

Putting California on the High Road: A Jobs and Climate Action Plan for 2030

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Chapter 4:

Just Transition: Tools for Protecting Workers and Their Communities at Risk of Displacement Due to Climate Policy

by J. Mijin Cha

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I. Framework and Best Practices for Addressing Workforce Issues in Declining Industries

Moving away from carbon-intensive fuels, implementing more energy efficient industrial processes, and capturing fugitive methane emissions will result in substantial reductions in greenhouse gas emissions and route the state toward a carbon neutral future. There will be some economic decline in certain industries as a result of a reduction in the use of carbon-intensive fuels and processes, but ultimately, there will be net-positive economic impacts. Limited job losses are expected primarily in industries that produce fossil fuel energy, such as oil and gas extraction and refining, rather than in industries that use fossil fuel energy but could switch to cleaner fuels, including renewable energy, renewable natural gas, or biodiesels. The more dependent a community or workforce is on fossil fuel use or extraction, the more economically and socially challenging the transition away from fossil fuels will be. Ensuring these communities and workers are able to thrive in a low-carbon economy is fundamentally necessary for a “just transition” away from an economy dependent on fossil fuel.

“Just Transition” refers to protection, support, and compensation for displaced workers and communities when a society makes significant policy decisions that result in job loss in affected businesses. In the 1970s, union leader Tony Mazzocchi was an early exponent of the idea of just transition in the context of post-war disarmament and the nation’s growing commitment to environmental clean-up from industry. In the early 1990s, when the concept that fossil fuels produce global warming was first being widely accepted, Mazzocchi advocated a just transition for workers in carbon-intensive industries, dubbing the idea a “Superfund for workers” under the logic that “if there can be a Superfund for dirt, there can be a Superfund for workers.”^{1,2} Mazzocchi reasoned that supporting displaced workers as the economy shifted was not welfare; instead, those who had worked to “provide the world with the energy and the materials it needs deserve a helping hand to make a new start in life.”³ Just transition refers to ensuring that workers and communities supported by a declining industry are able to transition into a new economy with a comparable level of economic security or retire with dignity. In the current context, a just transition means that carbon-dependent communities and workers must not be forced to bear the costs of change.⁴

Just transition programs are complex. They require support and funding for both immediate short-term assistance to workers and communities directly affected by the decreasing use of fossil fuels, and long-term assistance to move fossil fuel communities and workers into a low-carbon economy. Short-term assistance will include skill retraining and upgrade, unemployment insurance, assistance for job placement in comparable jobs for younger workers, and bridges to retirement with fully funded pensions and health care for older workers. Long-term assistance will require diversification of local economies dependent on fossil fuel industries, including support for economic development planning,



to help regions better identify the most promising emerging new industries based on regional assets including geography, educational and research institutions, and existing workforce skills. This process will include attracting new businesses and industries and ensuring quality job creation in the same geographic region where jobs are being lost to minimize displacement and relocation.

This chapter will discuss how California can ensure a just transition for workers and communities negatively affected by the climate policies discussed in this report. The chapter examines several previous transition assistance programs for declining industries, with an analysis of challenges and successes, followed by an examination of just transition programs specific to the fossil fuel industry. That section begins with the successful examples of the Ruhr region in Germany and the Black Mesa Generating Station in Laughlin, Nevada, then turns to the more recent Diablo Canyon nuclear power plant and the Obama administration POWER Initiative.

The chapter concludes with a series of recommendations for crafting a just transition program for California. The need to transition off fossil fuels is urgent, but realistically, such a transition will take time, and our recommendations reflect this process. Maximizing efforts to reduce local emissions while fossil fuels are still being consumed and produced in California will lessen the economic impact on workers and communities while continuing to work toward emissions reduction targets. These goals can be achieved by committing to several tactics, including ongoing efforts to increase industrial energy efficiency, use of Best Available Retrofit Control Technology, capturing fugitive emissions, and providing allowances to energy-intensive industries when leakage would otherwise occur. Fully funding and supporting these programs maximizes emissions reductions and minimizes job disruption in the short term.

II. Industries and Sectors at Possible Risk of Job Loss

Three categories of jobs in the Scoping Plan sectors should be analyzed to assess the risk of job loss and the need for transition assistance. These are:

- Jobs directly impacted by the shift away from fossil fuels, such as fossil fuel extraction, refineries, and natural gas pipelines; discussed in the industry chapter of this report (Chapter 8);
- Jobs in energy-intensive and/or greenhouse-gas-emissions-intensive sectors whose operating costs would increase due to increased fossil fuel costs or increased costs due to having to replace or retrofit equipment, switch to cleaner fuel, or otherwise abate greenhouse gas emissions, also discussed in Chapter 8; and



- Jobs in industries that are already going through disruptions but may be further impacted by climate policies. For example, automation in the transportation sector offers opportunities for reducing greenhouse gas emissions as fleets are replaced but may also eliminate jobs. The intersection of climate policy and job-eliminating technologies is discussed in the chapters on energy and transportation (Chapters 6 and 7, respectively).

A. Just Transition Programs for Declining Industries

Moving away from fossil fuel use and production is not the nation's first workforce transition. In the United States, assistance for workers negatively impacted by trade agreements, military base closures, and tobacco farming are just a few examples of efforts to provide transition programs and assistance to workers and communities affected by changing or declining industries. As discussed below, these programs have had mixed results. Some of the military bases that were closed were able to be re-purposed into a new use. The Trade Adjustment Assistance program—the main program to help workers and communities negatively affected by globalization and trade agreements—has had more limited success due to poor program design, low participation rates, insufficient funding, and an inability to place workers in jobs of the same quality with regards to wage level and benefits.⁵ These examples provide insight into the scale and complexity inherent in a just transition program for workers and communities impacted by the move to a low-carbon economy.

1. Trade Adjustment Assistance

Started in 1974, the Trade Adjustment Assistance (TAA) program helps support U.S. workers adversely affected by globalization and trade.⁶ As former Labor Secretary Tom Perez describes, the program provides skill-training support, career counseling, and monetary support, such as wage supplements for older workers, job search and re-location allowances, and income support for workers in training programs.⁷ TAA has had limited success due to uneven funding and support of the program, the restricted scope of the program, and new employment paying lower wages with fewer to no benefits.

Analysis from Cornell University and the Apollo Alliance shows that over the history of the program, eligibility requirements, training, job search assistance, and levels of income support have fluctuated significantly.⁸ During the program's early years, eligible workers received only income and relocation support but did not receive training or job assistance.⁹ During the 1980s, the main focus of TAA shifted to job search and placement assistance, while income support was substantially reduced to less than half of previous income.¹⁰ In 1988, the TAA program was amended to require all workers



be enrolled in training programs in order to receive income support.¹¹ A number of improvements were made to the program in the 2000s, including doubling training funds, expanding eligibility to additional worker groups, including service and public sector workers, creating a health coverage tax credit, establishing wage insurance benefits for older workers, and creating a community assistance grant program.¹²

From its inception in 1974 to the end of 2013, 2.2 million workers have been served under the program. According to the U.S. Department of Labor, this total is less than one-half of the 4.8 million workers eligible to receive program benefits.¹³ In addition, early in the program's history, proving their work was directly impacted by a specific trade action was not possible for many workers, and they were excluded from the program.¹⁴ While the burden of proof was eventually eased, eligibility continued to be a problem. For example, a U.S. Government Accountability Office (GAO) investigation in 1992 found that nearly two-thirds of all petitions from 1990-1991 were wrongly decided—with almost equal numbers of incorrect denials as incorrect certifications.¹⁵ The usefulness of TAA in today's economy is further limited because the program does not extend to the vast majority of unemployed workers, many of whom have lost their jobs to automation or robotics.¹⁶

