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European Energy Security and the Critical Role of Transatlantic Energy Cooperation:

Final Report and Recommendations

**By Richard L. Morningstar,
András Simonyi, Olga Khakova,
and Jennifer T. Gordon**





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The Global Energy Center promotes energy security by working alongside government, industry, civil society, and public stakeholders to devise pragmatic solutions to the geopolitical, sustainability, and economic challenges of the changing global energy landscape.

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The recommendations below are based on discussions at a series of Atlantic Council Global Energy Center roundtables on the role of transatlantic cooperation in strengthening European energy security, held in 2019 and 2020 in Brussels; Berlin; and Washington, DC. In developing these recommendations, Global Energy Center staff also consulted with government officials, private sector executives, and leading experts.

The roundtable in Brussels explored the implementation of the European Union's (EU) regulatory framework and the development of regional natural gas infrastructure. At the roundtable in Berlin, the Global Energy Center examined alternative routes and sources and discussed how new technologies could be deployed to improve European energy security while reducing carbon emissions. The findings from the roundtables were summarized in two issue briefs: "European energy security and transatlantic cooperation" and "European energy diversification: How alternative sources, routes, and clean technologies can bolster energy security and decarbonization." In the third and final roundtable, held in Washington, DC, participants analyzed and shaped recommendations for US-EU cooperation within the context of the European Green Deal, outlined in this brief.

Although this paper primarily focuses on energy cooperation between the United States and the EU, the United States has energy security interests in Europe beyond EU member states. For this reason, this paper uses "European countries" to encompass EU members states, as well as countries outside of the European Union.

I. Executive Summary

The United States and the EU have significant interests in each other's energy security, which is tied to economic, political, and military security. European energy security is and should remain a top priority for the United States and the EU. Their deeply intertwined economies generate billions of dollars in transatlantic trade and investment. A strong European economy depends on reliable, price-competitive energy sources and robust infrastructure, which includes pipelines, liquefied natural gas (LNG) ports, grids, and renewable energy projects. In addition to its role in supporting transatlantic economic activity, European energy security is crucial to sustaining political stability and maintaining a system rooted in rules-based democratic order. Energy security is also critical to the successful deployment and performance of allied forces, including NATO. Threats to the energy sector, therefore, endanger economic growth, political stability, and military capabilities. Coordinated transatlantic efforts are necessary to strengthen energy security in Europe, enhance economic security, and defend against security threats to the United States and the EU.

Progress on energy security can benefit greatly from transatlantic cooperation in the energy sphere, which has always been a major positive aspect of the US-EU relationship. Cooperation on energy security has the additional benefit of improving the overall transatlantic relationship at a time when that relationship is significantly strained by other issues.

The most effective way for the United States and the EU to address the recommendations presented in this report is through the US-EU Energy Council. The US-EU Energy Council was formed in 2009 as a forum for transatlantic energy cooperation. The Council serves as a platform for resolving energy-related issues, especially through bilateral collaboration on "strategic energy issues of mutual interest," including research and development, as well as broader geopolitical concerns.¹ Beyond Council engagement, effective integration of these recommendations will require extensive collaboration between the US government and the European Commission, as well as with EU member states, non-EU European countries, and the private sector.

Additionally, the United States and the EU can meet many of these challenges through continued engagement in existing government programs, such as the Three Seas Initiative (3SI) and the US Department of Energy's (DOE) Partnership for Transatlantic Energy Cooperation (P-TEC). Both 3SI and P-TEC work to improve energy infrastructure throughout Central and Eastern Europe.

Natural gas will play a critical role in the EU's energy transition, and the United States and the EU must continue to expand LNG infrastructure on both continents. The option to purchase LNG from a more diverse range of suppliers affords EU countries with greater leverage as they negotiate competitive energy prices and contracts. Additionally, the United States and the EU

1 "U.S.-EU Energy Council," US Department of Energy, accessed March 2020, <https://www.energy.gov/ia/international-affairs-initiatives/us-eu-energy-council>.

must continue to develop alternative gas routes, such as the Southern Gas Corridor and those operating in the Eastern Mediterranean and Black Sea. When dominant suppliers use energy resources as political leverage, they can manipulate purchasing countries and pose risks to their economic and political security. Furthermore, the large-scale deployment of clean energy technologies will depend on reliable and diverse supply chains of equipment, raw materials, and energy resources. China controls much of the production of rare earth metals and monopolizes the critical minerals processing market, which presents risks to the large-scale adoption of existing and new clean energy technologies.

While the EU's regulatory framework has been effective, its implementation still needs strong enforcement across both the EU and third-party countries adopting EU rules. US support for EU regulatory implementation can help facilitate competitive and transparent energy markets. The United States, through the US International Development Finance Corporation (DFC) and other agencies, can work with European counterparts to identify and finance strategic projects.

Technological innovations that lower greenhouse gas (GHG) emissions have tremendous potential to improve energy security and advance the energy transition. New technologies will reduce GHG emissions and, at the same time, lessen Europe's dependence on a dominant supplier. Advances in hydrogen; carbon capture, utilization, and storage (CCUS); and other innovative technologies present opportunities to meet energy demand while lowering emissions. The premature retirement of nuclear reactors poses a threat to meeting Paris climate goals. Small modular reactors and other advanced nuclear technologies will likely make nuclear energy safer and more impervious to proliferation. However, nuclear power's future and its role in the energy transition is uncertain without government support and societal acceptance.

Digitalization and artificial intelligence will help enable efficient electricity market integration and are essential to competitive energy systems. However, these new technologies also pose new security challenges. Energy market integration and grid digitalization expose the energy sector to greater cyber security threats.

Climate change is reshaping every aspect of society, and mitigating its impacts requires a global transition to low-carbon energy production and consumption while, at the same time, maintaining a secure and affordable energy supply. The EU is rolling out

the European Green Deal to address this issue. The European Green Deal brings both opportunities and challenges for US-EU cooperation. The United States and the EU must consult on aspects of the Green Deal that could exacerbate transatlantic relations. It will be necessary to have extensive bilateral and multilateral consultations on any carbon border adjustment mechanism, as proposed in the Green Deal, to ensure that such mechanisms are based on objective and transparent data and are non-discriminatory.

Geopolitical conflicts and tensions that threaten energy sector development may discourage private sector investment. Additionally, disruptions in global markets can pose serious energy security risks. Coordinated US-EU engagement would strengthen efforts to resolve these complex issues, paving the way for alternative routes and sources that would reduce Europe's dependence on a single supplier. The EU and the United States should cooperate on sanctions issues, energy geopolitics, and geo-economics in Europe and Eurasia, as well as across the globe in Asia, Africa, and the Arctic.

For transatlantic cooperation to bolster European energy security, this report recommends that the United States and EU should:

- **Reinvigorate the US-EU Energy Council to facilitate transatlantic cooperation on European energy security:** The United States and the EU should work through a high-level body such as the US-EU Energy Council to effectively implement the listed recommendations.
- **Develop infrastructure and alternate routes and sources to mitigate disproportionate influence from dominant suppliers:** Regions with limited natural gas infrastructure will need public and private transatlantic investment to diversify their supply in order to strengthen energy security. The United States and the EU must work together to establish new, competitive supply chains and reduce dependence on single suppliers.
- **Develop a competitive and transparent market through strong, continued implementation of the EU regulatory framework:** The EU should continue to implement its robust regulatory framework, particularly the Third Energy Package, which ensures that all projects and suppliers comply with EU market rules.

- **Use clean energy generation to reduce carbon emissions and improve supply security:** US-EU collaboration on new and proven technologies would increase energy sector efficiencies, reduce carbon emissions, and lead to the development of new sustainable energy resources. Transatlantic coordination in developing resilient energy systems will lead to better risk assessments and faster response times and recovery.
- **Craft a coordinated transatlantic financing strategy:** The United States and the EU should identify and prioritize projects essential to European energy security and facilitate the financing and development of these projects with relevant government bodies, financial institutions, and the private sector.
- **Invest in a resilient electrical grid to support competitive and interconnected European energy markets:** As the grid changes with increased reliance on renewables, interconnectivity, and electrification, it will require greater security measures, consistent policy implementation to prevent carbon leakage, and areas of innovation such as 5G technologies, digitalization, and artificial intelligence.
- **Coordinate on the implementation of the European Green Deal:** The United States, the EU, and the private sector must work together through technological innovation and improved energy efficiency to achieve a balance between necessary emissions reductions and a consistent supply of affordable energy, while also addressing potential obstacles, such as a carbon border adjustment mechanism. The energy transition, energy security, and social demands and expectations will have to be managed collectively in order for the United States and the EU to meet climate goals while satisfying growing energy demand.
- **Leverage opportunities for energy diplomacy to address broader geopolitical issues:** Through energy diplomacy, the United States and the EU must keep working towards a greater vision for competitive, independent, transparent, and resilient energy markets.

The COVID-19 pandemic will have an impact on supply, demand, production, price, and the shift to clean energy technologies. The pandemic itself—as well as its implications for geopolitics, global markets, and energy—will necessitate high-level coordination between the United States and the EU; however, it is impossible to predict what effects the current crisis will have on the United States and the EU's ability to implement this report's recommendations. This situation will require consistent and careful monitoring.

II. Introduction

US-EU cooperation can significantly enhance European energy security, which—in turn—is in the best interests of both the United States and Europe, since an energy-secure Europe would be a strong partner for the US as it faces a range of geopolitical and economic challenges. Russia, on numerous occasions, has—as a dominant supplier—used energy as a political tool to exert pressure on countries in Central and Eastern Europe (CEE) and the former Soviet Union. This ongoing pressure can be best mitigated by continuing to develop a competitive and transparent market. This paper outlines how the United States and the EU can reach this goal through cooperation to ensure that both EU and non-EU European countries have access to diverse sources of reliable and affordable energy while, at the same time, reaching climate goals. Cooperation should include the pursuit of alternate sources and routes for natural gas, increased use of renewables and other low-carbon energy sources, coordination on financing, development of new technologies, improvements to the grid, agreement on transnational carbon commitments, and development of geopolitical strategy. Although the EU could work on these issues alone, transatlantic cooperation will lead to far greater success and will benefit both the United States and the EU.

These security threats cannot be resolved unilaterally, since their nature and scope necessitate a transatlantic approach. The US-EU Energy Council, which was formed in 2009 as a forum for transatlantic energy cooperation, will be the most effective platform for coordinating key transatlantic energy security initiatives with stakeholders in the government and the private sector. However, in order to maximize the Council's effectiveness, its Energy Technology, Energy Policy, and Energy Security working groups should be reinvigorated.² The United States, the EU, third countries, and the private sector should initiate dialogues, as necessary, to facilitate work on the proposed recommendations. The United States and the EU, and several of the member states, are already demonstrating strong cooperation through P-TEC and the Three Seas Initiative, which aim to improve energy infrastructure throughout Central and Eastern Europe.



