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Office of International Affairs

U.S. Department of Energy

Senate Committee on Energy & Natural Resources

February 16, 2023

Chairman Manchin, Ranking Member Barrasso, and Members of the Committee, it is an honor to appear before you today to discuss energy security in Europe, and the role of the U.S. Department of Energy in supporting the development of infrastructure, systems, and policies in Europe that will support a secure, sustainable, diversified energy sector.

Introduction

Nearly one year ago today, Putin's Russia brutally, illegally, and immorally began its full-scale invasion of the sovereign nation of Ukraine. Even before Russia attacked with tanks and troops on the ground, it had already used energy as a weapon to terrorize the Ukrainian people, actions which were quickly expanded to Europe and the rest of the world designed to intimidate the United States and our allies and divide our efforts to support Ukraine.

Let me be clear: Russia's use of energy as a weapon has backfired. It has spurred an international response unprecedented in the history of global energy cooperation. The United States has been a leader in this response.

As part of the U.S. effort, the Department of Energy has become a reliable partner to the Ukrainian people. As we speak, U.S. military planes are being readied to deliver the third shipment of critical electrical equipment that the Department of Energy has located in the U.S. to keep their grid operating. If we wish to create a secure energy system, resilient to the destructive whims of individual bad actors, we must continue to cooperate with Ukraine and our allies across the globe to accelerate the transition to a diverse and decarbonized energy supply.

Ukraine – DOE Partnership, Nuclear Risks, and Reconstruction

The current status of the energy system in Ukraine is dire. Over the last four months, an estimated 700 Russian missiles have hit energy facilities in Ukraine. Open sources are reporting significant Russian troop build-ups are underway as many expect a new offensive in the weeks ahead. Ukrenergo, the Ukrainian grid operator, is using rolling blackouts throughout the country to meet about 75 percent of normal customer demand—sometimes losing up to 50 percent of generation. The Ukrainian Minister of Energy German Galushchenko, recently reminded European ministers that increased electricity imports from the European Union would be necessary to sustain critical services in Ukraine, in addition to replacements for critical energy infrastructure equipment throughout the nation's electrical grid.

The Department of Energy has a special relationship with our Ukrainian counterparts. Well before Russian boots trampled Ukrainian soil last February, Secretary Granholm led the U.S. Presidential delegation to Kyiv in August 2021 to attend the ceremonies marking the 30th Anniversary of Ukrainian Independence and President Zelensky's "Crimea Platform" to continue to raise awareness of Russia's occupation of Crimea. Since then, we have continued to work closely with the Ukrainian government and in particular the Ministry of Energy across a variety of issues in the lead-up to the full-scale invasion.

This relationship enabled the Department to deliver indispensable assistance quickly after the further invasion began. Congress appropriated DOE $30 million in the Ukraine Supplemental Appropriations Act of 2022 to assist Ukraine's efforts to create a permanent interconnection with the European energy grid, known as the European Network of Transmission System Operators for Electricity or "ENTSO-E," and eventually be able to expand commercial electricity trade with neighboring EU countries and the broader European market. Soon after Russia's full-scale invasion, we began using that money to position Ukraine to fully integrate with ENTSO-E. Later, DOE began delivering some $15 million worth of critical energy infrastructure equipment, primarily from surplus supplies in the U.S. to keep the Ukrainian grid functioning. By early March, we will deliver the third tranche of this equipment, which will fill several U.S. Air Force C-17s and C-5s. We also managed to secure a $600,000 donation of oil and gas equipment.

DOE was able to relatively quickly develop the capacity to ship this equipment to Ukraine because we already had the in-house technological expertise and the long-standing industry relationships to find surplus compatible hardware that could be quickly and efficiently integrated with Ukraine's energy systems. Make no mistake, Russia's attacks on Ukraine's grid are brutalizing the civilian population. As the attacks continue, the Ukrainians must force rolling blackouts into the system to keep the grid from collapsing. These forced blackouts in turn threaten the stability of water, sewage, and heating systems. As Russia continues to target Ukrainian energy infrastructure, U.S. shipments are playing a vital role in averting a humanitarian crisis, while denying Russia its ability to cripple Ukraine through lost power generation and transmission capacity.

