Clean Energy Technology Workforce Advisory Committee Report

WORKFORCE IMPLICATIONS OF WASHINGTON'S CLEAN ENERGY TRANSFORMATION – A PARTNERSHIP WITH LABOR, BUSINESS, POSTSECONDARY EDUCATION, AND STATE AGENCY PARTNERS

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WORKFORCE TRAINING & EDUCATION COORDINATING BOARD

Executive Summary

Washington's policymakers have taken assertive steps to mitigate climate change, maximize Washington's abundant clean energy resources, and foster innovation and investment in clean energy. As part of that effort, in 2023 the Legislature passed HB 1176 focused on climate-ready communities. HB 1176 reinforced the state's commitment to clean energy by developing a specific workforce feedback mechanism to advise on policy as the state moves forward with current and future state and federal climate-focused initiatives.

As our state transitions away from a fossil fuel-based economy, we must do so in a way that fosters innovation, investment, and growth in clean energy technology sectors so our businesses, workforce, and communities can thrive. As state, federal, local, and tribal governments implement policies to move to a clean energy economy, there will be downstream impacts to Washington's businesses, workers, and communities. Most of those policies will spur economic growth and create positive environmental impacts for overburdened communities and the state at large. However, those changes will also impact the workforce in communities which house traditional fossil fuel-based businesses and have a direct impact on the workers; some jobs may be eliminated as historically high emission industries are phased out. Accomplishing an equitable transition will require identification of future industry occupations and skill needs, equipping the existing workforce with transferrable skills to meet those needs, and highlighting any skill gaps in the current postsecondary education, training, and registered apprenticeship system that need to be addressed.

A key component of the policy response to this transition is the creation of the Clean Energy Technology Workforce Advisory Committee (CETWAC or Advisory Committee) in HB 1176. CETWAC, staffed by the Workforce Board in consultation with the Washington Department of Commerce and Employment Security Department, is focused on research and recommendations focused on the workforce needs of growing clean energy technology sectors, associated supply chain industries, and dependent sectors.

The Advisory Committee began meeting in September of 2023 to identify key priorities to foster clean energy workforce development. CETWAC will evaluate and recommend plans to meet the postsecondary education and workforce training needs of new clean energy sector employees within the State, as well as the needs of current workers likely to see a shift in employment as the transition to clean energy continues. CETWAC will review tools needed to support workers transitioning to clean energy sectors or other careers as well as students just completing education or training programs. CETWAC plans to evaluate the impact to the workforce of the phase out of higher emission industries as the state moves to a net zero, clean energy-based future, as set forth in the

Climate Commitment Act.[1] A review of existing studies, reports, surveys, and other data gathering is ongoing. The Advisory Committee anticipates their work will contribute to a broader state goal of helping to ensure that Washington has the workforce it needs to fulfill the clean energy economy careers that will be needed to implement our ambitious climate and clean energy policies.

With only a few meetings held before their initial report was due, the Advisory Committee identified two initial workforce development-related needs and offers policy recommendations to begin to address those needs.

1. Workforce Need: *With significant federal grant opportunities focused on supporting the transition to clean energy technology and the needed workforce to support this transition, Washington needs more capacity to leverage available resources. This needed capacity includes a coordinated support system to identify and review grant applications, grant management, ability to provide technical assistance to small business and community groups navigating the detailed grant application process, capacity to plan and work in partnership with labor groups, postsecondary educational institutions, registered apprenticeship programs and the private sector, and the availability of state matching funds for grants with this requirement. Satisfying this workforce need will assist the Advisory Committee, Workforce Training Board, Employment Security Department and Department of Commerce in implementation of the work directed by HB 1176.*

   Policy recommendation: CETWAC recommends policymakers fund grant development and grant management capacity at state and local agencies, tribes, postsecondary education and technical programs, as well as registered apprenticeship programs, to best leverage available federal funding opportunities focused on clean energy technology workforce needs. This new capacity will enable local partnerships between government, labor, business, and others to plan, solicit, and implement clean energy workforce activities.

2. Workforce Need: *Labor and business members report significant challenges in the permitting process for clean energy technology projects, which leads to issues with anticipating and training workers, lost wages, and the number of workers accepted into registered apprenticeship programs.*

[1] RCW 70A.65

Policy recommendation: CETWAC recommends policymakers at the state, local and federal level act to address delays and work to improve the predictability of the permitting process to help business, labor, and communities plan for their workforce needs.

Advisory Committee members from both the business and labor communities seek predictable timeframes for facility siting and permitting activities, to avoid disruptions affecting the workforce. Registered apprenticeship programs need information regarding the timing of construction and/or operational schedules to provide the proper number of trained and available workers. CETWAC urges collaboration at the federal, state and local level to advance facility siting and permitting of individual projects while working with stakeholders to advance benefits to the local workforce and communities. For example, legislation passed in 2023, HB1216, designed to reduce the state's bottlenecks for approval of new clean energy projects, established the Interagency Siting Council.[2] Labor, business, and public entities working to identify priorities and align schedules to expedite facility siting and permitting for clean energy projects is a worthy and important goal and the Interagency Siting Council has made important progress. Currently, the Washington State Department of Ecology is leading efforts focused on siting and permitting improvements.

The Advisory Committee believes it is also important to work vertically with federal and local partners to align review schedules for clean energy projects. This horizontal and vertical integration of the schedules and priorities may see greater facilitation if all partners were working together to obtain and implement federal grants through a federal grant management program proposed in Recommendation #1 above.

