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High Road Clean Energy Jobs, 2022 Update

California's progress on inclusive, equitable, and quality clean energy jobs

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Four years ago, Senate Bill 100 (DeLeon, 2018) mandated California transition its grid to supply 100 percent of retail sales with renewable resources by 2045. Since, California's transition toward all renewable energy persists, and has accelerated the growth of certain energy sectors and the decline of others. In the most recent jobs reporting period for the U.S. Department of Energy from 2020 to 2021, energy jobs have continued to grow in the state by 3.4 percent (up by 29,429 jobs).[1] Stakeholders from impacted stakeholders continue to develop novel proposals, programs, and propositions on how to continue to support a just, equitable transition for both the workers filling new job opportunities in the clean energy sector, as well as those who will be displaced from fossil fuel facility closures.

This hearing doesn't introduce a new problem. Rather, it aims to track *if* and *how* California has made intermediate progress on transitioning and developing new high quality, equitable clean energy jobs — and where it hasn't. By accessing intermediate progress, the California legislature could be better informed on where progress still needs to be made.

Some questions which guide interim progress on developing high quality work in the clean energy transition include the following. What are examples and data which suggest California has made progress toward developing high quality clean energy jobs? Which high road policies have been adopted through state, private and federal initiatives? Which programs and companies have created successful high-quality jobs and training programs — and how can California continue to expand on these successes? How will new state environmental and labor bills change the trajectory of the clean energy workforce? How will federal investments from

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[1] Gina Coplon-Newfield, Hannah Schanzer, and David Keyser, "Energy Employment by State 2022," Department of Energy, June 2022, pg. 29 https://www.energy.gov/sites/default/files/2022-06/USEER%202022%20State%20Report_0.pdf.

the Inflation Reduction Act of 2022 shape the trajectory and opportunities to expand labor quality and development?

This background report begins by compiling critical aspects of the 2022 report commissioned by the Workforce Development Board on a 2030 plan for creating high quality climate jobs, which includes recommendations for the energy sector. Then, the report turns to introduce state and federal legislation that will shape the trajectory of clean energy jobs, including various Califonrian clean energy and labor bills, as well as the federal Inflation Reduction Act of 2022.

The Vision for 'High Road' Jobs in the Clean Energy Sector

The 2020 report by Zabin et al.,"Putting California on the High Road[2]," outlined a visionary plan for creating high quality equitable clean energy jobs and transitions for Californians, pursuant to the state's existing climate and workforce development goals.[3] Chapter 6 of the report focused specifically on the energy sector, on those impacted from the energy transition and on the new jobs that will be needed.

The report provides a narrative of robust creation of new high quality work, particularly in utility-scale renewable development and some in distributed energy resources. While data is harder to find, there are concerns about the quality work in the energy efficiency sector. When written in 2020, the authors provided a list of further suggestions to continue improving clean energy jobs — which are copied at the end of this section.

Utility-scale renewable development has resulted in large numbers of high quality, blue collar, equitable work in California. The report finds that most utility-scale renewable energy construction work has remained high-quality through collectively bargained project labor agreements (PLAs), which have become "industry standard" despite not always being required through law.[4] These types of agreements have "ensured prevailing wages, full health and pension benefits, and payment into a use of state-certified apprenticeship system" in most utility-scale renewable projects being built to meet California's Renewable Portfolio Standards.[5]

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[2] Zabin, Carol, Roxane Auer , J. Mijin Cha, Robert Collier, Richard France, Jenifer MacGillvary, Holly Myers, Jesse Strecker, and Steve Viscelli. "Putting California on the High Road: A Jobs and Climate Action Plan for 2030." *UC Berkeley Labor Center,* April 13, 2021. https://laborcenter.berkeley.edu/putting-california-on-the-high-road-a-jobs-and-climate-action-plan-for-2030/

[3] The report was required of the Workforce Development Board by Assembly Bill 398 (E. Garcia, Chapter 135, Statutes of 2017), and was commissioned to UC Berkeley's Center for Labor Research and Education.

[4] *Ibid,* pg. 214

[5] *Ibid*, pg. 212

These working conditions have also contributed to expansive pension and health insurance funds, as well as added over $40 million of investment into apprenticeship training programs.

