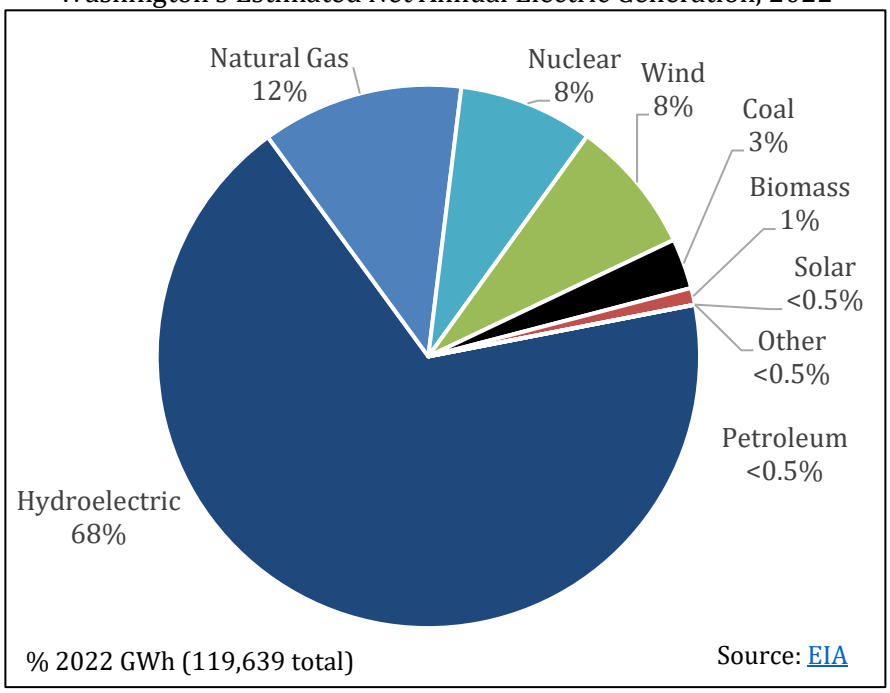
State Brief: Washington

BACKGROUND

Washington's electricity mix is dominated by hydroelectric power. With a total generating capacity of 6,809 megawatts (MW), the Grand Coulee Dam on Washington's Columbia River is the largest hydroelectric plant in the United States. Washington generates more hydroelectric power than any other state, producing 31% of the country's total conventional hydroelectric generation in 2022. Wind power is Washington's second largest source of renewable energy, contributing 6% or more of the state's total generation since 2013. The state has more than 3,400 MW of installed wind capacity.

Washington's Estimated Net Annual Electric Generation, 2022



% 2022 GWh (119,639 total) Source: EIA

Solar energy makes up a smaller share of Washington's total electricity generation. In 2022, most solar energy in the state came from customer-sited photovoltaic (PV) projects like rooftop solar. The state's largest solar plant to date, a 150-MW solar project in Klickitat County, came online in 2022. By the end of the first quarter of 2023, the Solar Energy Industries Association (SEIA) ranked Washington 34th in the country in terms of total installed solar capacity (604 MW). SEIA also ranks the state 29th for projected growth over the next five years with 1,707 MW in expected installations.

The 2022 U.S. Energy and Employment Report found that Washington had an estimated 140,640 energy workers (4.2% of total state employment), which includes 57,791 workers employed in energy efficiency. In 2021, Washington ranked 14th nationally for clean energy jobs, with approximately 75,684 Washingtonians employed by the industry.[1]

The Evergreen State is a leader in clean energy policy development. In 2006, it became the second state in the country to adopt a renewable portfolio standard (RPS) through ballot initiative. In 2019, the Clean Energy Transformation Act (CETA) updated the state's RPS by requiring a transition to 100% clean energy by 2045, beginning with the elimination of coal from the state's generation mix by 2025. In 2021, a package of ambitious climate and clean energy bills were enacted by the state's policymakers. Part of this package, the Climate Commitment Act (Senate Bill 5126), created a comprehensive "cap and invest" program, the second in the country after California. In addition to establishing a declining cap on carbon emissions, the bill directs revenue raised from the carbon pricing market to several broad investment areas including sustainable transportation and climate change resilience. The bill also contains significant considerations for environmental justice, directing that at least 35% of investments be made in communities disproportionately overburdened by pollution. The bill also directs 10% of investments to projects supported by tribes and mandates consultation with tribes for any project impacting Tribal lands. The Healthy Environment for All (HEAL) Act (Senate Bill 5141) implemented policy recommendations from the state's Environmental Justice Task Force, requiring environmental justice considerations in a variety of state processes, as well as creating the Environmental Justice Council to advise state agencies. House Bill 1091 directed the Department of Ecology to establish a clean fuels program to reduce the carbon intensity of transportation fuels to 20% below

[1] To see clean energy job numbers for your Congressional District, visit: https://cleanjobsamerica.e2.org/#map.