Successful permitting and siting projects may also include communication with labor and business leaders to develop regional or local community agreements such as Community Workforce Agreements/Project Labor Agreements or partnering with tribes to target jobs or projects in areas of importance to tribal groups and overburdened communities. These efforts can help projects advance while generating additional co-benefits for workers and communities.

For more information on each of the recommendation areas, please see the policy recommendations section, beginning on Page 16.

[2] https://app.leg.wa.gov/billsummary?Year=2023&BillNumber=1216

The Advisory Committee's plans emphasize the importance of planning and coordinating between business, labor, education, and training programs on the local, regional, and state level to address the skills needed for clean energy jobs.

CETWAC plans to serve as a policy development hub with focus on facilitating supports for regional and industry specific workforce needs by supporting strong public/private partnerships, and bolstering regional clean energy hubs to align business, labor, postsecondary education, and training efforts to workforce development needs in order to foster living wage jobs for Washington workers.

Activities in the next two years are expected to focus on:

- Modeling and analyzing the expected workforce needs associated with Washington's landmark climate and clean energy jobs legislation, with specificity around the age of the current workforce in key sectors such as, but not limited to, utilities, construction and electrical careers, including the number of workers likely needed in the next ten years in each sector, including wind, transit, clean hydrogen, solar etc., with information regarding the location where those jobs are likely to be located, skill sets needed, demographic data of entrants disaggregated by race/socioeconomic status, gender etc., to focus on the equity policies of the state HEAL Act[3] and the federal Justice40[4] requirements for federal investment, while also keeping an eye on completion and placement information;
- Understanding the capacity of Washington's secondary, postsecondary education, training, and registered apprenticeship programs in relation to the clean energy technology education and training needs of future Washington workers; and
- Creating a crosswalk of transferrable skills from traditional industries to clean energy technology careers; and
- Completing a feasibility study of a possible path to retirement for near-retirement workers in traditional fossil fuel industries.

The remainder of this report provides information on the early efforts of CETWAC to compile research, identify barriers, and explore opportunities to address workforce needs while developing a strong team of business, labor, secondary and postsecondary education, registered apprenticeship, and job training programs, as well as community partnerships.

[3] RCW 70A.02

[4] Justice40 initiative, Section 223 of Executive Order 14008, https://www.federalregister.gov/documents/2021/02/01/2021-02177/tackling-the-climate-crisis-at-home-and-abroad

Introduction

Washington state has long sought to balance economic prosperity and use of its abundant natural resources. Nowhere is this more apparent than the state's energy production and supply chains, where the state continues to lead the way in the clean energy transition.

The state boasts ample hydropower capacity, making it a leader in hydroelectric energy generation. The state continues to build out wind and solar resources, with installations contributing to its clean energy portfolio. New and existing businesses are rapidly expanding production of clean fuels and clean energy product and component manufacturing in Washington. Nation-leading laws, investments, and incentives are driving a clean energy transition across the state.

HB 1176 was intended to ensure the state is proactively planning to ensure it has a workforce ready to deliver clean energy and fuels, as well as related supply chains, while planning for workforce changes in higher emission industries. This legislation was requested by Governor Inslee and sponsored by Rep. Slatter in the House and Sen. Nobles in the Senate (SB 5247). The Workforce Board is responsible for establishing and staffing the CETWAC.

One of the Advisory Committee's primary goals is to advise policymakers on efforts to support the expansion of clean energy technology sectors and jobs by prioritizing transition of the existing skilled workforce to new industry sectors and providing training opportunities where needed to address gaps and mitigate the impact of climate change policy transitions to workers, employers, and communities. Other duties include conducting biennial reporting to the Governor and Legislature and building on a host of other climate-related initiatives.[5]

Clean Energy Technology Workforce Advisory Committee Formation

CETWAC is composed of leaders from a range of business, labor and professional associations, postsecondary education and training institutions, and registered apprenticeship programs, along with state agency partners. The Advisory Committee is open to all interested parties and is to include both business and labor perspectives.

The charge for the Advisory Committee includes:

1. Reviewing workforce and business issues in direct employment in the energy sector, supply chain, and the impact of energy transition to dependent sectors, and,

[5] HB 1176 also created a Climate Corps Network with opportunities for new service programs, particularly in overburdened communities. Those programs are outside the scope of this report and are being addressed primarily by other state partners.

2. Recommending strategies to prevent workforce displacement, support job creation, and support workforce-related changes to business, and adversely impacted workers.

Under HB 1176, the Washington Department of Commerce (Commerce) and the Employment Security Department (ESD) are key partners in the work of CETWAC. More on the role of each agency is below:

- Commerce is a member of the Advisory Committee and provides important input to CETWAC while focusing on activities involved in attracting clean energy business to the state and maintaining a coherent energy strategy. State law tasks Commerce to review and update the State Energy Strategy at least every eight years, to align the strategy with the requirements of the Energy Independence Act[6], the Clean Energy Transformation Act[7] (CETA), Climate Commitment Act (CCA),[8] Clean Buildings Act (CBA),[9] and Clean Fuels Standard (CFS).[10] Commerce provides critical policy expertise to the work of the Advisory Committee.

- ESD is a key collaborator in the research and data gathering efforts of CETWAC and will be a key contributor in the planning of needed research in the area.

