

POLICY BRIEF

The United States and the European Union in the Climate Races

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The United States and the European Union (EU) have recently launched various initiatives to manage their competition and enhance their cooperation on trade and technology issues. The Transatlantic Leadership Network's Trade and Technology Working Group addresses these topics in its work, including recommendations for more effective action. On climate and clean tech issues, our work has profited from background papers by Jonathan Elkind and Richard Morningstar, and presentations by Ann Mettler and Christoph Meinel. I thank them all for their contributions, from which I have profited. The following policy brief and its companion pieces, however, are my responsibility alone. This policy brief offers an overview of the climate crisis and how the United States and the EU are addressing it. A second brief offers recommendations for U.S.-EU efforts going forward on this broad agenda. A third policy brief focuses more specifically on how the U.S.-EU Trade and Technology Council might best fit as part of these broader efforts. All products from the TLN Working Group may be found at <https://www.transatlantic.org/transatlantic-technology-and-trade-working-group/>.

A Tale of Three Races

The climate crisis is about much more than the environment. It heralds a fundamental transformation of societies through decarbonized economies that can weaken the link between the production of wealth and the consumption of resources. It can be accelerated and sustain political support to the extent that climate and energy goals can be integrated with plans to boost economic recovery, jobs, growth and a just transition, both at home and abroad. The International Energy Agency (IEA) estimates that moving to an economy that registers net-zero emissions of greenhouse gases would create 30 million jobs worldwide by 2030 across the energy, construction, and automotive sectors, 65% of which will be high-skilled.[1]

Addressing climate change requires humanity to shift from fossil-fuel to fossil-free systems of energy production and consumption. Electricity generated from zero-carbon sources will become critical for key sectors of the economy, such as transportation or heating.^[2] Renewable energies, which now roughly account for only 5% of the global power grid, will need to play a far larger role.^[3] Energy storage must be improved. New extended supply chains will emerge for clean energy components and manufactured products, low-carbon fuels and critical materials.^[4] If the world is to reach net zero by 2050, estimates are that clean energy investments will need to triple in the 2020s. Additional capital spending of at least \$100 trillion will be required, two-thirds of it in developing countries.^[5]

This is daunting. The transformation is unlikely to be quick, uniform or smooth. Its ultimate outcome is likely to depend on three concurrent races now underway.

Race for the Environment

The first is environmental: mobilizing collective action among countries and societies around the world in the race to net zero. Unfortunately, few countries are on track to cut emissions at the scale and pace needed to meet the 2015 Paris Agreement goal of keeping global warming to 1.5 Celsius (C), which scientists say is the minimum required to avoid catastrophic effects of climate change. To meet that threshold, global emissions must be halved by 2030; signatories need to cut carbon dioxide (CO₂) emissions every year until 2030 by the same amount they fell in the pandemic-plagued recession year of 2020. That seems unlikely; after CO₂ emissions dropped 5.8% in 2020, they rose 4.8% in 2021.^[6] According to Climate Action Tracker, even the best-case scenario of implementation of all targets announced before and at the November 2021 Glasgow climate summit would reduce current projections of a median increase in temperature of 2.4C to 1.8C by 2100, higher than the 1.5C target.^[7]

Piecemeal progress is being made. G20 states have agreed not to finance dirty coal projects outside their borders. 40 countries and development banks have pledged to stop subsidizing fossil-fuel energy projects by the end of this year and to quit coal in the 2030s. Over 100 countries signed a Global Methane Pledge to reduce global methane emissions by at least 30% from 2020 levels by 2030, which would shave 0.2°C off of the planet's warming. More than 140 countries have vowed to end deforestation. At Glasgow, 197 countries agreed to ramp up efforts to cut emissions, phase down use of coal, and phase out "inefficient" fossil-fuel subsidies. Negotiators in Glasgow agreed on a rulebook for trading carbon credits and to direct 5% of the proceeds to an Adaptation Fund supporting poorer countries in their efforts to combat climate change.^[8]