2017 levels by 2038. House Bill 1050 adopted several policies aimed at curtailing hydrofluorocarbon (HFC) emissions, powerful greenhouse gasses originally designed to replace the ozone depleting CFCs in refrigeration and cooling applications.

The three members of Washington's bipartisan Utilities and Transportation Commission (UTC) regulate three electric utilities and four natural gas companies. All three members (two Democrats and one Republican) were appointed by Democratic Governor Jay Inslee who took office in 2013. Washington's legislature is under unified party control with Democratic majorities in the House and Senate.

POLICY STRENGTHS AND OPPORTUNITIES

The National Renewable Energy Laboratory (NREL) developed the notion of "policy stacking,"[2] an important framework for policymakers to consider. The basic idea behind policy stacking is that there is an interdependency and sequencing of state policy that, when done effectively, can yield greater market certainty, private sector investment, and likelihood of achieving stated public policy objectives.

In theory, but not always in practice, clean energy policies can be categorized into one of three tiers of the policy stack. Tier 1, market preparation policies, remove technical, legal, regulatory, and infrastructure-related barriers to clean energy technology adoption. Tier 2, market creation policies, create a market and/or signal state support for clean energy technologies. Tier 3, market expansion policies, create incentives and other programs to expand an existing clean energy market by encouraging or facilitating technology uptake by additional market participants.

For example, before financial incentives for combined heat and power (CHP) will be successful, two key considerations for deployment are having clear interconnection standards and favorable stand-by rates for customers who opt to add CHP. In this example, states should adopt policies to address interconnection and stand-by rates before adopting financial incentive programs.

INVESTING IN THE WORKFORCE

The energy sector added nearly 3.1 million net-zero aligned jobs in 2021, and these jobs currently comprise roughly 40% of total energy jobs. However, a lack of qualified candidates across occupations and education levels could impede states' abilities to modernize their grids and deploy clean energy resources. To ensure that the workforce can meet industry demand, policymakers can consider several policies to educate and train qualified candidates. This can simultaneously enhance industry employment and provide economic opportunity to individuals and local communities.

The policies states can explore to address workforce development include:

1. **Incentive Programs –** States can attract new workers to the field by providing financial and other incentives to students who pursue education in specified trades or in the science, technology, engineering, and math (STEM) fields. States might require that graduating students remain and work in the state for a given time to remain eligible for the incentive. In conjunction with this, states might also provide economic development incentives to companies employing students with training in specified STEM and trades fields. To ensure safety in the workplace, states can adopt programs that will cover the costs of OSHA training.

   Initiatives to improve access to broadband and public transportation in underserved communities can boost access to educational and employment opportunities.

2. **Education and Continuing Education –** Existing electrician training and mentorship programs can be expanded to encourage more young people to enter the industry. Policymakers can direct public colleges and universities, with input from industry, offices of economic and workforce development, and other interested parties, to create new trades and STEM programs. This could include the development of "green" credentialing

[2] V.A. Krasko and E. Doris. 2012. "Strategic Sequencing for State Distributed PV Policies: A Quantitative Analysis of Policy Impacts and Interactions." *National Renewable Energy Laboratory*. Available: http://www.nrel.gov/docs/fy13osti/56428.pdf.

programs. States can also provide financial resources to organizations that educate or retrain students in STEM and trades professions.

For the state's existing energy workforce, policymakers might direct state departments of workforce services or their equivalent to work with utilities and other interested parties to develop continuing education and training programs for existing utility employees to remain in their field or to transition to a new role. Incentive programs might also be developed for employers that design roles that include ongoing skills development and continuous learning to help keep pace with evolving roles.

3. **Establishing an Office of Workforce Development –** States might also consider establishing a dedicated workforce development office. In some states, these have been established to specifically address training needs in energy transition communities.

MODERNIZING UTILITIES AND EMPOWERING CONSUMERS

The electric grid is a complex system of generation, transmission, and distribution. Aging infrastructure and emerging technologies are forcing the grid to modernize to keep pace with historic and emerging expectations. Grid modernization encompasses a broad range of actions intended to make the electrical system more resilient, interactive, and capable of meeting current and future demand.

