with targeted recommendations for a wide range of stakeholders, each of whom has much to gain from securing Ukraine’s energy future.



Wartime Damage to the Energy Sector

Since the beginning of the full-scale invasion, Russia has deliberately targeted Ukraine's energy infrastructure to undermine the country's war effort. In what is now an annual pattern, Russia ramped up attacks on the power grid this autumn ahead of the onset of cold temperatures, when energy needs are greatest. An October 2025 attack featured 465 drones and 32 missiles, and while many were intercepted, the strikes caused outages in Kyiv and several regions and disabled about 60 percent of Ukraine's gas production. Six days later, Russia launched another massive attack against gas production facilities in north-eastern Ukraine, deploying 320 drones and 37 missiles.

These attacks, in addition to killing civilians, have placed significant strain on Ukraine's energy infrastructure and will require Ukraine to spend as much as EUR 2 billion on natural gas imports to meet its needs through winter. Between attacks like these and Russia's occupation of facilities in eastern Ukraine, total generation capacity in the country has decreased from above 37 GW pre-war to less than 14 GW at the end of 2024. Since then, the country has restored about 3 GW of generation

capacity, and before the latest wave of attacks, the Ministry of Energy estimated that approximately 17.6 GW of total generation capacity would be available ahead of the 2025–2026 heating season.

The World Bank, together with the Government of Ukraine, the European Union, and the United Nations, estimates the damage caused to Ukraine's energy infrastructure through 2024 to be over USD 20 billion, with lost revenue to the energy sector exceeding USD 72 billion and power outages affecting millions of Ukrainians. Ukraine will need at least USD 67 billion to fully rebuild its energy infrastructure—a sum that will require significant investment from the private sector and from Ukraine's international partners. If Ukraine implements policy and regulatory reforms to incentivize investment, such as making markets more competitive and raising price caps, the World Bank estimates that the private sector could cover around three-quarters of Ukraine's energy reconstruction needs. Mobilizing private investments will depend on risk-mitigation instruments, reforms to the business environment conducive to a competitive market, and targeted public support to attract capital.

Quantifying Ukraine's Untapped Energy Potential

Prior to Russia's full-scale invasion in February 2022, Ukraine's significant natural energy resources and developing energy infrastructure were attracting investments. From 2009 to 2020, the share of Ukraine's energy that came from renewable energy sources increased from 3 percent to 12.4 percent, and in 2024 the government set a goal to reach 27 percent of total energy consumption by 2030. From 2018 to 2021, the number of Ukrainian companies specializing in solar, wind, hydro, and biomass energy almost tripled, and 358.8 MW of wind power capacity was constructed in 2021 alone. Some of the greatest growth potential lies in Ukraine's untapped energy resources.

Expanded investment in distributed energy resources (DERs) is crucial to energy security, because smaller and more widely disbursed energy assets are more difficult to take offline with airstrikes and quicker to repair or replace than consolidated coal, nuclear, or hydro-electric plants. Because DERs are geographically distributed, they also reduce investors' financial risk by minimizing single points of failure. Small, gas-fired plants and turbines near urban areas are also cheaper and easier to build than large plants, and they reduce transmission losses and provide more flexible and reliable energy.

At the same time, a shift toward small modular

reactors could decentralize the nuclear sector as well, allowing Ukraine to harness its traditionally dominant power source to address its growing need for baseload generation. Wind and solar energy generation can be similarly decentralized, allowing investors to take advantage of Ukraine's underutilized energy potential while decarbonizing Ukraine's economy.

Looking ahead, solar and wind power remain relatively quick to build and inexpensive to operate, and they can be further decentralized, making them central to Ukraine's reconstruction and energy resilience plans. Research by the University of Sydney suggests that Ukraine could meet 91 percent of its energy needs from domestic renewable sources while using just 1 percent of its land area. Thus, solar and wind energy are likely to play a major role in Ukraine's post-war economic recovery, which would create significant investment opportunities for manufacturers of wind turbines, solar panels, batteries, and other crucial components of DERs.

