

# 5 Key Steps to Secure the US Electricity Supply

By Ernest J. Moniz & Lonnie R. Stephenson

Flick a switch, push a button, “Ask Alexa” and your need is instantly met with electricity. We take this ubiquitous resource for granted – a [synchronized, nationwide machine](#) that meets the immediate needs of hundreds of millions of users.

Unlike fuels, however, electricity currently lacks the large-scale storage that would enable its ongoing use in extended supply disruptions. This – and electricity’s foundational role for all other infrastructures – considerably ups the ante for grid reliability.

There’s no “taking the day off” when it comes to electricity – even in midst of COVID-19. That’s why the Cybersecurity and Infrastructure Security Agency [recently declared](#) essential workers “who maintain, ensure, or restore the generation, transmission, and distribution of electric power, including call centers, utility workers, reliability engineers and fleet maintenance technicians.”

We owe a huge debt of gratitude to the health care providers who are saving lives every day, but all the essential workers in our economy – including our utility workers – also deserve our thanks. We can reward their dedication and invest in our future by committing now to a 21st century electricity grid – one we will ask even more of tomorrow than we do today. We are spending far too much money on this crisis to do less.

A 21st century electricity system – a centerpiece of [our nation’s critical infrastructure](#) – should figure prominently in both our near-term actions and longer-term vision. Important for the near-term, electricity generation is a job creator, employing over 800,000 people in 2019. When fuels, transmission and distribution systems, and efficiency measures are added, the power sector becomes one of the largest job generators in the

country, significantly outpacing overall job growth in the last five years.

As the hockey great Wayne Gretzky often said, we need to “skate to where the puck is going,” aligning our investments with a clear destination – [a clean electricity system](#) to underpin a clean economy. Wind and solar generation are clearly important – but we need to have a system-wide view for a reliable, resilient, affordable electricity system.

There are, however, inconvenient truths about these generation sources that challenge the vision of a 100% renewable electricity system. Data for [California](#) and Texas, for example, show little wind generation for about 90 days in 2017, sometimes for over a week in a row. In California, solar production in the summer is double that in the winter, and current grid-scale batteries are practical for only four or fewer hours of storage.

This is in no way detracts from the key role that these resources will play in clean electricity. Rather it emphasizes that they must be viewed as part of an “all of the above” system – one that includes nuclear, natural gas with carbon capture and sequestration, longer-duration storage for multiple time scales, green hydrogen, [long distance grid infrastructure](#), and distributed generation and microgrids.

These technologies must however be supported by smart legislation and regulation – the hard work that is needed to [move beyond “magical thinking”](#) to implementation. Accelerated progress on all of these pathways goes hand in hand with accelerated progress to the clean energy future. Arguments for silver bullet solutions only delay the outcome we seek.

The foundation for, and pathways to, meeting this

clean electricity vision can be grounded in what we do now. As we seek to climb out the [COVID-19-induced economic crisis](#), we need a stimulus package that supports both the near-term needs of the power sector, and its longer-term transformation. Five buckets of critical actions should be considered.

First, we should immediately expand low income assistance to help pay electricity bills. Both customers and utilities will benefit.

Second, we need to sustain and create jobs. Policies to incentivize wind and solar generation should be continued and expanded. We need additional investments in building efficiency to use our electricity assets wisely. We should support additional funds for electric vehicle infrastructure and smart communities to enhance productivity, create and sustain jobs, and spawn new industries.

Third, we need investments to ensure a reliable, resilient, and clean grid, and modernized transmission and distribution infrastructure. We also need to address the long-term electricity storage imperative, including support for building a hydrogen infrastructure and expanding agricultural production of renewable natural gas.

Fourth, we need [investments to mitigate climate change](#). This means support for current clean generation assets – nuclear, hydropower, renewables – as well as policies and incentives to invent new industries, like offshore wind, advanced nuclear reactors and [carbon capture and sequestration systems](#) (including capture from the air). We should develop domestic supply chains for clean electricity technologies, including environmentally responsible domestic mining of the metals and minerals needed for many clean energy technologies.

Finally, we need more training and apprenticeship programs, the effectiveness of which has been demonstrated by organized labor. By 2030, some 30% of the industry's linemen are set to retire at a time when the sector's technologies are rapidly

changing – an energy job creation opportunity that should be matched to expanded workforce development.

There's a long list beyond this handful of critical ways to support a reliable, resilient, modernized, and cleaner grid. Our organizations recently [announced an agreement](#) that embodies the coalition-building we need for 21st century energy systems. One of its key principles – "...climate policy represents an economic opportunity when the benefits of new technologies result in the creation of quality jobs...and competitive domestic supply chains." It's how we climb out of this economic crisis and create a cleaner energy future.

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