High hurdles remain. Many pledges lack the details needed to turn words into results. Some of the world's largest coal consumers — including Australia, China, India, and the United States — did not sign on to the coal pact. Key methane-emitters like China, India, and Russia have not signed the Methane Pledge. And while countries representing 65% of global economic output are committed to keeping the 1.5C degree target alive, the other 35% are not yet there. Some are climate-skeptics and others remain wedded to fossil-fuel economies. Most, however, lack the requisite financial or technical means or are concerned about how such a radical overhaul of their energy systems may upend their societies.^[9] Rich countries have failed to deliver on the pledge they made at the 2009 Copenhagen climate summit to deliver \$100 billion in aid to poor countries by 2020 — and as Jason Bordoff and Megan O'Sullivan note, "even that large sum is a rounding error compared with the roughly \$1 trillion to \$2 trillion needed annually in clean energy investment in developing and emerging-market economies to achieve net-zero emissions by 2050."^[10] Public sector efforts will be important, but private sector investment will be decisive.

The Clean Tech Race

These considerations underscore the importance of a second race -- for technologies, talent, markets, supplies, standards and investments. Countries that have committed to net zero will be unable to reach that goal without breakthrough innovations. Fortunately, there is now significantly more money for basic research and development and more venture capital than ever before for clean start-ups in hard-to-decarbonize sectors. Sustainable airplane fuel, green steel and extra-powerful batteries are just a few key clean technologies that already exist. The potential is significant: according to the IEA, by 2030 the global clean tech market will surpass the value of the oil market, rising from \$122 billion to \$870 billion. The challenges are equally sobering: many fossil-free technologies are more costly or more difficult to employ than traditional fossil-fuel systems. Scaled-up demonstration projects could render more clean-tech innovations commercially viable, but the high costs and risks associated with such ventures deters private investment. Governments will need to set incentives and market signals. So far, they are falling short. Of the \$90 billion of public money the IEA says will be needed to complete a portfolio of demonstration projects before 2030, governments have planned \$45 billion.^[11]

The Race for Geopolitical Advantage

These developments highlight the significance of a third race – the contest for geopolitical advantage. Fossil-free systems and clean technologies don't just offer climate and energy solutions, they can generate new sources of influence and dependency. Many have military applications. Governments that promote scale-up and deployment of clean technologies have the opportunity to shape future markets and the attendant benefits they bring.

New geopolitical fault lines are likely to appear as emerging fossil-free geopolitics interact with conventional fossil-fuel geopolitics in surprising and potentially disruptive ways.^[12] Old dependencies on fossil imports are likely to be supplemented – and in some cases compounded -- by new dependencies on critical materials and processing and refining capabilities. To reach net zero by 2050, the IEA projects that mineral requirements for clean energy technologies will grow four-fold by 2040 and six-fold by 2050.^[13] The largest reserves of metals and minerals required for clean technologies are found in fragile countries with poor protections for human rights, rule of law, and the environment. Extracting such minerals can involve child labor, generate health and safety hazards, deepen poverty and increase pollution. Water scarcity and other local constraints can exacerbate inequalities, worsen conflict, and jeopardize production. More than half the global supply of cobalt, for instance, is in the Democratic Republic of the Congo, an extremely poor country rife with insecurity and corruption, with more than five million people internally displaced.^[14]

The issue is particularly sensitive because the United States and the EU are each inordinately dependent on China for many critical materials, potentially opening them to economic coercion. China controls 50-90% of the world's clean energy minerals supply chains and is dominant in their processing and refining.^[15] When it comes to rare earths, China accounts for 98% of EU imports and 80% of US imports.^[16] Its massive state subsidies for Chinese firms in many of these areas have priced U.S. and European companies out of the market. Beijing has sometimes used its exports of these materials as a trade weapon.^[17] Through

its Belt and Road Initiative, it is locking in lower standards for carbon content in products among a wide swath of countries across Eurasia and Africa, while the United States and the EU struggle to scale up higher-standard infrastructure initiatives.

The United States, the EU, and the Climate Races

How each of these climate races unfolds will be determined to an important degree by relations between the United States and the European Union. In the race to mobilize and accelerate progress toward net zero, the two parties are each undertaking important actions at home, and together made substantial efforts in 2021 to coordinate and cooperate globally.