Opportunities are also opening for investors to rebuild and modernize Ukraine's energy grid. Smart-grid technologies use advanced sensors and real-time data analysis to allocate power flows based on consumer demand, resulting in increased efficiency, affordability, reliability, resilience, and compatibility with intermittent energy sources. Moreover, DTEK—Ukraine's largest private energy investor, which distributes about 40 percent of the country's electricity—has developed a 10-year, EUR 7 billion plan to modernize its power



The Breadth and Scale of Ukraine’s Energy Potential

Ukraine possesses an abundance of natural energy sources that can be leveraged to power its economic recovery. The tiles below highlight a range of expert estimates of the country’s technical energy potential for gas, gas-fired generation, wind, biomass, hydropower, and solar.



Gas

Ukraine has substantial natural gas reserves, estimated at 5.4 trillion cubic meters (tcm) by the International Energy Agency (IEA), with proven reserves of 1.1 tcm, among the largest in Europe. The estimated figure includes Europe’s third-largest shale gas reserves, estimated at 1.2 tcm; about 3 tcm of coalbed methane; and more than 400 million tons (Mt) of gas condensate. Ukraine’s gas reserves remain underutilized, with an annual reserve usage rate of around 2 percent. Beyond its reserves, Ukraine has the third largest gas storage system in the world, after the United States and Russia. The system comprises 13 secure underground facilities capable of storing up to 30.9 billion cubic meters (bcm) per year. These storage assets can be used as a strategic reserve for Europe and a source of revenue for Ukraine.



Biomass

Though its utility for large-scale power generation is limited, biomass in Ukraine can contribute to the creation of small-scale combined heat and power plants (CHPs) using biogas from agricultural waste, urban sewage, and landfills. Social Europe reports that Ukraine has enough biomethane to meet 30 percent of Europe’s requirements.



Gas-Fired Generation

Given the large domestic reserves of gas and the significant need for new power capacity, expanding gas-fired power is both feasible and warranted. Notably, Ukraine relied more heavily on gas until the mid-2000s, when gas supplied more than 30 TWh of electricity annually. Today, current gas power stands at around 11 TWh and mainly from the inflexible combined heat and power (CHP) plants. Loss of gas generation over time meant that Ukraine lacked flexibility, even before Russia’s full-scale invasion. To rebuild capacity, Ukraine plans to purchase thousands of small, gas-fired plants and turbines. Ukrainian energy companies are also exploring Combined Cycle Gas Turbine (CCGT) technology to capture exhaust heat from the turbines, resulting in even greater efficiency. The IEA notes that gas-fired generation, particularly small modular gas turbines and engines, could be part of Ukraine’s distributed energy resources mix to quickly restore reliable supply. It estimates that around 2–5 GW of new gas-fired capacity could be required in the near term to address Ukraine’s immediate generation deficit and provide flexible, dispatchable power.



Hydropower

Ukraine has considerable potential for small hydropower, estimated at 200 to 500 MW, particularly in the western regions within the Carpathian mountain range.



Wind Power

In December 2024, the Ukraine–Germany Energy Partnership estimated that Ukraine had 30 to 40 GW of wind power capacity. In 2020, the World Bank estimated 251 GW of technical offshore wind energy potential in the Black Sea, although this figure only reflects theoretical capacity and does not account for economic feasibility or infrastructure and political constraints. With less than 2 GW of installed wind capacity today, it is clear that Ukraine’s wind energy sector has substantial room for growth.



Solar Power

The Ukraine–Germany Energy Partnership estimated that 80 GW of solar power capacity in Ukraine would be attainable with appropriate policies and investments, with the highest potential concentrated in Ukraine’s southern and southeastern regions. This figure is similar to a 2022 estimate of 83 GW of solar capacity from the International Energy Charter. However, a 2024 study of satellite imagery indicated that rooftop photovoltaic (PV) solar systems alone could power as much as 238.8 GW in the country. Today, Ukraine has about 8.9 GW of installed solar capacity, which again indicates room for further investment.



grid infrastructure, a crucial undertaking for driving economic growth and underscoring the growing interest of investors to be a part of the reconstruction and modernization process.

At the same time, battery energy storage systems (BESS) are emerging, critical components for grid stability. In August 2024, Ukrenergo—Ukraine’s state-owned electricity transmission system operator—received nearly 1,000 bids in a special auction for five-year offtake contracts to provide ancillary grid-balancing services, signaling robust investor appetite. These contracts primarily involve BESS designed to manage fluctuations in electricity supply and demand. By expanding battery storage systems, Ukraine also enables the integration of more solar and wind into its energy mix, as these sources rely on storage to balance power variability.