EUROPEAN COMMISSION, BRUSSELS. PIXABAY/LVER

Through these mechanisms, the United States and the EU have an opportunity to strengthen European energy security in several key areas:

- building new infrastructure to help diversify sources and routes for natural gas, which will continue to be a critical component of the energy transition;
- facilitating competitive and transparent markets, especially through strict enforcement of the EU's regulatory framework;
- crafting a coordinated transatlantic financing strategy;
- supporting technological innovation and the increased use of clean energy sources;
- investing in grid resiliency; and
- collaborating on the EU's European Green Deal and energy diplomacy to address broader geopolitical challenges.

² "U.S.-EU Energy Council," US Department of Energy, accessed March, 2020, <https://www.energy.gov/ia/international-affairs-initiatives/us-eu-energy-council>.

III. Natural Gas Can Mitigate Influence From Dominant Suppliers and Play a Role in the Energy Transition

Natural gas, including LNG, will continue to play a prominent role in European energy security as countries phase out coal and, in some cases, nuclear capacity.³ As such, US-EU cooperation on natural gas will strengthen European energy security. As Ditte Juul Jørgensen, director general for energy at the European Commission stated, “natural gas is a source of flexibility in the energy market and is significantly less carbon intensive than coal.”⁴ Although the International Energy Agency (IEA) has assessed that natural gas consumption in Europe is expected to stay flat, reduction in domestic production will raise the demand for imported piped gas and LNG.⁵ Europe’s growing reliance on energy imports will increase energy security threats from dominant suppliers like Russia, which is pursuing an aggressive expansion of natural gas pipeline networks to Europe through projects such as Nord Stream 2 and TurkStream. To avoid dependence on a sole supplier, Europe must make strategic investments in energy infrastructure, identify alternative energy sources, and enforce its existing regulatory framework.

The United States and the EU should work together to ensure that European countries are not subjected to geopolitical pressure by dominant energy suppliers. The EU has achieved notable results by strengthening its regulatory environment and investing in key interconnections across Europe, and these efforts were supported by the European Commission’s launch of the Energy Union in 2015.⁶ However, more must be done to fill the gaps in regulatory implementation and natural gas infrastructure, assign proper value to important strategic projects, and explore ways to diversify natural gas supplies in regions with limited interconnections.

Consistent and fair enforcement of the regulatory framework will safeguard competitive and transparent energy markets across Europe

The EU’s Third Energy Package lays out an effective regulatory framework for transparent, competitive, and integrated energy markets across Europe. However, uneven regulatory implementation poses barriers to an integrated and liberalized energy market, especially in CEE and third countries integrated with EU electricity and gas markets. The United States and the EU should continue working together to support strong, consistent, and fair enforcement of the Third Energy Package.

Regulatory implementation is especially important in regions that have built out their infrastructure but have yet to enforce market-based practices by suppliers. For example, the Klaipeda LNG terminal in Lithuania has been hailed as a diversification success story in the region, as it gave Lithuania the leverage to negotiate a lower price for natural gas from Gazprom. But as Russian gas, including LNG, floods the market, diversification efforts could be threatened.

EU regulations are essential for enforcing market-based pricing, but gaps in natural gas infrastructure in CEE countries enable Russia to abuse its role as sole supplier and charge inflated rates for natural gas in countries like Bulgaria. The EU previously investigated Gazprom “over claims that it abused its dominant position through unfair prices and restrictive terms in eight EU countries.”⁷ The investigation resulted in a settlement in which the EU imposed no monetary fines on Gazprom, although it did include several restrictions for Gazprom, including binding obligations to comply with

3 Richard L. Morningstar, András Simonyi, Olga Khakova, and Irina Markina, “European energy diversification: How alternative sources, routes, and clean technologies can bolster energy security and decarbonization,” Atlantic Council, January 2020, <https://www.atlanticcouncil.org/in-depth-research-reports/issue-brief/european-energy-diversification-how-alternative-sources-and-routes-can-bolster-energy-security-and-decarbonization/>.

4 David Wemer, “Transatlantic cooperation key to Europe’s Green Deal, EU official says,” *New Atlanticist*, February 20, 2020, <https://atlanticcouncil.org/blogs/new-atlanticist/transatlantic-cooperation-key-to-europes-green-deal-eu-official-says/>.

5 *Gas 2019 Analysis and forecast to 2024*, International Energy Agency, June 2019, <https://www.iea.org/reports/market-report-series-gas-2019>.

6 The Energy Union has five dimensions: 1) security, solidarity, and trust; 2) a fully integrated internal energy market; 3) energy efficiency; 4) decarbonizing the economy; 5) research, technology, and innovation. See: “Energy Commission,” European Commission, last updated March 30, 2020, https://ec.europa.eu/energy/topics/energy-strategy/energy-union_en?redir=1.

7 “CASE AT.40497- Polish gas Prices, Antitrust procedure,” European Commission, April 14, 2019, https://ec.europa.eu/competition/antitrust/cases/dec_docs/40497/40497_251_3.pdf.

the EU's antitrust rules and to sell gas at market prices.⁸ Bulgaria only recently received a price adjustment for long-term natural gas contracts with Gazprom, after paying roughly 50 percent more than other European countries even after the 2018 antitrust agreement was reached.⁹ The EU should verify that Russia is following through on the conditions of the settlement and take appropriate actions in the event that those obligations are broken.

The development of a transparent and competitive market will mitigate the leverage of large-scale suppliers like Gazprom. As long as Nord Stream, TurkStream, and Russian LNG exporters operate within the EU's Third Energy Package market rules and European countries have alternative options for supply, Russia's ability to use gas as a political lever will be diminished. Therefore, cooperation on supporting consistent regulatory implementation should be a top priority for the United States and the EU, as well as in the European Energy Community,¹⁰ which includes the Western Balkans and countries such as Moldova and Ukraine. For decades, the United States Agency for International Development (USAID) has provided technical capacity trainings in third countries undergoing reforms to adopt the European regulatory framework. Closer coordination between EU's Energy Community Secretariat work and that of USAID contractors would streamline those efforts.¹¹

Public and private investments in natural gas infrastructure across Europe should reflect regional security needs and the future demand trajectory

Russia still holds leverage in CEE countries. The United States and the EU can address this issue through the development of alternative routes and sources in the most vulnerable areas in the CEE region. Multiple natural gas suppliers must be able to compete fairly for European energy market share in order to ensure competitive pricing and security of supply. Such competition is impossible in some CEE countries due to the lack of necessary infrastructure, especially around the Black Sea region. Strategic

investment in LNG terminals and natural gas pipelines will enable greater market competition and security of supply in CEE countries. But supply diversification is not the only energy security issue in the region. State-backed foreign investments in European critical infrastructure, especially natural gas interconnectors, ports, and storage could pose security risks if such investment is exploited for leverage. The European Parliament, the European Council, and the European Commission all agreed on a legal framework for screening direct foreign investments into the EU.¹² In the United States, foreign investments within its borders and their potential to present risks to national security interests are reviewed through an interagency body called the Committee on Foreign Investment in the United States (CFIUS). Similar efforts regarding strategic investment could be an area for future US-EU coordination.

The progress in Southeast Europe (SEE) demonstrates the importance of diversified energy interconnections. The Southern Gas Corridor was developed to provide alternatives to the Russian gas monopoly in Europe, but Russia's TurkStream natural gas pipeline is jeopardizing market competition in the region. TurkStream is already diverting natural gas flows to the SEE region from the Trans-Balkan pipeline, which runs through Ukraine.¹³ Expansion of the Southern Gas Corridor through investments in both additional pipeline branches, such as the Ionian Adriatic Pipeline (IAP) project, an extension of the Trans Adriatic Pipeline (TAP), and increased pipeline capacity developments will be key to mitigating the impacts of TurkStream in Europe.¹⁴

In addition to piped gas, growing LNG terminal capacity in Greece and Croatia is diversifying the region's natural gas supply chain, mostly thanks to EU financing and grants, and government investments. However, these LNG projects could greatly benefit from US investment. The United States and the EU should utilize their funding mechanisms to showcase support for the projects, concentrating on countries with limited natural gas connections in the SEE region.

8 Richard L. Morningstar, András Simonyi, Olga Khakova, and Irina Markina, "European energy security and transatlantic cooperation: A current assessment," Atlantic Council, June 2019, https://www.atlanticcouncil.org/wp-content/uploads/2019/06/European_Energy_Security_and_Transatlantic_Cooperation.pdf; and Foo Yun Chee and Alissa de Carbonnel, "EU ends antitrust case against Gazprom without fines," REUTERS, May 24, 2018, <https://www.reuters.com/article/us-eu-gazprom-antitrust/eu-ends-antitrust-case-against-gazprom-without-fines-idUSKCN1IP1IV>.

9 Tsvetelia Tsoлова, "UPDATE 2-Bulgaria agrees deal to cut price of Russian gas imports by 40%," REUTERS, March 3, 2020, <https://www.reuters.com/article/bulgaria-russia-gas-prices/update-2-bulgaria-agrees-deal-to-cut-price-of-russian-gas-imports-by-40-idUSL8N2AW22T>.

10 The Energy Community is a coalition between the EU and third countries which aims to expand EU market rules across CEE countries.

11 "Secretariat," Energy Community, accessed March, 2020, <https://www.energy-community.org/aboutus/secretariat.html>.

12 "Foreign Investment Screening: new European framework to enter into force in April 2019," European Commission, March 5, 2019, https://ec.europa.eu/commission/presscorner/detail/en/IP_19_1532.

13 Tsvetelia Tsoлова, "Russia begins TurkStream gas flows to Greece, North Macedonia," REUTERS, January 5, 2020, <https://www.reuters.com/article/us-russia-bulgaria-gas/russian-begins-turkstream-gas-flows-to-greece-north-macedonia-idUSKBN1Z40D0>.

14 Morningstar et al., "European energy diversification."

US financing mechanisms for critical infrastructure in the CEE region

Energy infrastructure projects are compelling from a security standpoint but often present commercial challenges. The United States has an opportunity to ramp up support for such priority projects in Europe through DFC and the Export-Import Bank of the United States (EXIM). The new DFC expands the financial capabilities of what was formerly the Overseas Private Investment Corporation (OPIC) and integrates USAID's expertise in the region into a new financing strategy. The new agency provides a greater range of services than its predecessor in areas of equity financing, debt financing, political risk insurance, and technical development. Private sector engagement in projects is a key condition for DFC financing, but the new agency no longer mandates US private sector involvement. The European Energy Security and Diversification Act of 2019 authorizes \$1 billion in financing from the US government for energy projects in the CEE region and gives the US Trade and Development Agency an additional \$31.5 million to facilitate US companies working on European energy projects.¹⁵ The bill passed in late 2019 under the Further Consolidated Appropriations Act of 2020 and stipulates that funds should be utilized on a matching basis with European and EU member state institutions.¹⁶ The DFC should be engaged in projects from the beginning in order to optimize financing opportunities, as access to financing for initial feasibility studies and environmental and social assessments in the early stages accelerates project development. In some cases, early assessments could lead to greater interest from private sector financing.

