



## Working on Climate: How Union Labor Can Power A Green Future

The United States is one of the biggest contributors of climate change-inducing fossil fuel emissions.<sup>1</sup> Scientists warn that continued reliance on fossil fuels will warm the planet.<sup>2</sup> If we exceed the 1.5 degree Celsius warming threshold, increased temperatures could cause irreversibly destructive climate change, potentially making parts of the planet uninhabitable this century.<sup>3</sup>

Climate change has a disproportionate impact on communities of color and vulnerable populations.<sup>4</sup> If we keep emitting climate pollutants from fossil fuel facilities, marginalized communities will bear the biggest brunt. According to a 2018 report from the United Nations' Intergovernmental Panel on Climate Change (IPCC), a warming climate "would disproportionately affect disadvantaged and vulnerable populations through food insecurity, higher food prices, income losses, lost livelihood opportunities, adverse health impacts and population displacements."<sup>5</sup>

Instead of doubling down on new fossil fuel facilities, the United States must massively invest in clean energy. A dramatic economic reorientation to 100 percent

renewable energy is necessary to stave off the worsening effects of this climate catastrophe.<sup>6</sup> The IPCC report warns that rapid warming would bring increasing droughts, wildfires, food shortages, coral reef die-offs and other ecological and humanitarian crises by 2040 — far earlier than expected.<sup>7</sup> But greenhouse gas emissions such as carbon dioxide could be drastically reduced if we implement a "strategic shift" away from fossil fuels and rely on renewable power for energy generation, accompanied by increased use of energy efficiency technologies in buildings.<sup>8</sup>

Technology for a large-scale transition to renewables exists<sup>9</sup> — we just need strong government policies backed by political will to see them through. And

these policies and investments to rapidly shift to clean renewables such as solar and wind power should be complemented by upgraded efficiency. Other efforts to upgrade the electric grid, shift to more distributed power generation, and enhance transportation and industrial efficiency would further reduce electricity and fossil fuel demand. A fair and just transition to a clean energy future would substantially reduce energy use, save money, create jobs and reduce climate emissions.

A shift of this magnitude would work best if implemented through national green public works programs. But like President Franklin D. Roosevelt's New Deal programs,

a national green public works program must be paired with pro-labor policies to ensure that workers share fully in the massive investments.<sup>10</sup>

These policies must make it easier for workers to form unions, provide a fair and just transition

for existing fossil fuel energy workers and provide comprehensive training for new workers to develop career skills to support their families.

## The Time for a Green Economy Is Now

Transitioning to a clean energy economy would completely eliminate the need for new fossil fuel power plants, shifting our country away from dirty fuels and to more sustainable means of living. A bigger nationwide investment — along the lines of the national highway system or the New Deal's infrastructure and rural electrification programs — would benefit consumers, workers, communities and the climate.

The future of energy lies in clean, renewable solar and wind power, as well as energy efficiency manufacturing and installation. Shifting to 100 percent renewable energy and investing in energy efficiency upgrades could supercharge the clean energy sector

and provide even more jobs,<sup>11</sup> while transitioning to renewable energy protects the environment, curbs climate change and provides safer employment for American workers.<sup>12</sup>

Despite the need for drastic action, the United States is on a fossil fuel building boom, with 364 additional natural gas-fired generators and 3 new coal generators planned for the period from 2018 to 2022.<sup>13</sup> The gas industry promotes gas-fired power plants as a cleaner replacement for coal. But natural gas is no climate solution; the plants' carbon dioxide emissions and widespread leaks of the potent climate gas methane from gas infrastructure like pipelines

mean that declining combustion emissions are outweighed by increased methane emissions.<sup>14</sup> Moreover, the new gas plants *supplement* rather than replace coal-fired power plants.<sup>15</sup> Although the prevailing wisdom is that the power industry is switching

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to gas-fired plants, the reality is that the decline in coal-fired plants is being substantially eclipsed by new gas power plants.

