HARNESSING RENEWABLE ENERGY THROUGH GRID REFORM

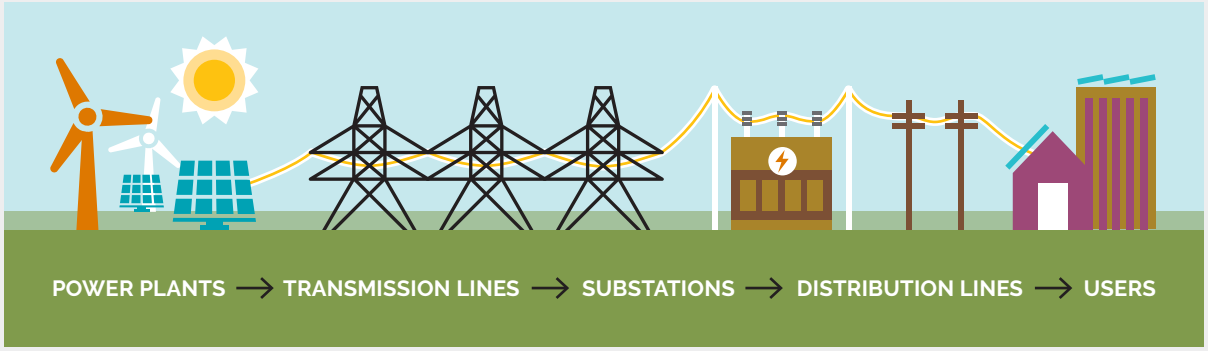
U.S. Clean Grid Initiative

To drastically alter the trajectory of climate change and enable the United States to meet its climate goals, we must move quickly and aggressively away from fossil fuels to renewable energy. This means switching out gas and coal plants for wind turbines and solar farms to power our electric vehicles, to heat water and buildings, and to use high-tech induction stoves for cooking. The good news is that renewable energy has been increasing steadily, and in 2021, made up approximately 20 percent of total electricity generation in the U.S.[1] According to the Department of Energy, in 2022, more than 60 percent of the new energy coming online at the utility scale is expected to be renewable solar (46 percent) and wind (17 percent).[2]

However, despite its cost competitiveness, robust technology, and readiness to scale, renewable energy is **not** replacing fossil fuels quickly enough for the U.S. to do our part to deliver a future that limits warming to 1.5 degrees Celsius. The good news is that passage of the Bipartisan Infrastructure Law and Inflation Reduction Act (IRA) are breakthroughs that are expected to have a catalytic impact in accelerating the U.S. energy transition, with hundreds of billions of dollars being made available to curb emissions and boost renewable energy.

But now imagine you've acquired a kitchen full of shiny new appliances…
and realize that none of them have cords long enough to reach the electrical outlets.
That is the essence of America's transmission predicament.

Get to Know the Grid



The U.S. electricity grid has been described as the world's largest and most complex machine. Electricity is generated at centralized power plants (currently fueled by gas, nuclear, renewable energy, and decreasingly, coal), and decentralized units (like a solar panel on a rooftop). It's then transported through a system of substations, transformers, and 600,000 miles of transmission lines across the country that serve as the backbone of the electricity system. Local grids, the distribution lines, connect transmission lines to homes and businesses and convert the power to usable forms. Since large volumes of electricity cannot be stored, it must be produced as it is used.

Historically, transmission was built to deliver reliable, low-cost electricity from large fossil fuel and nuclear power plants to customers. Renewable energy, on the other hand, must be situated where the sun shines and the wind blows—typically not the same locations as dirty coal plants, and usually not in the population centers where increased amounts of electricity are needed. It is increasingly clear that the U.S. will need much more long-distance transmission to interconnect the massive amount of clean energy projects that must be built within the next decade to meet 100 percent clean energy commitments and national climate goals.

Princeton University's ZERO Lab has created a model that maps possible locations in the U.S. where wind and solar projects could, in theory, be built. Aside from some offshore wind farms, most are situated in the middle of the country.[3] Other research shows that states with significant wind and solar potential constitute less than one-third of the electricity demand.[4] A decarbonized future means moving electricity from where it is generated to where it is increasingly needed.