EXIM, a federal agency that provides financing and guarantees for US businesses seeking to export, is another vehicle for supporting US investments in European energy infrastructure, especially as interest and fees from its loans already cover EXIM operational expenses.¹⁷ After four years of lacking a quorum to issue loans over \$10 million, the bank was reauthorized for seven years in December 2019, making US-made products more internationally competitive. The EXIM-supported

trade finance program is one of a suite of financial options that could provide a counterweight to both China's Belt and Road Initiative and Russian government financing. EXIM was able to pay its own administrative costs between FY2008 through FY2017; however, without a quorum, it was unable to generate sufficient revenue and had to rely on an annual congressional appropriation.¹⁸ EXIM allows the United States to support US export capabilities and to help compete, in part, with Russia and China's state financing of energy projects, which is used to increase their governments' economic and political influence abroad.¹⁹

The diversification value of natural gas projects is not sufficiently understood

Quantifying the value of strategic investments in the CEE region is a challenge, as natural gas infrastructure adds energy security benefits that are not reflected in the economic assessment of projects. This discourages private investors from taking on projects with high security benefits but low return on investment. Furthermore, low prices and oversupply could make it difficult for companies to make a return on building new LNG terminals and producing natural gas, resulting in write downs and, in the worst cases, bankruptcies.²⁰ Therefore, security and societal impacts should be included in the cost-benefit analysis of energy projects. The value of LNG and other gas sources as an alternative should be captured in investment decisions in order to reflect the benefits of security of supply accurately, since access to multiple suppliers is at the crux of competitive markets. As mentioned, the mere presence of the Klaipeda LNG terminal placed Lithuania in a position to negotiate a 20 percent discount with Gazprom.²¹ US and European leaders need to estimate the social cost of having multiple energy suppliers and how much the private sector, consumers, and governments should be willing to undertake to reduce the risk from dominant suppliers.

15 Conor Finnegan, "US to create \$1B fund for European energy projects countering Russia influence," *ABC News*, December 18, 2019, <https://abcnews.go.com/Politics/us-create-1b-fund-european-energy-projects-countering/story?id=67806891>.

16 US Congress, House, *Further Consolidated Appropriations Act, 2020*, HR 1865, 116th Congress, 1st Sess., <https://www.congress.gov/bill/116th-congress/house-bill/1865?q=%7B%22search%22%3A%5B%22European+Energy+Security+and+Diversification+Act%22%5D%7D&s=1&r=4>.

17 *FY 2019 Congressional Budget Justification*, Export-Import Bank of the United States, accessed February 2020, <https://www.exim.gov/sites/default/files/congressional-resources/budet-justification/FY2019-EXIM-CBJ-FINAL.pdf>.

18 Export-Import Bank of the United States, *Exporting Creates Jobs*, 2018 Annual Report, <https://www.exim.gov/sites/default/files/reports/annual/2018/EXIM-AnnualReport-2018.pdf>.

19 Loren Thompson, "Five Reasons Reauthorizing EXIM Bank Is A Smart Move," *Forbes*, November 13, 2019, <https://www.forbes.com/sites/lorenthompson/2019/11/13/five-reasons-reauthorizing-exim-bank-is-a-smart-move/#558297fe5c5a>.

20 Clifford Krauss, "Natural Gas Boom Fizzles as a U.S. Glut Sinks Profits," *New York Times*, December 11, 2019, <https://www.nytimes.com/2019/12/11/business/energy-environment/natural-gas-shale-chevron.html>.

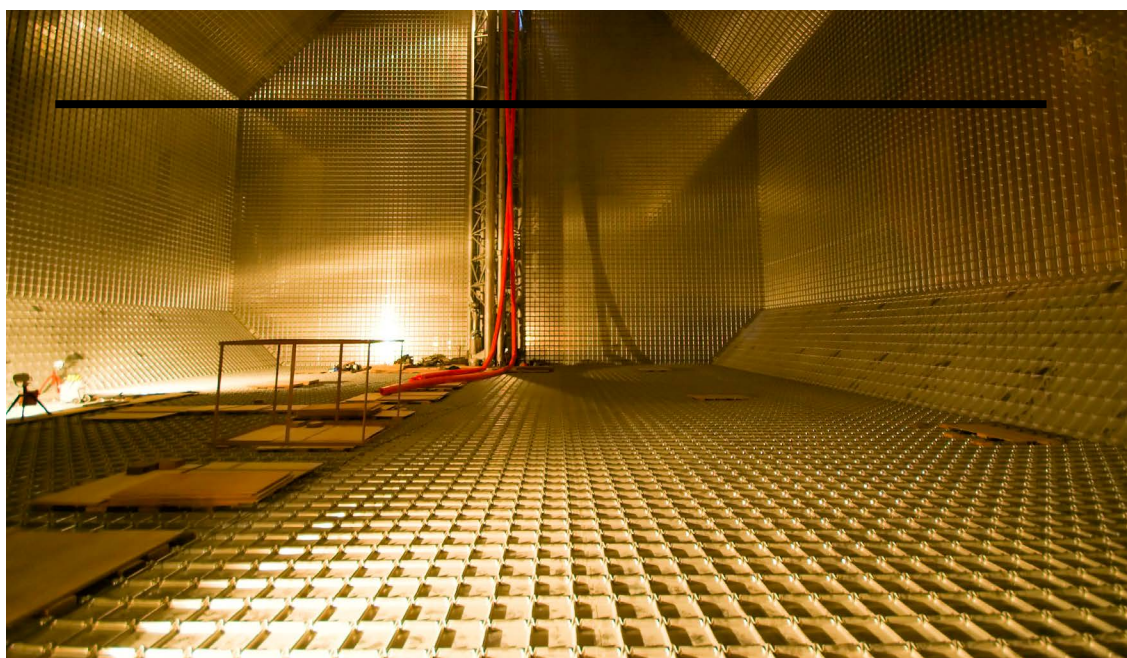
21 Kjetil Malkenes Hovland, "Gas Terminal Plans Helped Lithuania Negotiate Lower Price from Gazprom," *Wall Street Journal*, May 28, 2014, <https://www.wsj.com/articles/gas-terminal-plans-helped-lithuania-negotiate-lower-price-from-gazprom-1401188154>.

The role of small-scale LNG in regions with limited natural gas infrastructure

Extensive natural gas pipelines may not be realistic for all countries in need of diversification of supply. The Western Balkans region is still heavily reliant on coal and Russian-sourced gas and could greatly benefit from alternative gas sources.²² However, limited gas infrastructure and challenging terrain make this a complex region for traditional pipeline investments. Small-scale LNG is one possible solution for some off-grid generation. For example, the United States currently exports small-scale cargoes to Caribbean nations. In the case of the Western Balkans, virtual pipelines made up of small trucks could serve as an innovative way to connect the region to global LNG markets, which could help increase the diversification of supply without significant upfront cost. DOE hosted a workshop on small-scale LNG deployment in Tirana, Albania on February 5, 2020,²³ and it is already facilitating a study on the potential of small-scale LNG in the CEE region. The United States and the EU should continue to support small-scale LNG investment in regions with significant barriers to traditional natural gas pipelines.

Switching from oil and coal to natural gas

LNG could provide an alternative to both high-carbon coal and oil in multiple sectors, contributing to reduction in security threats from climate change. As an example, greater utilization of LNG in the shipping industry would provide greenhouse gas emissions reductions and cheaper fuel options. The shipping industry must reduce its carbon emissions 50 percent from 2008 levels by 2050, according to the United Nations International Maritime Organization's 2018 strategy.²⁴ Managing methane emissions leakage, or "methane slip," must be part of the shipping industry's transition. Seven hundred and forty-six ships are powered by LNG today, with two hundred and forty-three on order, out of sixty thousand global oceangoing vessels.²⁵ The industry presents tremendous potential for LNG demand and a natural area for US-EU collaboration.



LIQUID NATURAL GAS MEMBRANE TANK. WIKIMEDIA COMMONS/THINFOURTH

²² Morningstar et al., "European energy diversification."

²³ "Small-Scale LNG Deployment in Central and Eastern Europe Workshop," US Department of Energy, February 6, 2020, <https://www.energy.gov/fe/articles/small-scale-ling-deployment-central-and-eastern-europe-workshop>.

²⁴ "Reducing greenhouse gas emissions from ships," International Maritime Organization, accessed February 2020, <http://www.imo.org/en/MediaCentre/HotTopics/Pages/Reducing-greenhouse-gas-emissions-from-ships.aspx>.

²⁵ Costas Paris, "Natural Gas Won't Decarbonize Shipping, But the Fuel Is Here to Stay," *Wall Street Journal*, February 4, 2020, <https://www.wsj.com/articles/natural-gas-wont-decarbonize-shipping-but-the-fuel-is-here-to-stay-11580814000>.

IV. Clean Energy Generation Can Reduce Carbon Emissions and Improve Supply Security

The future of European energy security rests on how well European countries will navigate geopolitical challenges and societal pressures to satisfy future energy needs reliably and affordably while quickly transitioning to a low-carbon economy. A key component of this task is optimizing clean energy generation, which will reduce reliance on imports while improving European self-sufficiency and energy security.²⁶

The greatest barriers to clean energy development are lack of financing, societal pushback, insufficient evaluation of environmental benefits, and supply chain risks. Transatlantic cooperation in those areas will lead to greater clean energy deployment in Europe. Clean energy technologies such as nuclear, CCUS, and hydrogen will contribute significantly to reducing carbon emissions, but they will require committed support from the governments of the United States and the EU, the private sector, and the greater public.

Renewable energy deployment barriers exist in financing, supply chain, public perception, and permitting

The EU has enjoyed strong policy support for renewable energy, which has resulted in a surge in new installations of renewable electricity generation capacity, mostly in wind, solar, and biomass.²⁷ Moreover, both reduction in cost and efficiency improvements are making renewables competitive with conventional energy sources. The latest offshore wind technology has a capacity factor (i.e., a measurement of how fully a unit's capacity is used out of its maximum possible operating ability) that ranges from 40–50 percent, which is similar to the capacity factor of efficient gas-fired power plants, although wind energy is intermittent, unlike natural gas.²⁸ However,

deployment of renewable energy still faces financing, supply chain, public perception, and permitting challenges.

It is imperative that the United States and the EU exchange best practices in new technology development to ramp up commercialization of renewables. Increased renewable energy generation reduces carbon emissions and strengthens domestic energy production in Europe, improving energy security by lessening its dependence on imports. For example, Europe is further ahead in its development of offshore wind, as well as new renewable technologies like floating wind farms, largely due to strong policy support. DOE's Wind Energy Technologies Office (WETO) should continue its engagement with both the IEA's Wind Energy Executive Committee and relevant EU bodies to develop public-private partnerships for offshore wind technologies in both the United States and the EU.

