

Want a career saving the planet? Become an electrician.

To 'electrify everything' the country is going to need a lot more electrical experts.

Shannon Osaka October 3, 2022 at 6:00 a.m. EDT



Electrician Zach Newton works on wiring solar panels at the 38-acre BNRG/Dirigo solar farm in January 2021, in Oxford, Maine. (Robert F. Bukaty/AP)

When we think about solving climate change, we often think about things that, in one way or another, plug into an electrical grid: Solar panels. Heat pumps. Efficient air conditioners. Wind turbines. Electric cars and electric car chargers. Induction stoves. Transmission lines.

Over the past several years, the mantra of energy experts has been that we need to electrify everything — and then switch electrical power generation over to clean sources of power like wind, solar, geothermal and nuclear. Doing so will rapidly decrease carbon emissions and help to stave off dangerous levels of warming.

But installing all of that electrical stuff — the solar panels, the heat pumps, the transmission lines — will require something that the United States doesn't have: lots and lots of electricians.

According to the nonprofit group Rewiring America, which focuses on electrification, shifting the economy away from fossil fuels will require no fewer than 1 billion new electrical appliances, cars and other items in American households alone.

The climate bill is a game changer for many Americans. Yet, some advocates say it's the tip of the iceberg for providing solar to low-income communities. (Video: Zoeann Murphy, Mahlia Posey/The Washington Post)

"It's a billion machines that need to be installed or replaced over the next 25 years across 121 million homes," said Ari Matusiak, the CEO of Rewiring America. "There need to be significantly more individuals who are trained to install these machines — and one subset of that is electricians who are trained to put in breaker boxes, wire our homes, and connect devices to our electric sources."

The problem is that many in the industry say the country is already in a state of electrician shortage — one that could get worse as clean energy ramps up. "We're in an electrician shortage now," said Sam Steyer, the president and CEO of Greenwork, a start-up that tries to connect clean energy workers with companies. Steyer says that homeowners attempting to install heat pumps or electric car chargers have already reported problems finding certified tradespeople to do the work that they need: Waiting lists sometimes stretch on for months.

Part of the issue is that more people are leaving the profession than entering it. According to the National Electrical Contractors Association, more electricians retire every year than are replaced. This is part of what is known as the "silver tsunami," or a wave of tradespeople aging out of their careers and leaving a hole behind. There are around 700,000 electricians working in the country today, and the Bureau of Labor Statistics estimates that there will be around 80,000 new electrician jobs available every year until 2031 — and that most of those jobs will just be in replacing the existing workforce.

Steyer blames some of the current shortage on cultural assumptions about working in fields like construction or electrical work. "Over the last 20 years there has been very negative messaging to millennials and Gen Z about the trades," he said. "There were a lot of articles saying, 'All blue collar jobs are going to go away, everyone is going to be a knowledge worker or a care worker.' "

Now that's going to have to change. And some projects are already underway to increase the pipeline of available electricians. Workers wanting to become electricians have to do an apprenticeship first, either through a union or a company. The Inflation Reduction Act, the landmark climate law passed by Congress in August, includes a requirement that companies that receiving tax incentives for wind and solar energy also employ a certain portion of apprentices: 10 percent of labor hours in 2022 and 15 percent by 2024. Steyer says that could help encourage companies to train more young workers and help add them into the system. Other groups are also working to expose more young people to the options of joining a trade, and helping support them through the first few months of employment.

Dan Conant, the CEO and founder of Solar Holler, a solar installation company in West Virginia, says that addressing the shortage will take time. His company managed to find sufficient workers by unionizing, thus allowing them to access workers from the International Brotherhood of Electrical Workers. But addressing the larger problem will take longer. "West Virginia is about 3,000 electricians short," he said. "We can't fix that overnight."

Ultimately, however, the need for electricians may be a feature of the clean energy transition — not a bug. "These are jobs that don't get automated or offshored," Matusiak said. Once, moving away from fossil fuels was viewed as a dangerous move since it might cost the country jobs in coal mining or other fossil fuel industries. (The coal mining industry today employs around 37,000 people — less than six percent of the number of people employed as electricians.) Now, Matusiak argues, more and more people are realizing that switching to clean energy will create many more jobs than it removes. "I take it as a good news story, not a bad news story," he said. "These are jobs that are also career pathways."