Altogether, Ukraine’s energy sector contributes approximately 8 percent of its GDP, which represents about USD 14.3 billion in value based on the World Bank’s 2023 GDP estimates. But the potential value is much greater, with the country’s National Energy and Climate Plan (NECP) for 2025–2030 identifying immediate investment needs in energy ranging from USD 41.5 billion to USD 50 billion through 2030. Meeting these investment targets will require mobilizing billions in both public and private capital, supported by active collaboration among the government, the private sector, and strategic international partners.

Ukraine’s Energy Market Transformation

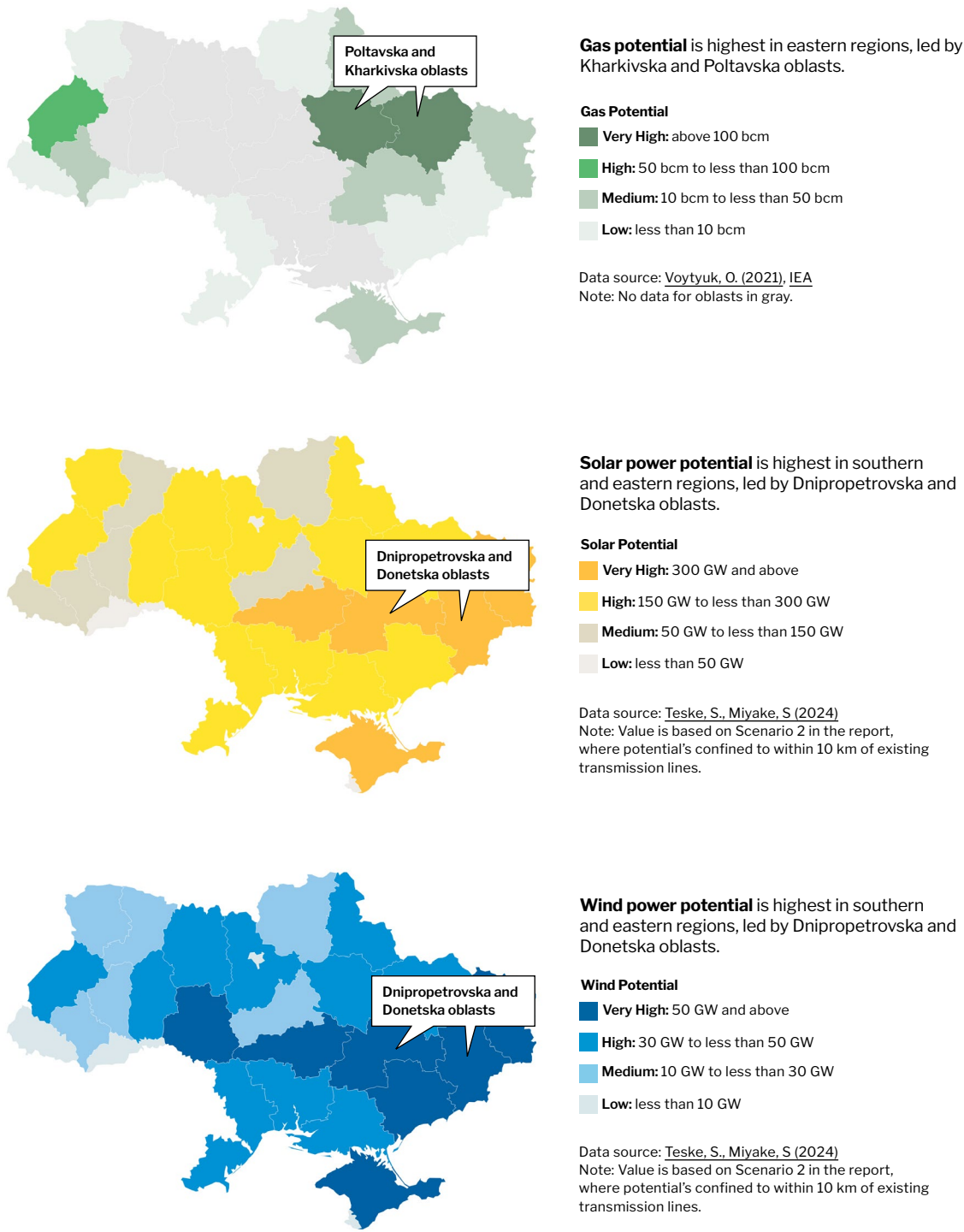
Public policies and programs driving energy transformation

