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A Just Transition: Why Transitioning Workers into a New Clean Energy Economy Should Be at the Center of Climate Change Policies

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Abstract

With a hostile federal administration, states must take up the fight against climate change. Shortly after the United States withdrew from the Paris Climate Accord, governors from several states announced efforts to meet the targets. This article argues that state level climate actions must consider the economic consequences of climate policy. A shift away from fossil fuels is a fundamentally necessary step in the fight against climate change. However, the economic impact of this shift will be felt most acutely by fossil fuel workers and communities, many of which are already facing economic hardships. Attention and resources must be focused on helping these workers and communities adapt to clean energy in a way that is fair and just, otherwise known as *just transition*. By failing to address the economic impact of moving away from fossil fuels, climate change will become a driver of inequality. Looking at examples in the United States and Germany, this article presents three elements necessary for a just transition program: dedicated funding streams, strong public sector role, and partnership with non-governmental organizations and unions. This article looks at New York State's recently announced Clean Climate Careers Initiative and analyzes it through the proposed just transition framework.

KEYWORDS: Climate Change, Environment, Economy

**A JUST TRANSITION: WHY TRANSITIONING WORKERS
INTO A NEW CLEAN ENERGY ECONOMY SHOULD BE AT
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ABSTRACT

With a hostile federal administration, states must take up the fight against climate change. Shortly after the United States withdrew from the Paris Climate Accord, governors from several states announced efforts to meet the targets. This article argues that state level climate actions must consider the economic consequences of climate policy. A shift away from fossil fuels is a fundamentally necessary step in the fight against climate change. However, the economic impact of this shift will be felt most acutely by fossil fuel workers and communities, many of which are already facing economic hardships. Attention and resources must be focused on helping these workers and communities adapt to clean energy in a way that is fair and just, otherwise known as *just transition*. By failing to address the economic impact of moving away from fossil fuels, climate change will become a driver of inequality.

Looking at examples in the United States and Germany, this article presents three elements necessary for a just transition program: dedicated funding streams, strong public sector role, and partnership with non-governmental organizations and unions. This article looks at New York State's recently announced Clean Climate Careers Initiative and analyzes it through the proposed just transition framework.

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INTRODUCTION

Facing a hostile federal administration, climate change advocates can only turn to state and local governments for meaningful action on climate change. Fortunately, states and localities are signaling their willingness to step up to fill the federal leadership void. For example, within days of the announcement that the United States would pull out of the Paris Climate Accord, seven governors representing 15 percent of the country's emissions announced they would work to meet the previously agreed upon targets.¹

One of these fast-acting governors, New York State Governor Andrew Cuomo, followed his pledge to uphold the Paris Climate Accord with a big climate initiative that would invest \$1.5 billion in renewable energy and energy efficiency projects.² Building on work done at Cornell University's Worker Institute, Cuomo's initiative also pledged by 2020 to create 40,000 climate jobs, i.e. jobs that reduce greenhouse gas emissions, such as making buildings more energy efficient, renewable energy production and development, and transportation buildout.³ In addition, the Governor's initiative pledged another \$15 million in workforce development and training programs, and established an Environmental Justice and Just Transition working group.⁴ Both of these initiatives help build the economy of the future by training workers for jobs in a clean energy economy and helping transition communities and workers away from fossil fuels and into a clean energy future.

1. James Conca, *The Paris Agreement: As Trump Pulls Out, Governors Jump In*, FORBES (June 4, 2017), <https://www.forbes.com/sites/jamesconca/2017/06/04/the-paris-agreement-as-trump-pulls-out-governors-jump-in/#10634d4f5c57> [https://perma.cc/L5LP-8TNJ].

2. NEW YORK STATE OFFICE OF GOVERNOR ANDREW M. CUOMO, GOVERNOR CUOMO ANNOUNCES MAJOR CLIMATE AND JOBS INITIATIVE IN PARTNERSHIP WITH THE WORKER INSTITUTE AT CORNELL UNIVERSITY ILR'S SCHOOL AND CLIMATE JOBS NY TO HELP CREATE 40,000 CLEAN ENERGY JOBS BY 2020 (2017).

3. See e.g., *id.*; The Worker Institute, *Labor Leading on Climate Initiative*, CORNELL UNIVERSITY (2017) <https://www.ilr.cornell.edu/worker-institute/initiatives/labor-leading-on-climate>; J. Mijin Cha, *Labor Leading on Climate: A Policy Platform to Address Rising Inequality and Rising Sea Levels in New York State*, 34 PACE ENVTL. L. REV. 423 (2017).

4. See *id.*

A shift away from fossil fuels is a fundamentally necessary step in the fight against climate change. However, the economic impact of this shift will be felt most acutely by fossil fuel workers and communities, many of which are already facing economic hardships. Attention and resources must be focused on helping these workers and communities adapt to a clean energy in a way that is fair and just, otherwise known as *just transition*.

This article looks more closely at the idea of just transition and argues that just transition must be at the center of any climate change efforts. Without transitioning fossil fuel communities and workers, climate change advocates will continue a pattern of exploitation and exacerbate existing inequalities that will ultimately hinder efforts to abate the worst impact of climate change. In fact, inequality and climate change are inextricably intertwined and one cannot be solved without addressing the other. The article first lays out why just transition must be at the center of climate change efforts through a closer look at coal communities. Then, the article looks at just transition examples from the United States and Germany and analyzes New York State's just transition plans. Finally, the article concludes by presenting the elements necessary for a successful just transition.

I. THE RELATIONSHIP BETWEEN INEQUALITY AND CLIMATE CHANGE

The use of fossil fuels, including oil, coal, and natural gas, has built economies globally and in the United States.⁵ Burning fossil fuels is also the leading cause of climate change.⁶ Because work or work-related human activities are main causes of climate change, they must be central to climate adaptation or mitigation measures.⁷ There is no escaping it – shifting away from fossil fuels will impact communities built around fossil fuel extraction and eliminate work in the fossil fuel industry. For example, by some estimates, coal consumption will need to decrease by 60 percent in order to keep global warming under two

5. *See Fossil Fuels*, ENVIRONMENTAL AND ENERGY STUDY INSTITUTE (2017) <http://www.eesi.org/topics/fossil-fuels/description>.