Funding for the TAA program has fluctuated widely, which undermines program stability. In 2010, federal spending on TAA was \$975 million; in 2012, this amount had substantially declined to just \$575 million.¹⁷ The fluctuations in funding are due both to varying numbers of eligible workers and changes in political support, but in general, analysts concur that funding has been inadequate to maintain the income levels of displaced workers. One 2016 report estimated the program spent \$8,806 per participant.¹⁸ This figure included expenditures for training, income support after unemployment benefits had expired, subsidies for health insurance, wage subsidies for older workers, financial support for job search and relocation, and other services that may have been provided by other workforce programs.¹⁹

Research on displaced workers eligible for TAA has found that the majority are unable to find employment at their previous wage level. A 2001 study found that 40 percent of displaced workers did not find employment within the first two years after initial job loss, while another 40 percent found work at lower wages and with fewer benefits.²⁰ A 2007 GAO study of the TAA program that included five case study sites found that displaced workers who secured new employment were able to replace approximately 80 percent of their previous wages.²¹ These numbers indicate a need for job creation policies to ensure that replacement jobs are good jobs that provide comparable wages and benefits.

Analysis of the TAA program shows that key steps can improve the success of just transition programs. In particular, the Cornell University and Apollo Alliance analysis makes the case that adequate financial support, including fully funded pensions and health benefits, is necessary for successful transition programs.²² In addition, transitional



income support should be provided for as long as participants are in training programs in order for workers to maintain living standards during their training.²³ Without continual financial assistance, participants enrolled in training programs generally dropped out when the financial assistance ended.²⁴

2. Military Base Closures

Under the Base Realignment and Closure (BRAC) process, 97 military bases were either closed or realigned, leading to reductions and/or relocation of civilian personnel, between 1988 and 2005.²⁵ These closures entailed the relocation of hundreds of thousands of personnel.

Closing military bases reduces local government revenue as collection of property, sales, and other local taxes drops with loss of people and economic activity. The reduction in revenue, in turn, hinders a community's ability to support existing services. Rural communities, in particular, have struggled to recover from base closures.²⁶ Research shows that base closures have a negative economic impact including job loss in communities surrounding the base.²⁷ However, it is possible to mitigate some of the negative economic impacts of base closures; in instances where preparation for base closures included the creation of a realistic plan for redevelopment, some of the lost jobs were replaced, and some lost income was restored.²⁸

Some closed bases have been successfully redeveloped into manufacturing facilities, airports, or research laboratories.²⁹ Others have been re-purposed for use by other federal agencies. For example, Fort McClellan in Alabama was closed in 1999 and is now used both for training by the Alabama National Guard and to house the Department of Homeland Security's Center for Domestic Preparedness.³⁰ When Fort Ord in Monterey, California, was closed, most of the property was given to the state of California. It is now home to California State University, Monterey Bay (CSUMB), with a section reserved for a state park and the Fort Ord National Monument.³¹

In Pennsylvania, the closing of the Philadelphia Naval Shipyard resulted in 7,000 jobs lost.³² The city of Philadelphia took over the naval port and redeveloped it, resulting in 120 companies now using the port facilities and 10,000 people being employed in the old Navy Yard. The former port is home to a diverse set of businesses, including the headquarters for large national companies, and the U.S. Navy's Naval Inactive Ship Maintenance Facility remains housed at the port.

It is important to note that redevelopment of closed military bases had strong government support. Much of the successful redevelopment of former bases occurred when another branch of federal or state government took over and re-purposed the bases, rather than successful private redevelopment. Moreover, the redevelopment of closed bases had strong financial support. In the 2005 round of closures, the Department of Defense



closed 24 major bases, realigned 24 major bases, and relocated 125,000 personnel at a cost of \$35.1 billion.³³ However, while proactive steps, as detailed above, can mitigate some of the negative economic consequences, not all redevelopment efforts have been successful in mitigating the negative economic impacts that base closures cause to local communities. As of the end of 2017, the Trump Administration began advocating for a new round of military base closures, the first since 2005.³⁴

3. Tobacco Farmers

The transition away from tobacco farming has been complex and continues today. Tobacco farming was a significant source of economic activity for many parts of the Southeastern United States. A U.S. Department of Agriculture report found that in 1998, consumers spent nearly \$60 billion on tobacco products, which supported thousands of businesses that manufacture, transport, market, and sell tobacco products.³⁵ Roughly 90,000 farms grew tobacco leaf to support this consumer demand. The tobacco economy was also an importance tax revenue source for federal, state, and local governments.

Government policies targeted toward reducing tobacco consumption, such as prohibiting smoking in public places, combined with litigation brought by smokers and states against tobacco manufacturers for damage to health, resulted in a reduction in demand for tobacco.³⁶ This groundbreaking litigation also resulted in a settlement between tobacco companies and 46 state attorneys general in 1998.³⁷ Tobacco companies paid about \$106 billion in settlement funds through 2015 and will pay billions more in perpetuity because healthcare costs due to citizens' smoking-related illnesses will likely continue indefinitely.³⁸ As funding for transition programs is a perpetual concern, the tobacco settlement presents an interesting example of an industry providing a funding stream for transition programs as part of its reparations for damage caused by its product.

As part of the massive settlement between cigarette companies and states, cigarette manufacturers agreed to pay cigarette tobacco farmers \$5.15 billion to compensate them for losses due to declining demand.³⁹ An estimated 124,000 farm operators are negatively impacted by the declining rates of tobacco use—research shows that between 1988 and 1998, cigarette consumption fell by almost 20 percent (from 563 billion pieces to 470 billion pieces).⁴⁰ To compare with the TAA program, which spent around \$8,000 per impacted worker, a rough calculation of the settlement amount of \$5.15 billion divided among the 124,000 farm operators equals an average of \$41,532 per farm operator. While not a direct comparison, the two numbers give an idea of the difference in scale between TAA support for workers and tobacco settlement monies allocated to farmers.

Pre-existing federal income support for tobacco farmers also created challenges for transition policy. These federal tobacco programs limited production of crops to keep supply low and prices high, set a minimum price for tobacco at market, and provided government loans to farmers' cooperatives.⁴¹ As a result, growing tobacco brought much



higher returns to farmers than most other agricultural or livestock enterprises. In 1997, for instance, tobacco farmers planted tobacco on just 6 percent of their land but received 79 percent of their gross income from that crop.⁴² This higher rate of return, combined with the nearly \$60-billion demand for tobacco products, means that addressing the decline in tobacco farming was particularly challenging and not as straightforward as transitioning tobacco farmers into other agricultural crops. Further complicating the transition is the fact that in 1998, the year the tobacco settlement was finalized, the approximately 20,000 cigarette manufacturing workers were among the highest paid in the manufacturing sector.⁴³ In 1998, cigarette manufacturing paid an average of \$24.34 per hour, compared to the national average manufacturing wage of \$13.49.⁴⁴ Therefore, any transition plan needed to take into consideration the higher wages paid in the declining industry.

