



# COVID-19 and the Clean Energy Workforce

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*By Barbara Tyran*

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## Global Overview

COVID-19 is creating the largest global economic disruption in nearly a century and having a significant impact on employment and investment across all sectors, including energy. According to the [International Energy Agency \(IEA\) Sustainable Recovery 2020 report](#), the energy industry directly employed approximately 40 million people globally in 2019. With global GDP anticipated to decline by 6% in 2020, 300 million jobs may have already been lost during the second quarter of the year, including an estimated 6 million energy jobs. Global energy investment is projected to decrease 20% in 2020.

The health crisis and the economic upheaval have exposed vulnerabilities in the energy system, including a rapid decline in energy demand and international geopolitical destabilization. While some energy sources will benefit from the new competitive landscape, and others will attempt to adapt to new uses and create new value streams, the overall workforce implications are significant.

As energy demand gradually revives, the longer-term implications emerge: the future generation mix for electricity production, the plight of public transit, and the demand for fossil fuels in transportation. Together, global governments have already announced \$9T (US) for recovery policies, focused primarily on emergency financial and economic relief. Now, longer-term policies are being contemplated to stimulate economic growth, including energy-related funding.

Paradoxically, the electricity sector has played a critically vital role in the global response to COVID-19 crisis, enabling hospitals to provide care, public health experts to dispense information, essential services to maintain delivery, and millions of people to work and study online from home while maintaining "social distancing." Without access to reliable and affordable electricity, the technology would not be available to maintain this economic and societal productivity.

One proposed policy plan emerging during the crisis is IEA's Sustainable Recovery Plan based on International Monetary Fund (IMF) analysis. IEA has developed a plan, focused on cost-effective actions for 2021-2023: 1) long-term economic growth, 2) future job creation, and 3) sustainable

and resilient energy systems. The plan proposes \$1T (US) global investment annually over the next three years resulting in over 1% global economic growth annually. The tangible benefits: new grid modernization infrastructure, including serving 270 million people currently lacking access to electricity; more energy efficient buildings and industries; greater worker productivity; increased renewable energy penetration; and more sustainable development. Global employment could be significantly impacted by this investment, by saving or creating approximately 9 million jobs per year over the next three years.

The Sustainable Recovery Plan could also support resiliency, to better prepare countries for future crises. Investment in digitalized electricity grids; upgraded hydropower facilities; extended lifetimes for nuclear power facilities; and increased energy efficiency could positively impact security by lowering outage risk, improving flexibility, reducing power losses, and allowing better penetration of variable renewables such as wind and solar PV.

Global CO<sub>2</sub> emissions declined 8% in 2020. They are expected to rebound if there are no policy changes or intervention. Under the Sustainable Recovery Plan, annual energy related greenhouse gas emissions are projected to be 4.5 billion tons lower in 2023, with air pollution emissions decreased by 5%.

A wide range of individual policies would be required to support the deployment of this plan. International cooperation would be essential to help align different countries' actions and re-establish global supply chains. However, the prospect of the energy sector becoming the driver for a world-wide post-COVID economic and environmental recovery is a win-win for all.

#### United States Overview

For the U.S. electricity sector, overall demand is expected to decline 4.3% on average in 2020, with reduced US commercial and industrial customer load, and slightly increased residential load. The generation mix impact could be uneven. For the first time, the percentage of renewable energy is projected to be higher than coal generation. Given the declining cost of wind energy facilities by 60% since 2010, 80% cost decrease in solar, and record low natural gas prices, the U.S. Energy Information Administration (EIA) estimates that U.S. coal plants will generate 19% of the nation's electricity in 2020. That level will be below both nuclear power and renewable energy, i.e., wind, solar, hydro, geothermal and biomass. Natural gas generation is expected to remain at 38%. If natural gas prices rise from their current lows, the percentage of coal generation might increase. The current oil drilling slowdown could yield lower natural gas production next year and potentially higher prices, resulting in a modest rebound for coal. One cautionary note: the recent lower capacity rates for coal facilities. In 2010, the average U.S. coal plant ran at 67%; in 2019, it was less than 50%.

As in the current oil and gas markets, smaller, less well-financed developers are struggling in the renewable sector for different reasons: delayed deliveries, workforce safety concerns, and for some lenders, the current economics. Well-capitalized developers can access funds, launch new projects, and close agreements--all suggesting continuing renewable energy support. Although some renewable market investors are currently cautious, large energy buyers, such as Facebook, Google, AT&T, and Microsoft, are pursuing their zero-carbon energy future goals by bringing

projects to completion expeditiously. As China's manufacturing sector returns, the prices for renewable components are expected to increase before ultimately declining by the year's end.