6. *See id.*

7. *See* REPORT OF THE DIRECTOR-GENERAL, WORKING IN A CHANGING CLIMATE: THE GREEN INITIATIVE (International Labour Office ed., 1st ed. 2017).

degrees Celsius.⁸ This level of decrease in coal consumption could result in the loss of 40,000 jobs domestically over a 20-year period.⁹

Fossil fuel communities and workers have been exploited to fuel economic development. This history means an affirmative duty exists to help transition these communities and workers to a clean energy economy. In Kentucky, for example, the heavy reliance on coal production pushed out any other local development investment that might reduce access to coal.¹⁰ Research shows that counties in Kentucky that were highly dependent on coal production had significantly lower industrial diversification.¹¹ Coal production dominated local politics and its favored tax status made other economic activity costlier, further inhibiting the state's ability to diversify its economic activity.¹²

The heavy dependence on coal did not necessarily economically benefit the workers and communities that grew dependent on extracting the resource. Even in "boom" times, Kentucky counties that were heavily dependent on coal production did not have income levels much higher than those of nearby areas that were not as dependent on coal mining.¹³ Moreover, the benefits from coal mining are concentrated among coal mine operators and holders of mineral rights.¹⁴ While mine workers who are unionized can also make a good income,¹⁵ the share of unionized mines is significantly diminished. In 2015, there were fewer than 150,000 union mines.¹⁶ In 2002, by comparison, there were more than 261,000 union mines.¹⁷

8. See Robert Pollin & Brian Callaci, *A Just Transition for U.S. Fossil Fuel Industry Workers*, THE AM. PROSPECT (July 6, 2016), <http://prospect.org/article/just-transition-us-fossil-fuel-industry-workers> [<https://perma.cc/D6TZ-JRDV>].

9. See *id.*

10. See Charles S. Perry, *Coal Production and Socioeconomic Development in Southern Appalachia: The Case of Eastern Kentucky*, 11 SOC. INDICATORS RES. 195, 196 (1982).

11. See *id.* at 202.

12. See *id.* at 196.

13. See *id.* at 202.

14. See *id.* at 197.

15. See *id.*

16. See U.S. ENERGY INFORMATION ADMINISTRATION, ANNUAL COAL REPORT 2016 Table 7 (2016).

17. See ENERGY INFORMATION ADMINISTRATION, ANNUAL COAL REPORT 2002 18 (U.S. Department of Energy ed., 2002).

Employment, union and non-union, has been declining in the coal industry since 2008.¹⁸ Coal production peaked in 2008, but automation caused the workforce to decline for many decades before 2008. Between 1987 and 2004 the nation's coal workforce fell from 151,000 workers to just below 80,000 in 2004.¹⁹ Since that time, unemployment in coal country has increased steadily, leaving parts of Appalachia with a double-digit unemployment rate.²⁰ Coal mining is unable to provide much relief for unemployment through job creation. Besides those that own mines or work at mines, few opportunities are generated by coal mining, which leaves large swaths of the population unemployed or underemployed.²¹

At its peak, coal mining was not a strong economic benefactor. Now that coal is on the decline, coal country is facing even greater economic troubles. While the mining industry contends environmental regulation is responsible for the decreasing demand for coal,²² the decline of the coal industry is the result of several market factors, including missteps by the industry in expanding mining in China, only to see demand fall.²³ The most significant contributor to the decline in coal demand is the natural gas boom, which restructured the energy landscape. In recent years, natural gas has become significantly cheaper, and in 2016, it surpassed coal "as the leading fuel on an annual basis for the first time on record."²⁴ Coal production is unlikely to return to peak levels, even if natural gas prices increase, because the energy

18. See ADELE C. MORRIS, *BUILD A BETTER FUTURE FOR COAL WORKERS AND THEIR COMMUNITIES* (THE BROOKINGS INSTITUTE ED. (2016)).

19. See *id.* at 10.

20. Andrea Caruthers, *Mapping Poverty in the Appalachian Region*, COMMUNITY COMMONS (Aug. 9, 2016), <https://www.communitycommons.org/2016/08/mapping-poverty-in-the-appalachian-region/> [<https://perma.cc/TG42-D6AM>].

21. See Perry, *supra* note 10, at 197.

22. See e.g., Anya Litvak, *Murray CEO predicts doom for coal, says own company will survive*, PITTSBURGH POST-GAZETTE (Sept. 23, 2014), <http://powersource.post-gazette.com/frontpage/2014/09/23/Murray-CEO-predicts-doom-for-coal-says-own-company-will-survive/stories/201409220208> [<https://perma.cc/3VHM-C2FJ>].

23. See Hiroko Tabuchi, *Coal Jobs Prove Lucrative, but not for those in the Mines*, N.Y. TIMES (May 2, 2017), https://www.nytimes.com/2017/05/02/climate/coal-jobs-prove-lucrative-but-not-for-those-in-the-mines.html?_r=0 [<https://perma.cc/V24W-XUD3>].

24. See MORRIS, *supra* note 18, at 4.

landscape has permanently changed—coal fired power plants are closing and capital for new plants is being allocated away from coal.²⁵ In the United States, coal plants are being taken offline.²⁶ In 2015, nearly five percent of all coal-powered plants were retired in just one year.²⁷ In the first half of 2017, two of the country's largest coal fired power plants announced plans to close because the plants were operating at a loss.²⁸ While there are some coal plants currently planned or under construction in the United States, far more have been canceled or delayed.²⁹

Yet, although coal companies may be seeing profit losses, coal executives have seen their pay increase at a rate higher than in other industries.³⁰ To be sure, the widening gap between executive pay and worker pay is endemic in all industries.³¹ However, the gap in the coal industry is particularly pronounced. In just two years, from 2012 to 2014, Peabody Energy, the world's largest private sector coal company, lost nearly \$2 billion.³² During that same period, the executive team was paid roughly \$75 million.³³ As reported in the *New York Times*, the average wage for chief executives in the coal industry

25. See TOM SANZILLO & DAVID SCHLISSEL, IEEFA 2017 U.S. COAL OUTLOOK: SHORT-TERM GAINS WILL BE MUTED BY PREVAILING WEAKNESSES IN FUNDAMENTALS (Institute for Energy Economic and Financial Analysis ed., 2017).

26. See *id.*

27. Devashree Saha & Sifan Liu, *Coal plant retirements will continue despite Trump's EPA pick*, BROOKINGS (Dec. 19, 2016), <https://www.brookings.edu/blog/the-avenue/2016/12/19/coal-plant-retirements-will-continue-despite-trumps-epa-pick/> [<https://perma.cc/V8MZ-G8AH>].

28. Brady Dennis & Steven Mufson, *The West's largest coal-fired power plant is closing. Not even Trump can save it*, THE WASH. POST (Feb. 14, 2017), https://www.washingtonpost.com/news/energy-environment/wp/2017/02/14/the-wests-largest-coal-fired-power-plant-is-closing-not-even-trump-can-save-it/?utm_term=.dd56128992b7 [<https://perma.cc/TG2C-RPX9>].

29. See *What happened to the 151 proposed coal plants?* SOURCE WATCH https://www.sourcewatch.org/index.php/What_happened_to_the_151_proposed_coal_plants%3F [<https://perma.cc/7HX4-DM24>].