Connecting Supply with Demand

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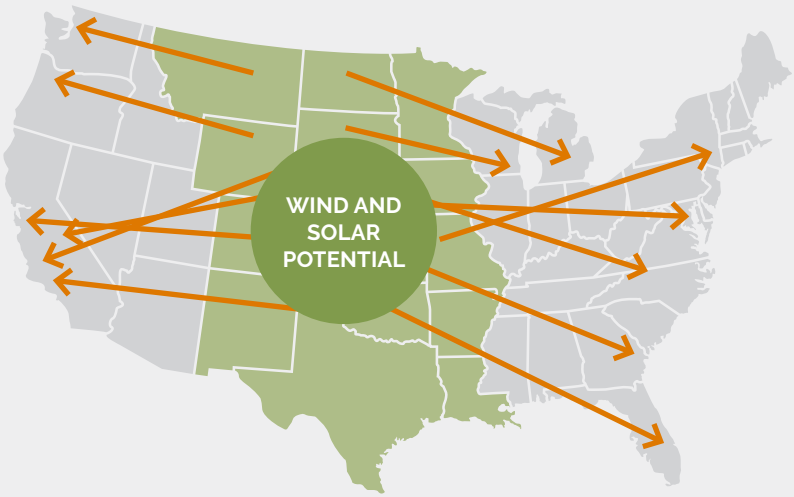

The U.S. must more than double the rate in which transmission capacity (the amount of electricity that can flow through transmission lines) grows each year to achieve our national climate goals. Failure to do so risks foregoing more than 80 percent of the IRA's potential emissions reductions by 2030. As it stands, more than 1,300 gigawatts (GW) of proposed wind, solar, and storage projects are waiting to be connected to the grid, but lack access to transmission — an amount that exceeds the capacity the U.S. has from *all* electricity sources today.

The Biden-Harris administration, through the U.S. Department of Energy, recently announced $13 billion in new financing opportunities (using allocations from the Bipartisan Infrastructure Law) for the expansion and modernization of the nation's electric grid. These federal investments will unlock billions of dollars of state and private sector capital to build transformative projects that increase the reliability of the power grid and modernize it so that more American households and businesses have access to affordable, reliable, clean electricity — helping deliver on the President's goal of 100 percent clean electricity by 2035.

Removing impediments that constrain transmission growth is core to the expansion of solar and wind power. As delayed transmission lines slow down implementation of renewable energy, power sector emissions and associated pollution and public health impacts could increase significantly if gas and coal-fired power plants must stay online longer to meet growing demand from electric vehicles and other IRA-spurred electrification.[5] **Unless the current grid policy framework is updated and reformed in the near term, transmission will be the biggest bottleneck to decarbonizing the U.S. power system.**

THE OPPORTUNITY

Ensuring the electricity grid can support the 1,000 gigawatts of new clean energy projects needed over the next decade is one of the most urgent emerging energy priorities for our country and an important pathway to decarbonization. Today, nearly half the U.S. population lives in a state or utility territory that has committed to 100 percent clean energy, and transmitting electricity from renewable sources to the people who need it is an essential part of the infrastructure necessary to enable that. The IRA, with clean energy tax credits designed to get the U.S. to 80 percent clean electricity by 2032, has prompted some clean energy leaders to declare this the "Decade of Deployment."

During the first two years of the Biden-Harris administration, grid reform advocates have had success in positioning transmission as a key climate and energy policy issue. Together with the Bipartisan Infrastructure Law and IRA, this has created a once-in-a-generation window of opportunity for action. But actually getting the "steel in the ground" and ensuring new transmission is built at scale extends beyond anything the current advocacy community has ever done. Now is the time to build on this momentum to generate public support and create the enabling conditions for grid reform. Transmission expansion in the U.S. is not primarily a question of technology or available capital, but a political and regulatory problem — with the current paradigm heavily tilted towards utility and fossil fuel incumbents and a complicated mosaic of decision making at the local, state, regional, and federal levels.

The time is ripe to address the transmission challenge, and philanthropy is well situated to provide the patient capital needed to advance and accelerate grid reform. Not only will expanding and upgrading the electricity transmission network speed renewable energy deployment and ensure a secure and modern power system; it offers many other important benefits, including creating new jobs and strengthening America's economy.