Similar to other declining industries, the ability of workers and communities to transition away from tobacco has had mixed results. Some tobacco farms are being transformed into farms with organic and sustainable crops. In North Carolina, tobacco remains one of the state's most profitable crops, bringing in \$754 million dollars as recently as 2013.⁴⁵ However, there is a sustained downward trend in tobacco farming and a marked shift in the state away from tobacco and towards more sustainable farming practices. The promise of sustainable agriculture is evident in efforts in western North Carolina, where a group of farmers and citizens, anticipating the economic loss of tobacco, developed the Appalachian Sustainable Agriculture Project to build consumer demand for locally grown farm products and provide an alternative to tobacco farming.⁴⁶ As a result, the level of farm income lost in the region fell at a rate far lower than that of the state and nation. Increases in produce production and direct sales helped to offset the decline of tobacco.⁴⁷

B. Fossil Fuel Just Transition Programs

As the previous examples show, just transition programs for declining industries are complex and costly, and they have had mixed results. Given the scale and scope of transitioning away from fossil fuels, a successful just transition program will need very strong and sustained government support and funding as well as a robust training system that is directly connected to job creation to ensure placement of trained workers in comparable jobs. Placing displaced fossil fuel workers directly into clean energy jobs is often offered as a solution to employment losses but is frequently not feasible in practice: worker skills do not necessarily directly transfer from one industry to the other, and clean energy jobs are often in other geographic areas than where fossil fuels are being lost. A just transition to a carbon neutral economy will require diversifying regions that are heavily dependent on fossil fuel extraction and use, eliminating the disconnection between where fossil fuel jobs are lost and where new good jobs are created, and ensuring that communities and workers are fully supported through the transition.



The following section presents two examples of just transition programs that targeted fossil fuel communities and workers. The first example in Ruhr, Germany, is one of the most successful transformations of a region away from fossil fuels to date. The Ruhr transition, however, took nearly five decades and was possible not only because of Germany's very strong social safety net, but also because of a very robust state-supported industrial planning and reinvestment strategy. The Mohave Generating Station in Laughlin, Nevada, near the Arizona border is on a much smaller scale than the Ruhr example but provides insight into a plant-level transition program.

1. Germany's Ruhr Region

One of the few examples of successful just transition is the Ruhr region in Germany, which has been undergoing a transition away from fossil fuels for more than 50 years.⁴⁸ By 2018, the region had completely phased out coal subsidies and successfully diversified its economy away from being dependent on just one or two industries. The Ruhr example highlights the need for short- and long-term strategies. Short-term strategies, such as wage replacement and healthcare coverage, help workers in the immediate aftermath of displacement. Long-term strategies, such as infrastructure investments and skill retraining, help a region and workforce transition into a more diversified low-carbon economy.

The Ruhr Valley is in the state of North-Rhine Westphalia. Steel and coal production dominated the region for decades, and cities within the region developed around coal mines in the 1800s. At one point, the Ruhr region was the largest industrial site in Europe, and coal and steel production were major employers.⁴⁹ However, coal mining and steel production became increasingly less competitive as cheaper products became available on the global market. As a result, the area has seen rising unemployment and industrial decline for more than 50 years. In 1957, coal mining employed 473,000 workers. By the end of 2013, that number had fallen to 11,448.⁵⁰ The share of the economy provided by coal mining fell from 61 percent in 1960 to 21 percent in 2014. The federal state has been steadily divesting from coal, and coal subsidies were completely phased out by 2018, making coal mining even more expensive and even less competitive.⁵¹

Due to the historic dominance of coal and steel production in this region, there was little economic diversity. Once coal production began to decline, few options existed to help mitigate the resulting economic losses. The region was left with air and water pollution, coal mining waste, and ground disruption from underground tunnels used for coal mining that caused regular sinkholes in the region.⁵²

Coal and steel production oscillated for a few decades during the 1960s to the 1980s, but by the mid-1980s, it became clear that the region could no longer be sustained by coal and steel production. As detailed in a case study by Robert Taylor of the Institute for Industrial Productivity, the federal government—with program and implementation



support from the state—began a series of investments in three areas that were important to the region’s future success: infrastructure, particularly intra- and inter-regional public transportation and roads; new universities and technical institutes; and environmental protection.⁵³

These investments were important because they linked the region to other areas, laid the groundwork for training and retraining opportunities, and dealt with the legacy of pollution, which, in turn, made the region a more desirable place to vacation and relocate. The region further transformed in the late 1980s through the 1990s, a period of innovation and technological investment.⁵⁴ One of the larger initiatives funded more than 120 projects along a major river with a €2.5 billion investment, about one-third of which came from private-sector sources.⁵⁵ While the BRAC 2005 round of U.S. military base closures spent \$35.1 billion on 48 base closures and redevelopment nationwide, Germany’s €2.5 billion investment was concentrated within just the Ruhr region. The projects funded by this initiative focused on ecological improvements along the river, creating parkland, developing new uses for abandoned industrial buildings, developing new work locations, and building new housing.

Taylor notes that in the case of the Ruhr region, just transition policies can be categorized as short-term policies focused on the needs of immediately displaced workers or long-term actions to diversify the region’s economy and employment base. To deal with the issues that current workers faced, short-term policies included: wage subsidies, compensation payments and early retirement or, if early retirement was not appropriate, job transfer schemes. Short-term policies helped ease the immediate transition after a mine or plant shut down. Germany’s strong social safety net helped provide economic security for transitioning workers. Fossil fuel workers tend to skew older, so early retirement can cover a large portion of the workforce. For the remaining workers, job transfer schemes are necessary.

In addition, research by Judson Abraham from Virginia Polytech University found that through the role of trade unions in training and retraining workforces, trade unions were key to protecting coal miners in the Ruhr.⁵⁶ Working with the federal government, the state governments, and an energy conglomerate, the key union—the *Industriegewerkschaft Bergbau, Chemie, Energie* (IG BCE, the Mining, Chemical, Energy Industrial Guild)—negotiated an agreement to end all hard coal mining in Germany by 2018 and provide displaced workers with decent compensation and assistance with job replacement.⁵⁷ The agreement provided an opportunity for early retirement for workers 49 years or older who had worked for at least 25 years, offering a monthly stipend as wage replacement until they qualified for a pension.⁵⁸ Younger miners were guaranteed placement in another energy or mining job, or the opportunity to enroll in a specialty retraining center to develop new skills while still receiving decent pay and job placement assistance.⁵⁹ Tens of thousands of workers have since benefited from this agreement, which was signed when Germany had eight remaining coal mines (seven of these in the Ruhr region) that employed 35,000 workers.⁶⁰



Knowing there would be a permanent transition away from coal left decision makers and advocates with the difficult task of transforming the economic and employment base of the Ruhr region. Long-term policies to diversify included efforts to attract investment from high-tech and knowledge-based firms, expand the service sector, and promote local entrepreneurship. An example of a long-term project in the Ruhr region is the 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.⁶¹ City officials began to develop the city’s solar industry in the 1990s by taking advantage of Germany’s feed-in tariff, a guaranteed premium rate paid to renewable energy generators who feed power back into the grid. This encouraged solar power generation, even though coal mining was still dominant in Gelsenkirchen.⁶² Nine hundred solar panels were installed on rooftops, which at the time of installation was the largest rooftop solar installation in the world.⁶³

The German national government also invested in building an educational infrastructure to create new technical institutions and universities in the region. Diversifying the economic and employment base prevented the region from becoming overly dependent on one industry and allowed for healthier economic growth. Additionally, transforming the region aided the overall community, and not just fossil fuel workers. While short-term policies focus on the needs of displaced workers, long-term policies focus on the needs of the community and region in a low-carbon future.