The US has traditionally been the leader in research and development (R&D) for artificial intelligence (AI) and machine learning (ML), but China is ramping up its own efforts and could take the lead in the not-too-distant future.²⁹ AI and ML are crucial to the future of energy security, making these areas key opportunities for transatlantic cooperation. Advances in AI and ML technologies will be key to measuring, detecting, and capturing emissions; optimizing consumption; managing electricity grids; launching automated vehicles; and determining the future of electric vehicles.

The finance sector is emerging as a key area, as climate and energy security concerns are increasingly incorporated into financing decisions, but access to adequate financing remains one of the top barriers for large-scale renewables deployment. The United States and EU should coordinate on expanding financing mechanisms

²⁶ "From where do we import energy and how dependent are we?" European Commission, accessed February 2020, <https://ec.europa.eu/eurostat/cache/infographs/energy/bloc-2c.html>.

²⁷ Abhishek Shivakumar, Audrey Dobbinsb, Ulrich Fahl, and Antriksh Singh, "Drivers of renewable energy deployment in the EU: An analysis of past trends and projections," *Energy Strategy Reviews*, November 2019, <https://www.sciencedirect.com/science/article/pii/S2211467X19300951>.

²⁸ *Offshore Wind Outlook 2019*, International Energy Agency, October 2019, <https://www.iea.org/reports/offshore-wind-outlook-2019>.

²⁹ Steve Andriole, "Andrew Yang Is Right - The U.S. Is Losing The AI Arms Race," *Forbes*, December 2, 2019, <https://www.forbes.com/sites/steveandriole/2019/12/02/andrew-yang-is-right--the-us-is-losing-the-ai-arms-race/#3a2a5d5b3162>.



OFFSHORE WIND AT MIDDELGRUNDEN, DENMARK. FLICKR.COM/JIMMY BAIKOVICIUS

combining both the government and private sector, which could prioritize projects that will enhance energy security and reduce dependence on imports. Currently, private companies play a major role in driving renewables investment with internal renewable energy targets.³⁰ Renewables investment would benefit from the inclusion of both direct and indirect emissions in companies' carbon reduction targets.³¹

Transatlantic cooperation on technological development could accelerate decarbonization while strengthening European—as well as US—energy security, as streamlined licensing and administrative processes for renewable development in the United States and the EU would reduce costs and expedite project development. Additionally, synchronized manufacturing standards and certificates between the United States and the EU would ensure that project components from third-party countries were consistent across the Atlantic, further enabling trade and improving the safety of those projects.³²

Some renewable energy endeavors face public criticism; for example, onshore wind requires large amounts of land that could be put to other uses, while offshore wind often attracts protest for disrupting sea views.³³ Community engagement and educational initiatives must be implemented by governments, research entities, and the private sector to ensure local buy-in. A strong majority of Europeans support a fast transition to low-carbon energy sources, but in some cases those same groups oppose renewables development in their

own neighborhoods, often referred to as a “not in my backyard” mindset.³⁴ The disconnect between actions that must be taken to reduce carbon emissions and what projects energy consumers are willing to accept can be mitigated through grassroots engagement and education on both sides of the Atlantic.

The United States and countries across Europe have critical vulnerability when it comes to raw material supply, which could hinder the anticipated scale of deployment for renewable energy and other new technologies if not properly addressed. Currently, most parts and materials required for clean energy technologies, such as solar panels and batteries, are heavily dependent on a supply chain from China. China's control of critical mineral resources is a threat to the future of increased renewable energy deployment in other parts of the world. As a previous brief, “European energy diversification: How alternative sources, routes, and clean technologies can bolster energy security and decarbonization,” in this series argued, the United States and Europe should cooperate to establish diversified “supply chains to mitigate security risks by expanding domestic capabilities and strengthening relationships with potential producers around the globe.”³⁵ Cost-effective recycling could be a way to mitigate some supply chain risks. To achieve this, the United States and Europe should incentivize low-cost recycling programs for wind turbines and solar panels that retrieve valuable materials and ensure the long-term sustainability of renewable energy generation.³⁶

30 Ryan Spies, “Empowering Renewable Energy Buyers,” Renewable Energy Buyers Alliance, September 2019, <https://rebuyers.org/blog/empowering-renewable-energy-buyers/>.

31 “Scope 3 Inventory Guidance,” US Environmental Protection Agency, accessed March 2020, The Greenhouse Gas Protocol, 2015, <https://www.epa.gov/climateleadership/scope-3-inventory-guidance>.

32 Seetharaman, Krishna Moorthy, Nitin Patwa, Saravanan, and Yash Gupta, “Breaking barriers in deployment of renewable energy,” *Heliyon* 5, no. 1 (2019), <https://doi.org/10.1016/j.heliyon.2019.e01166>.

33 Peter Enevoldsen, Finn-Hendrik Permien, Ines Bakhtaoui, Anna-Katharina Von Krauland, Mark Z. Jacobson, George Xydis, Benjamin K. Sovacool, Scott V. Valentine, Daniel Luecht, and Gregory Oxley, “How much wind power potential does Europe have? Examining European wind power potential with an enhanced socio-technical atlas,” *Energy Policy* 138 (2020), <https://doi.org/10.1016/j.enpol.2019.111213>.

34 “Citizen support for climate action,” European Commission, survey, accessed February, 2020, https://ec.europa.eu/clima/citizens/support_en.

35 Morningstar et al., “European Energy Diversification.”

36 Laura Millan Lombrana, “A Recycling Plan to Clear Wind Turbine Blades From Graveyards,” *Bloomberg Green*, March 9, 2020, <https://www.bloomberg.com/news/articles/2020-03-09/a-recycling-plan-to-clear-wind-turbine-blades-from-graveyards>.

Energy efficiency is underutilized as an energy security solution

Reducing reliance on imports through energy efficiency measures will significantly improve European energy security. Energy efficiency remains one of the most underutilized but cost-effective tools for reducing carbon emissions and decreasing overall energy demand, which directly improves self-sufficiency. But, despite innovation in energy security tools, large-scale utilization of available technologies is underwhelming across the globe due to lack of financing, the presence of subsidized energy markets, and low prioritization on both sides of the Atlantic.

CEE countries have appealing energy efficiency potential. That said, their subsidized energy markets discourage efficiency measures because they do not accurately reflect the true cost of electricity, preventing monetization of efficiency savings.³⁷ The United States and the EU should continue support for market liberalization in order to incentivize efficiency in the CEE region.

“Energy Efficiency First” should be a shared principle for the United States and the EU. The principle prioritizes finding energy efficiency solutions before pursuing additional energy capacity. Additionally, efficiency initiatives with successful track records should be expanded or reinstated as necessary. For example, the

US-EU Energy Star agreement, which expired in 2018, should be renewed so that consumers on both sides of the Atlantic can make educated decisions when purchasing products.

Transatlantic leadership will be necessary to bolster support for nuclear development

A secure transition to a low-carbon future must include nuclear energy if the transatlantic community wants to maintain energy reliability while reducing emissions. The EU could miss its 2050 carbon neutrality goals without explicit commitments to nuclear energy’s inclusion in its energy mix. As nuclear plants are phased out, Germany—and any other European countries that follow suit—could risk reverting to a reliance on coal, as Japan has while in the recent process of decommissioning portions of its nuclear fleet.³⁸ Nuclear development decisions are up to each EU member state; there is no EU-wide guidance on how much nuclear energy capacity should be included in countries’ energy mixes. The future of this leading carbon-free energy source will depend on strong government support and societal acceptance.³⁹ In addition, transatlantic cooperation is crucial for both sides to compete with Russia and China on nuclear development and fuel supply. China is currently building twelve domestic nuclear reactors, while



NUCLEAR REACTORS AT NOGENT-SUR-SEINE, FRANCE. WIKIMEDIA COMMONS/FRANÇOIS GOGLINS

³⁷ Amanda Lee, “Western Balkans pump subsidies worth €1.2 billion into coal,” *EURACTIV*, March 27, 2019, <https://www.euractiv.com/section/energy/news/western-balkans-pump-subsidies-worth-e1-2-billion-into-coal/>.

³⁸ Noah Smith, “Japan Goes Into Reverse on Going Green,” *Bloomberg Opinion*, February 5, 2020, <https://www.bloomberg.com/opinion/articles/2020-02-05/japan-turns-to-coal-after-closing-nuclear-power-plants>.

³⁹ Morningstar et al., “European energy diversification.”

the United States is building only two.⁴⁰ China is also interested in building nuclear power plants in developing and Organisation for Economic Co-operation and Development (OECD) countries, including in Europe, while Russia has a well-established nuclear export program.⁴¹ China owns a stake in the Hinkley Point C nuclear power plant in the United Kingdom and is competing with other vendors to run both Bulgaria's proposed Belene project⁴² and the Dukovany nuclear power plant in the Czech Republic.⁴³ Russian and Chinese global nuclear energy market dominance could create safety and proliferation risks and allow both countries to establish century-long geopolitical relations with developing countries.

Nuclear development has expensive up-front costs, even though its levelized cost of energy (LCOE) can be quite competitive, especially in regulated electricity markets. Furthermore, costs level off over the life of the nuclear projects, particularly in economic systems that place a price on carbon. Although DFC's (previously OPIC's) Environmental and Social Policy Statement bars the agency from supporting nuclear energy projects abroad, several US senators are leading efforts to change this policy.⁴⁴ On the EU side, the Technical Expert Group (TEG) developed a final report on the EU taxonomy on sustainable finance, but it excluded nuclear from the EU's list of qualified green investments due to the challenges with assessing the lifecycle environmental impacts of nuclear energy.⁴⁵ This is a missed opportunity for recognizing nuclear energy's role in addressing climate change. An independent expert assessment should complement the TEG assessment and evaluate nuclear energy's benefits properly within the green taxonomy. Bans on nuclear investments need to be reevaluated in order to facilitate newer, safer nuclear technologies and global competition for nuclear development.

The United States and the EU should not be left behind on nuclear innovation due to the lack of financing options.⁴⁶ Unlike the DFC and the World Bank's present guidelines, the recently reauthorized EXIM can finance US nuclear technologies and services to be exported across the world, and US businesses should take advantage of this financing option.

The United States and Europe should cooperate on R&D and deployment of new nuclear technologies, such as advanced small modular reactors (SMRs). Harmonizing transatlantic licensing and permitting processes will expedite adoption of such technologies, and standardization in design will ease the market's absorption of new technologies. DOE is currently working to support the private sector in finalizing SMR designs, developing cost-effective manufacturing capabilities, and addressing regulatory issues.⁴⁷ Countries like Poland are looking for nuclear energy technologies and seeking long-term partners with financing capabilities and experience in this field. The United States and the EU can provide experience, advanced technology, and high safety and nonproliferation standards when cooperating in nuclear technologies.⁴⁸

A diverse nuclear materials supply chain is also essential for energy security. The European Commission has strong procurement regulations for nuclear fuels. Russia exports its nuclear technologies and fuel, meaning that there is a greater reliance on Russian nuclear services in importing countries.⁴⁹ The Euratom Supply Agency's guidelines for EU facilities operating nuclear power plants require member states to maintain stocks of nuclear materials and ask them to secure "long-term contracts with a diverse range of suppliers,"⁵⁰ but several member states have not followed the European Commission's public procurement regulations.⁵¹ The

40 James Griffiths, "China's gambling on a nuclear future, but is it destined to lose?" *CNN*, September 13, 2019, <https://www.cnn.com/2019/09/13/business/china-nuclear-climate-intl-hnk/index.html>.

