

FACT SHEET

BUILDING A STRONGER, CLEANER ELECTRIC GRID

To face a climate-altered future, the United States needs a resilient, affordable, and nimble electric system, one that can adjust and adapt to any situation, keeping the lights on no matter the challenge. Ensuring that we have affordable and available electricity requires that Congress pass legislation now to support renewable energy and build a more resilient electric grid—the system that connects a source of energy such as a power plant to the consumers who use it.

TRANSMISSION LINES ARE KEY

At present our grid is outdated and vulnerable to climate change and other modern stressors, leaving it at risk of failing when consumers need it most. For example, in 2021, the Texas electric system buckled during Winter Storm Uri, leaving more than 4.5 million Texans without power for days.¹ Tragically, at least 246 people died, and the state's economy suffered \$195 billion in damages, making it the largest natural disaster in state history.² Severe weather events like Uri are only going to become more frequent. In February 2022, the United Nations Intergovernmental Panel on Climate Change (IPCC) released a report stating that the effects of climate change are already widespread and pervasive.³ This includes “more frequent and intense” extreme weather events that put stress on the grid.⁴

A resilient grid means that when a storm comes, the failure of any one power plant or other power source can be overcome, with the grid standing up to the stress and continuing to provide power for consumers. This resiliency should come from a diverse array of clean energy sources, increased energy storage capabilities, and transmission lines to connect power sources to consumers across the country.

Luckily, the costs of renewable resources are rapidly declining and battery storage is increasingly competitive.⁵ In fact, over the past 15 years, solar and wind power have become the dominant new sources of energy.⁶ This has been driven not only by the dramatic drop in costs but by consumers demanding that their electricity come from cleaner energy sources.⁷ They understand that in order to reduce greenhouse gas emissions and avoid the worst consequences of climate change, we must transition away from burning fossil fuels to generate electricity.



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Power lines and transmission towers in Crockett, California.

Study after study shows that federal action would accelerate the clean energy transition that is already underway while making our grid more resilient to the climate disasters we face with increasing frequency.⁸ Customers will save money while benefiting from a more reliable power system.

HISTORIC OPPORTUNITY IN CONGRESS

Congress has before it historic legislation that would help reduce consumer costs even further and accelerate progress toward our national climate goals while maintaining electric reliability. President Biden has laid out a plan for a \$550 billion investment in clean energy over the next 10 years, including outlays to update the grid. It's a plan to create jobs, save families an average of \$500 a year in energy bills, and make our country more secure. The House has passed the package; the Senate should do the same.⁹

To help increase grid resiliency, this legislation would:

- expand long-distance transmission lines;
- encourage more solar and wind power, especially in low-income and energy justice communities;
- curb energy demand through weatherization and energy efficiency;
- invest in communities where old coal mines or fossil fuel plants are closing; and
- spur the sales of electric vehicles, which can both act as backup batteries for customers and inject energy back into the grid.

WE CAN BUILD A RELIABLE GRID ON CLEAN RESOURCES

Defenders of fossil fuels often point out that the sun doesn't always shine, nor does the wind always blow. We all know this. But no generating resource shows up 100 percent of the time—including fossil fuels. During Uri, the gas system failed in every way when it was needed most. Natural gas fuel supply issues caused 87 percent of the outages, as gas production wells froze up, pipelines malfunctioned, and uninsulated gas plants couldn't deliver power even if they had fuel, according to a report on the grid failure from the Federal Energy Regulatory Commission (FERC) and North American Electric Reliability Corp. (NERC).¹⁰

As we saw with the failure of gas plants in Texas, depending on a single resource is not the way to build a reliable grid. Instead, what we need is a resilient and nimble electricity *system*, one that can adjust and adapt as the situation demands. If, on a typical winter night, Texas is overwhelmed with cheap wind power, it should be able to send that electricity to California or Iowa or Chicago. Conversely, when a storm hits and local power production fails, Texas should be able to access solar power from California, wind power from Iowa, or even voluntary reductions in electricity usage in Chicago. There should also be robust options for energy storage to save that cheap wind power for use at a later time when energy is in short supply and more expensive. An energy system is one that's dynamic and adaptable; no one source of power is perfect, so we need a system that can adjust to the unexpected, keeping the lights on and factories humming no matter the challenge.