2. Black Mesa⁶⁴

The second example is the closure of the Mohave Generating Station (MGS), a two-unit, 1,580 MW coal-fired power plant located in Laughlin, Nevada, near the Arizona border.⁶⁵ Southern California Edison operated MGS and was also the majority owner.⁶⁶ The coal for the MGS came from a 275-mile slurry line from the Black Mesa coal mine on the Hopi and Navajo Reservations in Arizona, operated by Peabody Western Coal Company and jointly owned by the Navajo Nation and Hopi Tribe.⁶⁷ The water for the slurry line was groundwater from an aquifer under the Hopi and Navajo reservations.⁶⁸

During its period of operation, the 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.”⁶⁹ The slurry line drew substantial amounts of water from the aquifer that was essential to Hopi and Navajo traditional life and customs.⁷⁰ Ninety-three percent of the jobs at the mine were held by Native Americans, nearly all Navajo.⁷¹ The total economic benefit to the tribes and local communities from MGS operations was estimated at around \$83 million annually.⁷² To understand the economic magnitude of MGS operations, the Hopi Tribe’s general budget in 2017 was \$14.6 million.⁷³

In 2006, Southern California Edison decommissioned and dismantled the Mohave Generating Station, rather than upgrade the plant to abide by Clean Air Act



requirements.⁷⁴ In addition to the emissions of greenhouse gas and other air pollutants from the power plant, the land and water bore the scars of coal extraction for the plant from the Black Mesa coal mine in Arizona. Closing the MGS resulted in immediate environmental benefits but eliminated a critical source of royalties, tax revenue, and employment for the Hopi Tribe and Navajo Nation. The tribes, with allies in the environmental movements, were able to negotiate a just transition package with the California Public Utilities Commission (CPUC) and Southern California Edison that was substantial enough to mitigate a good portion of the economic costs of plant closure.

To provide funding for a just transition program, a Just Transition Coalition comprised of Native American grassroots organizations and environmental organizations was able to use the regulatory process in a creative way. As detailed by Ramo and Behles,⁷⁵ the MGS was a part of the acid rain emissions trading program, and because it was decommissioning, the plant had surplus allowances. Under the emissions trading scheme for SO₂ emissions, Southern California Edison would be allowed to sell its sulfur allowances that resulted from the closure of the MGS, which would then generate a revenue stream that could fund just transition efforts. Although the California Public Utilities Commission had considered community impacts from utility operations before, using sulfur allowances to benefit out-of-state non-ratepayers was new.⁷⁶ As a result of the coalition's efforts, the CPUC required Southern California Edison to put revenue from the acid rain emissions trading program into an account to be disbursed to the Hopi and Navajo communities.⁷⁷

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 and the Navajo Nation.⁷⁸ While this amount is just a fraction of the \$83 million in economic benefits brought by MGS operations, it provides a dedicated funding stream to help diversify the community's economy that can, in turn, generate additional economic growth. Moreover, the shutdown of the plant stopped the associated environmental destruction and protected the tribes' water source. The Navajo Nation also passed legislation to establish the Green Economy Fund and Commission to support green initiatives using a mixture of state, federal, and foundation funding.⁷⁹ In addition to the work of the Green Economy Commission, advocates have developed other projects that include a green business incubator, the Black Mesa Solar Project, the Navajo Wool Market Improvement Project, and the Food Sovereignty Project.⁸⁰ The new projects show an effort to diversify economic development, helping transition away from dependence on a single economic driver like fossil fuel development.

The example here also shows how a market mechanism, whose main goal is to place a cap on emissions and allow private businesses to determine the least costly way to comply with the cap, can also produce revenues that are a possible source of transition assistance. This approach is relevant to California's main market mechanism, the Cap-and-Trade Program, which is similarly funded from the sale of greenhouse gas



emissions allowances.⁸¹ These revenues go into the state’s Greenhouse Gas Reduction Fund (GGRF) and are used to fund projects on affordable housing, renewable energy, public transportation, zero-emission vehicles, sustainable agriculture, and more.⁸² Annually, at least 35 percent of these funds must be spent on projects located within, and benefiting residents of, disadvantaged communities and low-income communities, as well as low-income households.⁸³ See Chapter 5 for a discussion of the GGRF and Chapter 8 for a discussion of the Cap-and-Trade Program.

C. Current Fossil Fuel Just Transition Programs

While the transition detailed in this section are too new to document outcomes, they provide insight into the program elements being adopted into just transition initiatives. The first example examines the efforts at Diablo Canyon Power Plant, a nuclear plant in San Luis Obispo County, California. Diablo Canyon presents a unique case in which a diverse coalition came together to proactively propose a just transition plan in anticipation of the plant going offline. Diablo Canyon also highlights how the cost of funding this transition program has been allocated, including the decision to pass some costs to ratepayers and some costs to shareholders of this regulated utility.

The second example describes an agreement to close TransAlta’s Centralia Power Plant, the last coal-fired power plant in Washington State, and offers a model of a public stakeholder strategy that engaged businesses, government agencies, and environmental and labor organizations.

The third example details the Obama administration’s POWER Initiative, an effort coordinated among 10 federal agencies to provide economic and workforce development resources to communities and workers impacted by declines in the coal industry. The POWER Initiative is reminiscent of the TAA program, with a particular focus on the coal industry. It includes successful elements from other transition programs, among them the diversification of local economies and provision of income support, as well as health and retirement security. While funding was dispersed as recently as March 2018, it is unclear whether the current administration will continue funding the initiative.

The section concludes with a discussion of a carbon fee ballot initiative in Washington State. Even though it was defeated in 2018, the ballot initiative provides a blueprint for designing a transition program for workers and communities using an intensive stakeholder process that included representational decision-making.

1. Diablo Canyon Nuclear Power Plant

The Diablo Canyon nuclear power plant, located in San Luis Obispo County, has been operating since 1985.⁸⁴ The two-unit nuclear power plant generates a total of 2,240 MW. Diablo Canyon is set to be taken offline when the current operating licenses expires,



which is by 2024 for Unit 1 and 2025 for Unit 2.⁸⁵ Retiring the nuclear power plant, the last nuclear power generation plan in California, is a complex and extensive process with implications for ratepayers, workers, and the surrounding community.

In anticipation of the CPUC proceedings to decide the terms of the transition plan for retiring Diablo Canyon, the main stakeholders—the plant operator (Pacific Gas and Electric, PG&E), environmental advocacy organizations (the Natural Resources Defense Council, Environmental California, and the Alliance for Nuclear Responsibility), and the pertinent unions, IBEW Local 1245 and the Coalition of California Utility Employees—worked together to negotiate a plan, known as the Joint Proposal, that met environmental, worker, and community interests. The following section presents the main components of the Joint Proposal to Retire and Replace Diablo Canyon and the final plan which was adopted by the legislature in 2018.⁸⁶ The Diablo Canyon case also provides insight into what costs can be passed on to consumers (ratepayers) in the case of a regulated industry.

The Joint Proposal set out a plan for closing Diablo Canyon and was submitted to the CPUC. The proposal included: replacing Diablo Canyon with a greenhouse-gas-free portfolio to substitute for the Diablo Canyon power; an employee retention, retraining, and compensation plan; and mitigation to the local community for the loss of tax revenue and other economic costs of closure.⁸⁷ In January 2018, the CPUC approved PG&E's application to retire Diablo Canyon, however, the CPUC did not agree to all the provisions in the Joint Proposal as detailed below.⁸⁸

The Joint Proposal parties did agree to an employee program that included a severance package for approximately 1,500 employees, a retention program to ensure adequate staffing levels until closure, and a retraining and development program to facilitate redeployment of a portion of plant personnel to the decommissioning project and elsewhere within PG&E. The estimated cost of the employee program was \$350 million. CPUC approved only \$222.6 million for the program and allowed PG&E to recover these funds from ratepayers.⁸⁹

Diablo Canyon currently contributes approximately \$22 million in property taxes to San Luis Obispo County annually. PG&E proposed to compensate San Luis Obispo County for the loss of property taxes due to the declining rate base in Diablo Canyon through 2025. PG&E also came to an agreement with labor and environmental groups, the County of San Luis Obispo, the Coalition of Cities, and the San Luis Coastal Unified School District to create a Community Impacts Mitigation Program that will cost \$85 million.⁹⁰ This program includes funds for the offset of any potential negative impacts to essential services, and the creation of a \$10-million Economic Development Fund to ease local economic impacts arising from the plant's closure. The agreement also includes continued funding for offsite community and local emergency preparedness and planning until the two nuclear reactor units are fully decommissioned. The CPUC declined to fund these efforts through rate recovery.⁹¹



The final order from the CPUC funded a much smaller transition package than the Joint Proposal. The employee retention plan would be funded by rate recovery, while the community impact fund was left to be funded by PG&E shareholders. CPUC's argument, with respect to the community mitigation program, was that ratepayers should only pay for utility costs and not for government services, and community mitigation was seen as a government service.⁹² Employee retention programs and license renewal, on the other hand, were viewed as utility services and could, therefore, be passed on to ratepayers.