- Additional requirements under HB 1176 charge Serve Washington, which is the state administrator of the AmeriCorps program, to start initial recruiting for the Climate Corps Network in the 2023-2025 biennium utilizing recommendations from the Department of Natural Resources for forest service workforce development and aligning service-learning opportunities offered by Career Connect Washington.

Prior data gathering efforts aimed at identifying clean energy jobs and planning were challenging. The Washington State ESD has historically been charged with tracking and analysis of clean technology jobs, utilizing a statutory framework that had become somewhat outdated and limiting. In 2023 the legislature rescinded outdated reporting through passage of HB 1176 and recognized the importance of resetting how the state conducts labor market analysis.

To conduct research on clean technology jobs, ESD historically relied on an industry-based approach, which allowed for aggregating comparable information over time and

[6] RCW 19.285
[7] RCW 19.405
[8] RCW 70A.65.300
[9] WAC 194-50 et. seq
[10] RCW 70A.535

required fewer resources. The department used North American Industrial Classification System (NAICS) codes to classify and standardize employment statistics. NAICS codes are used nationwide by the US Census, as well as in Canada and Mexico, to ensure that statistics are comparable across years and geographies. The NAICS codes can be useful for broad stroke statistics about a general industry, not the specific roles or skills within each position. At the finest detail collected by the NAICS one can only determine if a job is within a general industry, not the specific job classifications and skills within an industry. For example, even within the various disciplines required to build and operate our electric grid, the NAICS codes do not provide the level of detail needed to determine whether a certain field of electrical generation (hydrogen, wind, solar, fossil-fuels etc.) are being reported, and the job classifications and skills needed within those broad NAICS codes.

National research on the clean technology sector varies widely, depending on operational definitions, research assumptions, the measurements used, and whether input is received from the industries themselves. Furthermore, the research methods used are not uniform, and many viable design options exist. Some studies rely on existing databases for their analyses, while others collect information directly from employers in the form of surveys.

The legislature recognized the importance of resetting how the state conducts labor market analysis to provide useful workforce predictions. In 2023, the legislature, via HB 1176, rescinded outdated reporting requirements and established CETWAC. Future research will aid the state in understanding the impact of recent policies such as the Clean Fuel Standard, Climate Commitment Act, Clean Buildings Performance Standard, Clean Energy Transformation Act, and more, as new research parameters and methods will provide more granular data. An example of survey data findings includes a recent report from the Center of Excellence in Clean Energy at Centralia College. The report looks specifically at workforce gaps affecting the utility industry and their suppliers.[11] Detailed and granular data exists but can be challenging to assemble and decipher. A recent example of this analysis is the US Department of Energy's *Energy and Employment Report of 2023, (USEER)*.[12] The USEER includes both national findings and state by state analysis and includes a lengthy description of the limitations of NAICS codes alone for the more detailed workforce analysis required.

[11] An example of the survey type analysis used to identify workforce needs is a recent gaps analysis from the Center of Excellence in Clean Energy at Centralia College, https://www.cleanenergyexcellence.org/wp-content/uploads/2023/10/GapsAnalysis_condensed_final.pdf

[12] https://www.energy.gov/policy/us-energy-employment-jobs-report-useer

As CETWAC continues its exploration, research, and policy development, the Advisory Committee plans work to educate and engage partners in exploring how clean energy technologies can create not just a sustainable future, but also a more equitable one. Clean energy solutions are increasingly cost-competitive and can often be deployed in diverse settings, from urban centers to remote areas; and reduce pollution in overburdened communities. The democratization of energy production through distributed generation empowers communities to take charge of their energy needs and enhance resilience.

Strong leadership from business and labor groups, postsecondary education, and training programs, as well as community groups, enables CETWAC to focus on solutions that address clean energy technology workforce issues without leaving workers, businesses, and communities behind.

The growth of the clean energy sector has the potential to generate new jobs and provide opportunities for the existing workforce to use their skills in new ways as energy and economic systems change, thereby stimulating economic development and fostering innovation. The Advisory Committee's goals for the next biennium include mapping available workforce training opportunities, disseminating information for students and incumbent workers, labor groups, and businesses regarding clean energy initiatives in Washington, and corollary federal initiatives, identifying capacity for programs which employ strong workforce development activities, and studying the feasibility of a transition to retirement program for late-career workers impacted by industry changes.

By bringing together a wide range of stakeholders, the Advisory Committee can identify key policy and funding priorities for policymakers aimed at prioritizing transition of the existing skilled workforce to new industry sectors and provide training opportunities where needed to address gaps and mitigate the impact of climate policy changes to workers, employers, and communities. These are important components of what is overall a positive workforce opportunity, as significant numbers of jobs are created or where pathways are opened for existing workers to use their skills in clean energy and related industries.

The Advisory Committee is staffed by the Workforce Board and will be co-chaired by representatives from business and labor (to be selected in the near term).

CETWAC members are discussing a wide range of topics such as student access to training; regional innovation hubs; movement from traditional position descriptions to evaluation of skills—particularly transferrable skills; exploring community barriers to employment for women and minority groups, jobs being eliminated from more traditional energy sectors; capacity of current pre-apprenticeship and registered

apprenticeship programs; and methods to build stronger participation from underrepresented populations.