To address the damages to the power system—and seize the opportunity to modernize its grid—Ukraine has adopted a comprehensive National Energy and Climate Plan (NECP) for 2025–2030, with ambitious goals to pioneer among the most resilient, modern, and advanced energy systems in Europe. Key tenets of this plan include enhancing the resilience of existing energy production and transmission systems; diversifying and decentralizing new energy generation; exploiting Ukraine’s significant natural gas reserves; and increasing energy connectivity with the rest of Europe to realize Ukraine’s potential as a major energy exporter.

The NECP aims that by 2030, 27 percent of Ukraine’s energy consumption will be from DERs, including 12.2 GW of solar energy (up from 8.9 GW installed at the end of 2024) and 6.2 GW of wind energy (from less than 2 GW installed at the end of 2024). Combined with nuclear power, which provides about half of the country’s energy, reaching this target would result in a lower marginal cost energy system that is 90 percent carbon free. To support NCEP targets, Ukraine’s government removed the VAT and tariffs on imports of PV solar equipment last summer and

FIGURE 1

Mapping Ukraine’s Gas, Solar, and Wind Energy Potential by Oblast



began its first [renewable energy pilot auctions](#) in October 2024. It also reduced the regulatory burden for new energy projects to increase energy generation and investments. As a result, permit processing time for new power generation projects has been cut down to between six and 10 months, compared to an EU average of seven to 12 years.

Private-sector investments expanding energy sources

In response to incentives, new DERs are [coming online](#), including [114 MW of onshore wind](#) power developed by DTEK near the Black Sea and, in partnership with Danish wind turbine manufacturer Vestas, [a further 384 MW](#) is expected to be added by the end of 2026. These projects are rapidly enabling electricity distribution to consumers. Ukrainian homes and businesses have also shown [increased interest](#) in installing solar panels and small-scale batteries to meet their energy needs. In 2024, the European Bank of Reconstruction and Development (ERBD) [signed a joint agreement](#) with a German solar energy firm to develop some 500 MW of solar energy in Ukraine over the next three to five years. Grid operator Ukrenergo’s [restoration plan](#) aims to [increase](#) wind generation capacity fivefold, biofuel thermal plants fourfold, and solar generation by 60 percent in two to three years, while other [initiatives](#) equip hospitals and water-pumping stations with solar panels and batteries.

Investments in battery storage to back up damaged power stations and limit outages are also picking up. One recent investment was made by DTEK in partnership with Fluence Energy, who [announced](#) in September 2025 that they had provided Ukraine with six battery energy storage systems, which are critical in the event of repeated Russian strikes on generation capacity. Fluence Energy is an example of a foreign company finding innovative ways to work in Ukraine and support the country’s energy resilience.

International partnerships enabling local and regional energy security

The EU and the U.S. are key partners in the revitalization of Ukraine’s energy system. In July 2025, the European Investment Bank [announced](#) a EUR 120 million loan to Ukrhydroenergo to rehabilitate hydropower plants as well as two loans amounting to EUR 100 million that will invest in decentralized heat generation at the local level. Following the October 2025 attacks on Ukraine’s gas infrastructure, the European Bank

for Reconstruction and Development (EBRD) is negotiating further financial assistance to help the country secure gas imports for the 2025 winter season. Meanwhile, the U.S. has shown willingness to support investments in Ukraine’s reconstruction and recovery. The April 2025 [U.S.–Ukraine Economic Partnership Agreement](#) stipulates that the “United States will assist Ukraine in engaging both private and public investors in Ukraine’s recovery.”

A key feature of the U.S.–Ukraine agreement is technology transfer. An October 2025 [report](#) by the DiXi Group details the kinds of advanced energy technologies that could boost Ukraine’s generation capacity and ensure that its infrastructure is decentralized and resilient. Some promising innovations still under development include compact nuclear reactors, each of which could power a city of up to 40,000 inhabitants, ultra-long-duration batteries for storing electricity, and optimized siting for wind and solar power generators. These initiatives point to how, despite the immense challenges posed by Russia’s full-scale invasion, Ukraine and its international partners are ensuring that the country rebuilds its infrastructure to be more resilient, efficient, and energy secure.