In anticipation of supply chain disruptions and workplace uncertainties, some developers are requesting longer lead time orders or asking to delay current projects. Residential markets are affected by homeowners cancelling or postponing solar installations until shutdown orders are lifted. "Flatten the curve" guidelines have limited the ability for inspection agencies to permit and approve new projects. Developers do not want to receive materials and not be able to install them. One potentially positive post-pandemic outcome: a more diversified supply chain for the renewable energy market, resulting in greater independence and a more competitive marketplace. Renewable energy demand will continue to be assisted by battery storage technology advances and the availability of natural gas "peakers." The EIA projects wind and solar generation will increase in 2020, despite concerns about the supply chain disruptions.

The clean energy sector's workforce [has been impacted disproportionately](#) by the public health crisis. According to a [May 2020 study by ACORE, E2, BW Research Partnership and E4TheFuture](#), as of mid-May, more than 594,300 clean energy jobs were lost due to COVID-19, and as many as 850,000 jobs were projected to be lost by June 30. In March and April, 17.8% of the clean energy workforce filed for unemployment--doubling the number of jobs lost vs. those created since 2017. This percentage thereby erased all 2019 clean energy job gains across renewables, EVs, storage, and energy efficiency, impacting occupations including electricians, technicians, installers, and factory workers. Within the clean energy sector, the losses were uneven. Energy efficiency lost more jobs than other parts of the sector, most notably nearly 70% of all energy job losses in April.

Renewable projects suffered from supply chain disruptions, worker shortages, and other COVID-19-related factors, posing critical delays and leaving potentially billions of dollars in investment at risk. The renewables sector also bore an additional risk: the pending federal tax credit deadlines in 2020. After demonstrating that supply chain disruptions and workforce constraints threatened compliance with current timelines, the concerns of the renewable energy community were heard. On May 7, the Treasury Department issued a letter indicating that it would extend the deadlines for both the solar investment tax credit (ITC) and the wind production tax credit (PTC) programs, with "plans to modify the relevant rules in the near future."

As noted by the letter's recipient, Senate Finance Committee Chairman Grassley, "projects that have been waylaid by the economic disruptions of this pandemic can now proceed with more certainty." Wind developers across the US said this action was critical to ensure projects did not lose crucial financing as the production tax credit declined. The American Wind Energy Association (AWEA) estimated COVID-19-related delays put 25 GW or \$35 billion in wind project investments at risk, along with 35,000 jobs.

On May 28, 2020, the Internal Revenue Service released guidance granting renewable energy projects that began construction in 2016 or 2017 another year to meet safe harbor deadlines for the production and investment tax credits. IRS also provided a safe harbor extension of the solar investment tax credit, allowing projects that paid for property on or after Sept. 16, 2019, to qualify until Oct. 15, 2020.

Energy leaders are now encouraging the passage of long-awaited bills when Congress returns. Energy investment could stem the loss of jobs and reinforce the foundation for a stronger, cleaner, and more resilient economy. On August 17, a coalition of nearly forty organizations, led by the US Chamber of Commerce, wrote to the House leadership encouraging the passage of several energy bills that could "address climate change, promote American technological leadership, and foster continued economic growth." Their letter cited legislation to fund carbon capture and storage research, grid modernization and security research, and expansion of nuclear energy.

If Congress were to pass these measures and adopt infrastructure legislation as part of an economic stimulus package, it could result in grid modernization, more resilient energy systems, and improvements for roads and bridges. However, the time is short for legislative action, given the September 30 fiscal year-end and upcoming elections.

Many Americans are now working from home for the first time. This perspective provides an unprecedented opportunity: to capture the imagination of consumers regarding the role of energy. With a new exposure to the value proposition of electricity--and its enabling technological benefits--consumers could become more appreciative of energy sustainability and energy efficiency. Recognizing their heavy reliance on the energy infrastructure during the pandemic, American homeowners may awaken to the value of technology fueled by electricity as the critical foundation for a civil society.

#### **About the Author**

**Barbara Tyran** is President of the Board of Directors of the Women's Council on Energy & the Environment (WCEE). She is also Chair of the IEEE Power & Energy Society 2021 General Meeting Local Organizing Committee, with over 38,000 members world-wide. For two decades, she was Director, Washington & State Relations, at the Electric Power Research Institute. Her prior background includes federal advocacy for utilities and management consulting for public / private sector clients, with engagements involving strategic planning, policy analysis, and financial / economic analysis.

Global America Business Institute | 1001 Connecticut Avenue NW, Suite 435,  
Washington, DC 20036 | 202-499-7979 | FLL@thegabi.com | www.thegabi.com

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