30. See *id.*

31. Sorapop Kiatpongsan & Michael I. Norton, *How Much (More) Should CEOs Make? A Universal Desire for More Equal Pay*, 9 PERSP. ON PSYCHOL. SCI. 587 (2014).

32. See Tabuchi, *supra* note 23; see also *All About Peabody*, PEABODY ENERGY, INC. (2017), <https://www.peabodyenergy.com/Who-We-Are/All-About-Peabody>.

33. See Tabuchi, *supra* note 23.

rose 60 percent from \$125,000 a year in 2004 to \$200,000 in 2016.³⁴ These figures do not take into account bonuses, share options, and other incentives that can further inflate executive compensation.³⁵ In contrast, pay for workers in the coal industry have risen at a much lower rate. Construction jobs in mining, for example, paid \$31,470 in 2004 and rose to \$35,080 in 2016, an increase of just over 11 percent.³⁶ Adjusting for inflation, \$31,470 is equivalent to \$40,258 in 2016 dollars.³⁷ Thus, in real terms, pay for construction jobs in mining has actually decreased over time.

For coal workers, the increasing economic inequality comes with a drastic decline in unionization rates. In 1983, 62 percent of coal mining jobs were unionized.³⁸ By 2016, just 11 percent of coal mining jobs were union.³⁹ And in Kentucky, the heart of coal country, there are no longer operating union mines.⁴⁰ The drastic decline in unionization rates is particularly concerning for workers with respect to safety. A Stanford University study published in 2012 found that unionized mines were substantially safer than non-unionized mines.⁴¹ Among the findings, the study found that, “unionization is associated with a 14 to 32% drop in traumatic injuries and a 29 to 83% drop in fatalities.”⁴²

The decline in union jobs and overall job quality within the coal industry is part of a national crisis. Wealth and income inequality is at

34. *See id.*

35. *See id.*

36. *See id.* (referencing U.S. DEP’T. OF LABOR, BUREAU OF LABOR STATISTICS, *May 2016 National Industry-Specific Occupational Employment and Wage Estimates, NAICS 212100 - Coal Mining* (2016)).

37. Inflation calculated using the Consumer Price Index (CPI) Inflation Calculator provided by the United States Bureau of Labor Statistics. *See* U.S. DEP’T. OF LABOR, BUREAU OF LABOR STATISTICS CPI INFLATION CALCULATOR (2017).

38. *Compare* UNION MEMBERSHIP, COVERAGE, DENSITY, AND EMPLOYMENT BY INDUSTRY, <http://unionstats.com/> (1983); *with* UNION MEMBERSHIP, COVERAGE, DENSITY, AND EMPLOYMENT BY INDUSTRY, <http://unionstats.com/> (2016).

39. *See id.*

40. *See* Dylan Lovan, *No union mines left in Kentucky, where labor wars once raged*, WASH. POST (Sept. 5, 2015), https://www.washingtonpost.com/business/economy/closure-of-kentuckys-last-unionized-coal-mine-may-be-ironic-sign-of-success/2015/09/05/8c1a1a42-5417-11e5-8c19-0b6825aa4a3a_story.html?utm_term=.6c1359e93932 [<https://perma.cc/9YVD-MCXN>].

41. *See* Alison D. Morantz, *Coal Mine Safety: Do Unions Make a Difference?*, 66 ILR REV. 88 (2013).

42. *Id.*

historic levels and for many, employment fragility is at the heart of this rising inequality.⁴³ Some workers have quality jobs with benefits; many others are forced to work for inadequate wages with little to no benefits.⁴⁴ Workers are receiving less and less to sustain their families and long-term strategies to address social issues, such as sustainability, are undermined by the prioritization of short-term benefits for shareholders.⁴⁵

II. THE IMPACT OF CLIMATE CHANGE POLICIES ON JOB OPPORTUNITIES

As the coal mining example shows, climate change policies will have a significant impact on labor markets and work. Some impacts will be based on shifting away from fossil fuel production and use, while other impacts will be due to a more comprehensive climate mitigation and/or adaptation approach. A multi-organizational study found that climate change will impact labor markets in four ways: job creation opportunities (e.g., jobs created from new renewable energy and greenhouse gas mitigation technology); job substitution (e.g., shifts from auto production to rail production); job elimination (e.g., cessation of fossil fuel production); and transformation and redefinition of existing jobs (e.g., plumbers or electricians that would shift to work on climate friendly projects).⁴⁶

Due to the impact of climate change on labor markets and the nature of work, labor unions around the world, including many labor unions in New York State, are invested in creating a just transition. Certainly, there remains a division within the labor movement around climate change, as was most recently seen in the fights against the Keystone and Dakota Access pipelines.⁴⁷ The opposition some labor unions have

43. See THOMAS M. SHAPIRO, TOXIC INEQUALITY HOW AMERICA'S WEALTH GAP DESTROYS MOBILITY, DEEPENS THE RACIAL DIVIDE, AND THREATENS OUR FUTURE 18, 199 (2017).

44. See *id.* at 18.

45. See Anabella Rosemberg, *Building a Just Transition, the Linkages between Climate Change and Employment*, 2 INT'L J. OF LABOUR RES. 127 (2010).

46. See UNITED NATIONS ENVIRONMENT PROGRAMME, GREEN JOBS: TOWARDS DECENT WORK IN A SUSTAINABLE, LOW-CARBON WORLD 3 (2008).

47. See Press Release, Richard Trumka, President, AFL-CIO (Sept. 15, 2016) (on file with author) (supporting the Dakota Access Pipeline); see also Opposition Statement, Service Employees International Union, SEIU Statement on Standing

to climate change mitigation efforts is rooted in the need to protect their members. It is true, as stated above, that there will be job losses in fossil fuel industries as the economy shifts to using renewable fuels. If the Keystone or Dakota Access pipelines were not built, the construction unions that would have built the pipelines would not have received that work. If coal or natural gas fired power plants are shut down, those workers will lose their jobs. This difficult reality underscores the complexity of just transition efforts.

In addition, previous attempts to transition workers affected by major economic shifts have proven largely unsuccessful. The Apollo Alliance and Cornell University's Worker Institute detailed previous worker transition attempts in their report, *Making the Transition: Helping Workers and Communities Retool for the Clean Energy Economy*.⁴⁸ Through history, worker transition programs were developed in America to assist workers who were negatively impacted by United States trade policies; workers negatively impacted by mechanization, former Northeast and Midwest railroad workers, and former timber harvesters.⁴⁹ These programs, however, have had limited success in transitioning workers due to limited participation rates and inadequate income and benefit levels, among other shortcomings.⁵⁰

The complexity of just transition efforts highlights the need for labor unions to be at the center of these efforts. Currently, there is a growing leadership within the labor movement that understands the urgency of climate change and the role the labor movement can play in guiding environmental policy to protect workers. As Annabella Rosemberg, climate and environmental advisor at the International Trade Union Confederation (ITUC) wrote, "'Just Transition' can be understood as the conceptual framework in which the labor movement captures the complexities of the transition towards a low-carbon and climate-resilient economy, highlighting public policy needs and aiming to

Rock Sioux and Dakota Access Pipeline (Oct. 1, 2016) (on file with author) (opposing the Dakota Access Pipeline).