41 Jennifer T. Gordon, "International co-financing of nuclear reactors between the United States and its allies," Atlantic Council, January 9, 2020, <https://www.atlanticcouncil.org/in-depth-research-reports/issue-brief/international-co-financing-of-nuclear-reactors-between-the-united-states-and-its-allies/>.

42 Tsvetelia Tsoleva and Maria Kiselyova, "UPDATE 1-Bulgaria nuclear project attracts China and S. Korea interest-sources," *REUTERS*, August 19, 2019, <https://www.reuters.com/article/bulgaria-energy-nuclear/update-1-bulgaria-nuclear-project-attracts-china-and-s-korea-interest-sources-idUSL5N25F3ST>.

43 Jan Lopatka, "Czechs must build nuclear plants even if in breach of EU law, says PM," *REUTERS*, October 16, 2019, <https://www.reuters.com/article/us-czech-nuclear/czechs-must-build-nuclear-plants-even-if-in-breach-of-eu-law-says-pm-idUSKBN1WV10G>.

44 Senate Energy and Natural Resources Chairman Lisa Murkowski (R-AK), Ranking Member Joe Manchin (D-WV), Senator Kevin Cramer (R-ND), Senator John Barrasso (R-WY), Senator Mike Crapo (R-ID), and Senator Lindsey Graham (R-SC) are leading the efforts to end this ban and to allow financial assistance for civil nuclear projects. Murkowski released a legislative discussion draft of the Strategic Energy for America Act in August 2019. See: Jacqueline Toth, "Murkowski, 5 Other Senators Join Push for End of Nuclear Financing Ban," *Morning Consult*, November 18, 2019, <https://morningconsult.com/2019/11/18/murkowski-5-other-senators-join-push-for-end-of-nuclear-financing-ban/>.

45 *Sustainable finance: TEG final report on the EU taxonomy*, European Commission, March 9, 2020, https://ec.europa.eu/knowledge4policy/publication/sustainable-finance-teg-final-report-eu-taxonomy_en.

46 Gordon, "International co-financing of nuclear reactors between the United States and its allies."

47 "Advanced Small Modular Reactors (SMRs)," US Department of Energy, accessed February 2020, <https://www.energy.gov/ne/nuclear-reactor-technologies/small-modular-nuclear-reactors>.

48 Christopher Ashley Ford, "U.S. Strength and Alliance Relationships: The World's Most Successful Nonproliferation Tools?" (speech, Washington, DC, April 18, 2019), US Department of State, <https://www.state.gov/u-s-strength-and-alliance-relationships-the-worlds-most-successful-nonproliferation-tools/>.

49 Atlantic Council Task Force on US Nuclear Energy Leadership, *US nuclear energy leadership: Innovation and the strategic global challenge*, Atlantic Council, May 2019, <https://www.atlanticcouncil.org/in-depth-research-reports/report/us-nuclear-energy-leadership-innovation-and-the-strategic-global-challenge-2/>.

50 *Euratom Supply Agency annual report 2018*, European Commission, 2019, <https://ec.europa.eu/euratom/ar/last.pdf>.

51 Morningstar et al., "European energy diversification."

United States and the EU should carefully assess risks in the nuclear fuel supply chain and develop strategies for diversification.

Several European countries are phasing out nuclear energy while others have expressed newfound interest in nuclear power. However, it is important that the United States and the EU establish a cohesive metric to examine nuclear energy's long-term value and external environmental and societal benefits properly. When examining the cost of nuclear power compared to other fuels, such as coal, the negative externalities and health risks of carbon emissions and other pollutants must be taken into account.

New hydrogen technologies

Hydrogen technology is another new area where the United States and the EU can cooperate. The IEA notes hydrogen's versatility and sourcing options, which position hydrogen to play a significant role in the energy sector and in decarbonization across multiple value chains.⁵² Because hydrogen is not a mature technology, the United States and the EU need to collaborate on gradually introducing the fuel into the energy mix until it reaches price parity with natural gas and market forces can drive further demand. Hydrogen production can have different levels of carbon emissions: green hydrogen is produced through electrolysis, which is powered by renewable energy; blue hydrogen is produced from natural gas and its emissions are captured and stored.⁵³ Hydrogen's cost depends on the input of energy. For example, a drop in renewable prices can reduce the price of green hydrogen production.

The EU is leading testing of first-of-a-kind hydrogen technologies. Italian company Snam S.p.A. integrated 10 percent of hydrogen into a natural gas transmission network in a trial project.⁵⁴ The natural gas infrastructure could be retrofitted to handle natural gas and limited amounts of blended hydrogen. Mandating a certain level of blended hydrogen would expedite hydrogen's adoption across the energy market.

The United States and the EU should work together to advance hydrogen technologies. For example, the EU's Clean Hydrogen Alliance will be launched in the summer of 2020, and it should include mechanisms for transatlantic cooperation.⁵⁵ Policies can include efforts to retrofit natural gas infrastructure to accept both natural gas and hydrogen, support for a blending policy, and ramped-up hydrogen fuel use in the transportation industry. However, technological challenges such as embrittlement, which occurs when metal cracks after exposure to hydrogen, would have to be addressed.

Carbon capture, utilization, and storage will be a key part of maintaining energy security while achieving decarbonization

Carbon capture, utilization, and storage (CCUS) is another clean energy technology that necessitates transatlantic cooperation. CCUS will be an essential tool to address carbon emissions and reduce the risk of stranded fossil fuel infrastructure during the energy transition, though the technology must be scaled up one hundred times in order to get to net-zero emissions climate goals.⁵⁶

Supportive policies are the driving forces of new technologies. So far, the United States is leading the way on CCUS development, thanks to its 45Q tax credit, which provides federal incentives for capture and geologic storage of carbon. The highly anticipated guidance on implementing 45Q was rolled out by the US Treasury in February 2020. In addition, California's Low-Carbon Fuel Standard CCUS Protocol provides additional incentives for CCUS projects.⁵⁷

The United States and the EU have opportunities to work together on scaling up CCUS in areas as diverse as carbon capture in natural gas power plants and capturing methane to produce hydrogen. The CCUS knowledge and experience of US companies could be shared easily with European markets. The United States and the EU should encourage economy-wide innovation and deployment of CCUS through financing mechanisms and risk mitigation schemes.⁵⁸

52 *The Future of Hydrogen Seizing today's opportunities*, International Energy Agency, June 2019, <https://www.iea.org/reports/the-future-of-hydrogen>.

53 "Hydrogen explained: Production of hydrogen," US Energy Information Administration, accessed February 2020, <https://www.eia.gov/energyexplained/hydrogen/production-of-hydrogen.php>.

54 "Snam: hydrogen blend doubled to 10% in Contursi trial," Snam, January 8, 2020, https://www.snam.it/en/Media/news_events/2020/Snam_hydrogen_blend_doubled_in_Contursi_trial.html.

55 Frédéric Simon, "EU announces 'Clean Hydrogen Alliance' for launch in the summer," *EURACTIV*, March 10, 2020, <https://www.euractiv.com/section/energy-environment/news/eu-announces-clean-hydrogen-alliance-for-launch-in-the-summer/>.

56 *Global Status of CCS 2019*, Global CCS Institute, 2019, <https://www.globalccsinstitute.com/resources/global-status-report/>.

57 Lee Beck, "New trends bolster chance of successful deployment of carbon capture and storage," *The Hill*, February, 24, 2020, <https://thehill.com/opinion/energy-environment/484323-new-trends-bolster-chance-of-successful-deployment-of-carbon>.

58 *Federal Policy Blueprint*, Carbon Capture Coalition, May 2019, <https://carboncapturecoalition.org/wp-content/uploads/2019/05/Blueprint-Compressed.pdf>.

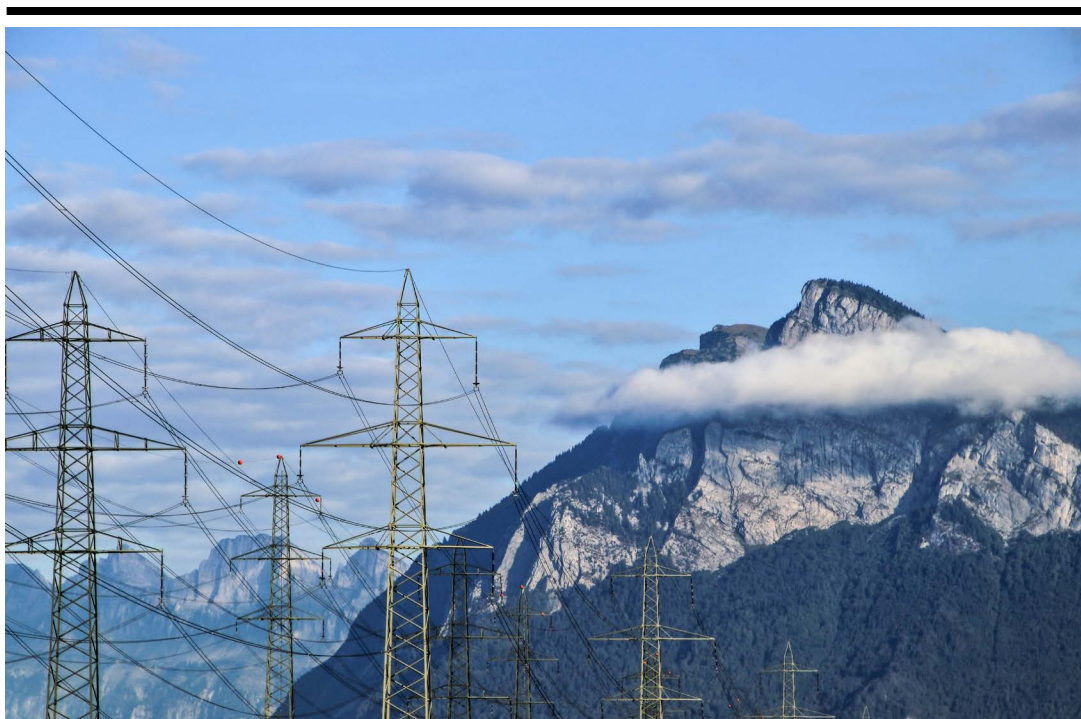
V. A Transatlantic Financing Strategy

A synchronized transatlantic financing and investment strategy is necessary for projects with significant energy security benefits that are facing financing barriers. This strategy could include financing for natural gas, renewable energy projects, nuclear energy, clean energy technologies, and energy efficiency initiatives with the potential to strengthen European energy security and help reduce carbon emissions. The United States and the EU should identify and prioritize projects essential to European energy security and facilitate development of these projects with relevant government bodies, financial institutions, and the private sector. The United States could engage in those priority projects itself through the DFC and EXIM to demonstrate commitment to CEE diversification efforts. China and Russia already have increased presence in the European market with government-backed investments in energy infrastructure in pursuit of greater geopolitical

leverage.⁵⁹ A transatlantic investment strategy could provide viable alternatives to China's digital services, including 5G, and the Belt and Road Initiative (China's global investment and development strategy), and it might also mitigate the geopolitical leverage of Kremlin-funded infrastructure in Europe.⁶⁰