Advisory Committee Activity

The Advisory Committee met weekly from September 2023 through mid-October 2023 to begin their work and develop some early policy recommendations. The Advisory Committee prioritized specific topic areas, which will be continued through our work over the next two years. These topics included:

- Fostering living wage jobs within the clean energy sector;
- Assisting employees of the fossil fuel sectors find positions in other industries that utilize their transferrable skills, and accessing other possible supports as needed;
- Providing updates to policymakers on the number of qualified clean energy personnel (by education and/or skill category) graduating from the state's postsecondary education and training programs;
- Providing insight on the real-time and projected workforce needs of clean energy technology employers, both in skills and in total workforce needs; and
- Tracking the efforts of current secondary and postsecondary education programs and registered apprenticeships for training and placement of workers.

The Advisory Committee used these workforce themes, developed in the early meetings, to identify key priorities for the next biennium.

2023 Clean Energy Technology Workforce Advisory Committee Participants

Advisory Committee	Organization
Amanda Jahshan	International Brotherhood of Electrical Workers
Amy Wheeless	Washington Department of Commerce
Anneliese Vance-Sherman	Washington Employment Security Department
Aubrey Newton	Northwest Laborers' Employers Cooperation and Education Team
Becky Kelley	Governor's Office
Billy Wallace Jr.	Washington and Northern Idaho District Council of Laborers
Brian Young	Washington Department of Commerce
Caitlyn Jekel	Washington Employment Security Department
Carolyn Busch	Washington Department of Commerce
Carolyn McKinnon	State Board of Community & Technical Colleges
Catherine Hull	Global Due Diligence
Chelsea Mason-Placek	Washington Labor Advisory Committee
Dave Wallace	Workforce Board Research Director
Dina Geiszler	Washington Department of Commerce
Eli Thies	Amalgamated Transit Union
Erin Frasier	Washington Building Trades
Gus Williams	City of Seattle

Gustavo Aviles	Washington Employment Security Department
Ilene M. Munk	Workforce Board
Joe Wilcox	Workforce Board
Matt Booth	WSU Energy
Matthew Hepner	International Brotherhood of Electrical Workers
Maya Gillett	BlueGreen Alliance
Mel Clark	CleanTech Alliance
Michael J. Smith	United Steel Workers
Monica Brummer	Center of Excellence for Clean Energy, Centralia College
Neil Hartman	Washington State Association of UA Plumbers & Pipefitters
Neil Strege	Washington Roundtable
Nona Snell	Office of Financial Management
Nova Gattman	Workforce Board
Perry England	MacDonald Miller
Peter Godlewski	Association of Washington Business
Peter Guzman	Washington Department of Labor and Industries
Sam Hem	Sheetmetal Workers Union
Sarah Vorpahl	Washington Department of Commerce
Scott Campbell	United Steel Workers Union
Stacy Martin	Washington and Northern Idaho District Council of Laborers
Stephanie Celt	Washington Department of Commerce
Stephanie Scott	Washington Department of Commerce
Sue Keltner	Washington Employment Security Department
Todd Mitchell	Washington State Building & Construction Trades Council
Tom Wolf	BP America
Troy Nutter	Puget Sound Energy

Defining Clean Energy

A key challenge for CETWAC initially was deciding what industries comprise the clean energy sector, what jobs and occupations supply these industries, and what skills and competencies are required for workers in these fields. It is clear that significant federal programs tied to the Bipartisan Infrastructure Law (also called the Infrastructure Investment and Jobs Act) (IIJA), the Creating Helpful Incentives to Produce Semiconductors and Science Act (CHIPS), and the Inflation Reduction Act (IRA) will influence clean energy technology work in Washington and impact next steps, (see more information on these investments beginning on Page 14). Understanding the terminology and definitions in state and federal statutes allows alignment of common terms used in workforce studies, grant applications, and policy recommendations. CETWAC used the following definitions for its initial work product:

Net Zero Emissions
Net Zero Emissions refers to achieving an overall balance between greenhouse gas emissions produced, avoided, and removed from the atmosphere.[13]

Clean Energy
For the purposes of the Clean Energy Transformation Act (CETA), "clean energy" is defined as the combination of "renewable resource" and "non-emitting electrical generation" as defined in RCW 19.405.020.[14]

Clean Energy Jobs
Nationally, clean energy jobs include jobs in the technologies that align with this "net-zero" future, including those related to renewable energy; grid technologies and storage; traditional electricity transmission and distribution for electricity; nuclear energy; a subset of energy efficiency that does not involve fossil fuel burning equipment; biofuels; and plug-in hybrid, battery electric, and hydrogen fuel cell vehicles and components.[15]

Energy Efficiency
Energy Efficiency means the use of products, systems or practices that reduce the amount of energy required to provide a given level of service or utility.[16]

At the federal level the definition of energy efficiency means "using less energy to provide the same or better level of service."[17]

Energy Recovery
Energy recovery means a process operating under federal and state environmental laws and regulations for converting solid waste into usable energy and for reducing the volume of solid waste.[18]

Renewable Electricity
Renewable electricity is electric energy generated from solar, wind, biomass, landfill gas, ocean (including tidal, wave, current, and thermal), geothermal, municipal solid waste, or new hydroelectric generation capacity achieved from increased efficiency or additions of new capacity at an existing hydroelectric project.[19]

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[13] https://www.sustainability.gov/pdfs/net-zero-declaration.pdf
[14] https://app.leg.wa.gov/RCW/default.aspx?cite=19.405.020
[15] US Department of Energy, "United States Energy & Employment Report 2023", 2023 https://www.energy.gov/sites/default/files/2023-06/2023%20USEER%20REPORT-v2.pd
[16] RCW 19.260
[17] Energy Conservation and Production Act, ECPA, Section 305.
[18] RCW 70A.205.015
[19] 42. U.S.C. § 7372