Another pillar of Ukraine’s energy strategy is increasing its gas and electricity connectivity with Europe. In February 2025, Kyiv and the European Commission [finalized plans](#) to enable Ukraine’s full integration with the EU electricity market by 2027, as well as its further integration with the EU gas sector. As Ukraine’s domestic energy investments mature, the country’s extensive gas reserves and storage facilities position it as a strategic partner for Europe’s diversification efforts and can help reduce European dependence on Russian gas.

To serve as an energy reservoir for the continent, Ukraine will require more extensive investment

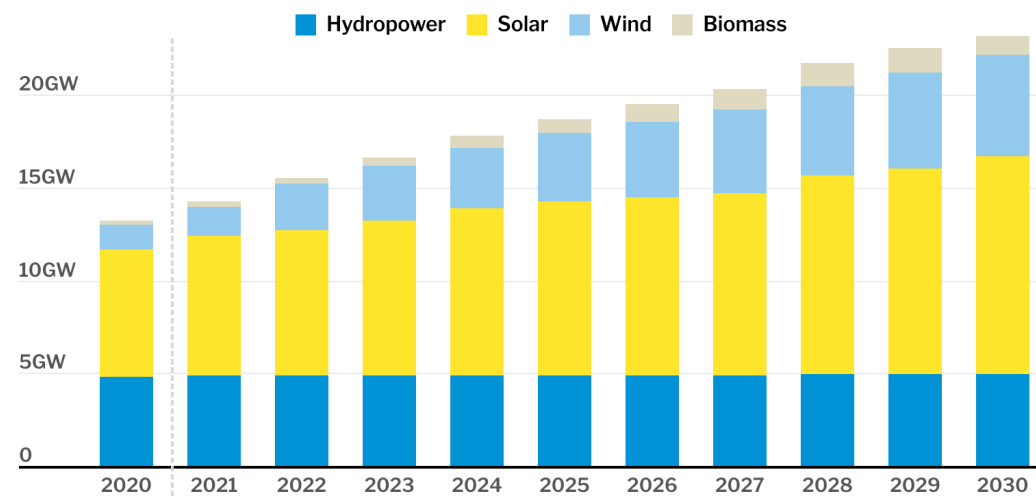
Ukraine and its international partners are ensuring that the country rebuilds its infrastructure to be more resilient, efficient, and energy secure.

FIGURE 2

Ukraine's Targeted New Electricity Capacity

The National Energy and Climate Plan 2025-2030 targets to increase the share of renewable energy sources in gross final energy consumption to 27 percent by 2030. The Plan's total investment needs range from USD 41.5 billion to USD 50 billion.

Cumulative by source, in gigawatts (GW)



Data source: National Energy and Climate Plan of Ukraine 2025-2030, energy-community.org
Note: Projected values starting from 2021 to 2030.

in its reserves, stronger energy infrastructure connectivity with the continent, and expanded transatlantic supply routes. If Ukraine increases its natural gas production, in part by auctioning gas exploration licenses, its capacity for domestic energy production could allow it to export up to 47 TWh of energy per year, according to proprietary DTEK estimates, accelerating the country's economic development at the same time.

In addition to tapping into its own gas reserves, Ukraine can strengthen its energy security by increasing flows of U.S. liquified natural gas (LNG) and by expanding access to natural gas through existing pipelines like the Vertical Gas Corridor through Greece, Bulgaria, Romania, and Moldova as well as the Northern Corridor through Poland and the Baltic States. The full utilization of these corridors and Ukraine's gas storage facilities could further stabilize and diversify regional energy supply across Central and Southeastern Europe. In November 2025, the U.S., European governments, and private-sector stakeholders met in Athens for the Transatlantic Energy Cooperation (P-TEC)

meetings, where they discussed leveraging Southeastern Europe's LNG facilities and natural gas pipelines to transform the region into a critical energy hub for the wider continent.