In response to the final CPUC order, advocates introduced a bill, Senate Bill 1090 (Monning, Chapter 561, Statutes of 2018),⁹³ to force the CPUC to accept the Joint Proposal as originally presented.⁹⁴ The bill passed both the state assembly and senate and was signed by the governor on September 19, 2018.⁹⁵

2. Centralia Power Plant Closure⁹⁶

The closure of the TransAlta's Centralia Power Plant, the last coal-fired power plant in Washington State, provides another model of a public stakeholder strategy that successfully engaged business, government, environmental, and labor organizations.

The Sierra Club and a coalition of faith-based, public health, and worker organizations launched a campaign to retire the TransAlta plant by 2015, following the failure of cap-and-trade legislation in the Washington legislature in 2009. The coalition supported a bill to shutter the plant by 2015 and an alternative bill to close it by 2020, which would take offline the largest single-point source for mercury and greenhouse gas emissions in the Pacific Northwest. TransAlta, which had recently invested in scrubbers and other best practices in pollution control, argued for the extension of operations until 2025. The local community also remained skeptical of any potential closure deal and what it would mean for the local economy. In 2006, TransAlta had abruptly closed a coal mine adjacent to the plant after determining that the costs of necessary safety upgrades were too high. Six hundred workers were let go. After the mine closed, unemployment in the county reached 12 percent as there were only very limited opportunities for good jobs outside of the coal plant.⁹⁷

When the negotiations appeared deadlocked, the governor brought together the coalition and the company to broker a deal. Although the International Brotherhood of Electrical Workers (IBEW), which represented the plant workers, was not included in the negotiation, the coalition advocated for worker retention during the process of closure, reemployment in the plant clean-up, a pathway to retirement for older workers, and retraining for young workers in new energy technologies. In exchange, TransAlta agreed to close one boiler in 2020 and the second in 2025, during which time 40 percent of the plant's workforce would reach retirement age. Younger workers received eight years' notification to plan their next steps before the plant closed. The company also endowed a \$30-million community investment fund and provided \$25 million for an energy-technology transition fund.⁹⁸



3. Obama Administration POWER Initiative

On the federal level, the Obama Administration introduced the POWER (Partnerships for Opportunity and Workforce and Economic Revitalization) Initiative, a coordinated effort among 10 federal agencies to align, leverage, and target a range of federal economic and workforce development programs and resources to assist communities and workers that are affected by declines in the coal industry. The POWER Initiative was the primary economic and workforce component of President Obama's POWER+Plan, which proposed more than \$9 billion to support economic diversification in coal communities, employment and training services for workers displaced from the coal economy, the health and retirement security of coal miners and their families, the reclamation and redevelopment of abandoned mine lands, and the deployment of carbon capture and sequestration technology.⁹⁹

In many ways, the POWER Initiative builds on the TAA program by providing training and retraining opportunities as well as income and benefits support. The initiative also addresses the economic development and demand for labor by funding projects that diversify local economies away from extreme dependence on coal and create jobs in new industries.

As of March 2018, the Appalachian Regional Commission, a federal-state partnership, has awarded \$94 million through the POWER Initiative to help 250 coal-impacted Appalachian counties diversify and grow their economies.¹⁰⁰ The grants include:

- \$1.9 million to Bevill State Community College in Jasper, Alabama, to create a Rapid Training Center at Bevill State's Jasper campus that will serve as a regional workforce training and job placement hub in northwest Alabama;
- \$7.47 million to the University of Pikeville in Pikeville, Kentucky, to help launch the Kentucky College of Optometry project, which will grow the healthcare workforce and improve access to vision care in Central Appalachia; and
- \$1.75 million to the Fayette County Community Action Agency, Inc., in Uniontown, Pennsylvania, for the Southwestern PA Development of a robust local food shed that provides new and diverse economic opportunities to communities in 38 counties impacted by the decline of the coal industry across Pennsylvania, West Virginia, and Maryland.¹⁰¹

These investments are expected to create or retain almost 8,800 jobs and leverage an additional \$210 million in investment. As demonstrated through these projects, the goal is to diversify economic growth and not replicate over-dependence on one industry. While the latest grants were dispersed in March 2018, it is unclear whether the program will continue to have support under the current federal administration.



4. Washington State Initiative 1631

Initiative 1631, though defeated on the November 2018 ballot in the state of Washington, provides an example of a comprehensive climate policy that includes a just transition package as a central component of the proposal.¹⁰² Developed by a coalition of labor, environmentalist, and environmental justice organizations, and supported by more than 250 organizations, including racial equity organizations, environmental advocates, tribal nations, and the Alliance for Jobs and Clean Energy, the initiative proposed a carbon fee policy that was expected to generate more than \$2 billion over five years.¹⁰³ As recorded in the text of the initiative, the carbon fee would begin at \$15 per ton of CO₂ equivalent and then increase by \$2 every year, adjusted for inflation until 2035, as long as the greenhouse gas emission reductions targets were on track to meet the state's 2050 reduction goal.¹⁰⁴ Seventy percent of the revenue raised would be used for clean air and clean energy investments, 25 percent for clean water and healthy forest investments, and 5 percent for a healthy community fund.¹⁰⁵

The initiative directly addressed the transition of workers by requiring a minimum of \$50 million of the carbon fee revenue fund to be set aside and replenished every year for a support program for workers negatively impacted by the transition away from fossil fuels.¹⁰⁶ This support fund for displaced workers included full wage replacement, health benefits, pension contributions for employees who were within five years of retirement, and wage insurance for up to five years for workers with more than five years of service, as well as full wage replacement, health benefits, and pension contributions for each year of service for workers with between one and five years of service.¹⁰⁷ Wage insurance makes workers whole by paying any difference between re-employment wages and the wages they had been earning in the lost job.¹⁰⁸

The initiative also provided retraining costs, peer counseling services, job placement services, relocation expenses, priority hiring in the clean energy sector, and other services deemed necessary.¹⁰⁹ The initiative addressed just transition for communities, as well. A minimum of 35 percent of all investments would be allocated to benefit environmental justice communities (those that bear the highest pollution burdens); 15 percent of investments would assist lower-income populations in urban and rural communities in transitioning to a clean energy economy; and 10 percent of investments would require formal support from a tribal government (along with mandated consultation of tribal nations on any projects affecting their lands).¹¹⁰

In addition, the initiative would have created a public board for accountability, ensuring robust public involvement and transparency. The board was designed to comprise 15 voting members, including government agency officials, a tribal representative, and a representative of the environmental justice community.¹¹¹

The revenue raised from the carbon tax, if it had passed, would have provided strong financial support for the proposed transition programs. The level of specificity of the



programs offered a clear roadmap of how the money would be spent and how displaced workers and marginalized communities would benefit. The initiative also laid out how worker and environmental justice voices would be integrated into decision-making processes. These elements address shortcomings of previous transition programs, particularly the lack of steady funding and the lack of services to overcome the many challenges workers and communities face in industrial transitions.