Moreover, the new gas power plants vastly exceed the capacity of the coal plant retirements — the net gas capacity additions are nearly three times as big as the net coal retirements, and the increase in gas-fired electricity "drove the overall increase" in U.S. carbon dioxide emissions in 2018, according to the Department of Energy (DOE).<sup>16</sup> Building additional gas power plants also locks us into a fossil-fueled future: the average gas-fired electric generator is 26 years old, more than 743 generators (13 percent) went online at least 50 years ago, and the oldest operating generator went into service in 1915, over a century ago.<sup>17</sup>

To curb the worst impacts of climate change, we must stop producing natural gas and other fossil fuels, derail the massive buildout of fossil fuel infrastructure

that cements us into decades of greenhouse gas emissions, and rapidly transition to zero-emission clean energy. This transition would foster a healthier environment and provide safer, more sustainable jobs. Widescale adoption of a clean energy economy should be part of any national strategy to address the climate crisis and also spur job creation to curb America’s growing economic inequality.

## Jobs! The case for a clean energy renaissance

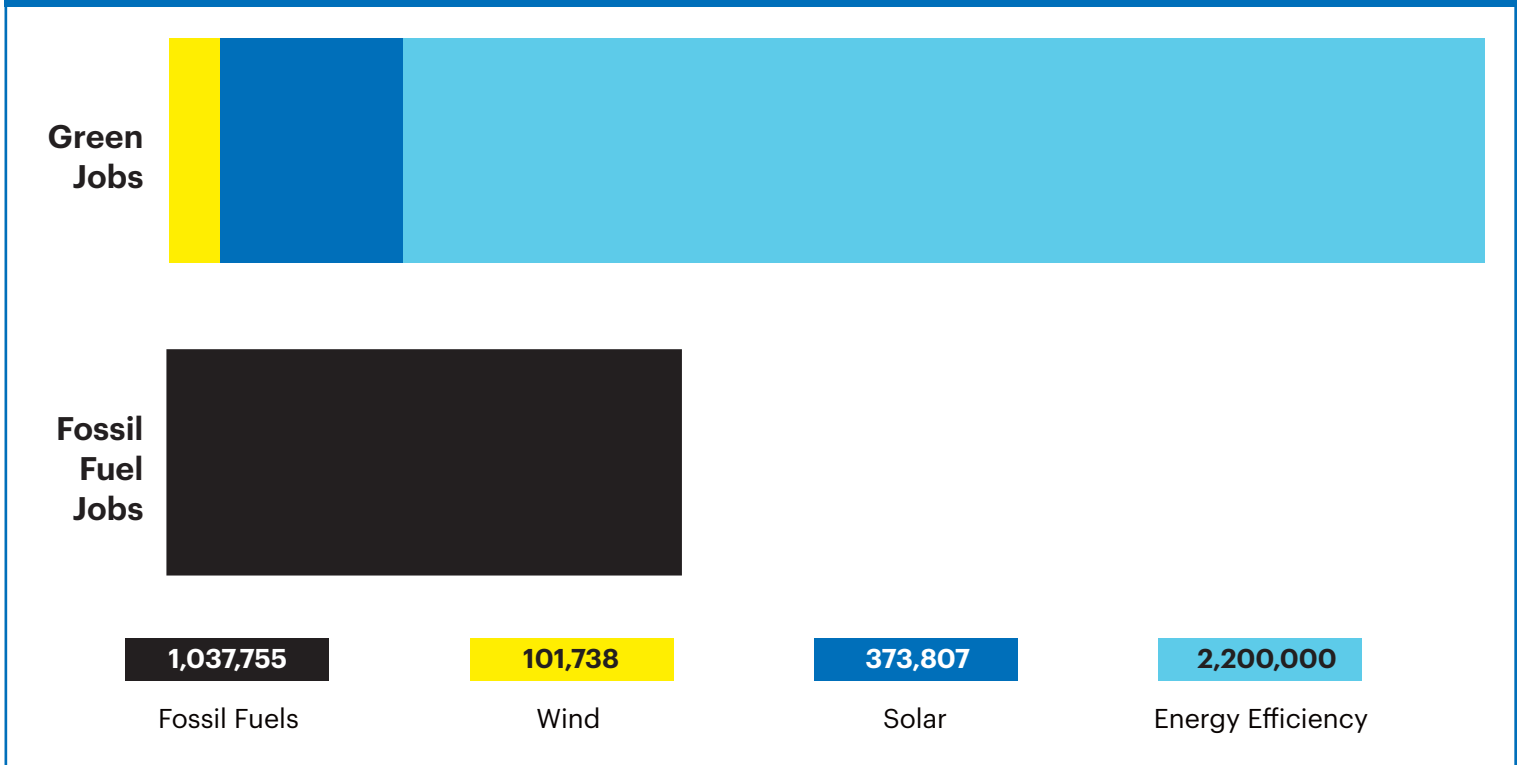
Even without national coordination, there are already more clean energy jobs than there are jobs in mining for coal, drilling for oil and gas, building pipelines or operating fossil fuel-fired power plants. Yet, the oil, gas and coal industries, their trade associations and fossil fuel-funded think tanks promote dirty energy as job creators, criticize promoting renewables and claim that we need to continue our dependence on fossil fuels.<sup>18</sup> This just isn’t true.