Recommendations to Strengthen Ukrainian and Regional Energy Security

Despite promising progress in the transformation of Ukraine's energy system, additional financing and investment is vital to realizing Ukraine's energy potential. The sheer size of the task requires a multistakeholder approach, bringing together investments from governments, international financial institutions, and the private sector. The following recommendations, ordered from the most immediate needs to longer-term actions, highlight how a broad range

of stakeholders can work together to attract, enable, and harness such investments and ensure their effectiveness.

1. Facilitate the urgent delivery of replacement energy equipment, air defenses, and reconstruction funding to maintain supplies of energy to Ukrainians this winter.

Ukraine's allies have provided significant support to the energy sector in terms of financial aid, spare equipment for repairs, and air defensive systems and ammunition to shield against Russian strikes. With these attacks intensifying against all parts of the sector, Ukraine faces what could be its most difficult winter since the full-scale invasion. There is urgent need, therefore, for Western governments to step up emergency funding for repairs and to rush greater stocks of air defense systems and ammunition into the country. Neighboring countries, many of which have decommissioned power stations compatible with Ukraine's, can play an especially decisive role in the provision of spare parts to power stations hit in Russian attacks.

Companies and nonprofit donors have also provided vital support to Ukraine's energy infrastructure through the donation, sale, or lease of needed equipment, from transformers to generators to spare parts. This support, especially the immediate access to critical components, has been crucial to the resilience of Ukraine's energy infrastructure and should be expanded. Equipment manufacturers also need to examine how they could expedite the delivery of new equipment to Ukraine and avoid long lead times. The government could further streamline customs procedures to facilitate the entry of goods and personnel, while strengthened communication among donors, manufacturers, and operators could ensure that international assistance more effectively meets Ukraine's most urgent reconstruction and maintenance needs.

Ukraine also needs to continue strengthening energy assets against continued Russian attacks. This can be done through improved air defense systems, including both high-end surface-to-air missiles and launchers and low-cost interceptor drones, as well as passive defense measures such as protective shields and anti-drone netting. Fortifying defenses can bolster energy security in the short term as the energy system continues to modernize and decentralize.

2. Deepen gas and electricity connectivity among Ukraine, Europe, and the United States.

The United States can expand its LNG exports to Ukraine and Europe through southern and northern corridors, positioning itself as a key partner in strengthening transatlantic energy security. As noted above, Ukraine can access LNG imports through the Vertical Corridor, which connects it to Greece, Bulgaria, Romania, and Moldova, as well as through the Northern Corridor, linking to Poland and the Baltic States. At the same time, reversing the flow of gas through the Trans-Balkan pipeline, part of the southern corridor connecting Ukraine to gas networks in Southeast Europe, could enhance the security of Ukraine's supply of gas.

Following an emergency request shortly after the full-scale invasion began, Ukraine rapidly connected to the Continental European Power System—the main European electrical grid—in March 2022. However, the overall level of connectivity with Europe remains low, and deeper integration will require continuing efforts. For example, the eastward flow of electricity into Ukraine is currently capped by conservative transmission capacity limits, which need re-evaluating. Strengthening Ukraine's connection to the European grid, together with fully utilizing gas routes, is a key component of Ukraine's energy security and transformation.

3. Accelerate market reforms and increase incentives for a resilient energy system.

The Ukrainian government and energy sector can modernize, diversify, and decentralize energy generation while committing to stable, market-based energy pricing in line with EU standards. A strong base of nuclear and hydropower, combined with Ukraine's untapped potential for solar, wind, and biomass energy and greater investment in battery storage systems, can accelerate the deployment of distributed energy and further decentralizing the energy grid. The Ukrainian government can facilitate this transition through tax incentives, subsidies, and streamlined permitting processes. Local communities will also need to buy in to efforts to reduce regulatory hurdles and increase the ease of doing energy business.

Additionally, Ukraine needs to continue aligning its energy markets with the EU as a part of its accession process. Prior to the war, major subsidies and price

caps kept consumer prices at roughly half the market rate, inhibiting integration with EU markets and reducing incentives to invest in reconstruction. While these subsidies have important social aims, namely supporting vulnerable populations, they must be balanced with the need to promote open, market-based frameworks for Ukraine’s energy sector to attract foreign investors—an increasingly important source of funding given the rollback of foreign government assistance to Ukraine. Some focus areas for the Ukrainian government include further raising price caps, setting up transparent, competitive auctions, and further extending import duty and VAT exemptions for energy equipment from abroad. These reforms would incentivize investment and give foreign firms confidence that a stable regulatory framework will remain in place throughout the productive lifespan of the energy assets.