Finally, a study commissioned to assist in developing the Washington climate ballot initiative provides an important example of how to estimate the costs of alternative transition packages. The Washington State economic analysis identifies the critical parameters that must be estimated to determine annual and cumulative costs. These include the specific benefits package that is chosen, the number and timing of job losses, and characteristics of the industry such as the age profile of the workforce, worker turnover rates, rehire needs before closure, and the health of pension plans. The cost estimates of the proposed just transition program vary widely depending on assumptions about these factors, but based on a likely pattern of alternating periods of steady contraction with occasional episodes of large-scale employment loss, the very comprehensive transition program analyzed in the study is estimated to cost between \$30-\$40 million per year. This amount is a small percentage of the estimated revenues from the proposed carbon fee, which at the lowest carbon price of \$15 per ton was estimated to generate revenues of more than \$1 billion for the first several years and hundreds of millions of dollars annually over time as carbon emissions decrease.

III. Recommendations for Just Transition

The following recommendations aim to assist the state in planning for the protection and support of workers, their families, and communities at risk of decline due to contracting fossil fuel industries.

As California transforms its economy and its workforce to meet 2030 climate targets, the state will need to create new opportunities not only for traditionally disadvantaged Californians, but for workers and communities dependent on fossil fuel or carbon-intensive industries. The question is how to support individual workers who lose their jobs and take action to diversify regional economies over the longer term.

(As mentioned throughout this chapter, transitioning away from carbon-intensive industries is one part of a larger economic transformation that is anticipated with the increasing automation of many jobs and occupations. Moreover, automation will likely have significant impact on key industries affected by climate policy, such as the energy and transportation sectors. While the issue of automation is beyond the scope of this report, the challenges of addressing job loss—and creating new job opportunities—are



similar).

The examples presented in this chapter show that successful programs require the support of diverse coalitions that include workers, communities, and labor unions. In Black Mesa, the various stakeholders worked together to provide economic alternatives for the Hopi Tribe and Navajo Nation when the coal mine and generating station went offline. Similarly, a wide coalition came together to provide a proactive transition plan for the Diablo Canyon closure.

In addition to strong stakeholder collaboration, local, state, and federal government support is essential to promote the broader economic restructuring that is needed to transition away from fossil fuels. Moving forward, investing in research and developing transition programs in collaboration with impacted parties, including community groups, unions, and business, will provide grounded solutions at the scale and scope necessary to build a carbon-neutral economy.

1. Short Term: Fully explore alternatives to plant closures when there are other strategies available that will achieve greenhouse gas emissions reductions and local pollution abatement.

In specific communities, immediate plant closure may not be the best and most equitable way to achieve the state's carbon emission goals. It is important to explore whether in the short term, continued investments in emissions abatement and targeted enforcement of pollution mandates for heavy emitting industries could ensure maximum job retention concurrent with decreasing emissions. This includes deploying Best Available Retrofit Control Technology as required in Assembly Bill 617 (C. Garcia, Chapter 136, Statutes of 2017),¹¹² fugitive methane emissions capture mandates, and industrial energy efficiency incentive programs. Targeted investments in pollution abatement can create jobs, many in sectors where skilled workforce standards already ensure job quality.

2. Longer-term: Convene an interagency task force to develop concrete, specific plans for short-term and long-term transition.

2a. Identify priority transition assistance needs.

The state could work to identify the most vulnerable industries, firms, and localities through research and engagement of business, labor, and community, and develop a set of the most likely job disruption scenarios through 2030. For each scenario, the task force could develop cost estimates for a transition plan, incorporating a variety of assistance



packages, options for retraining and job placement, and considerations regarding the speed of industry transition, and firm and worker characteristics such as the health of pension plans and the age of workforce. This work could be facilitated by the High Road Training Partnerships described above, which would provide a framework for stakeholder discussion and planning.

2b. Facilitate a planning process for transition assistance.

Based on the identification of priorities, the state could work with at risk communities, labor, and business—again, ideally through regional industry partnerships such as the HRTPs—to develop and propose a set of key criteria for transition programs that include a combination of income and benefits support, skills training, and job creation and placement. Ultimately, any program will need to be directly beneficial to the specific region and industry affected. Potential benefits could include income support; continued pension and healthcare benefits; a bridge to retirement for older workers; sizable job training, re-training, or education allowances and case management to improve the likelihood of reemployment at comparable wages; consideration of guaranteed employment in public works or first source privilege in hiring; and even outside the box ideas such as college aid for the children of displaced workers.



Endnotes

- 1 Alexandra Bradbury, “How Do We ‘Change Everything’ without Pitting Workers against the Planet?,” *Labor Notes* (blog), September 8, 2015, <https://labornotes.org/blogs/2015/09/how-do-we-change-everything-without-pitting-workers-against-planet>.
- 2 Labor Network for Sustainability and Strategic Practice Grassroots Policy Project, “‘Just Transition’ – Just What Is It? An Analysis of Language, Strategies, and Projects,” July 6, 2016, <http://www.labor4sustainability.org/uncategorized/just-transition-just-what-is-it/>.
- 3 Robert Pollin and Brian Callaci, “A Just Transition for U.S. Fossil Fuel Industry Workers,” *The American Prospect*, July 6, 2016, <http://prospect.org/article/just-transition-us-fossil-fuel-industry-workers>.
- 4 French Economic, Social and Environmental Council, “No Jobs on a Dead Planet—Trade Union Summit on Climate Change,” International Trade Union Confederation, July 27, 2015, <https://www.ituc-csi.org/no-jobs-on-a-dead-planet-trade>.
- 5 Elena Foshay, Jill Kubit, and Lara Skinner, “Making the Transition: Helping Workers and Communities Retool for the Clean Energy Economy” (Apollo Alliance & Cornell University, ILR School Global Labor Institute, 2009), http://www.climatechange.ca.gov/eaac/comments/2009-12-11_California_Labor_Federation_attachment_2.pdf.
- 6 Jeffrey Zients, “Trade Adjustment Assistance: What You Need to Know,” resident Barack Obama White House Archives, June 11, 2015, <https://obamawhitehouse.archives.gov/blog/2015/06/11/trade-adjustment-assistance-what-you-need-know>.
- 7 Zients.
- 8 Foshay, Kubit, and Skinner, “Making the Transition: Helping Workers and Communities Retool for the Clean Energy Economy.”
- 9 Foshay, Kubit, and Skinner.
- 10 Foshay, Kubit, and Skinner.
- 11 Foshay, Kubit, and Skinner.
- 12 Foshay, Kubit, and Skinner.
- 13 U.S. Department of Labor, Employment and Training Administration, “Trade Adjustment Assistance for Workers Program,” Fiscal Year 2013, <https://www.doleta.gov/tradeact/docs/AnnualReport13.pdf>.