Renewable energy and energy efficiency are implementable approaches for stimulating job growth

and diminishing the need for additional fossil fuel plants.<sup>19</sup> In 2016, more American workers were already employed in the renewable energy and energy efficiency sectors (over 2.6 million jobs) than in fossil fuels (1 million jobs), according to DOE data.<sup>20</sup> With national green public works programs, clean energy would flourish even more.

A national investment would spur more jobs even more quickly in the growing clean energy sector, as well as make the transition off of fossil fuels a smoother and more expedited process. Despite criticisms against the economic impact of renewable energy, in 2016 the solar industry was creating jobs at a rate that was 17 times faster than in the overall economy, and wind was adding jobs at a rate that was more than 9 times faster than in the rest of the economy.<sup>21</sup> A study published in the journal *Economic Modeling* found that green energy (renewable energy, energy efficiency) creates more employment than investments in fossil fuels, with a \$1 million investment creating roughly eight green jobs (both direct and indirect), compared to only three new fossil

**Figure 1: National Green Jobs vs. Fossil Fuels Jobs in 2016**



Source: U.S. Department of Energy, 2017.

fuel jobs.<sup>22</sup> Shifting \$1 million from fossil fuel energy investment to green energy would create a net increase of five jobs.<sup>23</sup>

A robust investment should also drive down technological costs while enhancing the performance of renewable electricity generation and energy-efficient strategies and equipment. In 2015, renewable energy accounted for 64 percent of new electricity capacity additions, up from 52 percent the prior year.<sup>24</sup> A big driver for this impressive growth are significant reductions in installation, manufacturing and associated costs.<sup>25</sup>

**Renewable energy.** The renewable energy sector presents tremendous economic opportunity and has already generated significant job growth in the United States. Wind jobs continue to climb, increasing by 4 percent in 2018, and although solar jobs hit a slight decline (with tariffs to blame for the dip),<sup>26</sup> data from the U.S. Bureau of Labor Statistics (BLS) show that solar installers and wind turbine technicians are among the top two fastest-growing occupations in the country.<sup>27</sup> According to the U.S. Energy Information Administration (EIA), in 2016 wind and solar technologies made up a larger share of utility-scale capacity additions than natural gas did, with over 60 percent from wind and solar, compared to 33 percent from natural gas.<sup>28</sup>

The most comprehensive report on energy employment, published by the DOE in 2017, found that in 2016 solar accounted for 373,807 jobs in the power generation sector, wind accounted for 101,738 jobs, and natural gas accounted for a mere 52,125 jobs.<sup>29</sup> The report demonstrated that solar jobs jumped by 25 percent between 2015 and 2016, while wind employment increased by 32 percent. Of the 476,000 workers employed in renewable energy, nearly 80 percent of the workforce worked either entirely or partly for solar firms, and most of the remaining individuals were employed at wind farms.<sup>30</sup> A large portion of the new renewable jobs are related to the construction and buildout of new renewable energy capacity.<sup>31</sup>