Additionally, DOE is monitoring Ukraine's nuclear power infrastructure and working closely with the International Atomic Energy Agency to ensure proper safeguards remain in place at Ukraine's nuclear power plants. Nuclear energy provided nearly 50% of the pre-conflict generation capacity in Ukraine. As evidence of Putin's flagrant disregard for civilian suffering, Russia has seized the Zaporizhzhya Nuclear Power Plant, resulting in 6 GW of power generation, or 45 percent of Ukraine's total nuclear power capacity, coming off the grid. At the other nuclear power plants, many supplies are needed to ensure their continued safe operation or shutdown. Should Ukraine's high voltage integrated electrical grid fracture due to Russian attacks, Ukraine's nuclear power plants may face additional significant risks. Accordingly, the United States is assisting in the stockpiling of additional diesel fuel and consumables at these plants and is procuring mobile back-up generators and has worked with allies to provide spare parts for generators currently in place to ensure resilient safety systems are in place and available.

Finally, while we are actively working to meet Ukraine's immediate needs, we are also working to help them build a secure, resilient, and adaptable energy system for the future that will be fully

independent of Russian energy, and create capacity to decouple from reliance on Russian-origin equipment and supply chains. To that end, we have invested $10 million in our national labs to partner with Ukrainian experts to plan Ukraine's future energy system post-reconstruction. In collaboration with DOE's Net Zero World program, we are also striving to assist Ukraine in restoring and improving their grid, but also to position them to become an energy exporter in the region.

Energy Security and Energy Transition

We must now recognize that energy security and the energy transition must be two sides of the same coin. There can be no lasting energy security without diversifying energy supply, including expanding the use of clean energy. Over the past few years, Russia has effectively demonstrated the vulnerability of parts of the global energy system to over-reliance on a single source.

Even before the Russian full-scale invasion of Ukraine, Gazprom, the Russian State's gas supplier, had started slowing and sometimes stopping natural gas supplies to Europe, just as the Ukrainians predicted they would when we were in Kyiv in August 2021. According to the International Energy Agency, these actions by Russia tightened energy markets and increased energy security vulnerabilities across Europe.

Recognizing the danger posed by Russia's position in the European energy market, DOE formed a plan of action alongside our European counterparts through channels such as our Deputy Secretary or Secretary level U.S.-Germany, U.S.-UK, and U.S.-France energy dialogues, as well as the U.S.-EU Energy Council co-directed with the State Department's Bureau of Energy Resources. With determination and cooperation, about two-thirds of U.S. liquified natural gas (LNG) shipments went to Europe last year, more than doubling the volumes exported to Europe in 2021. Further, President Biden launched the U.S.-EU Task Force on Energy Security to continue cooperation in this sector to first ensure sufficient gas supplies and diversify those supplies, and second to help the EU reduce overall demand for natural gas and to more broadly and quickly decarbonize. As the war intensified, and Russia began retaliatory actions against Europe in the natural gas sector, the Department of Energy urged full injection of gas into Europe's gas storage reservoirs despite their storage having reached a five year low in 2021 and early 2022, and offered help on demand reduction measures so that Europe was in a better position to get through this winter without an energy-driven economic collapse.

When Russia's full-scale invasion threatened a stable supply of oil to the market, the United States acted swiftly, by ourselves and in coordination with allies through the International Energy Agency, to release around 240 million barrels of oil from strategic reserves in order to maintain supply to the global market. Through this collective action, the United States shielded consumers against supply disruptions and mitigated the effects of Putin's war.

More recently, the United States along with the G7, the European Union, and Australia worked to prohibit companies in our jurisdictions from assisting in the maritime transport of Russian crude oil and refined products, unless those cargoes were sold at or below a predetermined price cap. This past December 5, this coalition set this price cap level on Russian crude oil at $60 per barrel. Later on February 5, the price cap for refined products typically trading at a premium to

crude was set at $100 per barrel, while the cap for discount-to-crude products was set at $45 per barrel. The goal of this mechanism is to promote market stability by allowing Russian oil to flow on the market, while limiting how much Putin can earn from Russian oil exports.