Renewable Resources

Renewable resource under Washington statutes is defined as:

(a) water;
(b) wind;
(c) solar energy;
(d) geothermal energy;
(e) renewable natural gas;
(f) renewable hydrogen;
(g) wave, ocean, or tidal power;
(h) biodiesel fuel that is not derived from crops raised on land cleared from old growth or first growth forests; or
(i) biomass energy."[20]

Renewable Energy Resource

Renewable Energy Resource means any energy resource which has recently originated in the sun, including direct and indirect solar radiation and intermediate solar energy forms such as wind, ocean thermal gradients, ocean currents and waves, hydropower, photovoltaic energy, products of photosynthetic processes, organic wastes, and others.[21]

Clean Energy in Washington

The US Department of Energy published a *United States Energy & Employment Report 2023*.[22] That report included a national, as well as a statewide, analysis of both energy production from various sectors as well as employment information. A few excerpts from that report specific to Washington are included here:

In 2020, Washington ranked 14th nationwide for clean energy jobs (including jobs in energy efficiency and solar) and the industry employed 75,684 workers.

Hydroelectric power

Washington's electricity mix is dominated by hydroelectric power: as of 2023, almost 53 percent of the generated power produced in the state comes from hydroelectricity.[23] With a total generating capacity of 6,890 megawatts (MW), the Grand Coulee Dam on Washington's Columbia River is the largest power plant in the United States, by capacity.

[20] RCW 19.405
[21] Pub. L. 96–294, title IV, § 403, June 30, 1980, 94 Stat. 716
[22] US Department of Energy, "United States Energy & Employment Report 2023", 2023, https://www.energy.gov/sites/default/files/2023-06/2023%20USEER%20REPORT-v2.pdf
[23] https://www.eia.gov/state/?sid=WA

The state produced 27 percent of the country's total conventional hydroelectric generation in 2020.[24]

Wind power

Wind power is Washington's second largest source of renewable energy and has contributed 6 percent or more of the state's total generation since 2013.

Solar power

As of mid-2021, Washington had 258.24 megawatts (MW) of installed solar capacity; accounting for approximately 0.27 percent of the state's total generation.

Unprecedented Federal Funding Opportunities

Since 2021, the federal government has passed three significant legislative initiatives that represent a once in a generation federal action related to clean energy technology investments and subsequent workforce development; the IIJA, IRA, and the CHIPS Act. These programs make available billions of dollars in grants, other funding schemes and tax incentives to states, local governments, businesses, tribes, registered apprenticeship programs, and others.

These bills represent significant opportunities for Washington to make progress toward clean energy goals and greenhouse gas (GHG) reduction mandates. Estimates show that the IRA alone could stimulate billions in investments and create tens of thousands of jobs for Washington as it aims to meet both national and state climate targets.[25]

In addition to passing these massive funding bills, the Biden-Harris Administration also created the Justice40 initiative through Executive Order 14008. This initiative directs 40% of the overall benefits of federal investments, including investments in workforce development and clean energy, to disadvantaged communities (DACs).[26] One of the eight policy priorities identified by the White House Environmental Justice Advisory Council is to "increase clean energy jobs, job pipeline and job training for individuals from DACs." This alignment of federal funding priorities with clean energy workforce development means that these programs allocate significant funds to states that are meant to, in part, help create living-wage jobs across infrastructure, semiconductor manufacturing, and clean energy industries, while focusing benefits to diverse workers and overburdened communities. The Justice40 executive order is similar to the legislatively enacted Healthy Environment for All, (HEAL) Act in Washington.[27]

[24] https://www.eia.gov/state/?sid=WA
[25] https://www.energy.gov/sites/default/files/2023-07/Dave%20Foster%20presentation.pdf
[26] https://www.whitehouse.gov/environmentaljustice/justice40/
[27] RCW 70A.02

Given the size and urgency of these opportunities, the Advisory Committee members agree it would be prudent to have resources dedicated to connecting these federal funds and providing information to stakeholders supporting the clean energy workforce in Washington, including, business, labor groups, secondary, postsecondary educational and training programs, and state agency partners, among others, (see Recommendation #1 for more details).

Infrastructure Investment and Jobs Act

The **Infrastructure Investment and Jobs Act**, (IIJA, also known as the Bipartisan Infrastructure Law or BIL) is a $1.2 trillion infrastructure program allocating more than $75 billion to clean energy, which includes $7.5 billion for electric vehicle (EV) charging infrastructure and $62 billion for the U.S. Department of Energy (DOE), to revitalize domestic supply chains and strengthen America's manufacturing leadership; expand access to energy efficiency and clean energy for families, communities, and businesses; deliver reliable, clean, and affordable power to more Americans; and build the technologies of tomorrow through clean energy demonstrations. [28] The IIJA allows states to expend funds from surface transportation programs on key workforce development activities, includes formula and competitive programs through which states may invest in workforce development, and encourages states to undertake long-term planning for their infrastructure workforce needs.[29]

Creating Helpful Incentives to Produce Semiconductors (CHIPS) and Science Act

In 2022, the Creating Helpful Incentives to Produce Semiconductors and Science Act (CHIPS) was enacted, authorizing historic levels of funding to support the production of semiconductors and other strategic technologies, including $67 billion to the DOE to enable cutting-edge research and development in clean energy, improve infrastructure at the National Labs, and support investments in innovation and technology hubs across the country.[30] Grants available from the CHIPS Act place emphasis on workforce development, particularly for populations not well represented in the semiconductor industry, and those from overburdened communities. CHIPS grants favor regional hubs

[28] Pub. L. 117-58 was signed November of 2021.