48. See APOLLO ALLIANCE & CORNELL GLOBAL LABOR INSTITUTE, *MAKING THE TRANSITION: HELPING WORKERS AND COMMUNITIES RETOOL FOR THE CLEAN ENERGY ECONOMY* (2009).

49. See *id.* at 4-5.

50. See *id.* at 6-8.

maximize benefits and minimize hardships for workers and their communities in this transformation.”⁵¹

III. THE CASE FOR CLIMATE JOBS AND A JUST TRANSITION

There is a way to reverse this trend and prevent the worst impacts of climate change. Investing in climate jobs, as evidenced in Governor Cuomo’s climate jobs initiative, can create well-paying jobs that reduce carbon emissions. However, climate jobs will not be “good” jobs that pay family sustaining wages and provide benefits by default.⁵² Instead, deliberate design decisions must be at the center of any climate jobs initiative.⁵³ The Paris Climate Accords underscores this reality by explicitly detailing just transition through the promise of “creation of decent work and quality jobs.”⁵⁴

In crafting a climate jobs agenda, special attention must be paid to transitioning fossil fuel communities and workers because there will be a disconnect in time and place between where jobs are lost and where jobs will be created.⁵⁵ For example, while jobs in the solar industry are growing and total employment in the sector outpaces coal,⁵⁶ coal workers will not necessarily transition directly into installing solar panels because coal mining and solar installation are different kinds of work and require different skill sets. Even where solar jobs are a focus of employment strategies in Appalachia, widespread solar job creation still faces many barriers.⁵⁷ A lack of policy programs and financial incentives that encourage solar development in larger solar markets, such as California, hinder solar growth potential in Appalachia because there is not enough support to

51. *See* Roseberg *supra* note 45, at 141.

52. *See* REPORT OF THE DIRECTOR-GENERAL, *supra* note 7, at 4.

53. *See id.*

54. *Id.*; *see also* Paris Agreement, Introduction, Nov. 4, 2016.

55. *See* Pollin & Callaci, *supra* note 8, at 4.

56. *See* Nadja Popovich, *Today’s Energy Jobs Are in Solar, Not Coal*, N.Y. TIMES (Apr. 25, 2017), <https://www.nytimes.com/interactive/2017/04/25/climate/todays-energy-jobs-are-in-solar-not-coal.html> [https://perma.cc/6TV5-3P2M].

57. *See* Carol J. Clouse, *Green energy in a coal state; the struggle to bring solar jobs to West Virginia*, THE GUARDIAN (Mar. 19, 2017), <https://www.theguardian.com/sustainable-business/2017/mar/19/solar-power-industry-jobs-market-coal-west-virginia> [https://perma.cc/P2EW-PTVS].

develop an emerging solar market.⁵⁸ Targeted policy programs and financial incentives can help develop strong markets for solar installation by providing steady demand through mandates and offsetting the cost of solar installation for customers, which increases demand.

For example, Kentucky and West Virginia do not have a Renewable Portfolio Standard (RPS), which requires utilities to sell a certain percentage or amount of renewable electricity.⁵⁹ An RPS helps provide market stability for renewable electricity, as energy producers know there will be a guaranteed minimum demand. In contrast, California's RPS goal is 50 percent by 2030.⁶⁰ Both Kentucky and West Virginia also lack any meaningful financial incentives for installing residential solar.⁶¹ The result is that the payback period for a 5-kW solar installation is 19 years in Kentucky and 17 years in West Virginia.⁶² The payback period for a 5-Kw solar installation in solar-friendly state Massachusetts is 4 years.⁶³ Without supportive policy and financial incentives, expanding the solar market in places like Kentucky and West Virginia is difficult.

As a result of the barriers to solar growth, solar jobs often exist in areas that are geographically removed from Appalachia, requiring families, some who have been in Appalachia for generations, to uproot.⁶⁴ While solar jobs may pay higher than minimum wage, they still pay less than coal jobs and workers moving from coal mining to solar installation face a steep pay cut.⁶⁵ Therefore, while employment in the solar industry should be encouraged, a just transition plan must

58. *See id.*

59. *See* Jocelyn Durkay, *State Renewable Portfolio Standards and Goals*, NAT'L CONF. OF STATE LEGIS. (Aug. 1, 2017), <http://www.ncsl.org/research/energy/renewable-portfolio-standards.aspx> [<https://perma.cc/XR3P-PDJT>].

60. *See id.*

61. *See* 2017 *United States Solar Power Rankings*, SOLAR POWER ROCKS (2017), <https://solarpowerrocks.com/2017-state-solar-power-rankings/>.

62. *See id.*

63. *See* *Massachusetts 2017 Solar Report Card*, SOLAR POWER ROCKS (2017), <https://solarpowerrocks.com/2017-state-solar-power-rankings/#MA>.

64. *See* Clouse, *supra* note 57; *see also* Reid Frazier, *As Coal Jobs Decline, Solar Sector Shines*, NATIONAL PUBLIC RADIO (May 6, 2017), <http://www.npr.org/2017/05/06/527047720/as-coal-jobs-decline-solar-sector-shines> [<https://perma.cc/EWH8-9UNA>].

65. *See id.*

be in place in order to make climate jobs a viable alternative for coal mining families.

IV. ELEMENTS OF A JUST TRANSITION PROGRAM

There are historical programs that provide guidance for transitioning coal miners and coal communities. Federal efforts focused on helping veterans transition back into the United States and provide a pathway to economic mobility can provide a template for transitioning fossil fuel workers and communities.

The G.I. Bill has helped millions of veterans with educational and training assistance.⁶⁶ Analysis of the post-World War II G.I. bill found that veterans had college completion rates five to eight percent higher over nonveterans.⁶⁷ For veterans who served post September 11, 2001, the Post-9/11 G.I. Bill provides, “a housing allowance, money for books, and the option to transfer unused education benefits,” to a spouse or child.⁶⁸ Analysis of the post-9/11 G.I. Bill found that the bill has funded nearly 450,000 post-secondary education degrees and certificates.⁶⁹

Veterans also receive health care, pensions, life insurance, and career counseling.⁷⁰ In addition, employers receive tax credits as an incentive to hire veterans.⁷¹ Surely, benefits for veterans are not at the level they should be and recent scandals have shown serious

66. *GI Bill*, VETERANS ADMINISTRATION, <https://www.vets.gov/education/gi-bill/>.