- 14 Foshay, Kubit, and Skinner, “Making the Transition: Helping Workers and Communities Retool for the Clean Energy Economy.”
- 15 Foshay, Kubit, and Skinner.
- 16 Jennifer Mason and Mireya Solís, “Globalization on the Cheap: Why the U.S. Lost Its Way on Trade,” Brookings, August 28, 2017, <https://www.brookings.edu/blog/order-from-chaos/2017/08/28/globalization-on-the-cheap-why-the-u-s-lost-its-way-on-trade/>.
- 17 Tom DiChristopher, “Sizing up the Trade Adjustment Assistance Program,” *CNBC*, June 26, 2015, <https://www.cnbc.com/2015/06/26/is-aid-to-trade-displaced-workers-worth-the-cost.html>.
- 18 Sarah Dolfin and Peter Z. Schochet, “The Benefits and Costs of the Trade Adjustment Assistance (TAA) Program Under the 2002 Amendments” (Mathematica Policy Research, December 2012), https://wdr.doleta.gov/research/FullText_Documents/ETAOP_2013_09.pdf.
- 19 Dolfin and Schochet.
- 20 Lori G. Kletzer, *Job Loss from Imports: Measuring the Costs* (Institute for International Economics, 2001).
- 21 Sigurd R. Nilsen, “Trade Adjustment Assistance: Program Provides an Array of Benefits and Services to Trade-Affected Workers,” Testimony before the Committee on Ways and Means, House of Representatives (U.S. Government Accountability Office, June 14, 2007), <https://www.gao.gov/new.items/d07994t.pdf>.
- 22 Foshay, Kubit, and Skinner, “Making the Transition: Helping Workers and Communities Retool for the Clean Energy Economy.”
- 23 Foshay, Kubit, and Skinner.
- 24 Loren Yager, “Trade Adjustment Assistance: Improvements Necessary, but Programs Cannot Solve Communities’ Long-Term Problems,” Testimony Before the Committee on Finance, Subcommittee on International Trade, U.S. Senate (U.S. General Accounting Office, July 20, 2001), <https://www.gao.gov/assets/110/108928.pdf>.
- 25 Tadlock Cowan, “Military Base Closures: Socioeconomic Impacts,” CRS Report for Congress (Congressional Research Service, February 7, 2012), <https://fas.org/sgp/crs/natsec/RS22147.pdf>.
- 26 Cowan.



- 27 Andy Hultquist and Tricia L. Petras, “An Examination of the Local Economic Impacts of Military Base Closures,” *Economic Development Quarterly* 26, no. 2 (2012): 151–61, <https://doi.org/10.1177/0891242412442374>.
- 28 Cowan, “Military Base Closures: Socioeconomic Impacts.”
- 29 Cowan.
- 30 Lee Cloer, “Closed Military Bases - What Are They Doing Now?” (Duotech, January 26, 2018), <https://duotechservices.com/closed-military-bases-where-are-they-now>.
- 31 Cloer.
- 32 Cloer.
- 33 Brian J. Lepore, “Military Bases: Opportunities Exist to Improve Future Base Realignment and Closure Rounds,” Report to Congressional Committees (U.S. Government Accountability Office, March 2013), <https://www.gao.gov/assets/660/652805.pdf>; Brian J. Lepore, “Military Base Realignment and Closures: Updated Costs and Savings Estimates from BRAC 2005,” Letter to chairs and ranking members of relevant committees of the U.S. Senate and the U.S. House of Representatives (U.S. Government Accountability Office, June 29, 2012), <https://www.gao.gov/assets/600/592076.pdf>.
- 34 Ellen Mitchell, “Pentagon Chief Pushes for New Round of Base Closures,” *The Hill*, October 18, 2017, <https://thehill.com/policy/defense/356054-pentagon-chief-pushes-for-new-round-of-base-closures>.
- 35 H. Frederick Gale, Jr., Linda Foreman, and Thomas Capehart, “Tobacco and the Economy: Farms, Jobs, and Communities,” Agricultural Economic Report (Economic Research Service/USDA, September 2000), <http://ageconsearch.umn.edu/record/34007/files/ae000789.pdf>.
- 36 Gale, Jr., Foreman, and Capehart.
- 37 Tobacco Control Legal Consortium, “The Master Settlement Agreement: An Overview” (Public Health Law Center, August 2015), <http://www.publichealthlawcenter.org/sites/default/files/resources/tclc-fs-msa-overview-2015.pdf>.
- 38 Tobacco Control Legal Consortium.
- 39 Gale, Jr., Foreman, and Capehart, “Tobacco and the Economy.”
- 40 Gale, Jr., Foreman, and Capehart; Jasper Womach, “Compensating Farmers for the Tobacco Settlement” (Congressional Research Service, July 6, 1998), https://www.everycrsreport.com/files/19980706_98-133ENR_7d619c539e22176ed4d9455fa47901770b076ae0.pdf.



- 41 “The Price Of Tobacco: The Basics,” *The New York Times*, March 22, 1993, <https://www.nytimes.com/1993/03/22/us/the-price-of-tobacco-the-basics.html>.
- 42 Gale, Jr., Foreman, and Capehart, “Tobacco and the Economy.”
- 43 Gale, Jr., Foreman, and Capehart.
- 44 Gale, Jr., Foreman, and Capehart.
- 45 Ashita Gona, “Tobacco to Tomatoes: The Reinvention of North Carolina’s Agriculture,” *Environmental Storytelling: Reporting by Students at UNC-Chapel Hill* (blog), December 9, 2014, <http://jomc565.web.unc.edu/2014/12/09/tobacco-to-tomatoes-the-reinvention-of-north-carolinas-agriculture/>.
- 46 Charlie Jackson and Allison Perrett, “The End of Tobacco and the Rise of Local Food in Western North Carolina” (Local Food Research Center, Appalachian Sustainable Agriculture Project, March 2018), http://asapconnections.org/wp-content/uploads/Final_The-End-of-Tobacco.pdf.
- 47 Jackson and Perrett.
- 48 A version of this section appears in Tahseen Jafry, ed., *Routledge Handbook of Climate Justice*, First, Routledge International Handbooks (Routledge, 2019), <https://www.routledge.com/Routledge-Handbook-of-Climate-Justice/Jafry/p/book/9781138689350>.
- 49 Dean Stroud et al., “Skill Development in the Transition to a ‘Green Economy’: A ‘Varieties of Capitalism’ Analysis,” *The Economic and Labour Relations Review* 25, no. 1 (January 13, 2014): 10–27.
- 50 European Trade Union Institute, “Social Partners and the Collaborative Approach Are Key to the Green Transition of the Ruhr Region,” *Etui* (blog), February 9, 2016, <https://www.etui.org/News/Social-partners-and-the-collaborative-approach-are-key-to-the-green-transition-of-the-Ruhr-region>.
- 51 Deutsche Welle, “The Rise and Fall of Germany’s Coal Mining Industry,” *DW* (blog), January 31, 2007, <https://www.dw.com/en/the-rise-and-fall-of-germanys-coal-mining-industry/a-2331545>.
- 52 Deutsche Welle.
- 53 Deutsche Welle.
- 54 Deutsche Welle.
- 55 Deutsche Welle.



56 Judson Abraham, “Just Transitions for the Miners: Labor Environmentalism in the Ruhr and Appalachian Coalfields,” *New Political Science* 39, no. 2 (April 14, 2017): 218–40, <https://doi.org/10.1080/07393148.2017.1301313>.

57 Abraham.

58 Abraham.

59 Abraham.

60 Spiegel Online, “End of an Industrial Era: Germany to Close Its Coal Mines,” *Spiegel Blog* (blog), January 30, 2007, <http://www.spiegel.de/international/end-of-an-industrial-era-germany-to-close-its-coal-mines-a-463172.html>.

61 Erica Peterson, “In Germany, A City Moves Away From Coal,” *WFPL News*, December 7, 2015, <http://energyfuture.wfpl.org/in-germany-a-city-moves-away-from-coal/>.

62 Peterson.

63 Peterson.

64 J. Mijin Cha, “A Just Transition: Why Transitioning Workers into a New Clean Energy Economy Should Be at the Center of Climate Change Policies,” *Fordham Environmental Law Review* 29, no. 2 (2017): 196–220.