There is further evidence that utility-scale development has benefited disadvantaged communities and is training a diverse workforce. The report found that many of those represented in the three largest clean energy unions' apprenticeship programs have had significant ethnic and racial diversity, with improvement overtime.[6] As an example of renewable projects supporting disadvantaged communities, locating many facilities in communities with high rates of unemployed and poverty-stricken individuals, such as certain parts of the Southern San Joaquin Valley and the Inland Empire, has allowed for further inclusion and economic uplift. Some project PLAs have also included requirements for local or targeted hiring. However, the report finds, as of 2020, this hasn't been "universal" and still lacks data on "if and when" the agreements are successful.[7]

Despite robust training and apprenticeship programs for utility-scale jobs in California, Zabin et al. identified three remaining gaps in the programs throughout the state: (1) pre-apprenticeship training for disadvantaged communities, (2) skill upgrade training for existing workers, and (3) just transition packages workers displaced by facility closures.[8]

Distributed energy projects (DERs) represent a more mixed quality workforce, with variability in pay and benefits; diversity and representation of underserved populations; and access to training programs and career development, depending on the certain qualities of the projects. DER jobs (mostly resulting from rooftop solar development, with some small hydro, biomass, wind, and geothermal) are anticipated to continue to grow, but are more difficult to track, as they are dependent on state policies and technological progress.[9] While pay and benefits are more variable in DERs, the authors suggest that projects which are larger in scale, installing commercial and institutional projects, or funded by state or federal dollars are more likely to be hiring certified apprentices, being unionized, have triggered prevailing wage requirements, and have job development prospects.[10] For example, projects in 'MUSH' markets (municipalities, universities, schools, hospitals) are required to pay prevailing wages and use apprenticeship labor for a certain percent of hours.[11] Demographic data for DER jobs is more difficult to access, but suggests an overrepresentation of Latino workers in distributed solar rooftop work. One professional solar association data suggests that aggregated solar job demographics remain

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[6] *Ibid,* pg. 214
[7] *Ibid,* pg. 216
[8] *Ibid,* pg. 218
[9] *Ibid,* pg. 220
[10] *Ibid*
[11] *Ibid,* pg. 225

relatively representative of the population, while demographic data of rooftop solar work tends to skew heavily Latino.[12] Some groups have been able to mobilize the geographic flexibility of rooftop solar jobs, however, to improve job access: GRID Alternatives, for example, has mobilized community-based workforce development groups to provide rooftop solar jobs to individuals facing barriers to employment, such as formerly incarcerated individuals. Finally, the robust number of rooftop solar training programs has declined since 2009 from declining federal funding and a lack of career-track work placement in Community College programs.[13]

The report finds there was little data two years ago about the quality of jobs in the final category of clean energy work, in energy efficiency, although investments foreshadow 15,800 jobs created per year.[14] Still, preliminary reports commissioned by the California Public Utilities Commission raised concerns about the prevalence of low wages and lack of unionization through some employers participating in IOU energy efficiency programs, as well as "pockets of wage and hour violations."[15]

Job losses in fossil fuel production continue to be anticipated, as California still employs many in those sectors. Currently, 2021 estimates of workers in fossil fuel electricity production includes 18,644 workers in natural gas generation, 1,786 in coal energy generation, 782 in oil and other generation.[16] It is important to note that the overwhelming number of the total 171,793 electricity generation jobs were in solar electric generation. Of those employed in the fuel production sector, the overwhelming amount was employed in oil, natural gas, and other fuels, relative to biomass or plant ethanol. Chapter 4 of Zabin et al.'s report draws on multiple examples of job transition examples, and provides insights and recommendations on how California should provide policy support for short and long term assistance.[17] Although jobs in operations and maintenance are less numerous than construction positions, power plant operational and maintenance jobs are likely to decrease throughout the transition, as natural gas facilities require less intensive labor compared to solar and wind farms.[18]

Finally, the 2020 report provided a table of robust policy recommendations to strengthen job quality and the growth of 'high road' work, from demand and supply side policy levers. Figure 6.9 from the report is replicated below, for ease of access.

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[12] *Ibid,* pg. 223
[13] *Ibid*
[14] *Ibid,* pg. 229
[15] *Ibid,* pg. 229
[16] Gina Coplon-Newfield, Hannah Schanzer, and David Keyser, "Energy Employment by State 2022," Department of Energy, June 2022, pg. 29 https://www.energy.gov/sites/default/files/2022-06/USEER%202022%20State%20Report_0.pdf.
[17] *Ibid,* pg. 148-167
[18] *Ibid,* pg. 216

Figure 1. Policy Recommendations from the 2020 Workforce Development Board High Road Clean Energy Jobs Report

Source: Exhibit 6.9. Table of policy recommendations for supporting high quality clean energy jobs by Zabin et at., "Key Recommendations for Low-Carbon Energy," in "Putting California on the High Road: A Jobs and Climate Action Plan for 2030," *UC Berkeley Labor Center*, (2020): 251-253.