Winning the Race at Home

The European Union

The EU has pledged to reduce greenhouse gas emissions overall at least 55% by 2030 compared to 1990, has set binding emission reduction targets for key sectors of the economy, and has adopted ambitious legislation across multiple policy areas to implement its international commitments on climate change. EU leaders mandated that at least 30% of total expenditure from the bloc's financing mechanisms -- its 2021-2027 budget and Next Generation EU -- should target climate-related projects. They set in place a Just Transition Mechanism to provide tailored support to regions and sectors that face particular challenges in the climate transition. They pledged to achieve net zero by 2050.

The European Green Deal sets forth a roadmap for legislative and non-legislative initiatives to help the EU to attain its goals. The heart of the European Green Deal is the European climate law, which entered into force in July 2021, and which translates the EU's climate commitments into legal obligations. Also in July, the European Commission launched the first tranche of its "Fit for 55" proposals, covering such areas as climate, land use, energy, transport and taxation, to support the EU's climate policy framework. The package proposes measures to reform the EU's Emissions Trading System (ETS), expand it to the maritime sector, and create a second ETS for fuels for road transport and building heating. It is dedicating ETS revenues to support commercial demonstration of innovative clean technologies. It also plans a €72.2 billion (\$84 billion) Social Climate Fund to provide temporary income support to vulnerable households and to help finance investments in energy efficiency. Implementing legislation must be approved by the member states and by the European Parliament, a process that could take two years or more.^[18]

Despite these undertakings, member states are divided over the ambition level of climate policies, and a just transition continues to be a challenge. The "Fit for 55" package has revealed clear issues of contention among parliamentarians and member states. Debates continue over how to respond to record-high carbon prices, upcoming green investment rules, whether to label gas and nuclear energy as climate-friendly investments, and which types of investments can be labelled "sustainable," "transitional" or "enabling"

under the EU's green finance taxonomy. The ETS proposals have met fierce opposition in France and Spain and from poorer countries that face rising costs from the energy transition such as Poland, Hungary and the Czech Republic. Climate action is opposed by populist parties in some member states. Moreover, the ongoing energy crisis is a stark reminder of the continent's continued reliance on autocratic or unreliable suppliers.^[19]

The United States

The Biden administration has returned the United States to the Paris Climate Agreement, signed the Glasgow Climate Pact, pledged to cut U.S. greenhouse gas emissions 50-52% by 2030 compared with 2005 levels, create a 100% carbon pollution-free power sector by 2035, and achieve net zero by 2050.

At home, President Biden issued a series of executive orders making climate an all-of-government priority and tightening emissions rules on cars and methane. He announced an ambitious target for electric vehicles to account for half of all new U.S. vehicle sales by 2030. The bipartisan Infrastructure Investment and Jobs Act is enabling unprecedented investments in clean energy infrastructure, including \$66 billion in zero-emission rail networks, \$65 billion for clean energy transmission, and \$6 billion to build a national network of electric vehicle chargers.^[20]

In addition to these federal actions, U.S. states and regions have adopted a wide range of policies to reduce emissions and develop clean energy solutions. Half of U.S. states have adopted specific greenhouse gas emissions targets; two-thirds have climate action plans or are developing them. California's vehicle emissions and low-carbon fuel standards, limits and prices on carbon pollution, its ban on sales of internal combustion engines by 2035, and related energy-transition investments have made it a standard-setter in much of the world.

Abroad, Biden convened a Leaders Summit on Climate and a Major Economies Forum on Energy and Climate that affirmed the need for unprecedented global cooperation and ambition. He quadrupled the U.S. international climate finance pledge, including the largest U.S. commitment ever made to mitigate the impact of climate change on the most vulnerable. The United States launched the First Movers Coalition, which includes some of the largest companies in the world, to create early market demand for innovations across eight "need-to-abate" sectors—steel, trucking, shipping, aviation, aluminum, concrete, chemicals, and direct air capture. Washington endorsed a Joint Declaration with Beijing to work to keep 1.5C warming within reach, and China for the first time committed to develop a plan to address methane emissions and accelerate its coal phase-down. As part of the B3W initiative, the U.S. launched the Net-Zero World program offering technical and policy assistance tailored to advance the decarbonization strategies of specific economies. The first Net Zero World partner countries are Argentina, Egypt, Indonesia, Nigeria, and Ukraine.^[21]

Despite this string of initiatives, opinion in the United States on climate change remains highly charged and deeply partisan.^[22] To ensure passage of the Infrastructure Investment and Jobs Act, Democrats were forced to remove key climate-related elements of the original bill. As of this writing, a second major bill, the Build

Back Better Act, which would unleash \$555 billion in climate spending, the largest in U.S. history, faces an uncertain future.