67. See John Bound & Sarah Turner, *Going to War and Going to College: Did World War II and the G.I. Bill Increase Educational Attainment for Returning Veterans?* 20 J. OF LAB. ECON. 784 (2002).

68. Congressman Rodney Frelinghuysen, *A “Forever” Update for the GI Bill* (July 28, 2017), <https://frelinghuysen.house.gov/e-news-archive/enews-72817/> [<https://perma.cc/3YDF-JA42>].

69. See C.A. CATE ET AL., NATIONAL VETERAN EDUCATION SUCCESS TRACKER: A REPORT ON THE ACADEMIC SUCCESS OF STUDENT VETERANS USING THE POST-9/11 GI BILL (2017).

70. See *I am a Veteran*, UNITED STATES DEPARTMENT OF VETERANS AFFAIRS (2017), <https://www.va.gov/opa/PERSONA/index.asp>.

71. See *Veterans Opportunity to Work*, UNITED STATES DEPARTMENT OF VETERANS AFFAIRS (2017), <http://www.benefits.va.gov/vow/for-employers.asp>.

deficiencies in the administration of veteran's benefits.⁷² However, the establishment of these programs shows the importance of taking care of those that sacrifice for the country. Similarly, coal miners and coal communities have sacrificed health and livelihood to provide the fuel necessary for the country's economic growth and prosperity. As such, there is a moral obligation to provide for the health and economic well-being of workers and communities as we transition away from fossil fuels.

A. The Importance of Dedicated Funding: The case of the Black Mesa Coal mine closing

Just transition experts have set out a series of guiding policies that must be put in place to address the complexities of transitioning an entire workforce and communities dependent on fossil fuels. Unemployment benefits, fully funded pensions, education and training/re-training, and re-location support are a few of the steps that would be necessary to ensure a just transition for fossil fuel dependent workers and communities.⁷³ In the United States alone, properly funding just transition efforts is estimated to cost about \$500 million a year.⁷⁴ While that figure may seem high, fossil fuel industries are subsidized at a cost of \$4.7 billion a year, over nine times the amount that a just transition program would cost.⁷⁵

The importance of dedicated and steady funding can be seen in the example of the Mohave Generating Station and Black Mesa Coal Mine shut down and the impact it had on the neighboring Native American communities. The Mohave Generating Station (MGS) was a two-unit, 1,580 MW coal-fired power plant located in Laughlin, Nevada near

72. See Steve Walsh et al., *VA Hospitals Still Struggling With Adding Staff Despite Billions From Choice Act*, NATIONAL PUBLIC RADIO (Jan. 31, 2017), <http://www.npr.org/2017/01/31/512052311/va-hospitals-still-struggling-with-adding-staff-despite-billions-from-choice-act> [<https://perma.cc/7LL4-CLYD>].

73. See Lene Olsen, *The Employment Effects of Climate Change and Climate Change Responses: A Role for International Labour Standards?* 8-9 (Kevin Skerrett ed., 2009); see also Pollin & Callaci, *supra* note 8.

74. See Pollin & Callaci, *supra* note 8.

75. See U.S. DEP'T OF TREASURY, UNITED STATES - PROGRESS REPORT ON FOSSIL FUELS SUBSIDIES (2015).

the Arizona border.⁷⁶ Southern California Edison operated MGS and was also the majority owner.⁷⁷ The coal for MGS came from a 275-mile slurry line from the Black Mesa Coal Mine on the Hopi and Navajo Reservations, operated by Peabody Western Coal Company and jointly owned by the Navajo Nation and Hopi Tribe.⁷⁸ The water for the slurry line was groundwater from an aquifer under the Hopi and Navajo reservations.⁷⁹

During its period of operation, MGS emitted up to 40,000 tons of sulfur dioxide (SO₂) per year and at one point was, “the largest emitter of SO₂ emissions in the West.”⁸⁰ The slurry line drew substantial amounts of water from the aquifer that was essential to the Hopi and Navajo traditional life and custom.⁸¹ At the same time, 30 percent of the Hopi’s entire revenues came from coal and water royalties and 10-13 percent of the Navajo’s General Fund came from royalties and taxes.⁸² In addition, 93 percent of the jobs at the mine were held by Native Americans, nearly all Navajo.⁸³ The total economic benefit to the tribes and local communities from MGS operations was estimated at around \$83 million annually.⁸⁴

In 2006, Southern California Edison decommissioned and dismantled MGS.⁸⁵ Energy development had scarred the land and water. From an environmental standpoint, closing MGS was a victory. However, closing MGS meant the Hopi and Navajo nations were without a substantial source of revenue and employment. These two realities show how inequality and climate change are linked. Without just transition, the Hopi and Navajo nations would suffer deeply from the loss of royalties and taxes from the power plant and coal mine. At the same time, energy development must transition away from coal-powered power plants in order to avoid the worst impacts of climate

76. See Alan Ramo & Deborah Behles, *Transitioning a Community Away from Fossil-Fuel Generation to a Green Economy: An Approach Using State Utility Commission Authority*, 15 MINN. J. OF L., SCI. & TECH. 505, 509 (2014).

77. See *id.* at 509.

78. See *id.* at 509-10.

79. See *id.* at 510.

80. *Id.* at 509.

81. See Ramo & Behles, *supra* note 76, at 515.

82. See *id.*

83. See *id.*

84. See *id.*

85. See *id.* at 517.

change. Addressing just one of these issues—either economic security or climate security—would not solve the challenges facing the Hopi and Navajo nations.

Fortunately, a strong Just Transition Coalition comprised of Native American grassroots organizations and environmental organizations was able to use the regulatory process in a creative way. As a result of its efforts, the California Public Utilities Commission required Southern California Edison (SCE) to put revenue from the acid rain SO₂ emissions trading program into an account to be disbursed to the Hopi and Navajo communities.⁸⁶ Under the emissions trading scheme for SO₂ emissions, SCE would be allowed to sell its sulfur allowances that resulted from the closure of MGS, which would then generate a revenue stream that could fund just transition efforts.⁸⁷ Although the California Public Utilities Commission had considered community impacts from utilities before, using sulfur allowances to benefit out-of-state non-ratepayers was new.⁸⁸ The sale of SO₂ allowances created a revolving fund of \$4.5 million annually to pay development deposits for renewable energy projects that benefit the Hopi Tribe, the Navajo Nation, and California ratepayers.⁸⁹ In addition, the Navajo Green Economy Fund and Commission was created within the structure of the Navajo Nation tribal government to support a just transition, which includes funding projects ranging from farmers' markets to small-scale energy projects.⁹⁰

Other projects that have been developed include a green business incubator, the Black Mesa Solar Project, Navajo Wool Market Improvement Project, and the Food Sovereignty Project.⁹¹ The new projects show an effort to diversify economic development, helping

86. *See* Ramo & Behles, *supra* note 76, at 519.

