

Just Transitions: Multiple Challenges, Multiple Options

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The current moment in climate politics seems an inauspicious one, where the US government is actively rolling back climate policies of the previous administration. Yet, much action can be expected to continue at the regional, state, and local levels in the United States. Meanwhile, there is reason for optimism that at least some of the clean energy infrastructure investments and private investment incentives contained in the Inflation Reduction Act will garner continued support from representatives of districts that voted for the current President, considering the significant benefits their constituents can expect to accrue in jobs, incomes, and tax benefits.

According to data from MIT and Rhodium Group's Clean Investment Monitor, U.S. counties with below-average wages and below-average college graduation rates have received most of the IRA clean investments, at 80% and 85%, respectively. The data also shows that investment is growing fastest in energy communities, which have historically relied on economic activity from coal mines or fossil-fuel power plants.¹

Uneven Progress in US and Global Climate Action

In many parts of the world, climate ambition remains strong, but most developed and emerging economies still rely heavily on fossil fuels for economic growth, even though that link is starting to weaken. Meanwhile, lower-middle-income developing countries like India continue to rely primarily on fossil fuels to meet growing energy demand.

Historically, regional and local industrial decline is a longstanding feature of the US and other developed countries' economic landscapes. In June 1979, manufacturing made up 22% of all nonfarm jobs in the US, but by June 2019, it had dropped to 9%, with 6.7 million jobs lost.² Some specific geographic areas have been hard hit by decline, particularly those that were home to heavy industries like steel and, following the 2008-09 financial crisis, the automotive industry. Some of those same industries - plus others like fossil fuel extraction, processing, and power plants - can expect to be affected by climate-policy-induced transition. What makes the current transition different is its fast pace, driven by the urgent need to cut greenhouse gas emissions and meet the goals of the Paris Agreement. What otherwise might have taken several decades now needs to happen within one or two decades at most.

Currently, the global greenhouse gas emissions trajectory is incompatible with staying within the temperature rise limits of the Paris Agreement. The technologies needed to speed up the shift away from fossil fuels and reduce carbon emissions already exist, but putting them into action is still a major challenge. This is due to current infrastructure, legal and regulatory barriers (such as the need to build new power lines to deliver renewable energy to cities), and

¹ MIT and Rhodium Group, Clean Investment Monitor: <https://www.cleaninvestmentmonitor.org/>

² US Department of Labor, Bureau of Labor Statistics: <https://tinyurl.com/3swknh24>

public resistance to the changes a rapid transition would require—like shifts in local jobs, rural land use, coastal views, and everyday convenience.

Labor Shifts and the Speed of Transition

One of the challenges to be addressed in transitioning from fossil fuels and carbon-emitting activities is the inevitable labor market adjustments, job losses, and the need for re-employment and/or social protection of displaced workers. Other challenges include: economic adjustments to industries making products using fossil fuels, like cars with gas-powered engines, or adjustments in agriculture where severe weather events, extreme temperatures, and changing precipitation patterns are impacting farmers. Also, where electrification is still in its infancy, as in much of sub-Saharan Africa, the primary challenge is how to make it economical and affordable to create a new standardization of electricity generation on low- or zero-carbon sources, notably renewables like solar and wind (with storage), hydro, modern biomass, geothermal, and wave energy. Future blogs will touch upon some of these other challenges.

Different countries will have rather different ways of responding to these stresses, given their legal, institutional, and economic structures. The United States has among the lowest levels of background social protection measures in place of any of its developed country peers, making the burden of adjustment fall more heavily on the private sector, workers, and civil society. In this regard, its situation is perhaps closer to that of many low- to moderate-income developing economies.