[29] States may obligate funds from four programs in the Fixing America's Surface Transportation Act (FAST Act) toward workforce development, including registered apprenticeship and pre-apprenticeship programs. The IIJA also expands the allowable uses of these funds to allow for engagement with workforce development boards and for activities around addressing workforce gaps and developing the surface transportation workforce. The IIJA allows these uses under the following programs:

- The National Highway Performance Program,
- The Surface Transportation Block Grant Program,
- The Highway Safety Improvement Program, and
- The Congestion Mitigation and Air Quality Improvement Program

[30] Pub. L. 117-167

with partnership between business, labor, educational institutions, and state partners working in cooperation.

CHIPS will invest approximately $280 billion to increase semiconductor production in the United States. The most pertinent programs and provisions for workforce development policymakers are contained in the "CHIPS for America Fund." The CHIPS for America Fund includes $39 billion in incentives for employers to increase semiconductor production and $11 billion for research and development. Both items will fund efforts that will, in part, support new apprenticeships and workforce development programs to help meet demand for semiconductor production.

Inflation Reduction Act

The Inflation Reduction Act (IRA) of 2022 is the largest federal investment in clean energy in U.S. history and includes substantial tax incentives for employers who pay prevailing wages and employ registered apprentices on qualifying energy projects (construction, alteration, or repair projects including solar, wind, geothermal, carbon sequestration, and electric vehicle charging stations). These new tax incentives made available by IRA mean state workforce development systems can play a proactive role in establishing mutually beneficial public-private partnerships to expand opportunities for workers and boost employers' bottom line.[31]

Within the IRA, registered apprenticeship programs have a significant role in business access to tax incentives that encourage adoption of registered apprenticeship programs. The IRA allows businesses the full tax credit only if the business meets prevailing wage and apprenticeship requirements. The tax credit benefit decreases to 20 percent of the maximum credit if those requirements are not met by a qualifying project.[32]

Policy Recommendations

The CETWAC has a biennial report requirement, with the first report due in the Fall of 2023. While this group is in its early stages of development, members prioritized putting

[31]The Inflation Reduction Act, (IRA) signed in August of 2022 invests approximately $370 billion in clean energy and climate over 10 years. In addition to a broad portfolio of tax credits that will incentivize the creation and deployment of thousands of new clean energy projects across the country, IRA funding includes $2.0 billion for the domestic production of advanced vehicles, $5.8 billion to reduce industrial emissions, $9.0 billion for states to provide home retrofit and energy efficiency consumer rebates, $27 billion to the Greenhouse Gas Reduction Fund, and $40 billion in new loan authority to guarantee loans for innovative clean energy projects.

[32] Apprenticeship requirements apply to the following tax credits in IRA:

- Alternative Fuel Vehicle Refueling Property Credit
- Credit for Electricity Produced from Certain Renewable Resources
- Credit for Carbon Oxide Sequestration
- Credit for Production of Clean Hydrogen
- Clean Electricity Production Credit
- Clean Fuel Production Credit
- Investment Tax Credit
- Qualifying Advanced Energy Project Credit
- Clean Electricity Investment Credit
- Energy Efficient Commercial Buildings Deduction

forward two initial policy recommendations aimed at addressing significant needs for the clean energy technology workforce.

Workforce Need: *With significant federal grant opportunities focused on supporting the transition to clean energy technology and the needed workforce to support this transition, Washington needs more capacity to leverage available resources. This needed capacity includes a coordinated support system to identify and review grant applications, grant management, ability to provide technical assistance to small business and community groups navigating the detailed grant application process, capacity to plan and work in partnership with labor groups, postsecondary educational institutions, registered apprenticeship programs and the private sector, and the availability of state matching funds for grants with this requirement. Satisfying this workforce need will assist the Advisory Committee, Workforce Board, ESD and Commerce in implementation of the work directed by HB 1176.*

Recommendation 1

CETWAC recommends policymakers fund grant development and grant management capacity at state and local agencies, tribes, as well as postsecondary education and training programs as well as registered apprenticeship programs, to best leverage available federal funding opportunities focused on clean energy technology workforce needs. This new capacity will enable local partnerships between government, labor, business, and others to plan, solicit, and implement clean energy workforce activities.

Washington state stands at a pivotal moment, with the potential to harness billions of dollars in federal funding from three key initiatives: the CHIPS Act, IIJA, and IRA. This once-in-a-generation federal action offers a remarkable opportunity for the state to spearhead the development of clean energy solutions while concurrently bolstering workforce development, financed largely by federal dollars and other funding incentives. This new capacity will enable local partnerships between government, labor, business, and others to plan, solicit, and implement clean energy workforce plans and activities. By strategically allocating resources and investing in clean energy infrastructure, Washington can not only reduce its carbon footprint but also create a substantial number of well-paying jobs, fostering a cleaner and more sustainable future for its

citizens and the environment, consistent with national Justice40 initiatives[33], and Washington's Healthy Environment for All (HEAL) Act.[34]

To best position the state to identify, apply for, implement, and benefit from these federal opportunities, the state needs to invest in capacity for state and local agencies, tribes, labor, postsecondary educational institutions, and registered apprenticeships to support effective grant writing and administration. This may include, but is not limited to, grant writers and grant managers, and staff who can offer technical support for applicants, including workforce related analysis and recommendations required of CETWAC, the Workforce Board, ESD, and Commerce.