Food & Water Watch estimates that for each megawatt, solar power can create 80 times more jobs

than natural gas (15 and 0.18 jobs, respectively), and wind power creates 7 times more jobs than natural gas (1.4 and 0.18 jobs, respectively). In 2019, the number of jobs created from planned wind and solar electricity generation (33,354 and 233,922 jobs, respectively) are projected to significantly outpace those generated from natural gas (8,401 jobs).<sup>32</sup>

**Energy efficiency.** Energy efficiency is a readily implementable approach for stimulating job growth and diminishing the need for additional fossil fuel plants.<sup>33</sup> Moreover, investments in energy efficiency generate nearly three times as many jobs as comparable investments in fossil fuels.<sup>34</sup> In 2016, there were roughly 2.2 million energy efficiency workers across the country, primarily in construction, installation of energy-efficient technologies, and manufacture of appliances and LED bulbs.<sup>35</sup> The majority of the jobs were in construction firms, installing or servicing energy-efficient goods or other services (1.37 million).<sup>36</sup> One out of every five of the 6.5 million construction workers in the United States support the construction or installation of energy-efficient technologies.<sup>37</sup> There are also hundreds of thousands of jobs in manufacturing, wholesale trade, distribution and transport, and professional and business services.<sup>38</sup> The DOE estimates that the potential exists to employ 4.2 million people just in energy efficiency construction.<sup>39</sup>

Food & Water Watch estimated in its 2019 report, *Building Climate Justice: Investing in Energy Efficiency for a Fair and Just Transition*, that a \$500 billion investment in energy efficiency from 2020 to 2035 could create 20.8 million jobs.<sup>40</sup> Combined, the efficiency jobs and the induced jobs from energy savings would create more than 1.3 million permanent full-time jobs per year — which would represent 52 percent more new jobs than were created annually between 2013 and 2017.<sup>41</sup> The efficiency upgrades would amount to a significant reduction in demand for U.S. natural gas production and could begin to address the widening income and wealth inequality in the United States that has made it impossible for working families to get ahead.



## A National Green Public Works Program Could Curb America's Growing Inequality

The future of clean energy and energy efficiency depends largely on how our nation's political landscape evolves. The fossil fuel industry has benefited from supportive laws and public policy, with much of its success rooted in nearly a century's worth of financial support from the government.<sup>42</sup> A green public works program focused on renewable energy and upgrading the energy efficiency of buildings would address the looming climate crises and generate economic growth. Investments in a green economy would create jobs in manufacturing and construction for wind turbines, solar panels and energy-efficient building upgrades. And energy savings from implementing these green energy technologies can be reinvested into the economy, spurring more economic and job-creating activity, which can translate to capital savings and contribute to economic growth.<sup>43</sup>

Household income inequality has been increasing, and by 2015 the top 1 percent of households earned over 26 times more than the rest of the 99 percent of households.<sup>44</sup> The wealth gap is even more stark, with the most affluent 0.1 percent of families (160,000 households) holding 22 percent of the nation's wealth

— the same amount as the bottom 90 percent of families (144,000,000 households).<sup>45</sup> As the richest seized a greater share of the pie, middle-income families saw their real, inflation-adjusted household incomes decline, and the poverty rate has risen.<sup>46</sup> The growing economic inequality is what Nobel-winning economist Joseph Stiglitz called one of the "critical issues facing our country" that has made the "American dream a myth."<sup>47</sup>

The widening gulf between economic haves and have-nots has disproportionately harmed people of color. For example, typical African American household income has remained less than 60 percent of typical white household income over the past 50 years (57 percent in 1968 and 56 percent in 2016).<sup>48</sup>

