**Just and Equitable Transition to a Clean Energy Future: Transformative Potential Exists, But So Do Challenges**

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## The Evolving Definition of Just Transition

The term "just transition" has long been used to describe a process of transforming an environmentally unsustainable economy with adverse impacts on social justice and health, into a sustainable, just, and healthy economy, in a manner that ensures that the pain of the transition isn't borne (or at least, not solely borne) by people who did not create the problem in the first place.

Historically, the term originated in the labor movement, and the particular constituency the term was typically applied to was workers in dirty and dangerous industries. Interestingly, Tony Mazzocchi, a leader of the Oil, Chemical, and Atomic Workers Union (OCAW, now merged with the United Steelworkers), is often credited with coining the term, but the term he coined was a "Superfund for workers." (Brecher, 2015) It was only later that the term evolved into "just transition."

The term "just transition" now has fairly wide acceptance. For example, the International Trade Union Confederation (ITUC) defines a just transition as follows (World Bank, 2018):

> *A just transition brings together workers, communities, employers, and government in social dialogue to drive the concrete plans, policies, and investments needed for a fast and fair transformation. It focuses on jobs, livelihoods, and ensuring that no one is left behind as we race to reduce emissions, protect the climate, and advance social and economic justice.*

There is much that is commendable in this definition in terms of both process and outcomes. But there is both an unwarranted optimism, and critical missing issues and voices.

Based on all of the most recent scientific evidence, it is hard to argue that we are "racing" to reduce our emissions. Here are a few key facts to consider:

- All countries' current (voluntary, unenforceable) emissions reduction pledges in the Paris agreement (Nationally Determined Contributions, or NDCs) will still result in between 2.8 – 3.0 C increase in global mean surface temperature by 2100. (Climate Action Tracker, 2019) To put this temperature increase in context, this is about twice the 1.5 C that the global the upper limit. (IPCC, 2018)
- Global $CO_2$ emissions reached their highest levels ever this year. (Global Carbon Project, 2019)

Likewise, it's hard to argue that we're "racing" to advance social and economic justice. There are many possible indicators of social and economic justice, and in the interests of brevity, only one is presented here – wealth inequality.

Two reasons to focus on this metric, in particular, are that the distribution of wealth is more unequal than the (already highly unequal) distribution of income, because it is the result of cumulative income inequality over a period of time. Second, according to Thomas Piketty, it leads to even worse long-term impacts on educational opportunities, the ability to start a business, and other life outcomes than does income inequality. (Harvard Kennedy School PolicyCast, 2018)

The historical and projected future trends in wealth distribution in the U.S., Europe, and China show increasing concentration at the top, with the top 1% of the wealth owners holding more than 70% of total wealth, the middle 40% of the wealth distribution (the "middle class") owning less than 30%, and the poorest half owning only 2%.. If present-day trends continue, the top one-tenth of 1% is projected to own as much wealth as the middle 40% by 2050. (World Inequality Lab, 2018)

Two other essential perspectives are missing from the definition as well.

One is that the focus on jobs and livelihoods (implicitly, for workers displaced directly by the transition) is by no means enough to address the social and economic devastation that results when communities dependent on the extractive fossil-fuel economy face the imminent closure of the fossil fuel extraction or burning facilities. Yes, workers at these facilities can lose their jobs. But this has ripple effects through the community, devastating the local and regional economy and tax base, and potentially leading to cuts in public services, and job losses for many more workers.

Here are two concrete examples.