PHILANTHROPIC SOLUTIONS

The U.S. Clean Grid Initiative is a new philanthropic effort to support capacities and strategies needed from players at the local, state, regional, and federal levels to ensure the grid can support high volumes of clean energy. It is the first coordinated philanthropic initiative aimed at addressing the transmission challenge at scale. The U.S. Clean Grid Initiative espouses a coordinated and sophisticated campaign approach that integrates policy advocacy, coalition-building, and strategic communications.

The five-year goals of the U.S. Clean Grid Initiative are to:

- **Secure federal regulatory reforms** to plan and permit the interstate transmission lines necessary to scale clean energy deployment to 100 GW per year for the next decade.
- **Build political will** and secure leadership from governors in key regions to advance transmission policy, planning, and deployment of new clean energy transmission projects within and across states.
- **Strengthen, diversify, and expand the network of transmission advocates** to include influential new constituencies, such as labor, consumers, and rural stakeholders, to support transmission.
- **Ensure alignment and coordination** between federal, regional, and state transmission advocacy efforts.
- **Advance new community engagement approaches to transmission siting** that increase local stakeholder buy-in (and reduce the potential for local communities to take a "not in my backyard" stance) and minimize risks to well-planned projects.

The U.S. Clean Grid Initiative is forging an important path to ensure that transmission enables rather than hinders our ability to embrace renewable energy at the rapid pace required. By taking a comprehensive campaign approach, it focuses on tackling the "three P's"—the most significant barriers limiting grid expansion:

- **Planning**, which must be ambitious and forward looking;
- **Permitting**, which must go beyond the local and state level to serve regional and national interests; and
- Determining who is **paying** for transmission investments, which requires alignment. Given the multitude of players, this is not always a clear-cut decision.

Philanthropic resources are urgently needed to overcome these hurdles and support the U.S. Clean Grid Initiative's strategic priorities and enabling levers, which include:

- **Advancing strong federal grid reform rules**—The Federal Energy Regulatory Commission (FERC),[6] which is charged with ensuring reliable, secure, and economically efficient energy for American consumers at reasonable cost, has initiated two rulemaking processes with major implications for grid reform: 1) a comprehensive transmission planning rule that will govern how regions plan and pay for new transmission projects; and 2) an interconnection reform rule aimed at reducing the backlog of clean energy projects awaiting grid interconnections. Because regional transmission organizations and state governments need federal guidance before acting on transmission, the strength and ambition of these two FERC rules matter for accelerating transmission buildout.

  *The U.S. Clean Grid Initiative will create an **advocacy campaign** that engages key stakeholders (such as climate advocates, clean energy businesses, and labor), and **support aligned communications and analyses** to push for ambitious and impactful regulatory rules.*

- **Implementing new federal spending and programs**—The 2021 Bipartisan Infrastructure Law and IRA included new federal spending provisions and programs for transmission. The most important of these provisions is a new Grid Deployment Authority at the Department of Energy (DOE) that will facilitate more than $20 billion of federal financing tools for transmission and coordinate work across federal agencies to streamline permitting.

  *The U.S. Clean Grid Initiative will support advocates and experts who will **engage closely with DOE to quickly deploy funding**. The Initiative's grantees will also work with DOE to ensure it exercises its new authority to*

develop analysis of transmission benefits and specific clean energy transmission corridors that will be important inputs to FERC's transmission planning rule.

- **Build local, state, and regional support for grid expansion**—While the federal government can set the overarching rules for transmission planning, state and regional governments currently retain the authority to propose and permit specific projects. History has shown that previous attempts at grid reform, e.g., during the Obama administration, failed because they lacked sufficient focus on state and regional implementation of federal rulemaking.

  The U.S. Clean Grid Initiative will support:
  - *Existing **transmission focused-campaigns** in regions that require backing from the public and policy makers and utility commitments to ensure they are permitted and built. This includes efforts to construct over a dozen transmission lines to serve clean energy projects in the Midwest and West.*
  - ***Strengthening of local, state, and regional capacity** to engage in transmission advocacy, especially in high-potential areas where campaign infrastructure already exists, while building capacity in other locations.*
  - ***Building diverse coalitions that include** key constituency groups in the regions, including labor, consumers, and rural interests, and bolstering connectivity between local, state, regional, and federal grid efforts. Effective outreach, education, and strategic communications plans will stave off opposition and make clear and compelling cases for building transmission infrastructure. This will help to lay the groundwork for state and regional implementation of FERC's new rules once they are finalized in 2024.*

Given the complex and multi-layered jurisdiction of transmission policy in the U.S., this advocacy infrastructure will ensure strong and regular coordination among local, state, regional, and federal grid reform efforts. Until now, no single entity has taken responsibility for this coordination, resulting in a piecemeal approach that is often less than the sum of its parts. If the U.S. Clean Grid Initiative is able to establish effective processes for coordination, this integrated approach will bolster advocacy efforts and maximize the impact of the resources invested in grid reform.