87. *See id.* at 519-20.

88. *See id.* at 523.

89. *See* Press Release, Indigenous Environmental Network, Peabody's Declaration of Bankruptcy is "No Surprise": Navajo Tribal Members Demand Just Transition to a Sustainable Economy (Apr. 14, 2016) (on file with author).

90. *See* Laura Shin, *Navajo Nation Approves First Tribal 'Green Jobs' Legislation*, INSIDECLIMATE NEWS (July 22, 2009), <https://insideclimatenews.org/news/20090722/navajo-nation-approves-first-tribal-green-jobs-legislation> [<https://perma.cc/5M6M-856Y>]; *see also* blackmesapeeps, *Navajo Green Job*, YOUTUBE (July 23, 2009), <https://www.youtube.com/watch?v=tAJHuRxblmE>.

91. *See* Indigenous Environmental Network, *supra* note 89.

with the transition away from dependence on a single economic driver like fossil fuel development.

B. The Importance of the Role of the Public Sector: Ruhr, Germany's transition to a clean economy

Just transition requires focusing on not just what kind of policies are put in place but also *how* they are put in place. Apart from unemployment benefits, which are administered by state governments and financed through federal and state taxes, climate policies and just transition policies are open to private sector or public sector implementation. Indeed, much of the clean energy development has been done through the private sector.⁹² However, for a truly just transition, the public sector must take the lead because implementing climate action and/or just transition policies will not necessarily be profitable or promise a high return on investment.⁹³ Without a profit or high investment return, private interests have limited incentives, including fiduciary responsibilities to shareholders, to undertake these actions.

The importance of the public sector is highlighted in the case of the Ruhr region in Germany, which has been undergoing a transition away from fossil fuels for over 50 years.⁹⁴ At one point, the Ruhr region was the largest industrial site in Europe and coal and steel production were major employers.⁹⁵ However, the coal mining and steel production became less and less competitive as cheaper products became available on the global market.⁹⁶ As a result, the area has seen rising unemployment and industrial decline since the 1970s.⁹⁷ In 1957, coal

92. See Frankfurt School UNEP Collaborating Centre for Climate & Sustainable Energy Finance, *Global Trends in Renewable Energy Investment 2012*, at 13 (Angus McCrone et al. eds., 2012).

93. See Georgios Altintzis & Esther Busser, *The lessons from trade agreements for just transition policies*, 6 INT'L J. OF LABOUR RES. 269, 291 (2014).

94. See *Social partners and the collaborative approach are key to the green transition of the Ruhr region*, EUROPEAN TRADE UNION INSTITUTE (Feb 9, 2016), <http://www.etui.org/News/Social-partners-and-the-collaborative-approach-are-key-to-the-green-transition-of-the-Ruhr-region> [<https://perma.cc/GW46-PSPV>].

95. See Dean Stroud et al., *Skill development in the transition to a 'green economy': A 'varieties of capitalism' analysis*, 25 THE ECON. & LABOUR REL. REV. 10, 16 (2013).

96. See *id.*

97. See *id.*

mining employed 473,000 workers.⁹⁸ At the end of 2013, that number fell to 11,448.⁹⁹ The share of the economy provided by coal mining fell from 61 percent in 1960 to 21 percent in 2014.¹⁰⁰ Moreover, coal subsidies will be completely phased out by 2018 making the cost of coal mining more expensive and even less competitive.¹⁰¹

Due to the dominance of coal and steel production, there was little economic diversity and Ruhr's economy was dominated by a few very large firms.¹⁰² This lack of economic diversity meant that once coal production began to decline, there were few options to help counter economic losses from the coal industry. In addition, there were no technical high schools or universities in the region until 1961, which made skills re-training more challenging.¹⁰³

To transition an entire region away from fossil fuel requires deliberate and sustained strategies. In the case of the Ruhr region, just transition policies can be categorized into: (i) short-term policies that focused on the needs of displaced workers and (ii) long-term actions to diversify the region's economy and employment base.¹⁰⁴ As part of the just transition program, the regional government provided resources to trade unions, company works councils, and other non-government bodies to also advance transition strategies.¹⁰⁵ Short-term policies included: wage subsidies, compensation payments, early retirement, or if early retirement was not appropriate, job transfer schemes.¹⁰⁶ Long-term policies to diversify the economic and employment base looked to: attract investment from hi-tech and knowledge-based firms, expand the service sector, and promote local entrepreneurship.¹⁰⁷ An example of a long-term project is the

98. *See id.*

99. *See* EUROPEAN TRADE UNION INSTITUTE, *supra* note 94.

100. *See id.*

101. *See The Rise and Fall of Germany's Coal Mining Industry*, DEUTSCHE WELLE (Jan. 31, 2007), <http://www.dw.com/en/the-rise-and-fall-of-germanys-coal-mining-industry/a-2331545> [<https://perma.cc/7DPC-KKS8>].

102. *See* ROBERT P. TAYLOR, CASE STUDY: A REVIEW OF INDUSTRIAL RESTRUCTURING IN THE RUHR VALLEY AND RELEVANT POINTS FOR CHINA 5 (INSTITUTE FOR INDUSTRIAL PRODUCTIVITY ed., 2015).

103. *See id.*

104. *See The Rise and Fall of Germany's Coal Mining Industry*, *supra* note 101.

105. *See id.*

106. *See id.*

107. *See id.*

transformation of Gelsenkirchen, a town that used to be dominated by the coal industry, into a “solar city,” that is the largest supplier of solar energy in Europe.¹⁰⁸ Officials began to develop the city’s solar industry in the 1990s, even though coal mining was still dominant.¹⁰⁹ The federal government also invested in building an educational infrastructure to create new technical institutions and universities in the region.¹¹⁰

While the Ruhr region has seen success in transforming its economic base, it remains unclear to what extent workers were actually successfully transitioned.¹¹¹ Researchers have concluded that it is unlikely that green jobs entirely replaced the jobs lost from coal and steel because the green jobs were created after workers had already been displaced. Moreover, the new jobs often required new skills.¹¹² Thus, it may be assumed that the solar jobs that were created in projects like Gelsenkirchen were not at a large enough scale to meaningfully counter coal job losses before workers were displaced. A contemporary analogy, as described earlier, is the tendency among climate advocates to counter losses in fossil fuel employment with gains in solar employment. This position masks the process needed to transition fossil fuel workers to solar workers, assuming a transition is even geographically possible. Researchers did conclude, however, that it would be possible for the Ruhr region to make a transition to green jobs with skills development.¹¹³

The Ruhr example shows the need for the public sector to guide and provide resources to help transition fossil fuel communities. However, beyond logistics and resources, just transition policies should be based in the public sector to help reverse economic and social inequality. The benefits of climate action should be shared broadly and not just reserved for the elite and similarly, the burdens of climate action should be shared equally. Targeted public policy can redistribute the burdens and benefits of climate harms. For example, emissions

108. *Id.*; see also Erica Peterson, *In Germany, A City Moves Away from Coal*, WFPL NEWS (Dec. 7, 2015), <http://energyfuture.wfpl.org/in-germany-a-city-moves-away-from-coal/> [https://perma.cc/Z4FQ-D6G9].