- In Kentucky, severance taxes from coal decreased 40% from 2015 to 2018, as coal production decreased in response to a combination of competitive pressures and more stringent environmental regulation. (Commonwealth of Kentucky Comprehensive Annual Financial Report, 2018)
- As an illustration of the local impact of revenue loss from the closure of a polluting facility, the largest population of workers at risk of job loss from a coal plant closure in upstate New York were the local public school teachers, 140 of whom were laid off as the plant, the largest taxpayer in the community, downsized. By way of comparison, the workforce at the plant itself was only about 70. The loss of tax revenue also led to the closure of three elementary schools and a middle school. (McGowan, 2017)

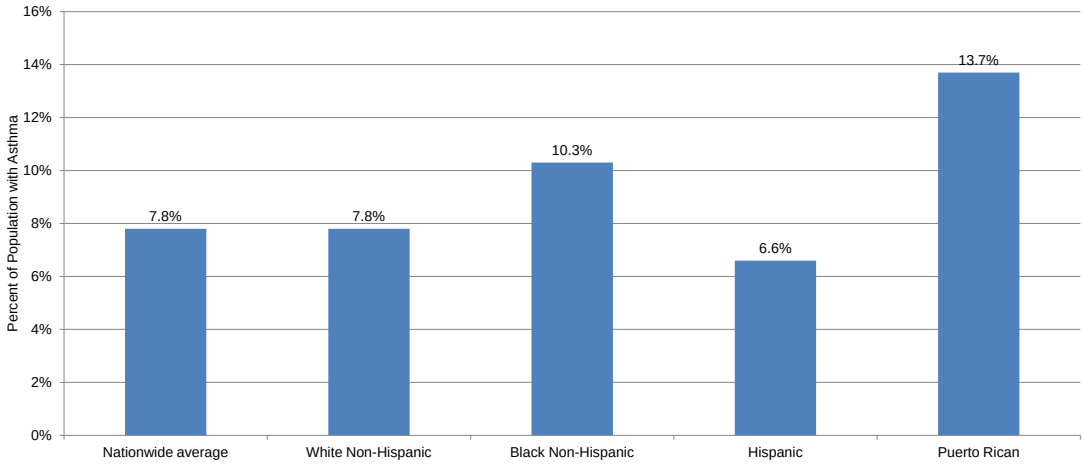
Another vital perspective that is missing from the singular focus on jobs and livelihoods is that of communities who live in the proximity of these polluting facilities (often referred to the environmental justice literature as “frontline” or “fenceline” communities). They face elevated levels of pollutants such as particulate matter and nitrogen oxides, leading to high rates of illnesses such as asthma and cancer. Unsurprisingly, these communities have disproportionately large shares of people of color and low-income people.

There is extensive documentation of racial, economic and other disparities in exposure to pollution. Here is just one example (Mikati et. al., 2018):

- Black Americans are exposed to particulate matter pollution at 1.54 times rate for general population.
- People in poverty are exposed to particulate matter pollution at 1.35 times rate for general population.

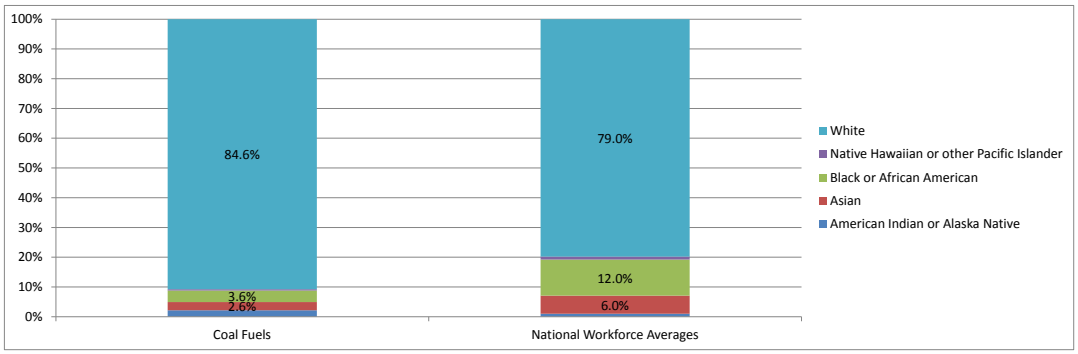
Disparities in exposure to pollutants leads to disparities in health outcomes. Figure 1 shows racial disparities in incidence of asthma nationwide for people of all ages. (CDC, 2019) The data also show similar disparities for incidence of asthma for children, and for rates of hospitalization and mortality from asthma. Besides race, the axes of disparity include income and gender.