Workforce Need: *Labor and business members report significant challenges in the permitting process for clean energy technology projects, which leads to issues with anticipating and training workers, lost wages, and the number of workers accepted into registered apprenticeship programs.*

Recommendation 2

CETWAC recommends policymakers at the state, local and federal level act to address delays in the permitting process and work to improve the predictability of the permitting process to help business, labor and communities plan for their workforce needs.

In the 2023 legislative session, lawmakers passed HB 1216. The bill was designed to ensure the siting of new clean energy projects happen in an efficient, sustainable, and equitable manner. This CETWAC recommendation would build on that work and help ensure the voice and needs of the workforce are built into that unfolding work.

Process requirements designed to protect the environment can create significant delays in issuance of permits for new renewable energy projects. For a workforce waiting for new projects in the clean energy sector, the consequences can be significant. By focusing policies on clean energy siting and permitting, states, local government and federal agencies can ensure the energy transition happens more efficiently, while minimizing workforce impacts.

This issue impacts both business and labor interests in Washington, with Advisory Committee members from both stakeholder groups agreeing on the importance of this

[33] Justice40 initiatives require 40% of the overall benefits of certain federal investments flow to disadvantaged communities that are marginalized, underserved, and overburdened by pollution. See: https://www.whitehouse.gov/environmentaljustice/justice40/
[34] RCW 70A.02

issue. Permitting delays not only slow down business development, but also impacts the ability of skilled trade groups to bring more people into registered apprenticeship programs because they are unable to accurately plan for expected future jobs.

Certainly not all permitting delays are the result of state policies, the same issues present themselves when dealing with federal siting and permitting matters as well. On May 10, 2023, Senior White House Advisor, John Podesta, spoke to the bottlenecks and delays in the permitting process noting, "these delays are pervasive at every level of government-federal, state, and local. We got so good at stopping projects that we forgot how to *build* things in America."[35] The IRA allocates $1 billion for key federal permitting agencies to increase staff capacity, incorporate new technology, improve coordination, and site and permit big clean energy projects.[36] Mr. Podesta put a finer point on the importance of this issue, "Here's the bottom line: If we can't build some new things in a few backyards, the climate crisis will destroy everyone's backyards—along with the livelihoods, communities, wildlife, and biodiversity we all want to protect."

One example of a federal mechanism designed to increase the pace of this work is the Fixing America's Surface Transportation, (FAST) Act, renewed in large part within the IIJA. This Act seeks to host all federal permitting activities related to infrastructure in a single federal system. However, there is much work to be done across other sectors, and at the state and local level. Even the Natural Resources Defense Council (NRDC), an organization long associated with thoughtful approaches to environmental concerns, describes current permitting methods as broken and in need of reform. NRDC declares, "to meet our clean energy potential and climate challenges, we need to double the number of projects permitted and built each year".[37] While no opinion is taken by the authors of this report regarding the NRDC recommendations, it is clear their premise coincides with concerns voiced by industry and labor. The Brookings Institute released a similar paper in February 2023 setting forward their own approach to permit reform.[38] Both organizations conclude that permit delays are unacceptable if the nation is to meet climate goals.

CETWAC Workplan for 2024-2025

The CETWAC will continue working to meet its statutory goals and will report to the legislature in 2025. The Advisory Committee seeks initially to gain a clearer

[35] https://www.whitehouse.gov/briefing-room/speeches-remarks/2023/05/10/remarks-as-prepared-for-delivery-by-senior-advisor-john-podesta-on-the-biden-harris-administrations-priorities-for-energy-infrastructure-permitting-reform/
[36] https://www.whitehouse.gov/briefing-room/speeches-remarks/2023/05/10/remarks-as-prepared-for-delivery-by-senior-advisor-john-podesta-on-the-biden-harris-administrations-priorities-for-energy-infrastructure-permitting-reform/
[37] NRDC Report Recommends New Pathway for Clean Energy Permitting Reform
[38] 20230213_CRM_Patnaik_Permitting_FINAL.pdf (brookings.edu)

understanding of the current capacity for postsecondary educational programs, career training, and registered apprenticeship programs to meet anticipated needs.

CETWAC's priorities for the next biennium include, but are not limited to:

1. Modeling and analyzing the expected workforce needs associated with Washington's landmark climate and clean energy jobs legislation, with specificity around the age of the current workforce in key sectors such as, but not limited to, utilities, construction and electrical careers, including the number of workers likely needed in the next ten years in each sector, including wind, transit, clean hydrogen, solar etc., with information regarding the location where those jobs are likely to be located, skill sets needed, demographic data of entrants disaggregated by race/socioeconomic status, gender etc., to focus on the equity policies of the state HEAL Act[39] and the federal Justice40[40] requirements for federal investment, while also keeping an eye on completion and placement information;
2. Understanding the capacity of Washington's secondary and postsecondary education and training programs, as well as registered apprenticeships to meet the education and training needs of employees, now and in the future.
3. Creating a crosswalk/map of transferrable skills from traditional fossil fuel industries to potential clean energy technology roles or other sectors. This will include evaluating other supports which may be needed, and can be supplied, to assist displaced workers in their search for living wage jobs in another sector.
4. Completing a feasibility study regarding the possibility of a path to retirement for near-retirement workers in fossil fuel industries rather than undergo upskilling or other education prior to re-employment in a clean energy sector.[41]

More information on each item of the workplan is described below.