109. *See id.*

110. *See* TAYLOR, *supra* note 102, at 7.

111. *See id.*

112. *See id.*

113. *See id.*

reduction should be a public good and not reserved only for those that can afford it. Grounding policies and actions in the public sector can better assure access to clean energy and emissions reductions benefits for low-income communities and communities of color that have historically borne the brunt of environmental harms, rather than only for communities that can afford low-carbon technologies. Grounding policies in the private sector, in contrast, would have to take profit maximization into account and could make low-carbon technology prohibitively expensive for low-income communities.¹¹⁴

Just transition policies should also be based in the public sector to increase the likelihood of climate jobs being union jobs that pay family sustaining wages and provide benefits. The public sector has unionization rates that are more than five times higher than the private sector.¹¹⁵ As a result, jobs created through the public sector are more likely to be unionized. Unionization for just transition jobs is important because even with the continued loss of union jobs in the broader economy, fossil fuel industries have higher rates of unionization than other sectors, including the emerging renewable energy sector.¹¹⁶ The renewable energy sector has lower rates of unionization for many reasons, including a geographically diverse workforce, jobs that are particularly vulnerable to outsourcing and relocation, and resistance to unionization from renewable energy companies.¹¹⁷ Unionized workers, on average, earn higher wages and are more likely to have

114. See e.g., Kari Lydersen, *Clean Power Plan offers chance to right past injustices, advocates say*, MIDWEST ENERGY NEWS (Aug. 8 2016), <http://midwestenergynews.com/2016/08/08/clean-power-plan-offers-chance-to-right-past-injustices-advocates-say/> [<https://perma.cc/AU59-35N5>] (describing how the Clean Power Plan could have increased access to renewable energy for low-income communities).

115. See U.S. DEP'T. OF LABOR, BUREAU OF LABOR STATISTICS, *Union Members Summary* (2017).

116. See Betony Jones & Carol Zabin, *Are Solar Energy Jobs Good Jobs?*, UC BERKELEY LABOR CENTER (July 2, 2015), <http://laborcenter.berkeley.edu/are-solar-energy-jobs-good-jobs> [<https://perma.cc/3FJV-93DG>]; see also Tom Prugh, *Jobs in Renewable Energy Expand in Turbulent Process*, WORLDWATCH INSTITUTE (Apr. 16, 2014), <http://www.worldwatch.org/jobs-renewable-energy-expand-turbulent-process-2> [<https://perma.cc/JR9P-WVR5>].

117. See Kate Aronoff, *Making Green Jobs Good Jobs*, IN THESE TIMES (July 1, 2016), <http://inthesetimes.com/article/19199/making-green-jobs-good-jobs> [<https://perma.cc/P98Q-NK3M>].

benefits.¹¹⁸ Higher wages help decrease income inequality, as found in research conducted by the International Monetary Fund (IMF).¹¹⁹ Therefore, the increased rate of unionization in the public sector contrasted with low unionization rates in the emerging, largely privatized renewable energy sector shows that climate mitigation efforts should be based in the public sector to meet the dual goals of scaling greenhouse gas emissions reduction and decreasing levels of income inequality.

C. *The Importance of the Role of Non-government Bodies: Looking to Unions for Skills Trainings and Career Ladders*

Non-governmental organizations and unions play a crucial role in just transition programs. In addition to the example of the Just Transition Coalition in the MGS example, unions can help with transitioning workers away from fossil fuels and into clean energy jobs and are an important partner in skills re-training. As mentioned earlier, many former fossil fuel workers will not automatically be transitioned into renewable energy fields because of skills mismatch and geographic location. Partnering with the International Brotherhood of Electrical Workers (IBEW), for example, can provide skills re-training and prepare a skilled workforce for careers as electricians, which includes solar installation.¹²⁰ IBEW has long seen the potential for solar installation and its core training curriculum includes baseline skills customized by region, incorporates state certification laws, and other mandatory requirements.¹²¹

An IBEW local union, Local 569 in California, established a solar training course in 1999.¹²² Local 569 trained hundreds of new

118. See U.S. DEP'T. OF LABOR, BUREAU OF LABOR STATISTICS, *supra* note 115.

119. See FLORENCE JAUMOTTE & CAROLINA OSORIO BUITRON, *INEQUALITY AND LABOR MARKET INSTITUTIONS* (Olivier Blanchard ed., 2015).

120. See Kelly Pickerel, *The power of partnership: Working with union labor encourages solar growth*, SOLAR POWER WORLD (May 26, 2015), <https://www.solarpowerworldonline.com/2015/05/the-power-of-partnership-working-with-union-labor-encourages-solar-growth/> [https://perma.cc/VC3J-T26D].

121. See *id.*

122. See *Energy Independence*, INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS LOCAL 569 <http://www.ibew569.org/energy-independence>.

members from the local community.¹²³ As a result of increased solar demand, membership in local unions around the state increased. Local 569, in San Diego and Imperial County, saw its membership increase from 2,100 in 2011 to 3,300 in 2013.¹²⁴ Local 440 in Riverside saw its membership increase nearly 50 percent since 2011 with nearly 60 percent of their work in recent years being solar.¹²⁵ In Bakersfield, California, Local 428 grew more than 40 percent in six years and since 2013, more than half of its membership has been working on a single 580 MW plant.¹²⁶ In fact, some of the largest solar projects in the world have been built by IBEW members, including a 392 MW plant that will produce enough power for nearly 400,000 homes and a 500 MW project that is still under construction by members of San Luis Obispo Local 639.¹²⁷

V. NEW YORK'S CLIMATE JOBS PLAN

Governor Cuomo's Clean Climate Careers Initiative is still in its early phases, having only been announced on June 2, 2017. But there are strong elements that if achieved, would both reduce economic inequality and significantly reduce greenhouse gas emissions.¹²⁸ As discussed, just transition programs benefit from having dedicated funding streams, strong public sector involvement, and innovative non-governmental/union entities.