Demand Side	
Utility-Scale Renewables	● Use inclusive procurement policies for public procurement of large capital equipment, for contracts for public services, and in grants programs to incentivize Community Workforce Agreements on utility power purchase contracts.
Distributed Generation	● Use skill standards in distributed generation incentive programs to ensure safe and proper performance. ● Focus resources on program models that operate at larger scale where skilled and trained workforce standards can be incorporated. For distributed generation, these include: ○ Installation of larger distributed renewable projects; ○ Support for solar installations in MUSH markets; and ○ Focus on community-shared solar and explore bundling of individual rooftop solar projects.
Utility Energy Efficiency Programs	● Include responsible contractor standards in all IOU energy efficiency incentive programs. ● Incorporate skilled and trained workforce standards for contractors participating in IOU incentive programs. ● Utilize specialized certifications for emerging technologies, such as advanced lighting and other building controls. ● Phase incentives so that they first target those segments of the industry, such as the MUSH market, that have both higher emissions reductions per dollar invested and better workforce outcomes. ● Identify program models that increase the scale of projects, for example by targeting multi-family residential retrofits and district building electrification over models that only target single-family houses. ● Expand the use of community workforce agreements (CWAs) in IOU third party and local government contracts. ● Incorporate workforce analysis into emerging technology support programs.
Prop. 39 K-12 School	● Use community workforce agreements (CWAs) in all Prop 39 funded school

Energy Retrofits	retrofits over $1 million or if there is already a PLA or CWA for other construction in the school district.
Low-Income IOU and CSD Weatherization Programs	● Use inclusive procurement policies for public procurement weatherization contracts. ○ Mandate wage floor for contractors. ○ Give preference to contractors that use weatherization as on-the-job training in a pre-apprenticeship framework as in the High Road Construction Careers initiative.
Natural Gas	● Develop a Just Transition plan if workers are at risk of displacement.
Transformation of Electricity Sector	● Incorporate in-state jobs, job quality, and job access as explicit goals in key proceedings and take steps to ensure that changes in the electricity system do not result in the degradation of wages and working conditions. ● Include labor unions and other worker representatives in industrial planning "tables" to address transformative changes in the electricity sector, including grid integration, distributed energy resources, CCAs, new regulatory models for a decentralized grid, etc.
All Energy Sub-Sectors	● Incorporate workforce analysis into emerging technology support programs. ● Use job impact metrics to measure the impact of renewable energy and energy efficiency incentive and investment programs on quantity of jobs, job quality, and job access.
Supply Side	
All Energy Sectors	● Fund and participate in the pre-apprenticeship training strategy that is a key component of the statewide High Road Construction Careers initiative. ● Use solar rooftop and weatherization, and other low-skilled activities as on-the-job training for apprenticeship preparation. ● Support the development of skill-upgrade programs for incumbent workers through journey upgrade programs. ● Support the development of High Road Training Partnerships in Operations and Maintenance. ● Expand the Green Janitors Program to the MUSH sector. ● Support other industry training partnerships for stationary engineers and other operations of buildings and electricity generation. ● Track training program outcomes for graduation rates, attainment of Industry-recognized credentials, job placement, retention, wages and wage progression

Notable Legislative Changes Impacting Clean Energy Labor

Since the outlining of these goals, California has made legislative changes to both its climate targets and has passed many pieces of legislation to support a clean energy workforce in the past two years. This section summarizes notable legislation that impacts the course of implementation and transition of high road clean energy jobs, although it is not exhaustive.