Implementing partners include the American Council on Renewable Energy, Clean Grid Alliance, Energy Foundation, and the Sustainable FERC Project (a project of the Natural Resources Defense Council).

Philanthropic partners include Anita and Josh Bekenstein, Bill Gates/Breakthrough Energy, Laura Baxter-Simons and Nat Simons/Sea Change Foundation, Sequoia Climate Foundation, and Sergey Brin Family Foundation.

Philanthropy Spurs Progress Toward a Renewable Energy Future

Midcontinent Independent System Operator (MISO) is an independent system operator and regional transmission organization authorized by FERC to manage the generation and transmission of high-voltage electricity across 15 U.S. states and the Canadian province of Manitoba. More than 40 million people depend on MISO to generate and transmit electricity.

As part of its long-range transmission plan (LRTP), MISO recently gained approval for what is the largest single transmission expansion project in U.S. history. In addition to enhancing MISO's ability to reliably and cost effectively move electricity from where it is generated to where it is needed, the project's 18 lines will deliver more than 50 gigawatts of new clean energy capacity, create thousands of jobs, and reduce MISO's carbon emissions by 60 percent.

Philanthropy was key to this success, helping to build advocacy capacity and a coalition of diverse groups over a multi-year period, with representatives from clean energy, the environment, labor, utilities, and business collaborating to push for the LRTP process. The campaign also focused on outside game tactics, such as working with governors and state organizations and local media in addition to the necessary engagement at MISO and in state public utility commissions. This philanthropy-backed effort creates a national model that the U.S. Clean Grid Initiative seeks to replicate in other regions, expanding our transmission grid in response to market forces, industry needs, and consumer choices.

RESOURCES NECESSARY TO ACHIEVE GOALS

$200 million over five years.

In year one (2023), the estimated budget is **$30 million**, and the Initiative's primary focus will be on winning strong transmission rules at FERC and implementing new federal programs, including the 2021 Bipartisan Infrastructure Law and IRA. As the state and regional work scales up to implement FERC rules over the next few years, the anticipated budget for the U.S. Clean Grid Initiative will ramp up to **$50 million per year.** The vast majority of the budget would be re-granted to non-profit organizations working on grid reforms.

To date, **$22.5 million** in philanthropic resources has been committed.

FUNDER COLLABORATION

The U.S. Clean Grid Initiative fills a critical gap by serving as a central hub for funders to align and coordinate around a common strategy. Similar strategic hubs focused on other climate issues, such as the international coal campaign and the Global Methane Hub, have proven the effectiveness of this model and helped spur transformative impact. This philanthropic collaboration also signals to the climate community that transmission is a critical path to decarbonization and merits greater emphasis and attention. The U.S. Clean Grid Initiative's role as a focal point for receiving and deploying resources at scale is an advantage for other funders seeking to maximize their impact through collaboration.

This initiative is well suited to funders eager to fill a crucial gap in climate philanthropy and tackle a huge hurdle in the clean energy transformation. At the same time, grid reform, even in the best of circumstances, is a lengthy, involved process and new projects will take several years to realize "steel in the ground" and accrue the anticipated benefits. Patient capital and conviction about the long-term impact of these investments is essential.

NOTES

[1] eia.gov/tools/faqs/faq.php?id=427&t=3

[2] energy.gov/eere/renewable-energy

[3] netzeroamerica.princeton.edu/the-report

[4] youtube.com/watch?v=s3ScJ_FwaZk

[5] repeatproject.org/docs/REPEAT_IRA_Transmission_2022-09-22.pdf

[6] FERC's five Commissioners are appointed by the President and confirmed by the Senate. By statute, no more than three Commissioners of the same party may serve at the same time.

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