Engaging More Effectively Together

In the environmental race, the two parties stepped up their cooperation substantially. They created a High-Level Climate Action Group to coordinate a common approach on climate diplomacy. Together they shaped the G7's June 2021 launch of Build Back Better World (B3W) – an effort to mobilize public and private finance for climate-smart infrastructure development. They endorsed the G7 goal of conserving or protecting at least 30% of global land and marine areas by 2030. They worked together to mobilize over 100 countries behind the Global Methane Pledge. The United States, UK, EU, France, and Germany announced an \$8.5 billion partnership with South Africa to chart a course from coal to clean energy through the creation of new jobs and opportunities for South African coal communities – a template they hope to employ with other key developing-country emitters.

In the economic-technological race, there is a great deal of transatlantic competition, as firms compete for advantage and as the United States and the EU each seek to enhance the competitiveness of their companies in future technologies. U.S. concerns center on the motivations behind the collapse of the U.S.-EU Privacy Shield governing transfers of personal data, the protectionist impulses behind the Digital Markets Act, industrial strategies intended to promote “European champion” companies, and the EU proposal for a carbon border adjustment mechanism, which could disadvantage non-EU companies. The EU worries about the Biden Administration's efforts to strengthen “Buy America” rules, its proposals for electric vehicle tax credits, and its decision to postpone but not resolve transatlantic disputes on U.S. steel and aluminum tariffs. Each subsidizes various sectors of their respective economies.

At the same time, there is great potential for U.S.-EU cooperation, not least because of the deep integration of the \$6.3 trillion transatlantic economy. U.S. and European firms are deeply embedded in each other's traditional and renewable energy markets – through trade, foreign investment, cross-border financing, and collaboration in research and development. European companies by far are the leading source of foreign direct investment in the U.S. energy economy, and U.S. companies are responsible for more than half of Europe's long-term renewable energy agreements.^[23] U.S. liquefied natural gas (LNG) exports to Europe have helped to alleviate the continent's current energy shortages and related price spikes. Government budgets for energy research, development, and demonstration (RD&D) in the United States and Europe in 2019 were \$17 billion – about double the amount spent in China. Business-funded RD&D has become an increasingly important source of energy-related innovations on both sides of the North Atlantic.^[24] In the second half of 2020 and the first half of 2021, \$56.6 billion in climate tech venture capital funding was raised in the United States, and an additional \$18.3 billion in Europe, far more than the \$9 billion raised in China. The top five global venture capital investment hubs for clean tech are San Francisco, London, Berlin, New York City and Boston.^[25]

To capitalize on this transatlantic potential, the two parties have created a Working Group on Climate and Clean Tech within the U.S.-EU Trade and Technology Council (TTC), and pledged to “work towards” a Transatlantic Green Technology Alliance, which European Commission President Ursula von der Leyen

said they would use to “enable breakthrough technologies and amazing innovations to be competitive on the market.”^[26] A companion policy brief recommends ways the TTC can be effective.

In the geopolitical race, neither party has yet done much to alleviate its critical materials dependencies on China – in contrast to Japan, which responded to Chinese efforts at economic coercion by slashing the Chinese share of its imports of rare earths from 91.3% to 58% in less than a decade, and looks set to reach its target of relying on a single supplier for no more than 50% of its consumption by 2025.^[27]

The European Commission has adopted a critical materials “action plan” to tackle vulnerabilities in critical materials supply chains. The 450-member European Raw Materials Alliance (ERMA), responsible for identifying EU-based opportunities and coordinating investment, is generating results: twelve member states contributed €2.9 billion to fund a battery materials initiative; four have pledged similar support in the rare earths sector; ERMA has proposed a €1.7 billion “bridge fund” to help finance 14 additional projects; and it is pushing for the magnet sector be made part of the EU’s Important Projects of Common European Interest, which facilitates the navigation of Europe’s state subsidy rules for strategic sectors.^[28] The U.S. Infrastructure Investment and Jobs Act authorizes \$6 billion in funding to advance battery material processing, battery manufacturing and recycling, and an additional \$1.6 billion for critical minerals R&D and supply chain security programs.