RENEWABLES LOWER CONSUMER COSTS

The benefits of decarbonizing the electric system far exceed the costs, especially when you factor in the future increased demand resulting from the adoption of electric vehicles and building electrification.¹¹ Generation and transmission technologies are improving at an impressive rate, and this progress will continue to reduce the costs of carbon-free energy, easily offsetting the costs incurred to decarbonize the power system. A meta-analysis conducted by the think tank Energy Innovation looked at 11 studies examining the transition to 80 percent carbon-free power by 2030 and found that projected wholesale electricity costs would be unimpacted.¹² Additional modeling by researchers at the University of California, Berkeley, and at Harvard University found that the more clean energy we have in the grid, the



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Wind turbines and an electrical transmission tower.

cheaper future electricity will be (4 percent cheaper than today in 2030 if we reach a 90 percent carbon-free energy supply, and 3 percent more expensive if we reach only 70–80 percent).¹³

In addition, the Solar Futures Study conducted by the U.S. Department of Energy found that 95 percent decarbonization of the electric grid could be achieved in 2035 without increasing electricity prices because decarbonization and electrification costs would be fully offset by savings from technological improvements and the ability of energy consumers to shift when they consume electricity.¹⁴

TRANSMISSION CAN CUT POWER COSTS

In the face of increasingly frequent and more intense large-scale extreme weather events, we need a stronger, more resilient electric grid with longer, higher-capacity transmission lines that connect the whole country. These would provide grid operators access to potentially life-saving electricity resources during events that knock out generation within an entire region.¹⁵ According to the FERC-NERC report, Texas suffered the worst outcomes during Winter Storm Uri in large part because most of the state is an electrical island with very limited connections to neighboring states.¹⁶ With little transmission crossing state lines, it could not lean on its neighbors for power. In contrast, during that same storm, power operators in the Great Plains and Midwest were able to import electricity from their neighbors to avert the disastrous consequences experienced by the Texas grid. Even so, the electric grid in the Great Plains and Midwest barely survived Uri, and the next time it may not be so fortunate.

Investing in large-scale transmission lines will also help improve access to low-cost renewable resources and facilitate the grid-wide transition to clean energy. Advances in clean energy generation and transmission capabilities make it possible to produce large amounts of clean energy in rural areas that are far from the consumers who will use it. The extensive wind and solar resources necessary to meet utility and state generation requirements and future demand, and to support a decarbonized economy, require new transmission



Work crews fixing power lines after a storm in North Wildwood, New Jersey.

lines, often in places where none currently exist. These lines will need to serve (and potentially cross) multiple regions.

More transmission lines will also save consumers money. A 2021 report from the consulting firm Grid Strategies shows that each additional gigawatt of transmission capacity between the Texas power grid and the southeastern United States could have saved Texas consumers nearly \$1 billion.¹⁷ The report also shows that consumers in the Great Plains and Gulf Coast states could save at least \$100 million per region with an additional gigawatt of transmission ties to power systems to the east. Such transmission would provide significant geographic diversity benefits and allow system operators to access generating resources that are affected by different weather systems.

HISTORIC INVESTMENTS IN THE GRID

The climate legislation currently before Congress would be a historic investment in clean energy and grid resiliency. The bill contains significant clean electricity tax incentives, including \$320 billion set aside for 10-year expanded tax credits for utility-scale and residential clean energy, transmission, and storage; clean passenger and commercial vehicles; and clean energy manufacturing. It would also provide crucial clean energy loans, grants, and funding for research, procurement, and other essential programs.¹⁸

To improve grid resilience, the bill includes a 30 percent tax credit for regionally significant transmission, additional loans and grants for transmission, economic development support for host communities, technical support for siting authorities, and funds for studies on interregional transmission. This tax credit could drive \$37 billion in transmission investment, leading to more than 50 gigawatts of new transmission lines—more than was built over the last decade in Texas and the central United States. This would be enough to double national wind generating capacity and would result in \$75 billion in net consumer benefits.¹⁹

As a whole, the bill would create a clear pathway to grid decarbonization and an equitable clean energy future, including investments in and protections for communities impacted by closures of fossil fuel infrastructure and low-income and environmental justice communities. For example, Energy Innovation cites studies estimating that achieving net-zero economy-wide GHG emissions by 2050 could bring about a net increase of 500,000 to 1 million new jobs per year through 2030.²⁰ This legislation would support equitable economic growth by providing new bonus credits for projects built using strong labor standards and domestically produced components. These provisions will help ensure that the clean energy transition produces well-paying jobs and equitable access to clean energy resources.

New clean energy resources will also provide significant climate and public health benefits. In fact, transitioning the power sector to 80 percent clean energy by 2030 will save more than \$1 trillion in health costs through 2050 as well as hundreds of thousands of lives.²¹

Clean energy resources provide tangible benefits to the American people. Congress must move quickly to realize the full extent of these benefits, including investing in transmission to enable more clean energy while lowering bills and improving the resilience of the grid.

WE NEED CONGRESS TO ACT NOW

Investment in the electric grid is needed to reach the nation's decarbonization goals, increase grid reliability and resilience, and reduce consumer costs. While the transition to renewable energy is already underway, new investments from Congress would accelerate it while boosting communities and the economy. The climate legislation contains clean energy provisions that will reduce the devastating impacts of weather catastrophes, provide new job opportunities, and bring significant climate and public health benefits. The transmission provisions will help move this new clean energy to consumers and reduce the untenable human and economic costs of electric outages caused by ever-increasing extreme weather. We have a historic opportunity to quickly realize these benefits, and we should not let it slip through our hands.



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North America at night, 2016.

ENDNOTES

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