**Figure 1. Racial Disparities in Incidence of Asthma, All Ages**




What makes these disparities even more unjust is that people from frontline communities lack access to the (relatively better paying, sometimes unionized) jobs at the facilities that pollute their neighborhoods. Figure 2 below shows the racial distribution of the workforce in coal-fired power plants, compared to the distribution for the entire U.S. workforce. (Department of Energy, 2017)

**Figure 2. Racial Distribution of Coal-Fired Power Plant Workforce Compared To National Average**




Local workforce composition obviously varies, but on average, frontline communities are being treated as sacrifice zones by our fossil-fueled economy, disproportionately exposed to the ill-effects of pollution while being locked out of the benefits of relatively better paying jobs.

Clearly, for a transition from a polluting and extractive economy to a clean economy to be truly just, it must ensure justice for everyone affected in any way by our current economic model – certainly the workers whose livelihoods depend on dirty, harmful industries, but also communities whose local economies depend on these industries, as well as communities who are treated as sacrifice zones by these industries.

Recognition of these realities has led to an evolution of the concept of just transition into one that encompasses all affected populations. This new formulation of just transition frames it as the transformation of an entire economic model from one based on extracting resources and profits to one based on meeting human needs in harmony with ecological processes, as against a mere shift from one set of technologies to another. (See for example, Climate Justice Alliance, undated)

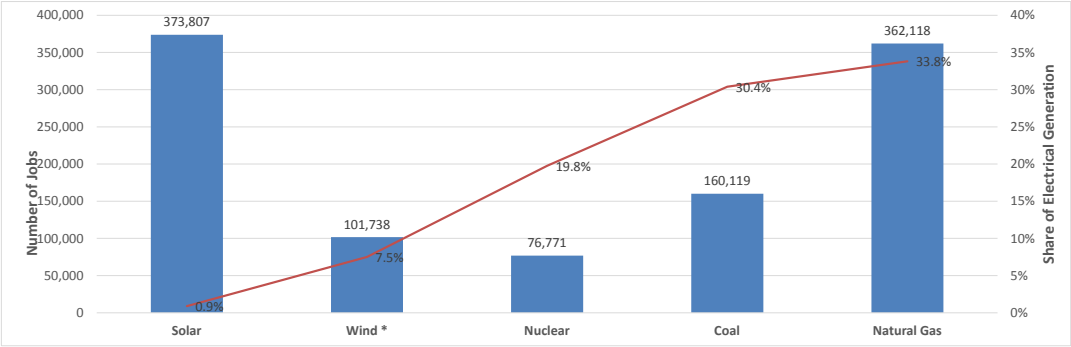
This evolving definition has the potential to resolve tensions around just transition, but it could instead exacerbate them, as well. It complicates the traditional "jobs vs. environment" narrative, because it brings even more voices and constituencies into the discussion. But importantly, working class communities of color adversely impacted both by polluting fossil fuel infrastructure and by underinvestment and unemployment, can readily "get" both concerns about the environment and health, and about economic security.

**Some Starting Points for Constructive Conversations**

I offer here a set of suggestions for ways to engage in constructive conversations about environmental protection and economic security, especially as it relates to a transition away from fossil fuels.

There are a *lot* of jobs in the transition away from fossil fuels. That shouldn't be in dispute. As an illustration, Figure 3 below shows numbers of jobs in renewable power generation and fossil fuel power generation (Department of Energy, 2017), compared to the respective shares of generation (our calculation, based on Energy Information Administration, 2019).

**Figure 3. Electric Power Generation Jobs and Share of Electric Power Generation, Selected Fossil Fuel and Renewable Sources, 2016.**




*Methodological note: While the electric power generation data are the most recent, with data through 2018, Figure 3 shows 2016 data for consistency with the 2016 jobs data from the one-time Department of Energy report.*

What is especially noteworthy about the data in Figure 3 is that, not only do renewable energy jobs outnumber coal and natural gas jobs, but they outnumber these jobs *in spite of the fact that they constitute a far smaller share of electric power generation in the U.S.* This shows the huge job-creation potential of large scale investment in renewable energy.(This should be unsurprising, given the highly labor-intensive nature of many of these jobs.)