65 Alan Ramo and Deborah Behles, “Transitioning a Community Away from Fossil-Fuel Generation to a Green Economy: An Approach Using State Utility Commission Authority,” *Minnesota Journal of Law, Science & Technology* 15, no. 1 (2014): 505–27.

66 Ramo and Behles.

67 Ramo and Behles.

68 Ramo and Behles.

69 Ramo and Behles.

70 Ramo and Behles.

71 Ramo and Behles.

72 Ramo and Behles.

73 Ramo and Behles.



- 74 Ramo and Behles; Center for Media and Democracy, “Mohave Generating Station,” SourceWatch, August 10, 2012, https://www.sourcewatch.org/index.php/Mohave_Generating_Station.
- 75 Ramo and Behles, “Transitioning a Community Away from Fossil-Fuel Generation to a Green Economy: An Approach Using State Utility Commission Authority.”
- 76 Ramo and Behles.
- 77 Ramo and Behles.
- 78 Jihan Gearon and Wahleah Johns, “Peabody’s Declaration of Bankruptcy Is ‘No Surprise’: Navajo Tribal Members Demand Just Transition to a Sustainable Economy” (Indigenous Environmental Network, April 14, 2016), <http://www.ienearth.org/peabody-declaration-of-bankruptcy-is-no-surprise/>; Laura Shin, “Navajo Nation Approves First Tribal ‘Green Jobs’ Legislation” (InsideClimate News, July 22, 2009), <http://insideclimatenews.org/news/20090722/navajo-nation-approves-first-tribal-green-jobs-legislation>; Blackmesapeeps, *Navajo Green Job* (Youtube, 2009), <https://www.youtube.com/watch?v=tAJHuRxbImE>.
- 79 Gearon and Johns, “Peabody’s Declaration of Bankruptcy Is ‘No Surprise’: Navajo Tribal Members Demand Just Transition to a Sustainable Economy”; Shin, “Navajo Nation Approves First Tribal ‘Green Jobs’ Legislation”; Blackmesapeeps, *Navajo Green Job*.
- 80 Gearon and Johns, “Peabody’s Declaration of Bankruptcy Is ‘No Surprise’: Navajo Tribal Members Demand Just Transition to a Sustainable Economy”; Shin, “Navajo Nation Approves First Tribal ‘Green Jobs’ Legislation”; Blackmesapeeps, *Navajo Green Job*.
- 81 “Cap-and-Trade Dollars at Work,” California Climate Investments, accessed October 17, 2018, <http://www.caclimateinvestments.ca.gov/>.
- 82 “Cap-and-Trade Dollars at Work.”
- 83 “Cap-and-Trade Dollars at Work.”
- 84 Pacific Gas and Electric Company et al., “Joint Proposal to Retire Diablo Canyon Nuclear Power Plant at Expiration of the Current Operating Licenses and Replace It with a Portfolio of GHG Free Resources” (PG&E, June 20, 2016), <https://www.pge.com/includes/docs/pdfs/safety/dcpp/JointProposal.pdf>.
- 85 Pacific Gas and Electric Company et al.
- 86 Peter Miller, “Diablo Canyon Legislation Signed into Law by Governor Brown,” NRDC Expert Blog (blog), September 19, 2019, <https://www.nrdc.org/experts/peter-miller/diablo-canyon-legislation-signed-law-governor-brown>.



- 87 Pacific Gas and Electric Company et al.
- 88 California Public Utilities Commission, “Decision Approving Retirement of Diablo Canyon Nuclear Power Plant,” January 16, 2018, <http://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M205/K423/205423920.PDF>.
- 89 California Public Utilities Commission.
- 90 Pacific Gas and Electric Company, “PG&E, SLO County, SLO Coastal Unified School District, Local Cities Reach Accord on Diablo Canyon Community Support Funding,” November 28, 2016, https://www.pge.com/en_US/safety/how-the-system-works/diablo-canyon-power-plant/news-and-articles/pge-slo-county-slo-coastal-unified-school-district-local-cities-reach-accord-on%20diablo-canyon-community-support-funding.page.
- 91 California Public Utilities Commission, “Decision Approving Retirement of Diablo Canyon Nuclear Power Plant.”
- 92 California Public Utilities Commission.
- 93 Bill Monning, “SB-1090 Diablo Canyon Nuclear Powerplant,” Chapter 561, Statutes of 2018 Public Utilities Code § 712.7 (2018), https://leginfo.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB1090.
- 94 Monning.
- 95 Jeff St. John, “California Passes Bill Requiring Diablo Canyon Plant to Be Replaced With Carbon-Free Resources” (Greentech Media, August 24, 2018), <https://www.greentechmedia.com/articles/read/california-bill-requiring-diablo-canyon-carbon-free>; Natural Resources Defense Council, “Gov. Brown Signs Historic Diablo Canyon Nuclear Plant Bill,” September 20, 2018, <https://www.nrdc.org/media/2018/180920>.
- 96 This section is based on research conducted by Katherine Luke at the UC Berkeley Labor Center.
- 97 Scott Martelle, “Kick Coal, Save Jobs Right Now,” *Sierra Magazine*, 2012, <http://vault.sierraclub.org/sierra/201201/kick-coal-save-jobs.aspx>.
- 98 Jeremy Brecher, “Jobs Beyond Coal: A Manual for Communities, Workers, and Environmentalists” (Labor Network for Sustainability, 2012), http://report.labor4sustainability.org/coal_2012.pdf.
- 99 U.S. Office of the Press Secretary, “Fact Sheet: Administration Announces New Economic and Workforce Development Resources for Coal Communities through POWER Initiative,” President Barack Obama White House Archives, August 24, 2016, <https://obamawhitehouse.archives.gov/the-press-office/2016/08/24/fact-sheet-administration-announces-new-economic-and-workforce>.



- 100 Appalachian Regional Commission, “POWER Initiative,” 2019, <https://www.arc.gov/funding/POWER.asp>.
- 101 Appalachian Regional Commission, “POWER Award Summaries by State As of September 2017,” September 2017, <https://www.arc.gov/images/grantsandfunding/POWER2017/ARCPowerAwardSummariesbyState9-6-2017.pdf>.
- 102 “Building a Cleaner Future Together,” Yes On 1631, accessed October 17, 2018, available via Internet archive at <https://web.archive.org/web/20190206224755/https://yeson1631.org/learn/https://yeson1631.org/learn/>.
- 103 Washington State Office of Financial Management, “I-1631 Reducing Pollution: Fiscal Impact Summary,” August 24, 2018, https://ofm.wa.gov/sites/default/files/public/budget/ballot/2018/I-1631_Fiscal_Impact_Statement-082418.pdf.
- 104 “Initiative Measure No. 1631,” March 13, 2018, https://www.sos.wa.gov/_assets/elections/initiatives/finaltext_1482.pdf.
- 105 “Initiative Measure No. 1631.”
- 106 “Initiative Measure No. 1631.”
- 107 “Initiative Measure No. 1631.”
- 108 Lori G. Kletzer, “Why the U.S. Needs Wage Insurance,” *Harvard Business Review*, January 25, 2016, <https://hbr.org/2016/01/why-the-u-s-needs-wage-insurance>.
- 109 “Initiative Measure No. 1631.”
- 110 “Initiative Measure No. 1631”; “Building a Cleaner Future Together.”
- 111 “Building a Cleaner Future Together.”
- 112 Cristina Garcia, “AB-617 Nonvehicular Air Pollution: Criteria Air Pollutants and Toxic Air Contaminants,” Chapter 136, Statutes of 2017 (chaptered July 26, 2017), https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180AB617.