The number of workers negatively affected by the green energy transition is a small proportion of the total workforce in most countries. The jobs destroyed, however, tend to be geographically concentrated, while alternative green energy jobs are generally more dispersed or located in other areas where renewable energy endowments are abundant (sunshine, wind, geothermal reservoirs, rivers) (for the USA, see Lim et al., 2023)³. Thus, while the skills needed in new energy are not very dissimilar from those used in fossil fuel energy, re-employment in these emerging sectors may require relocation. Yet, as Lim et al. demonstrate, the geographic mobility of U.S. fossil fuel workers to take new green jobs remains low. For this reason, one or both of two types of incentives would be needed to address job displacement risk: (i) incentives to displaced fossil fuel workers to make geographic relocation less costly; (ii) incentives to green industries capable of doing so to locate where fossil fuel workers are concentrated.

Geographic and Economic Mismatches

Some locations face especially large challenges, as their prospects for attracting certain green jobs are small, given their environmental characteristics. For example, while the area of western Pennsylvania in the USA has a high concentration of fossil fuel jobs, Pittsburgh - the major

³ J. Lim, M. Aklin, and M.R. Frank (2023), Location is a major barrier for transferring US fossil fuel employment to green jobs, Nature Communications, 26 September.

city in the region - has one of the highest annual cloud covers of any US city, seriously restricting solar power potential and associated jobs.⁴

Bearing these constraints in mind, the green energy and related industries are sufficiently diverse that some activities and jobs may not be so location-dependent. In these cases, government support to green industry development can be helpful in fostering the energy transition. Thus, for example, the U.S. federal Infrastructure Investment and Jobs Act of 2021 and the Inflation Reduction Act of 2022 provided financial incentives to encourage clean energy development in fossil energy communities.⁵

The shift to clean energy affects not just workers and industries in certain areas, but also the communities where those people live and work. Declining employment and loss of income will impact the local economies in myriad ways, from erosion of the tax base and the services which depend on it (including public safety and schools) to decline of local businesses to out-migration. Without adequate alternative remunerative employment, social decline may ensue and, in the extreme, community viability may be at risk.

Supporting Communities Through Change

The US White House under President Biden created an Interagency Working Group (IWG) to support fossil fuel-dependent communities with adjusting to the energy transition underway.⁶ One crucial need that the IWG identified was supporting coal-dependent communities in developing a vision for the future. Like other communities going through economic transition, coal communities need time and a facilitated process to assess their assets, identify economic opportunities, and develop a vision for their economic future.

While there are many examples scattered across the United States and the industrialized world of industrial and community decline, there are also some examples of communities that have managed to adapt and “reinvent” themselves through the creation or attraction of new industries and employment opportunities, though the recovery can be long and difficult and perhaps only partial. These such “success stories” may offer useful lessons on how to foster economic revitalization as the basis for just energy- and climate-related transitions.

Coal sector employment has been in secular decline in many countries, well before climate change became a major policy concern. The German experience⁷ with coal sector restructuring dates back to the 1960s, but from the 2000s, policies sought proactively to encourage a transition away from coal. An anticipatory approach facilitated the encouragement of new industries in areas of high coal employment. Germany created a Coal Commission to guide the

⁴ Idem.

⁵ D. Raimi, S. Carley, and D. Konisky (2022), Mapping county-level vulnerability to the energy transition in US fossil fuel communities, Nature Portfolio, Scientific Reports.

⁶ M. Dalbey and D. Raimi (2024), Meet them where they are: Lessons learned from the Federal Interagency Working Group on Energy Communities, Resources for the Future: https://media.rff.org/documents/Report_24-22.pdf

⁷ A. Furnano et al. (2021), German Just Transition: A Review of Public Policies to Assist German Coal Communities in Transition, Resources for the Future: <https://tinyurl.com/f6nncjb4>

transition and supporting legislation, while the effort to minimize regional social dislocation was abetted by the German social security system, the labor system, and the system of regional fiscal equalization that assisted workers and communities affected by the decline in coal production.

The shift to a low-carbon economy presents a range of challenges for regions historically reliant on fossil fuel industries. These include labor market disruptions, economic restructuring, and geographic limitations in attracting clean energy investments. While some communities may face greater difficulties due to local conditions, there are examples—both in the United States and internationally—of places that have adapted through targeted planning and investment and community and worker engagement. Ongoing support and coordinated strategies may help ease the transition for affected workers and communities.