The transition to a digital economy requires affordable, sustainable, and reliable electricity and creates challenges and opportunities for grid management. Emerging physical and cybersecurity threats and increased demand for faster outage response times require, at minimum, real-time incident tracking and response capabilities. Increased grid penetration of distributed energy resources (DERs) such as renewable energy coupled with increasing adoption of energy efficiency, energy storage, microgrids, and other technologies will provide economic benefits, increase security, and ensure more reliable, resilient, and clean energy. Utility-scale renewable energy may require expanded transmission capabilities. As adoption of these innovations increases, so too will the need for modern grid technology to strengthen the grid, the implementation of which will require substantial planning and investment by states and utilities.

By allowing a two-way flow of information between the electric grid and grid operators and between utilities and their customers, new technologies enable utilities to better manage the grid and provide opportunities for consumers to customize their services to fit their priorities and to reduce their electric bills. By enabling better tracking and management of resources, emerging technologies improve system reliability and resiliency. These technologies also allow grid operators to incorporate central and distributed energy resources, energy storage technologies, and electric vehicles (EVs). This all assists in addressing the challenges associated with planning, congestion, asset utilization, and energy and system efficiency.

On the customer's side of the meter, dynamic pricing, advanced metering infrastructure (AMI), and other technologies allow a more dynamic exchange of information and electricity between a consumer and their electric provider. Grid modernization is associated with greater consumer choice by allowing customers to meet their energy priorities by producing and storing their own energy or through contracting for innovative clean energy services from different providers.

Grid modernization will require a suite of policy changes to support advancements in grid technologies, grid management, and utility regulation.

Washington has taken several steps to modernize its grid infrastructure. In 2013, the state legislature approved a $76 million Clean Energy Fund to support renewable energy resources and grid modernization investments. As of 2023, the fund has provided $38.3 million for grid modernization projects. The state has also implemented a three tiered interconnection standard for distributed generation systems up to 20 MW. Enacted in 2021, Senate Bill 5295 directed the UTC to develop a policy statement addressing performance-based regulation. The bill also allowed the UTC to approve cost recovery for discount rates and grants for services and/or infrastructure that reduces energy burden.

The Infrastructure Investment and Jobs Act of 2021 (IIJA) is a landmark federal spending bill that includes funding earmarked for grid modernization projects. This includes $11 billion for Department of Energy (DOE) grants

directed specifically towards electric infrastructure resiliency projects (including grid hardening against severe weather and cybersecurity improvements), $2.5 billion for transmission development, and $3 billion for the Smart Grid Investment Matching Grant Program.[3] Enacted August 2022, the Inflation Reduction Act (IRA) set aside $2 billion for loans for constructing new high-capacity transmission lines and upgrading interties. The bill includes funding for technical assistance and grants for states and tribal governments, which includes assistance for siting transmission projects. The bill also directs DOE to undertake interregional transmission planning, modeling, and analysis, including analysis of transmission for offshore wind and the use of grid-enhancing technologies (GETs).[4]

Policymakers could consider the following supportive policies to enhance grid modernization efforts:

1. Establish a collaborative process to develop a grid modernization strategy that will incorporate the viewpoints of utility customers, utility regulators, utilities, and other affected parties.

2. Require that utilities' integrated resource plans include plans to enhance cybersecurity, integrate distributed energy resources (including electric vehicles and energy storage), increase demand response and/or demand side management (DSM) programs, and measure and report on the results of grid modernization efforts.

The adoption of incentives for or a requirement to integrate a certain amount of energy storage on the grid alongside enhancing renewable energy and electric vehicle policies can support modernization efforts and improve the chances of successful grid modernization.

MAINSTREAMING RENEWABLES

Renewable energy is increasingly seen as the least cost and lowest risk form of energy (excluding energy efficiency). With increased deployment, utilities are learning more about how to integrate renewables effectively, investors are becoming more comfortable with the technologies, and building code officials are recognizing common standards and best practices for integrating distributed renewable energy resources. In the U.S., the expansion of renewable energy has been one of the most consequential shifts in electricity generation over the last decade. According to the Energy Information Administration (EIA), renewable energy generation surpassed coal and nuclear generation in 2022, and more than half of all new generation capacity in 2023 is expected to be solar. As of 2021, there were more than 450,000 jobs in the wind and solar industry. Accordingly, it is in the interest of policymakers to ensure that their states are well positioned to benefit from this shift.