Energy security priority projects should be identified and regularly updated in partnership with the public and private sectors

Prioritizing projects with the greatest energy security benefits is a crucial first step, and much of the work has already been done. Multiple European priority projects in energy infrastructure are identified in the EU's Projects of Common Interest (PCI) list and through regional efforts, such as 3SI, which outlined key energy, transportation, and digital projects in twelve EU member states located between the Adriatic,



TRANSMISSION TOWERS IN THE ALPS. PXFUEL.COM

⁵⁹ Martin Svárovský, Joey Gurney, and Sami Kröger, *Security Strategies Report: How do EU member states, Canadian and the United States intelligence agencies assess Russian and Chinese influence activities?* Konrad-Adenauer-Stiftung and the European Values Center for Security Policy, 2019, <https://www.europeanvalues.net/wp-content/uploads/2019/12/Analysis-of-Russian-Chinese-Influence-in-Central-Europe-compressed.pdf>.

⁶⁰ Frances Burwell, "First privacy, now data: The EU seeks a managed digital space," *New Atlanticist*, March 3, 2020, <https://www.atlanticcouncil.org/blogs/new-atlanticist/first-privacy-now-data-the-eu-seeks-a-managed-digital-space/>.

Baltic, and Black Seas.⁶¹ PCIs are important infrastructure projects, connecting energy systems of more than one European country and improving energy markets. Because of their significance to European energy security, these projects could qualify for funding from the EU's Connecting Europe Facility (CEF) program and have an expedited permitting process.⁶² But there is value in the US-EU Energy Council coordinating, on an ongoing basis, a comprehensive assessment of infrastructural gaps across Europe with an emphasis on projects that improve energy security in countries that lack essential energy infrastructure. The United States and the EU should coordinate closely with the EU's PCI list and 3SI projects, as well as available financing institutions, such as the 3SI Investment Fund, DFC, EXIM, European Investment Bank (EIB), European Bank for Reconstruction and Development (EBRD), the World Bank, EU member state financing institutions, and sovereign wealth funds.

The United States and the EU should also find ways to support smaller scale projects. These projects can miss out on financing opportunities because financial institutions often have a minimum threshold for the size of loan they can issue. To address this barrier, several projects can be lumped together to qualify for large-scale financing options.

Transatlantic cooperation and the EU's move towards green financing

The United States and the EU have a unique opportunity to coordinate on financing gaps as the EU moves to prioritize green investments—the EU is adjusting its financing mechanism to align with 2050 carbon neutrality targets. EIB is phasing out investments in natural gas, unless the projects have carbon emissions offsets which would comply with the bank's new Emissions Performance Standard of 250g of CO₂ per Kilowatt-hour (kWh), which was previously set at 550g CO₂/kWh.⁶³ The changes in lending policies are similar in multiple European financial institutions; the European Central Bank will examine its role in

addressing climate change, following a resolution from the European Parliament.⁶⁴ The United States should continue collaborating with EIB under the new policy while encouraging EIB to adapt its policy to fund natural gas projects which significantly reduce emissions and enhance energy security.

The EU is doing a timely review of how to establish more effective development banks by cutting out redundancies in EIB and EBRD. The United States should be engaged in those talks as one of the top EBRD investors. Similarly, the United States and the EU should review how transatlantic cooperation can be harmonized to meet today's needs in Africa and Asia and offer alternatives to Chinese and Russian government-led investments.

Support for regional initiatives in projects in CEE will improve energy systems interconnectivity

3SI priority projects could soon be considered for funding by the Three Seas Initiative Investment Fund and could significantly benefit from US and EU financing. The fund was launched in 2019 and is expected to become operational in 2020 as a new financial instrument to implement bankable 3SI projects. Launched in 2015, 3SI is a presidential-level initiative that aims to build out energy, digital, and transport infrastructure in twelve CEE countries.⁶⁵ US and EU investment in the fund will showcase transatlantic commitment to regional projects in Europe and will encourage other CEE countries to solidify their investments in the fund. To date, Poland and Romania are the only two, out of twelve 3SI countries, that have invested in the fund, which has more than €500 million. Although the fund has impressive transparent and market-based structures for selecting projects on purely economic criteria, it currently lacks a mechanism to value the strategic and energy security benefits of potential projects.⁶⁶ Energy security criteria should be added to the screening process by 3SI stakeholders without compromising a selection process based on economic criteria.

61 "The Three Seas Initiative - priority interconnection projects," the Three Seas Initiative, September 2018, <http://three-seas.eu/wp-content/uploads/2018/09/LIST-OF-PRIORITY-INTERCONNECTION-PROJECTS-2018.pdf>.

62 "Connecting Europe Facility," European Commission, accessed February 2020, <https://ec.europa.eu/inea/en/connecting-europe-facility>.

63 "EU Bank launches ambitious new climate strategy and Energy Lending Policy," European Investment Bank, press release, November 14, 2019, <https://www.eib.org/en/press/all/2019-313-eu-bank-launches-ambitious-new-climate-strategy-and-energy-lending-policy>.

64 Chloé Farand, "Parliament urges ECB to put climate at heart of strategy review," *EURACTIV*, February 13, 2020, <https://www.euractiv.com/section/energy-environment/news/parliament-urges-ecb-to-put-climate-at-heart-of-strategy-review/>.

65 "Three Seas Initiative Slovenia, June 5-6, 2019," Three Seas Initiative, accessed February 2019, <https://www.three.si/>.

66 Claudia Patricolo, "Polish and Romanian banks establish Three Seas investment fund," *Emerging Europe*, June 11, 2019, <https://emerging-europe.com/news/polish-and-romanian-banks-establish-three-seas-investment-fund/>.

VI. A Resilient Electric Grid of the Future Will Require Significant Investments

Future electricity systems will contribute to European energy security through greater variable loads, ramped-up energy efficiency mechanisms, increased use of battery storage, and greater customer engagement with the grid.⁶⁷ To get ahead of those challenges, the EU Commission will present a strategy for smart sector integration in the summer of 2020. The United States and the EU can work to support a competitive electricity market, invest in electricity interconnections that would allow for greater loads of renewables and reduce congestion, cooperate to reduce grid carbon leakage, and strengthen grid resiliency.

Competitive and well-interconnected electricity markets in Europe depend on regulatory enforcement, which presents another opportunity for US-EU cooperation. Inconsistency in regulatory implementation makes it easier for dominant suppliers to use energy as a lever, and this issue intensifies with electrification. Under the European Green Deal, the share of electricity in energy consumption will need to double by 2050.⁶⁸ Rapid electrification will require new market designs. In 2019, the EU adopted The Electricity Directive and Electricity Regulation to address changes occurring across the electricity system.⁶⁹ The Energy Community Secretariat, the European Network of Transmission System Operators (ENTSOE), and USAID have been providing CEE countries with technical assistance on energy market integration and implementation of the EU's regulations, and such work should continue in a coordinated manner.

Preparing the electricity grid infrastructure for the energy transition

The IEA anticipates robust deployment of solar and wind energy in Europe as increased technological innovation further reduces renewables costs. Ramped-up renewables and electrification will



RESIDENTIAL SOLAR PANELS IN GERMANY. WIKIMEDIA COMMONS/SMAACK

create stress on the electricity grid, since existing electricity grids were built to transmit centralized, continuous, and uninterruptible loads. Growth in renewables will push demand for battery storage and digital grid management services to balance the load properly and perform electricity market transactions. Infrastructural upgrades will allow for greater large-scale renewable energy integration.⁷⁰ The EU clearly recognizes the need for grid investments, since a majority of projects on the European Commission's PCI list relate to

67 Morningstar et al., "European Energy Diversification."

68 Dave Keating, "EU Plans To Double Electricity Use By 2050," *Forbes*, November 7, 2019, <https://www.forbes.com/sites/davekeating/2019/11/07/eu-plans-to-double-electricity-use-by-2050/#249e939148d6>.

69 "Electricity market design," European Commission, accessed March 2020, <https://ec.europa.eu/energy/en/topics/markets-and-consumers/market-legislation/electricity-market-design>.

70 Seetharaman et al., "Breaking barriers in deployment of renewable energy."

the electricity grid.⁷¹ The United States should deploy its available financing mechanisms to support the EU's grid investments, in partnership with the private sector.

The growth of microgrids must not compromise security

The rise of microgrids is changing the traditional centralized utility model and is posing new security risks and opportunities.⁷² Distributed generation can accelerate renewable energy deployment, reduce grid congestion, and improve communities' resilience, as showcased in California's wildfire mitigation efforts. But there could also be energy security risks related to being disconnected from the centralized grid and the intermittent nature of renewables. Leading in global distributed generation market share, the United States and the EU should ramp up efforts to exchange best practices in secure microgrid design, cooperate with the private sector on microgrid investments, and outline how projects could contribute to energy security.

Grid resiliency requires transatlantic standards for effective coordination

The lack of clear and shared standards on grid resiliency poses a challenge for transatlantic cooperation. The United States and the EU should decide on transatlantic metrics for grid resiliency and identify top areas of cooperation, which could include technical capacity training, human error management, customer engagement, back-up battery systems integration, and response mechanisms. The standards could also help with mapping out the differences in how US and EU grids operate. Such information is especially useful when dealing with global cyber threats.

Standardized cybersecurity policies can strengthen regulatory safeguards

Ramped-up electrification and electricity market integration will expose the grid to greater cyber security risks. The United States and the EU can mitigate these risks through stronger coordinated policies and educational initiatives.

The private sector is leading the way in implementing security measures to protect its investments and consumers. The United States and the EU are developing initiatives and legislation to address cyber security threats, but those initiatives lag behind the private sector's innovative approaches.⁷³ The two also have inconsistent cybersecurity policies with no shared mandatory baselines in risk mitigation measures. The allies should work together through the US-EU Energy Council to identify threats and vulnerabilities and "minimize their impact through rapid coordinated response and resiliency measures."⁷⁴

The cyber security sector is experiencing a talent shortage, partially because the crucial skills are learned on the job. A well-trained talent pipeline should be established to fill jobs in the cybersecurity sector. The United States and the EU should invest in public-private partnership training initiatives to fill the talent gap in the industry with skilled labor force. The European Union Agency for Cybersecurity (ENISA) trains around 200 cybersecurity specialists per year.⁷⁵ Such trainings should be expanded on both sides of the Atlantic and should be taught by professionals currently working in the cybersecurity sector.