The Clean Climate Careers Initiative (CCCI) provides dedicated money to workforce development and training to help prepare workers for the clean energy economy.¹²⁹ As evidenced in the Ruhr region

123. See Kathleen Maclay, *California solar boom makes the state a national leader and prepares new generation of workers, report says*, IBEW LOCAL 569 (Nov. 10, 2014), <http://www.ibew569.org/news/california-solar-boom-makes-state-national-leader-and-prepares-new-generation-workers-report> [<https://perma.cc/8YV8-BRW7>].

124. See *California's Solar Gold Rush*, THE ELECTRICAL WORKER ONLINE (Dec. 2014), <http://www.ibew.org/articles/14ElectricalWorker/EW1412/CalifSolar.1214.html> [<https://perma.cc/7FJ6-EXQT>].

125. See *id.*

126. See *id.*

127. See *id.*

128. See Cha, *supra* note 3.

129. See NEW YORK STATE OFFICE OF GOVERNOR ANDREW M. CUOMO, *supra* note 2.

example, training and re-training are fundamental to helping former fossil fuel workers transition into a new field. As discussed below, CCCI is open to partnering with unions and specifically in workforce development and training, the Initiative will distribute funds to, “the most innovative and far-reaching apprenticeship, training programs and partnerships including those with applicable trades and unions.”¹³⁰ In addition to partnering with unions to establish improved worker training, the Initiative’s emphasis on engaging unions is also another means to expand access to union career pathways. New York could learn from the MGS example and go beyond providing an initial fund for training to providing a continuous funding stream, such as continually allocating a portion of revenue from a carbon penalty to workforce training and development.

Cuomo’s Initiative looks to the public sector to lead clean energy development by increasing investments in energy efficiency and solar deployment on public buildings and expanding renewable energy production through the state’s public utility, the New York Power Authority (NYPA).¹³¹ The additional 1 million MWh procured by NYPA will expand its role as New York State’s largest supplier of renewable energy.¹³² It also helps underscore that renewable energy should be a public good and not left solely to private sector development. Moreover, developing renewable energy in the public sector allows New York State to encourage manufacturing of renewable energy products within the state and/or require that state residents be employed on the projects.¹³³ The United States Supreme Court has ruled that when state or local governments act as market participants, they are not constrained by the restraints of the Commerce Clause.¹³⁴ As such, the state can put in local workforce requirements and place preference on in-state production for goods.

In terms of partnering with non-governmental entities, the Initiative explicitly states that New York is open to Project Labor Agreements (PLAs) for the construction of public work projects associated with the

130. See NEW YORK STATE OFFICE OF GOVERNOR ANDREW M. CUOMO, *supra* note 2.

131. See Cha, *supra* note 3.

132. See Cha, *supra* note 3.

133. See *White v. Massachusetts Council of Const. Employers Inc.*, 460 U.S. 204 (1983); see also *Reeves, Inc. v. Stake*, 447 U.S. 429 (1980).

134. See *id.*

Initiative.¹³⁵ Project Labor Agreements are pre-hire collective bargaining agreements with one or more unions that establishes the terms and conditions of employment for a specific project.¹³⁶ Using PLAs would help ensure the work created would be done by unions and the jobs created would be good jobs that paid family sustaining wages and provided benefits.

Finally, the Initiative establishes an Environmental Justice and Just Transition Working Group to advise the administration on integrating environmental justice and just transition principles into all agency policies.¹³⁷ This inclusion is an example in practice of the principle discussed earlier that *how* we transition to a clean energy future is as important as the actual emissions reductions policies, as climate change will exacerbate existing inequalities.¹³⁸

Governor Cuomo's Initiative lays out a rough blueprint for the first steps to building both a climate jobs workforce and creating jobs for this workforce. The challenge New York now faces is moving from rhetoric to reality. Request for proposals and solicitations were issued on the same day as the Governor's announcement of the Initiative. Successful proposals must meet the dual goals of reducing inequality and mitigating climate change. As such, preference should be given to "high-road" contractors that pay family sustaining wages and provide benefits.¹³⁹ The Clean Climate Careers announcement states that New York is, "committed to studying the feasibility of the types of economic efficiencies that can be achieved through the use of a Project Labor Agreement for the construction of Public Work projects associated with this initiative."¹⁴⁰ While encouraging, the state should

135. *See* NEW YORK STATE OFFICE OF GOVERNOR ANDREW M. CUOMO, *supra* note 2.

136. *See* UNITED STATES DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION, PROJECT LABOR AGREEMENT (2017).

137. *See* NEW YORK STATE OFFICE OF GOVERNOR ANDREW M. CUOMO, *supra* note 2.

138. *See* Robinson Meyer, *The American South Will Bear the Worst of Climate Change's Costs*, THE ATLANTIC (June 29, 2017), <https://www.theatlantic.com/science/archive/2017/06/global-warming-american-south/532200/> [<https://perma.cc/3896-DYSV>].

139. *Paving the High Road: Labor Standards and Procurement Policy in the Obama Era*, 31 BERKELEY J. OF EMP. & LAB. L. 349 (2010).

140. *See* NEW YORK STATE OFFICE OF GOVERNOR ANDREW M. CUOMO, *supra* note 2.

go beyond just studying the feasibility of PLAs and actually use them for construction projects.

In addition, the Environmental Justice and Just Transition Working Group must have a role that is not just ceremonial. The state should commit funds for just transition and ensure the working group recommendations are adopted. Finally, New York should expand its public-sector workforce to do as much of this work as possible. As stated above, doing this work through the public sector can better ensure family sustaining wages and keeps clean energy a public good affordable for all residents.

CONCLUSION

The effects of climate change are already being seen through an increase in extreme weather events, increased temperatures, and prolonged heatwaves. The window within which the worst impacts of climate change can be avoided is rapidly closing. But, in the push for climate action, attention and priority must be given to transitioning fossil fuel communities and workers into the clean energy economy. With a current federal administration that is actively reversing any gains made in the fight against climate change, state and local action is all the more urgent.

This article provides a framework for elements that must be included for a successful just transition program. A dedicated funding stream is necessary to ensure adequate and consistent funding for just transition programs. New York's Clean Climate Career Initiative provides dedicated funding for workforce training and development, a key component in training and re-training workers for clean economy jobs. Here, New York could go one step farther and provide a dedicated continuous revenue stream, such as allocating a portion of proceeds from a carbon penalty.

The second element necessary for a successful just transition program is strong public sector involvement. The Clean Climate Careers Initiative expands energy efficiency measures and solar deployment on public buildings and increases renewable energy production through the state's public utility. Finally, partnering with non-governmental entities is essential for successful just transition programs. Here, New York is open to partnering with unions through project-labor agreements and through partnering with unions for

workforce development training. In addition, the Just Transition Working Group must have meaningful input into just transition policies and procedures to ensure successful just transition programs.