Keeping the Lights On: Harmonizing Clean Energy and Grid Reliability Goals in the United States Electricity Regulatory System

As Hurricane Ian swept through Florida last week, around 1.5 million people were without power at one point.[1] More outages continue as the hurricane ravages through the Carolinas.[2] Warming waters from climate change and low vertical wind shear create stronger storms. An unprecedented number of hurricanes rated Category 4 or above have hit the United States since 2017.[3] Although not much can be done to ensure the electrical grid can withstand over 150 mph winds and almost 20 inches of rain,[4] decarbonization is necessary to further prevent destruction and handle other extreme weather events such as heatwaves, droughts, and cold snaps.

Above-normal temperatures in the summer trigger increased energy usage[5] as consumers crank up their air conditioning. Drought conditions lead to lower outputs from hydro generators along with impacts on cooling systems to keep equipment from overheating.[6] This strain on the grid leads to brownouts or even blackouts. Cold snaps, such as the well-known aftermath of Winter Storm Uri in Texas, also lead to power outages.[7] The collection of increasingly extreme weather events impacts the grid and can threaten human life.

Renewable energy provides a solution as they are clean, affordable, and enable energy independence.[8] However, the structure of U.S. electricity regulation creates barriers to implementation by creating a perceived conflict between reliability and renewable resources. For example, large utilities propose "new investments in natural gas generation, citing the need for reliability."[9] As these projects may be approved to increase reliability, climate goals are neglected. Reliability issues will be exacerbated by fossil fuels that contribute to extreme climate-related weather. A deep look at electricity regulation in the U.S. sheds light on this subject and the challenges that currently exist.

States control many siting decisions of electric generating plants, while the federal government oversees the financing and regional planning of these electric transmission lines and wholesale electricity markets.[10] In some regions, the policies for transmission lines fall under regional transmission organizations (RTOs) which are supervised by the Federal Energy Regulatory Commission (FERC).[11] In other regions, states opt for wholesale energy procurement

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[1] *Factbox: Ian hits South Carolina, 1.5 million still without power in Florida*, REUTERS (Sept. 30, 2022), https://www.reuters.com/world/us/over-million-customers-without-power-florida-hurricane-ian-2022-09-28/.
[2] *Id*.
[3] Scott Dance & Kasha Patel, *How climate change is rapidly fueling super hurricanes*, THE WASHINGTON POST (Sept. 29, 2022), https://www.washingtonpost.com/climate-environment/2022/09/29/ian-hurricane-rapid-intensification-climate/.
[4] *Id*.
[5] *Announcement: Extreme Weather Heightens Reliability Risks this Summer*, NORTH AMERICAN ENERGY REGULATORY COMMISSION, (May 18, 2022), https://www.nerc.com/news/Headlines%20DL/May%2018%202022%20SRA%20Announcement.pdf.
[6] *Id*.
[7] Alexandra Klass et al., *Grid Reliability Through Clean Energy*, 74 STAN. L.REV. 969, 974 (2022).
[8] *Renewable energy – powering a safer* future, UNITED NATIONS, (2022), https://www.un.org/en/climatechange/raising-ambition/renewable-energy.
[9] Alexandra Klass et al., *Clean Energy Is Grid Reliability's Best Hope, Not Enemy*, BLOOMBERG LAW, (Mar. 17, 2022), https://news.bloomberglaw.com/environment-and-energy/clean-energy-is-grid-reliabilitys-best-hope-not-enemy.
[10] Klass et al., *supra* note 7, at 977.
[11] *Id*.

and for the planning and financing of transmission lines.[12] Regional entities direct the regulation of reliability of the grid which these transmission lines make up.[13] This creates a disconnect between the states and the regional grid operators as they all attempt to protect their own interests.

On top of this, a mix of private and public actors govern energy. FERC and state utility commissions govern the approval of transmission lines.[14] However, RTOs, regional entities, and the North American Electric Reliability Corporation (NERC) are private, nonprofit institutions.[15] This medley of public and private actors creates its own challenges. For example, NERC, who oversees drafting reliability standards for the industry, inherently produces rules that "do not create major expenses for industry members."[16] Until 2021, NERC made weatherization, which has been proven to prevent blackouts and save lives, recommended rather than required for all power plants.[17]

The structure of the regulatory framework for electricity is complicated, and entities are often at odds. These many layers create a siloed legal system. The regulatory system for electricity in the U.S. "divides too many players, assigns too many overlapping and competing tasks, and creates too many distorted incentives."[18] Greater integration and coordination among various issues ranging from reliability regulation to electricity markets to transmission planning and financing is necessary.

Currently, the government is trying to break down these silos. FERC convened a joint federal-state task force involving transmission and also started to reform electricity market rules that punish renewable resources.[19] The Infrastructure Investment and Jobs Act passed by Congress provides $65 billion in grid-related funding.[20] The act also strengthened FERC's authority to override state vetoes involving important national transmission lines and enables the Department of Energy to support those lines.[21] Additionally, FERC issued a proposed rule to expedite the current process to connect new electric generation to the grid.[22] This helps address the more than 1,400 gigawatts of generation and storage that are backlogged[23] which will greatly help renewable energy projects get online.

More work needs to be done, but these strides are a start. To transform the grid, cooperation of entities and the overall structure of who makes the rules for electricity needs to be evaluated. Although electricity regulation in the U.S. is a complex topic filled with multiple layers, there is a path forward to a cleaner, more reliable grid that can better handle the extreme weather events of our new reality through integration and coordination of government institutions and renewable resources.

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[12] *Id*.
[13] *Id*.
[14] *Id*.
[15] *Id*. at 978.
[16] Klass et al. *supra* note 9.
[17] *Id*.
[18] *Id*.
[19] *Id*.
[20] *Id*.
[21] *Id*.
[22] *FERC Proposes Interconnection Reforms to Address Queue Backlogs*, FERC, (June 16, 2022), https://www.ferc.gov/news-events/news/ferc-proposes-interconnection-reforms-address-queue-backlogs.
[23] *Id*.