These are positive developments, yet building adequate domestic capacity is likely to be costly and take years. Such efforts could be quicker, more sustainable, and more cost-effective if the United States, Europe and other like-minded democratic partners harnessed their joint potential. The United States and the EU have each issued reports identifying strategic dependences on up to 35 critical materials. Each has outlined similar approaches to reduce the risk of economic coercion, build greater supply chain resilience, boost domestic supply and research and development, and cooperate with like-minded partners internationally.^[29] They have yet to take full advantage of these synergies.

Even if transatlantic efforts are successful, the world will remain dependent on critical-materials suppliers in a host of developing countries. Without reforms to the mining, processing and delivery of such materials, the human and environmental consequences could be devastating. EU and U.S. official strategies each call for greater international cooperation, but each remains relatively vague, and neither has addressed the need for coordinated crisis-response mechanisms should critical supplies be disrupted. The EU’s Global Gateway initiative holds promise, yet a close look at its funding indicates that its xxxxx is more like xxxx. The related U.S. Blue Dot Network has yet to show much impact. It is in the interest of the United States and the EU to work together, with other democratic market economies, and with key critical-materials suppliers, to develop these mechanisms, and forge secure and sustainable supply chains and low-carbon development of critical materials, both at home and abroad.^[30]

Balancing Risks and Opportunities

In sum, there are opportunities and challenges for enhanced U.S.-EU cooperation on climate and clean-tech issues. The politics of energy and climate change differ significantly in the United States and the EU. Despite ongoing disputes within the EU over specific policy solutions, few public voices in the EU contest

the science of climate change and the urgency of action, while each of those elements remains contested in the United States. Republican opposition to many Democrats' proposals, at a time when the Democrats hold razor-thin majorities in both houses of Congress, has made some European leaders wary of aligning their efforts too closely with the Biden administration. These domestic uncertainties and mutual wariness have been exacerbated in the past year by market volatilities, related in part to energy and climate policies, that have stressed various industrial sectors and many communities. The two sides of the North Atlantic also approach the issues from fundamentally different energy situations and resource endowments. The EU imports around 60% of its overall energy needs, including from autocratic or unreliable suppliers, while the U.S. is an energy exporter that would like to export more, including to Europe. And while the EU favors climate action through strong regulatory action and emission pricing schemes, the United States prefers technology improvements and Paris-style arrangements consisting of national climate plans over Kyoto Protocol-style binding international treaties, which have no chance of passage in the U.S. Senate. In addition, transatlantic policy differences have emerged on issues such as definitions of sustainable finance, carbon pricing and the EU's effort to move forward with a carbon border adjustment mechanism (CBAM) – essentially a tax on imported goods based on their attributed carbon emissions.^[31]

In 2021, the two parties manage to finesse some of these differences by generating mechanisms to harness their bilateral efforts and to move broader global coalitions forward. 2022 will test their ability to deliver.

Two companion policy briefs offer recommendations going forward. The first addresses an overall U.S.-EU agenda to address the climate crisis. The second suggests how the work of the U.S.-EU Trade and Technology Council might best fit as part of these broader efforts.

Notes

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[31] See Jonathan Elkind’s “Discussion Note: Clean Energy Technology – An Opportunity for Trans-Atlantic Leadership,” prepared for this initiative. Also Mathiesen and Colman; Adam Tooze, “Present at the Creation of a Climate Alliance—or Climate Conflict,” *Foreign Policy*, August 6, 2021, <https://foreignpolicy.com/2021/08/06/climate-conflict-europe-us-green-trade-war/>; Guillaume van der Loo, Thijs Vandenbussche and Andreas Aktoudianakis, “The EU-US Trade and Technology Council: Mapping the Challenges and Opportunities for Transatlantic Cooperation on Trade, Climate, and Digital,” Egmont Institute, September 2021, <https://www.egmontinstitute.be/content/uploads/2021/09/egmont.papers.113.pdf?type=pdf>.