The yawning income inequality has made it increasingly difficult for children born to lower-income families to get ahead — these kids are far less likely to climb the income ladder than kids born to upper-income families.<sup>49</sup> This lack of income mobility is much more pronounced for African Americans and Indigenous Americans who face "large income disparities that persist across generations"; for Latinos, inter-generational income mobility is slightly lower than for whites, but the typical Latino household income starts at a much lower level.<sup>50</sup> One author noted that "once racial inequality exists, increases in economic inequality will exacerbate racial disparities."<sup>51</sup>

Green energy jobs could begin to address the widening income and wealth inequality in the United States that has made it impossible for working families to get ahead. The most effective way to ensure the transition to a green economy is through supportive public policy, including a comprehensive green public works program that is comparable to President Roosevelt's New Deal. This is critical so that clean energy can have a fighting chance to prevail, much like the fossil fuel industry that has historically been propped up by our government.<sup>52</sup>

But these investments must be paired with pro-labor policies and reforms to ensure that workers get a fair share of the benefits of the substantial economic investments. And the massive economic transformation necessary to move off fossil fuels must be paired with worker protections to address the widening economic inequality for both disadvantaged communities and fossil fuel workers that would bear a disproportionate economic brunt of decarbonization.

## Investing in green energy equals investing in communities

Investing in green energy makes sense for the economy, the climate, and the widening inequality gap, and for lessening the pollution burdens faced by frontline communities that tend to live near dirty power plants and natural resource production. Green energy can help clear the air and lessen the amount of climate pollutants entering the atmosphere, while reinvesting money back into communities and generating local jobs.

Investments in green energy can also be effectively self-funding. For example, the energy bill savings and economic activity stimulated by energy efficiency upgrades would likely exceed the cost of the programs.<sup>53</sup> Every \$1 million invested in energy

efficiency in the U.S. southeast produced \$3.87 million in economic output — meaning that the economic benefits were nearly four times the investment.<sup>54</sup>

Renewable energy and energy efficiency initiatives both directly and indirectly affect the economy, people and businesses.<sup>55</sup> Already, energy efficiency is a readily implementable approach for stimulating job growth and diminishing the need for additional fossil fuel plants.<sup>56</sup>

Investments in energy efficiency and renewable energy both generate nearly three times as many jobs as comparable investments in fossil fuels.<sup>57</sup>

Jobs in wind, solar and building efficiency include both installation and construction jobs as well as manufacturing jobs — known as direct

and indirect jobs.<sup>58</sup> For example, installing high-efficiency windows would be a direct efficiency job, but manufacturing and delivering the windows would be indirect jobs that supply the installers.<sup>59</sup> Both renewable energy and energy efficiency jobs tend to be inherently localized and domestic, and are almost impossible to outsource.<sup>60</sup>

## Closing the inequality gap

Household income inequality has been increasing. Adding to the burden, lower-income households spend about 11 percent of earnings on utilities,<sup>61</sup> and many African American and Latino households, lower-income families and renters tend to live in older, less efficient homes with higher energy costs per square foot.<sup>62</sup> People of color and families living at under 200 percent of the federal poverty line made up nearly half the households living in inadequate housing (including poor insulation, heating problems and structural leaks and holes), and about 60 percent of African American and Latino families live in housing stock built before 1970, when construction rarely prioritized efficiency.<sup>63</sup>

**A national green public works program would help provide sufficient funding and grants to upgrade houses for lower-income homeowners; reducing energy costs by one-third would deliver substantial benefits.**

Inefficient buildings and subsequent high energy burdens can force households to decide between paying for utilities or other basic necessities such as food or medical care.<sup>64</sup> And renters face a unique challenge as landlords have little incentive to invest in efficiency upgrades.<sup>65</sup> A national green public works program would help provide sufficient funding and grants to upgrade houses for lower-income homeowners; reducing energy costs by one-third would deliver substantial benefits. Weatherization improvements alone (reducing building leaks) could cut energy bills by between \$300 and \$400 annually.<sup>66</sup>

Investing money in green energy by itself will not ensure that the jobs reach disadvantaged workers. Most renewable energy and energy efficiency jobs are in construction.<sup>67</sup> But the construction industry workforce has disproportionately been white and male, leaving women and people of color out of the green energy job opportunities.<sup>68</sup> But programs that aggressively recruit and train efficiency and renewable energy-related construction workers from underserved areas can start to remedy this historic lack of opportunity.