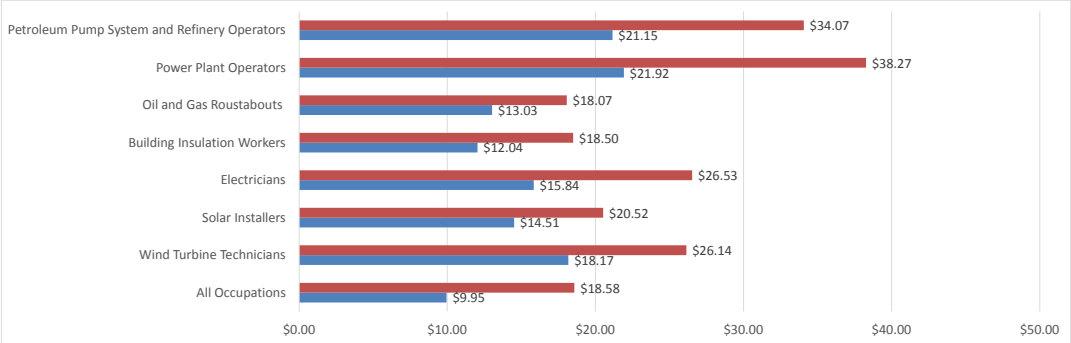
Renewable energy jobs are also the fastest growing occupations in the U.S. The two fastest growing occupations, with respective projected growth of 63% and 57% between 2008 and 2018, are solar photovoltaic installers and wind turbine service technicians. (Bureau of Labor Statistics, 2019)

Obviously, it's not just the *numbers* of jobs that we should be looking at. It is critically important to create good jobs. Two metrics I present here are wages and unionization rates.

Median and 10$^{th}$ percentile wages for renewable energy and energy efficiency occupations are in a comparable range with fossil fuel jobs, as shown in Figure 4 (Bureau of Labor Statistics, 2018). This is

not to discount the fact that the highest-paid fossil fuel jobs typically pay higher wages than clean energy jobs – but to put this in perspective, the lowest-paid fossil fuel jobs pay lower wages than clean energy jobs.

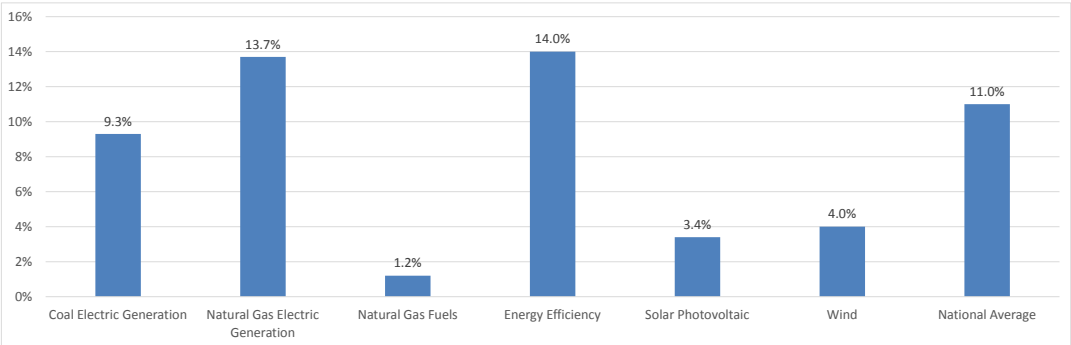
**Figure 4. Median and 10th Percentile Wages for Selected Fossil Fuel and Clean Energy Occupations.**




*Methodological note: In Figure 4, 10th percentile wages are a stand-in for starting wages, since the latter are not collected in BLS OES data.*

Unionization rates for renewable energy generation jobs in solar and wind energy (Figure 5) are distinctly lower than the national average. (Department of Energy, 2017) But again, this needs some perspective. Energy efficiency jobs have higher unionization rates than any of the fossil fuel jobs. More importantly, even the vast majority of energy efficiency jobs are non-union. The underlying problem presented in Figure 5 is the *overall low rate of union representation in the United States, across all jobs and all industries*.