Secure 5G technologies will be foundational to future innovation

5G adoption will enable and expedite future innovation, including development and integration of clean technologies. For example, energy systems that operate on 5G could be faster and more efficient. 5G networks could also enable faster energy market transactions and analysis of the grid's data. But some 5G products come with a risk of state-sponsored surveillance, like China's Huawei technologies. Secure 5G adoption is a matter of competitive advantage and energy security. Countries are facing questions about how to handle their 5G supply chains and what capabilities suppliers can have. The United States and the EU should have a cohesive strategy on enabling cost-competitive 5G technology alternatives to Huawei and encourage countries to calculate security risks into their 5G adoption decisions.

71 Morningstar et al., "European energy diversification."

72 "Global Distributed Generation (DG) Industry," *Yahoo Finance*, January 27, 2020, <https://finance.yahoo.com/news/global-distributed-generation-dg-industry-141500058.html>.

73 Morningstar et al., "European energy diversification."

74 Ibid.

75 "Trainings for Cybersecurity Specialists," European Union Agency for Cybersecurity, accessed March 2020, <https://www.enisa.europa.eu/topics/trainings-for-cybersecurity-specialists>.



AERIAL VIEW OF NORTHERN EUROPEAN LIGHTS. WIKIMEDIA COMMONS/NASA

Inconsistent policy implementation can lead to carbon leakage

The EU's electricity demand is met through generation by EU member states and imports from third countries. The carbon intensity of electricity production varies by country, which is based on their energy mix. Carbon leakage occurs when policies disincentivize homegrown fossil fuel electricity generation without properly assessing how clean imported electricity is. Carbon leakage could lead to unintended incentives and compromise energy security. For example, EU member states could be encouraged to import electricity from neighboring countries with fossil-fuel-generated power plants. Discouraging homegrown

production could have impacts on energy security. Therefore, it is important for EU member states to craft plans to meet 2030 climate and energy targets that include both domestic electricity production and electricity imports from countries outside of the EU, which tend to have a higher percentage of fossil generation in their electricity production. Another tool for addressing carbon leakage is the EU's proposed carbon border tax, which could account properly for carbon emissions of imported electricity. The decarbonization of the European grid should be accomplished holistically to minimize carbon leakage and miscalculations in carbon emissions reductions.

VII. The European Green Deal Presents Opportunities and Obstacles to Cooperation in the Energy Space

Climate change is one of the greatest threats to energy security. Global energy systems must satisfy growing energy demand while simultaneously reducing carbon emissions and responding to geopolitical implications and societal pressure. The European Green Deal is the EU's new growth strategy and it has ambitious targets of reaching carbon neutrality by 2050. Announced in December 2019 by European Commission President Ursula von der Leyen, the Green Deal outlines a comprehensive vision to reduce carbon emissions in Europe while stimulating economic growth and maintaining energy

reliability and affordability. The deal was enshrined into legislation on March 4, 2020, making the 2050 target legally-binding.⁷⁶ In line with the Green Deal agenda, EU member states outline how they will choose to meet the carbon emissions reduction in the integrated national energy and climate plans.⁷⁷

The European Green Deal presents great opportunities and challenges for transatlantic collaboration. There is pressure on both sides of the Atlantic to achieve climate goals, while meeting society's energy demand at an acceptable price. This issue must be taken seriously,



URSULA VON DER LEYEN SPEAKING IN A PLENARY CHAMBER. CREATIVE COMMONS (CC-BY-4.0) © EUROPEAN UNION 2019 – SOURCE: EP

⁷⁶ "Committing to climate-neutrality by 2050: Commission proposes European Climate Law and consults on the European Climate Pact," European Commission, March 4, 2020, https://ec.europa.eu/commission/presscorner/detail/en/ip_20_335.

⁷⁷ "2030 climate & energy framework," European Commission, accessed March, 2019, https://ec.europa.eu/clima/policies/strategies/2030_en.

otherwise it could have unintended political and social consequences. The major opportunity is for the United States and the EU to seize global leadership in the development of new technologies that will lower emissions, enhance energy security, meet society's increasing needs for affordable and reliable energy, and reduce adverse impacts on society.

Withdrawal from the Paris Agreement will hamper US leadership on climate change

To have credibility in working on these issues with Europe and around the globe, the United States must rejoin the Paris Agreement and strongly reengage with the United Nations Framework Convention on Climate Change.

The anticipated carbon border adjustment mechanism is one of the major challenges of the European Green Deal

A key part of the European Green Deal is the carbon border adjustment mechanism, also referred to as the carbon border tax, which would target imports from countries with weaker carbon emission policies. The details of the tax will be proposed by 2021 at the earliest. EU leadership stressed that the EU will work closely with its international partners to develop the carbon border adjustment mechanism, including the private sector.⁷⁸ Consultations with the United States should begin immediately.

The EU would need to create fair and standardized emissions tracking mechanisms for products covered by the carbon tax to make sure that all imports are accurately and transparently assessed. The carbon border tax should only be levied on import categories where objective carbon emissions data is available. For example, US LNG, Russian piped gas, and Russian LNG imports should be compared fairly on their products' lifecycle carbon emissions. The tax

should be developed to avoid unintended consequences. It should not deter technologies and fuels that could contribute to lowering carbon emissions, while making sure to encourage producers to reduce their carbon footprints.

The United States and the EU trade billions of dollars of goods annually, and therefore the carbon border adjustment mechanism could have significant implications on the trade relationship.⁷⁹ They must work together to avoid disputes on the carbon border tax which could ultimately lead to a trade war.

Cooperation on tracking and reducing methane emissions will be necessary to avoid disputes on the carbon border adjustment mechanism

Methane emissions pose an environmental threat and have, in part, turned public opinion against natural gas production, and which would be a significant issue in carbon border tax discussions. Failure to reduce methane emissions significantly could disincentivize natural gas imports and potentially destabilize European energy security. The private sector is leading the way in voluntarily tracking and decreasing methane emissions, yet significant methane emissions reductions from natural gas development and distribution are yet to be achieved. Methane (CH₄) is a potent greenhouse gas with twenty-eight to thirty-five times the warming potential of carbon dioxide (CO₂) over a one hundred-year period.⁸⁰ Efforts to reduce methane emissions will play an essential role in addressing climate change, but they are also economical. Curbing methane emissions is one of the lowest-cost greenhouse gas reduction options in the energy sector.⁸¹ Natural gas is essential to the European energy transition and energy security, but methane emissions must be addressed properly.

There are ample resources, toolkits, guides, and voluntary initiatives to address carbon emissions.

78 David A. Wemer, "Transatlantic cooperation key to Europe's Green Deal, EU official says," *New Atlanticist*, February 20, 2020, <https://www.atlanticcouncil.org/blogs/new-atlanticist/transatlantic-cooperation-key-to-europes-green-deal-eu-official-says/>.

79 "USA-EU - international trade in goods statistics," Eurostat, March 2020, https://ec.europa.eu/eurostat/statistics-explained/index.php/USA-EU_-_international_trade_in_goods_statistics.

80 Zachary Barkley, Kenneth Davis, She Feng, N. Balashov, Alan Fried, Joshua Digangi, Yonghoon Choi, and Hannah Halliday, "Forward Modeling and Optimization of Methane Emissions in the South Central United States Using Aircraft Transects Across Frontal Boundaries," *Geophysical Research Letters* 46, no. 22 (2019) <https://doi.org/10.1029/2019gl084495>.

81 John Schwartz, "Study Finds Low Cost in Reducing Methane Emissions," *New York Times*, April 21, 2015, <https://www.nytimes.com/2015/04/22/world/americas/study-finds-low-cost-in-reducing-methane-emissions.html>.

Nonetheless, lax regulations and a lack of standardization for tracking and reducing methane emissions create impediments to efficient deployment of one of the most effective and scalable ways to address climate change. Technologies to detect and quantify methane emissions vary in scale, detection accuracy, detection limits, and ease of use (which relates to the possibility of human error when measuring).

Standardized methane tracking will be especially important as the EU starts developing a framework around the border adjustment tax. Any type of carbon pricing mechanism would have to include a synchronized methodology and verification for natural gas importers. Global LNG suppliers and piped gas importers with the least methane emissions may end up having a competitive advantage. The United States and other LNG suppliers should be assessed accurately on their carbon emissions. Suppliers with poor carbon emissions transparency, like Russia, should be mandated to improve their tracking and verification practices if they are to be compared accurately to other natural gas exporters. If EU energy importers are not subject to consistent carbon emissions tracking and verification mechanisms, natural gas and oil producers with quality data on emissions will be penalized for transparency, and polluters with unreliable data will benefit under the new tax.

To remain competitive on the European gas market, the growing European concern for methane leaks and capture must be addressed by US natural gas developers, big and small. The development of overall industry standards is key.

Insufficient methane emissions management could have energy security implications if investors start perceiving future natural gas projects as risky. The United States and the EU need to lead an initiative to standardize emissions tracking, reporting, and verification, as well as best practices for scaling up emissions reductions.

A standardized global price on carbon will drive secure climate solutions

An absence of a price on carbon misrepresents threats from climate change and sends inaccurate signals to energy markets. Policies on carbon value are the key drivers for emerging and mature clean energy technologies. Renewable energy, nuclear, and new technologies such as carbon capture and hydrogen fuel deployment would benefit greatly from a market-based carbon price. The cost of carbon should reflect the social cost of greenhouse gas emissions and guide energy markets towards decarbonization investments. A market-based price on carbon would create certainty about the cost of carbon emissions and incentivize the private sector to bring new technologies to market.

VIII. Energy Diplomacy Can Help Resolve Geopolitics Issues

Russia and China are deploying strategic infrastructure investments to grow their geopolitical spheres of influence. Under the US-EU Energy Council, the United States and the EU should coordinate with existing initiatives such as P-TEC and 3SI, governments, financing institutions, and the private sector to establish a transatlantic strategy to counter Russia and China.⁸² In addition to the previously mentioned financing strategy, the United States and the EU should work together to address geopolitical conflicts, such as in the Eastern Mediterranean, and develop a synchronized sanctions approach when it comes to countries like Russia, Iran, and Venezuela.

Effective sanctions implementation requires close coordination

Transatlantic coordination on sanctions can strengthen European energy security if sanctions are carefully crafted with European stakeholders in mind, as European energy security relies on diverse energy imports from competitive suppliers. Sanctions should be crafted to avoid inadvertent negative effects on transparent and law-abiding suppliers. Sanctions on Russia, Venezuela, and Iran require meticulous coordination to be impactful. The United States and the EU must work closely on implementation of current energy sanctions, as well as drafting any sanctions in the future. To the extent possible, the US and EU should make sure that sanctions achieve their purpose without jeopardizing the transatlantic relationship.