4. Strengthen financial risk-mitigation mechanisms to catalyze private investment.

Ukraine’s energy transformation will not happen without private investment, of which international financial institutions (IFIs) are crucial conveners and facilitators. According to the World Bank, the private sector alone could fund three-quarters of the reconstruction of Ukraine’s energy infrastructure if the country makes the necessary reforms to its energy sector, further integrates its markets with the EU, and opens it to foreign investors. Private capital will therefore determine the scale of Ukraine’s energy transformation. For their part, IFIs are well-positioned to leverage innovative risk management mechanisms to attract private capital investment.

The European Investment Bank (EIB), the European Bank for Reconstruction and Development, and the World Bank, alongside bilateral development finance institutions such as the U.S. Development

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Finance Corporation (DFC), are well-positioned to offer political risk insurance, loan guarantees, enterprise funds, or other contract assurances that defray and offset the risks inherent in investing in conflict and post-conflict zones. These measures would go a long way in facilitating the external private investment that Ukraine needs to diversify, decentralize, and strengthen its energy infrastructure. IFIs can also provide grants for technical assistance or feasibility studies to help identify, plan, and fund energy projects. Rather than relying on foreign aid to directly fund new energy construction, these institutions could crowd-in private investment and multiply the impact of an international, cross-sectoral coalition of funders.

To increase the effectiveness of this strategy, lending institutions can also streamline internal processes, expand risk tolerance, and delegate small-budget authorities to expedite project approval. For example, as the U.S. Congress weighs reauthorization of the DFC, it can explore reform proposals that would increase its risk tolerance when evaluating projects; increase its maximum contingent liability from USD 60 billion to USD 100 billion across all projects; and remove the need for Congressional approval of deals larger than USD 10 million.

5. Leverage the U.S.–Ukraine Economic Partnership Agreement to mobilize private-sector partnerships.

The United States has an opportunity to enhance Ukraine’s energy resilience through the recent Economic Partnership Agreement, which offers significant incentives to U.S. firms that invest in the country. The U.S. can leverage the agreement to facilitate investment by American private firms, which stand to be rewarded from the unique opportunities that Ukraine’s rapidly modernizing and reconstructing energy market offers. Although the U.S.–Ukraine Reconstruction Fund established under the Agreement gives primacy to critical minerals initiatives, the Fund should also prioritize investments in the energy sector, given the close links between mining and power generation. All sectors are fundamental to Ukraine’s economic recovery as well as European and transatlantic energy security.

In addition to channeling investment into Ukraine, the U.S. can facilitate the transfer of the advanced energy technologies to strengthen the country’s energy resilience. Technologies that could be explored include ultra-long-duration batteries,

dynamic grid monitoring and control systems, advanced tools for optimized wind and solar siting, among others. Furthermore, Ukraine’s allies can assist by providing additional air defense systems, mitigating damage to the country’s energy infrastructure and minimizing the cost of reconstruction.

Looking Ahead

Ukraine and its international partners have a rare opportunity to convert the tragedy of war into transformation and progress in the energy sector. The recommendations laid out here, and in Ukraine’s 2025–2030 NECP, chart a path to a more modern, efficient, and resilient energy system; one that is more secure, fully integrated with Europe, improves air quality and public health, and creates good jobs to accelerate the broader reconstruction of Ukraine’s economy.

Unlocking this opportunity and achieving this vision will require engagement from allies, risk-tolerant investors, skilled experts and capacity builders, and other partners. It will also require Ukraine to accelerate overdue reforms to its energy sector. If the necessary investments are made, Ukraine has the potential to build one of the world’s most advanced energy systems—adaptive, decentralized, resilient, and largely decarbonized—and become a consistent exporter of energy to Europe, facilitating the continent’s energy transition.

Ukraine’s ongoing energy transformation represents a new model of energy resilience during wartime, one that other nations could learn from as they seek to strengthen their own energy security. The foresight and resilience that Ukraine has displayed through nearly four years of war show that this ambitious vision is achievable, laying a strong foundation for jumpstarting the country’s post-war recovery and regional energy security for decades to come.

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