Discussion Note: Clean Energy Technology – An Opportunity for Trans-Atlantic Leadership

For the SAIS Working Group on the Trans-Atlantic Digital Economy
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The weeks leading up to the 26th conference of the parties (COP26) under the UN Framework Convention on Climate Change (UNFCCC) have been a period of tumult in energy markets. Many who hope that the Glasgow meeting can forge significant new progress on climate solutions worry that elevated energy prices may prevent global leaders from agreeing to take bold steps on climate. In fact, the context may provide a blessing in disguise, because it reminds decision-makers to focus on the importance of ensuring supply security as we decarbonize, the need for climate solutions that bring technical and market flexibility, and the opportunities for intensified trans-Atlantic cooperation to deliver both these attributes.

The need for urgency and scale in climate solutions is by now well established, but it is nonetheless useful to remind ourselves: The impacts of a changing climate are unfolding dramatically all across the world. Droughts, hurricanes, downpours, inland and coastal flooding, wildfires, heat waves and other severe weather events regularly punctuate news reports and translate into tragic loss of life in addition to loss of property. In the five years ending 2020, the United States incurred losses from severe weather valued at more than $630 billion – a new record. Predicted sea-level rise, to focus on only one dramatic part of the narrative, threatens hundreds of major metropolitan areas around our globe.

Such climate impacts also reveal that the politics of climate change differ in the United States and Europe. In Europe, few public voices contest the science of climate change. In the United States, most educated people and decision-makers see the reality of climate change, but significant swaths of American society fail to internalize the need and opportunity for urgent reductions in greenhouse gas emissions. In Europe, there are serious debates over which policies are best-advised, and what burden should be borne by whom. But In the United States, the policy context is more divergent and visibly contested – with some world-leading states and cities but with no adequate national legal basis. Nonetheless, the United States and Europe can both benefit from collaborating as closely as possible on climate and clean tech – because we confront similar specific challenges as we decarbonize, our companies and governments interact closely, and we share an interest to foster solutions reflecting longstanding trans-Atlantic priorities.

Energy systems on both sides of the Atlantic face what Kirsten Westphal, Julian Popov, and I have described as "a period of accelerating, unprecedented, and sustained change." To decarbonize our economies by mid-century, as the climate science community advocates, we must proceed with fundamental changes in our energy systems. These changes may introduce new market volatility as investors anticipate reduced demand for legacy fuels and then experience periods of significant price rises, such as we are experiencing in the autumn of 2021. The changes may expose to profound socio-economic stress certain communities (in both the

United States and the EU) that have been reliant on income from hydrocarbon production and transformation.

Moreover, the current international security, geopolitical and geoeconomic contexts carry additional complications that argue in favor of trans-Atlantic cooperation on climate mitigation. The energy sector has been a prime target for cyberattacks, for example, with electric utilities, pipeline systems, nuclear installations, and other facilities on both sides of the Atlantic targeted in recent years. In addition, since the 2015 release of its ten-year Made in China 2025 industrial policy, Beijing has worked concertedly to dominate vital technology areas that are at the heart of the clean energy transition. This fact carries fundamental risks for American and European competitiveness. As MIT Technology Review notes, "Market dominance, manufacturing expertise, and established supply chains give China huge leverage over the global clean-energy sector. It could enable the country to dictate technical standards and terms of trade, while seizing most of the jobs and revenue that arise from the shift away from fossil fuels."

The complications discussed above should not be interpreted as an excuse to postpone or slow down the clean energy transition. Time is not on our side. Nor is the above an argument for belligerence toward – or decoupling from -- China, Russia, or other challenging international actors. Instead, the United States and Europe should re-double efforts to deliver energy-secure solutions to climate change by employing effective defense, intelligent offense, and pragmatic trans-Atlantic diplomacy.

In regard to defense, Europe and the United States should focus in particular on the security of energy-sector cyberspace and supply chains. Decarbonization of European and American energy systems will hinge critically on the adage "electrify everything." The electricity systems we are creating will be increasingly reliant on information and communication technologies to match supply and demand more instantaneously than has ever been required in the past – especially systems with high shares of variable renewable generation. Real-time resource optimization, demand response, and other critical tools will be vital, but they also open new risks for cyberattack. In addition, with greater shares of electrification, the reliability and resilience of our power generation, transmission, and distribution systems will become more and more critical. Consequently, we need to ensure high performance of our cyber security systems both in regard to hardware and software.

Another vital aspect of US-EU defensive agenda on clean tech should be protection of fair trade. Elected leaders in Europe and the United States need our trading system to facilitate mutually beneficial exchange without victimizing workers in the US or Europe, undermining basic human rights, or eroding environmental standards. Such considerations are a matter of particular sensitivity for the current US Administration, as international trade has lost supporters all across the US political spectrum – from progressives to libertarians. To this end, trans-Atlantic leaders need to work in close coordination with likeminded countries, especially those in Indo-Pacific capitals, to exert steady, principled pressure on China and other nations that would not uphold such standards.

When it comes to playing offense, there are critical steps that the United States and Europe should take with regard to promoting system flexibility, supply chains, innovation and standard-setting. Recent experiences of energy market turbulence around the globe underscore the importance of flexibility in energy systems. Our societies need both technical systems and market designs to accommodate widely varying market, weather, seasonal, technical, and even political factors. The state of Texas, for example, encountered a severe energy crisis in February 2021 when bitter cold coincided with system outages and nearly crashed the entire grid. The causes were multiple, but a significant contributing factor was a critical lack of flexibility: The state operates as a virtual electricity island, mostly unable to "wheel in" power from neighboring grids.

Another area where the United States and Europe should seek new proactive collaborations is on energy-sector supply chains, which are currently dominated by China. Chinese companies represent 98 percent of the separation and processing segments for critical minerals, and Beijing has used this market power to exert political pressure on unrelated matters. As we are already witnessing, the restoration and expansion of mining and processing industries in the United States and Europe will encounter significant headwinds in view of siting and environmental concerns. Nonetheless, decision-makers on both sides of the Atlantic should promote diversification of critical material supply chains – possibly through a combination of domestic production and partnerships with countries such as Australia, Canada, Korea, Japan, Chile, Mexico, and others. It is possible that we will need to consider non-market tools such as strategic stockpiles to dissuade China from attempting to manipulate market power for anti-competitive or geopolitical ends. But this idea first requires significant further analysis.

A third and last aspect of trans-Atlantic engagement on clean tech and climate solutions relates to diplomacy between the United States and Europe. Four years of "America First" declarations raised understandable questions in the minds of European decision-makers: Is the United States still a stable, sensible, constructive partner? The four Trump years brought to the fore a surge of populist policymaking including gratuitous attacks on some of America's strongest allies, spurious trade disputes, and ascendant climate denialism. Ahead lie political uncertainties, including lurking Trump-style leaders, and sensitive policy debates, such as the future of carbon border adjustments and efforts to forge measured policy toward China, Russia, Iran, and other tough partners on the international stage.

By working together and relying at all times on intensive, candid, patient diplomacy, the United States and Europe can pursue shared objectives in regard to climate solutions. This will be no simple task, but it holds the prospect of more effective policies and the opportunity to stand shoulder-to-shoulder in tackling what may be our age's most daunting task – protecting our climate.

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