WELDERS WORK ON THE CASTORO SEI PIPELAYING VESSEL. WIKIMEDIA COMMONS/BAIR175

⁸² The following institutions should coordinate on a cohesive transatlantic strategy under the US-EU Energy Council's facilitation: US Department of Energy, the US Department of State, the US Department of Commerce, the US International Development Finance Corporation, the European Commission, the European Investment Bank, the European Bank for Reconstruction and Development, the Export-Import Bank of the United States, the World Bank, member state financing institutions, and the private sector.

Regarding controversies surrounding the Nord Stream 2 pipeline, recent US sanctions have had precise impacts on the project and the transit agreement between Naftogaz and Gazprom.⁸³ The new five-year gas deal between Ukraine and Russia was a positive development after extensive negotiations involving the European Commission, Germany, and Ukraine.⁸⁴ And US sanctions on Nord Stream 2 played a role in encouraging the parties to reach the agreement. Nevertheless, the deal hinges on Gazprom following through on its transit commitments. The United States and the EU should implement mechanisms for addressing bad faith and non-compliance by Gazprom with the agreement. Contingent sanctions could ensure Gazprom's compliance; these sanctions would be triggered if Gazprom acts in bad faith to breach the agreement or uses its dominant supply position to put undue political pressure on Ukraine or other countries.

Resolving geopolitical conflicts over energy sources will benefit from transatlantic engagement

The Energy Technology, Energy Policy, and Energy Security working groups under the US-EU Energy Council should be reinvigorated. The United States and the EU must cooperate on geopolitical issues relating to Europe and Eurasia, including Russia, Ukraine, the Western Balkans, the Caucasus, and Central Asia. Conflicts over energy sources pose serious energy security threats to Europe. The United States and the EU need to engage key regional players to encourage multilateral relationships and hasten conflict resolutions.

The Eastern Mediterranean is an example of such conflict. The Eastern Mediterranean is rich in resource potential and could supply the European market through LNG exports, assuming competitive pricing. Investors have signed eighty-two deals since 2014, worth at least \$16 billion, and brought Egypt closer to becoming a hub, which could provide LNG to Europe.⁸⁵ To continue this positive trend, regional conflicts over resource ownership must be addressed before tensions over economic zones and profit sharing escalate any further. The US should continue building on multilateral efforts in the region such as the Egypt Strategic Energy Dialogue and the Eastern Mediterranean Gas

Forum. The forum, launched in the beginning of 2019, currently counts Egypt, Cyprus, Israel, Greece, Italy, and Jordan as its members. The United States and France have asked to join, and Turkey should be invited to join. Key voices should be included in this discussion in order to move the conversation forward. Additionally, the United States and Egypt launched the US-Egypt Strategic Energy Dialogue to cooperate on multiple energy issues, including technical capacity building and environmental best practices exchange. This cooperation should be expanded to engage the EU.

The stability and security of the Arctic region will increasingly become a transatlantic security issue. As climate conditions have changed, the Arctic has become an important region for both global cooperation and competition. The Arctic is a potentially key source of energy and rare metals. The cooperation between the United States and Europe on Arctic policy will be an increasingly important aspect of the transatlantic relationship in general. The United States and the EU must also cooperate on issues relating to China, the rest of Asia, and Africa.

The COVID-19 pandemic that has unfolded over the last several months illustrates the potential for a global crisis to place additional strain on US-EU relations. The crisis will have a continuing impact on issues such as energy supply, demand, and production, as well as on investment and the shift to clean energy technologies. Furthermore, COVID-19 will have a major impact on supply chains throughout the energy sector. Additionally, recovery efforts from this crisis, reduced demand, and limitations on funding may lead to deemphasizing traditional infrastructure projects and putting emphasis primarily on purely green projects. It is impossible to predict the severity of the impacts and the speed of the recovery in the United States and across Europe, which could have significant effects on the proposed recommendations. Tensions arising from the lack of a coordinated strategy between the United States and the EU in facing COVID-19 could spill over into the arena of energy security cooperation. However, transatlantic cooperation is critical in combatting the pandemic and its secondary effects on geopolitics, global markets, and energy supply and demand.

⁸³ Olga Khakova, "The 11th hour transit deal is a relief for European energy consumers and a pivotal opportunity for Ukraine's future energy strategy," *New Atlanticist*, January 7, 2020, <https://www.atlanticcouncil.org/blogs/new-atlanticist/the-11th-hour-transit-deal-is-a-relief-for-european-energy-consumers-and-a-pivotal-opportunity-for-ukraines-future-energy-strategy/>.

⁸⁴ Ibid.

⁸⁵ Ehab Farouk and Aidan Lewis, "Egypt signs two Mediterranean deals with Exxon Mobil: ministry," REUTERS, January 28, 2020, <https://www.reuters.com/article/us-egypt-exxon-mobil/egypt-signs-two-mediterranean-deals-with-exxon-mobil-ministry-idUSKBN1ZR0L7>.

IX. Conclusion

Cooperation between the United States and the EU across the energy sector is of great benefit to the transatlantic community. Building on past achievements, work must continue with greater urgency to forge resilient and self-sufficient energy systems in order to diversify supply chains and decarbonize the energy system. The United States and the EU have opportunities to formulate coherent investment strategies, develop and deploy new energy technologies, and synchronize their engagement with global geopolitical challenges, especially from Russia and China. While the European Green Deal reveals fissures in the transatlantic relationship—especially over carbon pricing and adjustment—the EU needs engagement from the

United States, which—in turn—must demonstrate its environmental commitment through measures including rejoining the Paris Agreement.

To improve European energy security and ensure robust decarbonization, the United States and the EU should:

- **Empower the US-EU Energy Council to lead the transatlantic work on strengthening European energy security:** The Council will be the most effective platform for coordinating key transatlantic energy security initiatives with stakeholders in the government, private, financial, and research sectors. The Energy Technology, Energy Policy,



US AIR FORCES IN EUROPE SUPPORTS ITALY'S COVID-19 RESPONSE. US AIR FORCE PHONE BY TECH SGT. REBECCA WOODROW



THE GRAND PLACE IN BRUSSELS, BELGIUM, AT NIGHT. PXFUEL.COM

and Energy Security working groups of the Council should be reinvigorated.⁸⁶ The United States, the EU, and third countries should initiate dialogues, as necessary, to facilitate work on the proposed recommendations.

- **Identify and support the development of strategic infrastructure and alternative routes and sources:** The EU has made significant investments in interconnections that have contributed to the diversification of energy routes and sources across Europe. Yet, European energy security vulnerabilities are still evident in regions with insufficient natural gas and electricity interconnectors, specifically in Central and Eastern Europe (CEE). Work on developing alternative routes and sources should continue in regions with the greatest energy security risks, including the expansion of the Southern Gas Corridor and the development of Eastern Mediterranean resources. Additionally, the value of optionality, particularly with respect to LNG, should be integrated into the financing evaluations of natural gas projects.
- **Enforce energy sector regulations consistently and transparently to accelerate the development of a competitive market:** The EU's Third Energy Package is an effective regulatory framework. However, uneven regulatory implementation poses a barrier to an integrated and liberalized energy market in Europe, especially in the CEE region and in third countries integrated with the EU electricity and gas markets. Regulatory enforcement across energy markets ensures competitive pricing and enables competition. Consistent regulatory implementation should be a top priority for the EU. The United States can support such efforts through continued capacity building initiatives in third countries.
- **Scale up clean energy integration by addressing deployment barriers in the areas of financing, supply chains, public perception, and permitting:** Homegrown clean energy production reduces reliance on energy imports, directly improving national energy security. US-EU cooperation could expedite both adoption of new and optimization of proven clean energy technologies. Transatlantic leadership will be necessary to grow government and societal support for future nuclear development

⁸⁶ "U.S.-EU Energy Council," US Department of Energy, accessed March, 2020, <https://www.energy.gov/ia/international-affairs-initiatives/us-eu-energy-council>.

and to compete with Russian and Chinese nuclear projects and fuel supplies. Reducing reliance on imports through energy efficiency measures will significantly improve European energy security. The United States and the EU should work together on expanding energy efficiency financing mechanisms. Transatlantic collaboration will be especially impactful in scaling up new technologies, including hydrogen and CCUS.

- **Craft a coordinated transatlantic financing strategy to support projects based on energy security requirements through a combination of public and private financing mechanisms:** Chinese and Russian government investments pose geopolitical risks for the sovereignty of CEE countries. The United States and the EU need a cohesive investment and financing plan for strategic infrastructure projects that would reduce dependence on single suppliers and, at the same time, lower carbon emissions. US financing mechanisms such as DFC and EXIM should cooperate closely with EU and member state financing institutions, as well as the private sector. Engagement in regional efforts such as the Three Seas Initiative Investment Fund will showcase transatlantic commitment to regional projects in Europe and encourage CEE countries to solidify their contributions in the fund.
- **Ensure electric grid resiliency through infrastructure upgrades, secure renewable integration, transatlantic cyber security standards, and best practices exchanges:** Ramped-up renewables and electrification, increased demand for battery storage, and digital grid management services will create stress on the electricity grid. The United States and the EU should cooperate to improve the security of the European electric grid. Transatlantic partners should work together to identify threats and vulnerabilities in grid infrastructure and cyber security risks, and work to minimize their impact through rapid coordinated response and resiliency measures.
- **Work to bridge the policy gaps between the EU's European Green Deal and US energy and climate policy:** The European Green Deal presents both opportunities and challenges for US-EU cooperation. The transatlantic partnership should demonstrate global leadership in the development of new technologies that will lower emissions, enhance energy security, and meet society's needs for increased affordable and reliable energy. The United

States and the EU should also lead a public-private sector initiative to standardize and scale up methane emissions reductions. The EU should work closely with the United States and other international partners on developing a fair and transparent carbon border adjustment mechanism, with standardized emissions tracking and verification methods.

- **Resolve geopolitical issues through energy diplomacy in the areas of regional conflicts, sanctions implementation, and energy market functionality:** Even at a time of transatlantic disagreements over specific energy projects, trade tensions, sanctions implementation, and diverging approaches to tackling climate change, energy security has been a success story of US-EU cooperation, and it should continue. The United States and the EU should work closely on energy sanctions coordination, making sure that sanctions achieve their purpose without jeopardizing the transatlantic relationship. The United States and the EU need to engage key regional players to encourage multilateral relationships and hasten conflict resolutions, in regions such as the Eastern Mediterranean and work together regarding Europe; Eurasia, including Russia and Ukraine; China; the rest of Asia; Africa; and the Arctic.

European energy security is of great importance to the United States. By working together to address the forthcoming energy security challenges, such as climate change and geopolitical threats, the United States and Europe will ensure a reliable, affordable, and sustainable energy supply for Europe. Diversified energy markets, expanded energy infrastructure, and scaled up clean energy technologies could contribute to European energy security while reducing carbon emissions. Through a transatlantic alliance, the United States and Europe could be in a strong position to securely meet future energy needs while achieving climate goals.

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