**Figure 5. Rates of Union Representation in Clean Energy and Fossil Fuel Jobs, 2016**




The critical challenges that need to be addressed for a truly just workforce transition from fossil fuels to a renewable energy economy are:

- How can we ensure job quality and workers' rights in the emerging clean energy jobs?
- Who gets these jobs? Communities hurt by the extractive fossil fuel economy have a right to claim them. So do displaced fossil fuel workers. Can we set up mechanisms for both these populations to have access to these jobs, instead of pitting them against each other?

**Success Stories and Policy Recommendations**

I conclude by presenting some key policy recommendations on how to address these two key challenges, drawn largely from existing best practices, including the two case studies presented below.

Illinois Future Energy Jobs Act

The Illinois Future Energy Jobs Act (FEJA) was a comprehensive energy bill passed at the end of 2016. A large and diverse collection of environmental, labor, economic justice, and faith organizations and businesses came together to form the Illinois Clean Jobs Coalition to push for just transition language in the bill. While they did not win everything they wanted, they were remarkably effective in a state legislature that is traditionally dominated by big utilities, and very importantly, the coalition stayed together after the passage of the bill to monitor its implementation. (Sen et. al., 2018)

Key employment justice provisions of FEJA include mandating that utilities set aside funding to develop and implement renewable energy and energy efficiency job training and placement programs in partnership with community-based non-profits. These include programs that focus on individuals from economically disadvantaged and environmental justice communities, youth of color, formerly incarcerated persons, individuals who had been in the foster care system as children, and other traditionally excluded populations. (Illinois SB 2814, 2016)

The participation of community-based non-profits is key, because it involves the people on the ground working in marginalized communities in the critical work of making sure that members of their communities have access to the growing number of clean energy jobs.

Oregon home energy efficiency program

An example of a well-designed program that addresses both workforce diversity needs and job quality standards is Oregon's home energy efficiency program, run by an independent non-profit called Enhabit. It started as a pilot program of the City of Portland called Clean Energy Works Portland, and was then extended statewide as Clean Energy Works Oregon (CEWO). It has had impressive achievements in job creation, equity of job access, and job quality. (City of Portland, 2013) These include:

- 342 new hires on CEWO projects from March 2011 through December 2013.
- Over 1,000 workers were employed on CEWO projects over the same period.
- 47% of new hires were women and people of color.
- More than 55% of hours worked on CEWO projects were by women and people of color, exceeding the program goal of 30%. (Note, this is a better measure of job access than merely number of employees on payroll, because in hourly wage positions with variable hours, being on the payroll is not a guarantee that an employee is actually working and getting paid.)
- Median hourly wage on CEWO projects as of December 2013 was $18.46, compared to the 2013 median hourly wage for all occupations in Oregon of $17.24 (Bureau of Labor Statistics, 2013), indicating that CEWO-funded jobs were on the whole higher-paying than typical jobs in Oregon. (The program does not provide data about its detailed occupational make-up, making it hard to compare this median wage number with 2013 statewide wages by occupation in Oregon.)

Key policy recommendations

Some key policy recommendations for state and local governments, drawn from the two case studies presented as well as other success stories (Sen et. al., 2018), include:

- Set explicit hiring goals for people from historically excluded communities for government-funded or mandated energy projects.

- Establish dedicated funding streams (from utilities, other employers, and/or public funds) for training and placement.
- Set wage standards and benefit requirements for government-funded or mandated energy projects.
- Involve organizations based in communities of color and low-income communities, unions, and other directly affected populations in policy design and implementation, including training, hiring, monitoring and evaluation.

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