New Clean Energy Targets and Planning

- **SB 1020** (Laird, 2022) set interim goals for renewable energy procurement and mandated that state agencies meet the 100% clean energy policy goal 10 years in advance of the statewide goal. This bill sets new interim targets, requiring that all energy suppliers supply 90 percent of retail electricity sales with renewable or zero-carbon resources by 2035 and 95 percent by end of 2040. Moreover, all state agencies are required to supply 100 percent of their electricity through renewable or zero-carbon resources by the end of 2035.
- **SB 1137** (Gonzalez, 2022) expands set back requirements for existing and new oil wells. This bill prevents the Geologic Energy Management Division from approving a notice of intention within 3,200 feet of a residence, education resource, community resource, health care facility, dormitory, or any building open to the public, except under exceptional conditions. In other words, oil and gas permits wouldn't be approved in these defined circumstances.
- **SB 846** (Dodd, 2022) authorized the extension of the Diablo Canyon Nuclear power plant for up to 5 years and authorized a loan for the cost of extension. Since then, the US Department of Energy has provided a further $1.1 billion from the Civil Nuclear Credit Program, further securing the plant's operations.[19]
- **SB 1203** (Becker, 2022) sets a target for state agencies to achieve net-zero emissions from their operations by 2035. The second 'scope' of this legislation includes emissions resulting from generation of electricity, heat, or steam purchased by a state agency from a utility.

New Clean Energy Work and Labor Requirements

- **SB 1295** (Limón, 2022) classifies all work through outside contractors by the Geological Energy Management Division as public works and requires prevailing wage payments to those workers.
- **AB 680** (Burke, 2021) creates a "California Jobs Plan Act" to establish guidelines for fair and responsible employer standards for all programs funded through the Greenhouse

[19] Office of Governor Gavin Newsom, "Governor Newsom Statement on Federal Funding for Diablo Canyon Extension," State of California, November 21, 2022, gov.ca.gov/2022/11/21/governor-newsom-statement-on-federal-funding-for-diablo-canyon-extension/

Gas Reduction Fund, to be done by the Air Resources Board working in partnership with the Labor and Workforce Development Agency.

These pieces of legislation are noted in this report, as each has the potential to impact both the creation or availability of certain types of clean energy jobs, or the quality of the available jobs.

The Inflation Reduction Act Impact on California's Clean Energy Workforce

The federal Inflation Reduction Act of 2022, House Resolution 5376 (Yarmuth, 2022)[20], will bring an unparalleled amount of investments in clean energy jobs to California. Certain labor requirements and bonus credits will further support California's progress toward high quality clean energy jobs, beyond creating additional job opportunities.

The legislation is predicted to bring in billions of dollars for various types of clean energy technologies. The IRA will provide a total of $21.2 billion of investments for California in large-scale clean power generation and storage through 2030.[21] Beyond credits for large scale development, the IRA will provide additional miscellaneous subsidies and support in distributed energy installation and upgrades: rebates for new electric appliance installations; energy efficiency upgrades in multi-family homes; tax credits for solar and battery storage installations, which are estimated to spur 930,000 additional rooftop solar installations; and tax credit for community solar projects, with additional credits for affordable housing and low-income community installations.[22]

For most of these credits, the IRA requires various labor benefits for workers. Some of the tax credits for large-scale renewable energy development, as well as energy efficiency upgrades and electric appliance installations for buildings, will provide a 'bonus credit' for projects who comply with prevailing wage requirements and hire qualifying registered apprenticeship labor.[23] The penalties for non-compliance will trigger penalties and require wages to be returned to the harmed workers, with interest; penalties increase with proven intentionality.

IRA investments also invests to develop more robust domestic manufacturing for clean energy manufacturing. The legislation establishes 'Make it in America' requirements for the use of

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[20] Congress.gov. "Text - H.R.5376 - 117th Congress (2021-2022): Inflation Reduction Act of 2022." August 16, 2022. https://www.congress.gov/bill/117th-congress/house-bill/5376/text

[21] White House, "The Inflation Reduction Act Delivers Affordable Clean Energy for California," The White House, August 2022, https://www.whitehouse.gov/wp-content/uploads/2022/08/California.pdf

[22] *Ibid*

[23] Nicole Elliott and Timothy Taylor, "The Inflation Reduction Act's Labor Rules for Energy Tax Credits and Carbon Capture: Insights," Holland & Knight, September 29, 2022.

clean energy equipment made in the United States, as well as establish development programs for the domestic supply of clean aluminum, steel, cement, and more.[24]

Looking forward by monitoring progress

As California continues to make strides toward its clean energy mandates, opportunities for improving clean energy sector working conditions, as well as filling labor demand, remain. As economic and investment conditions for clean energy development fluctuate, and as unforeseeable factors arise, they will continue to present a need for community leaders, government officials, and impacted stakeholders to continue to gather information, monitor progress, and tweak policy where necessary to ensure a just, equitable energy transition.

[24] White House, "The Inflation Reduction Act Delivers Affordable Clean Energy for California," The White House, August 2022, https://www.whitehouse.gov/wp-content/uploads/2022/08/California.pdf