

What are the costs of powering the United States with clean energy?

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11/02/2023



Alamosa Photovoltaic Plant in Colorado

Carilyn Pointer – Recently, the energy department announced [1.3 billion](#) dollars of aid to upgrade America’s electric grid and start moving toward President Biden’s clean energy goals. Despite the influx of money, reports predict that it still won’t be enough to make the transition to clean energy sources. Understanding the concept of networks can help shine light on the barriers to sustainable energy systems.

The nation’s electric system is an example of a [network](#). Networks are collections of nodes that are linked together. Currently according to United States Environmental Protection Agency (EPA), “the U.S. power grid is made up of over 7,300 power plants, nearly 160,000 miles of high-voltage power lines, and millions of miles of low-voltage power lines and distribution [transformers](#).” Each of these are different nodes and perform different tasks but all contribute to delivering electricity and powering our nation. A major barrier to switching to clean energy sources is that the infrastructure doesn’t have the transmission capacity. This means there isn’t the ability to transfer the power from the wind and solar nodes to population centers effectively. According to the New York Times article the solution is to expand the electrical grid which can be equally problematic because it can “require approval from more than one state or jurisdiction, leading to disagreements over who should [pay](#).” While typically networks can interact without regard to boundaries or regions, the

federal governments limited authority over grid planning constrains the expansion of the electric network.

While these are all constraints and factors in developing into a clean energy powered country, the consensus is that there just isn’t enough time, resources, or funding to achieve the desired outcomes. More advanced technology may provide solutions or further intervention from Congress.

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