Understand Capacity of Existing Programs

CETWAC participants expressed strong interest in work that will allow members and policymakers to understand the current capacity of state secondary, postsecondary education, training and registered apprenticeship programs before creating any new programs, and to avoid duplication of services. Many CETWAC members believe most clean energy technology workforce needs can be addressed through modification of existing curriculum and programs, negating the need for creation of new programs. An analysis of state capacity in this regard is a logical starting point.

[39] RCW 70A.02

[40] Justice40 initiative, Section 223 of Executive Order 14008, https://www.federalregister.gov/documents/2021/02/01/2021-02177/tackling-the-climate-crisis-at-home-and-abroad

[41] The Legislature funded the path to retirement feasibility study in passage of HB 1176.

Additionally, industry and region-specific capacity analysis considers the different sectors involved and the possibility that those different sectors require distinct approaches to clean energy workforce issues. By assessing current programs, we can align inclusive workforce retraining and equitable job placement programs with the specific demands of emerging clean energy sectors. This promotes job stability, economic growth, and provides specific benefits for overburdened communities.

Crosswalk and Map of Transferrable Skills

The clean energy sector, like many evolving technology-intensive industries, employs a dynamic workforce with rapidly shifting job and skill needs. Occupation and job descriptions often differ widely across regions and industries yet may require similar skills. Postsecondary education and training programs need to be aware of these differences in order for both to thrive.

To assist workers in fossil fuel related jobs, it will be important to analyze transferrable skills and develop a system to assist any worker facing job transition in the fossil fuel sector in understanding how their existing skills are transferrable to a new career, or other sector.

Understanding the jobs, occupations, knowledge, and skills within the clean energy workforce is of paramount importance for meeting the workforce needs of the clean energy technology industry. Clean energy, encompassing renewable sources like solar, wind, hydrogen, and hydroelectric power and related supply chains, plays a pivotal role in combating climate change and transitioning toward a more sustainable future. To effectively harness the potential of clean energy, it is essential to comprehend the diverse roles and competencies required within this dynamic sector. By gaining insights into the intricacies of clean energy occupations, policymakers, educators, and industry stakeholders can more easily align training programs, secondary and postsecondary educational curricula, and workforce development initiatives to meet the specific demands of the field and assist workers transitioning from other industries. Regional needs and business sectors will benefit from development of regional hubs to analyze these important issues. This proactive approach not only ensures a skilled and adaptable workforce but also bolsters the industry's growth, job creation, and its crucial role in reducing greenhouse gas emissions, fostering economic stability, and securing a greener tomorrow.

The Advisory Committee agreed upon the necessity to coordinate workforce activity across industry, labor, secondary and postsecondary education, technical training, and state agencies. This coordination will help not only to increase understanding and transparency of skills and jobs across the state for workers and businesses, but also to

align with requirements built into the federal energy, infrastructure and technology funding laws which incentivize this cooperation for all groups.

Path to Retirement Feasibility Study

HB1176 specifically tasks the Workforce Board to conduct a feasibility study of a transition to retirement program to preserve income, medical and retirement benefits for workers close to retirement who face job loss or transition because of energy technology sector changes. The Workforce Board has begun work developing a Request for Proposal for this study and expects to launch a contracting process soon.

Next Steps and Conclusion

The Advisory Committee will prioritize work in the next two years to conduct a more thorough analysis of the impact of Washington's clean energy policies on the existing workforce, as well as an inventory of current secondary and postsecondary education and training capacity, to evaluate the capacity of current programs to meet workforce requirements in the clean energy sector.

Recommendations to policymakers in the coming years will continue to include input from a balance of business and labor interests with strong participation by postsecondary education, and training programs as well as state agency partners. CETWAC will develop models to illustrate the number of qualified clean energy personnel (by age, ethnicity, geographic region, gender, socioeconomic background and skills proficiency) graduating from the state's education and training programs, provide insight on the real-time and anticipated workforce needs of clean energy technology employers, and track the progress of new and existing programs in meeting those needs. The next report will include the study of the transition to retirement options for higher emission sector workers closer to retirement, as well as efforts to garner the federal funds available for clean energy workforce development. By bringing together a wide range of stakeholders to develop and advocate for sustainable solutions, the Advisory Committee will be in a strong position to identify policy recommendations while avoiding duplication of efforts with other groups or agencies.

Ultimately, all jobs of the future will have some component or functionality that relates to clean energy. The key is understanding what that functionality might entail for every sector/occupation, i.e., better use of technology, installing and maintaining built systems, differentiating between and among potential materials used, understanding downstream impact of work, calculating carbon impact, technology of energy storage, etc., as well as the essential or soft skills such as communications, teamwork and problem solving. Each occupation or sector will have to determine the list of critical functions needed, and to what degree or level of knowledge, skills and abilities will be required to do that work.

Clean energy technology provides significant opportunities for workers, businesses, and communities. These groups must collaborate to ensure as the state transitions to cleaner energy production and transmission, as well as new clean energy technologies, we have thoughtfully planned and prepared the workforce system to meet the needs of these new roles and equipped the state workforce with the necessary tools to evolve with these changes. CETWAC will continue to work with stakeholders at all levels to address these needs.