## Ensuring a just transition for fossil fuel workers

Increasing our investment in green jobs will bolster American industries and employment, creating more well-paid jobs while installing American-made efficiency and clean energy upgrades. Green jobs must be unionized to help ensure that these workers have family-supporting jobs, and any green public works program must be paired with pro-labor policies to ensure that workers share fully in the massive investments.

A green public works program must take into consideration the current fossil fuel workforce and develop policies to minimize the burden and maximize the benefits of transitioning off fossil fuels; it must create and reinforce a fair and just transition from fossil fuel employment to the clean energy sector. Policies must make it easier for workers to form unions, provide comprehensive training for new and transitioning workers to develop the necessary career skills while earning a fair wage that can support their families,

and ensure that companies that manufacture and install energy-efficient equipment and technologies do not have a history of violating labor, wage and hour, workplace safety, tax and environmental rules.

In doing so, a green public works program should include a component that focuses on a fair and just transition for fossil fuel workers. Dedicated public funding must be designated to support these efforts. A fair and just transition should include guaranteed pensions for fossil fuel workers, training and relocation support for laid off fossil fuel workers, and community transition support for regional economies that are centered around fossil fuel activity, to ensure that they receive financial support needed to advance clean energy projects.<sup>69</sup> Federal economic development funding should be directed at building domestic manufacturing for renewable energy centered in the communities most affected by the move to renewable energy.

## Conclusion

Continued investments sunk into pipelines, oil and gas wells, fracking and fossil fuel infrastructure lock us into a dirty energy future in defiance of climate science. The way out must be an immediate and dramatic shift to zero-emission wind and solar power, accompanied by widespread deployment of energy efficiency.

The United States must make enormous investments to deploy existing technologies and solutions for harnessing zero-emission renewable energy power, as well as investments in upgrading energy efficiency — the easiest reductions are in the energy we need not use at all. The call for genuine, emissions-free renewable energy dates back nearly 50 years. We need a New Deal-scale green public works investment with Apollo Project-level innovation to drive the rapid transition to real, clean energy.

The United States must be a global leader on this ambitious path. The goal of 100 percent clean, renewable energy by 2030 is achievable with the necessary political will. Everyone in the United States must demand strong government policies and commit to aggressive action now.

**Food & Water Watch recommends:**

- Investment in a New Deal-scale green energy public works program that fosters a rapid transition to real, zero-emission clean energy like solar and wind, accompanied by widescale deployment of energy efficiency.
- Clean energy investments that are targeted in socially and economically disadvantaged areas and in environmental justice communities with disproportionate pollution burdens.
- Congress should expand funding for renewable energy and energy efficiency research at the Department of Energy.
- States should invest in renewable energy and energy-efficient technology by allocating their own grants and other monetary incentives to local companies and communities.
- States and localities should strengthen and regularly upgrade building codes to ensure that newly constructed buildings are energy-efficient and utilize rooftop solar.
- Incentives are needed for procurement of American-made renewable energy and energy-efficient equipment, materials and appliances.
- Labor law reforms must be implemented to make it simpler for workers to establish independent unions.
- Community-labor partnerships should be established to recruit and train workers from disadvantaged communities where much of the energy efficiency retrofitting must take place.
- Fully funded, high-quality job training is needed to ensure that green jobs provide career opportunities.
- Fully funded fair and just transition programs are needed for fossil fuel workers.

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(202) 683-2500

[foodandwaterwatch.org](http://foodandwaterwatch.org) • [info@fwwatch.org](mailto:info@fwwatch.org)

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