As we look to next winter's energy challenges, DOE remains supportive of our partners in Europe. Without Russian natural gas to refill Europe's gas storage reservoirs, we predict that the spring and summer refill season could prove much more difficult than in years past, and in turn again put at risk the European economy next winter. Yesterday, Secretary Granholm co-chaired a meeting on the current natural gas crisis with ministers from the International Energy Agency and select other countries in Eastern Europe. Together they outlined options to help Europe get through the 2023-2024 winter. We expect that these discussions will continue across many international energy meetings in the months ahead, especially the upcoming G7 energy ministers' meeting in April and the G20 energy ministers' meeting in July, both of which Secretary Granholm will attend.

In the nuclear energy area, Russia has long used nuclear energy-related exports to exert political and economic pressure on its customers globally. Its military attacks on and subsequent seizure of ZNPP have only underscored the nuclear energy security concerns related to Russia. As a result, several European countries have taken steps to reduce their reliance on Russian nuclear fuel, including Finland, Czechia, Ukraine, Bulgaria, and Slovakia. In addition, G7 nations have resolved to reduce their reliance on Russian nuclear energy supplies and services and to help other countries seeking to do the same. The United States currently relies on Russia for roughly 20% of the enriched uranium used in our commercial nuclear power reactors. This is strategically unsustainable. Consistent with our G7 pledge, the Department of Energy is working with other Departments and Agencies to identify alternatives and we welcome Congressional support for that effort.

Looking forward, it is abundantly clear that Europe must end its dependence upon Russian energy. It will take our partnership to help Europe successfully navigate that transition. While U.S. LNG has been and will continue to be a critical resource to address Europe's energy security needs, the fact is that there is currently not enough available LNG in the world to replace the more than 142 billion cubic meters of piped gas that the EU imported from Russia in 2021 before the war. Addressing this challenge will also mean diversifying energy supply and reducing demand for fossil fuels through aggressively expanding clean energy and improving energy efficiency. But this crisis and these solutions are not limited to the current situation in Europe. Nor is energy security only about oil and gas. Overreliance on a single supplier—any supplier—leaves the United States and the rest of the world vulnerable to other countries.

The People's Republic of China currently produces about 75 percent of all lithium ion-batteries and controls most of the midstream capacity for battery supply chains as well. Congress has recognized this vulnerability. It also recognized the tremendous economic opportunity and other benefits associated with a just and equitable clean energy transition. Through the Bipartisan Infrastructure Law, Congress has provided more than $62 billion to DOE to foster the domestic capacity needed to develop and deploy clean energy technologies, including batteries, in the United States. This investment, paired with tax incentives in the Inflation Reduction Act

positions U.S. suppliers and businesses to tap into the, at a minimum, $23 trillion international clean energy market opportunity by 2030.

Our growing domestic energy supply chains will serve as reliable sources for us and for the world, as we recommit to serving as a trusted trading partner to our friends in Europe and beyond. We have secured agreements to strengthen minerals security, enhance market transparency, and advance sound environmental, social, and governance standards in the International Energy Agency via new consensus mandates championed by Secretary Granholm when she chaired the last IEA ministerial last March. We are also working with partners in the G7 and elsewhere to implement new clean energy supply chains, while spending the investments entrusted to DOE through the Energy Act of 2020, the Bipartisan Infrastructure Law, and the Inflation Reduction Act, to build capacity here at home.

DOE's work on diversifying energy supply, stabilizing energy markets, ensuring secure supply chains, and accelerating the energy transition benefit not only our friends in Europe, but our partners and allies around the globe. We lead over two dozen Secretary or Deputy Secretary level energy dialogues with non-European countries, including G20 parties India, Brazil, Indonesia, Canada, and Australia, working on a range of energy issues. Everyone, from developing economies just beginning their energy transition to those seeking to avoid the influence of malign actors, will benefit from a diversified and decarbonized energy system. We stand ready to help them get there.

Diversifying energy supply chains away from Russia and the PRC, creating hundreds of thousands of new, good-paying energy jobs at home, and growing an industry that respects the environment and human dignity is essential not only to our energy security, but also to the vitality of our economy and our communities. It is also for these reasons that we must invest in a domestic uranium capacity, and reduce reliance on Russian and Chinese uranium. In addition to building a resilient nuclear supply chain, we should no longer send American dollars to Rosatom—especially after their disregard for nuclear safety in Ukraine.

Conclusion

I want to thank you for the opportunity to speak before you today. The Department of Energy looks forward to continuing to work with this Committee on the critical energy security and transition issues facing Europe and the world. I look forward to your questions.