While the IIJA does not provide money for specific renewable energy projects, the funding in the Act will benefit renewable energy development as grid resiliency, increased deployment of energy storage, and modernized transmission are all essential to the successful integration of renewable energy generation. The IRA appropriated $369 billion to fund a variety of energy and climate initiatives – the largest climate investment in U.S. history. The bill also extended the investment tax credit (ITC) and the production tax credit (PTC) through the end of 2024 and revived the PTC for solar projects. For projects placed in service in 2025, the bill "effectively extended" the ITC and PTC by creating new tax credits for zero emission facilities. The bill also extended the residential energy property tax credit through 2034 and created a new advanced manufacturing production credit, to apply to sales of components for constructing wind and solar energy facilities beginning in 2023.[5]

The IRA also includes several provisions related to energy equity, including $3 billion to the Environmental Protection Agency (EPA) for grants for community-led projects in disadvantaged communities and $27 billion for nonprofit, state, and local climate finance institutions supporting the deployment of low- and zero-emission technologies. In support of rural communities, the bill also includes a $1 billion appropriation to the U.S. Department

[3] For more information on the grid-related earmarks included in the IIJA, see Potomac Law Group's January 2022 analysis: "The Infrastructure, Investment & Jobs Act of 2021: What's in It for You? (Part V: Grid Infrastructure and Resiliency)." Available: https://www.potomaclaw.com/news-Infrastructure-Investment-Jobs-Act-of-2021-Whats-In-It-For-You-Part-V-Grid-Infrastructure-and-Resiliency.

[4] J. Runyon and J. Engel. 2022. "The Inflation Reduction Act is Signed into Law." *PowerGrid International*. 16 August. Available: https://www.power-grid.com/td/the-inflation-reduction-act-is-signed-into-law/#gref.

[5] For a detailed discussion of the IRA's tax provisions, see: A.S. Levin-Nussbaum. 2022. "Update: President Biden Signs Historic Legislation Providing Expansive Clean Energy Tax Incentives." *The National Law Review*. 17 August. Available: https://www.natlawreview.com/article/update-president-biden-signs-historic-legislation-providing-expansive-clean-energy.

of Agriculture (USDA) for loans to finance renewable energy projects, $1 billion for USDA's Rural Energy for America Programs, and $9.7 billion to USDA to finance rural electric cooperatives' purchases of renewable energy.

To reduce barriers to customer and utility participation in the renewable energy market, and to build upon the federal initiatives, policymakers in Washington might consider several options.

Customer-Oriented Policies

1. **Interconnection, Net Energy Metering (NEM), and Streamlined Permitting –** In general, customers want a clear, streamlined, affordable, and predictable system for connecting renewable energy systems to the grid. To ensure this, Washington's policymakers could consider removing NEM, and aggregated NEM, system size limitations and the aggregate capacity limit. The state might also consider establishing either statewide standards for streamlined permitting processes, or resources to support local governments that voluntarily implement a streamlined program. In May 2021, NREL launched the SolarAPP+, an online platform designed to automate the solar permitting process. By running compliance checks and processing permit approvals, the service is intended to drastically reduce permit wait times. Currently restricted to rooftop solar, thirty-two communities in five states have adopted the platform, processing over 15,000 permits for more than 100 MW of generation with an estimated 15,000 hours saved in permit review time.

2. **Shared Renewables –** Due to building and property attributes and ownership issues, many customers are unable to install renewable energy technologies where they live or work. Allowing shared, or community, renewable energy projects addresses these barriers. These projects have multiple owners or subscribers who pay for a portion of the project or the generation provided by the system. House Bill 5939, enacted in 2017, provides incentives and guidelines for the implementation of community solar projects up to one MW of peak generation and allows for more flexibility in the siting of community solar projects. Low credit ratings often deter participation in renewable energy markets; this can affect low and moderate income (LMI) households' adoption of renewable energy solutions. Supportive policies for shared renewables can be designed to encourage participation by LMI households; this can increase adoption of renewable technologies and reduce energy costs. Low-income participation can be encouraged either through a percentage mandate for the overall annual contracted capacity, or by offering a higher rate of payment for the portion of shared solar capacity attributed to low-income customers. States that have a shared renewables program may want to coordinate this program with implementation of the federal Weatherization Assistance Program (WAP) to provide recipients of assistance with access to participation in a shared system. In 2021, the Washington State Department of Commerce Solar Deployment Grant Program allocated $3.7 million in grants for nine solar energy projects across the state that support low-income community solar deployment.

   Washington's Evergreen Sustainable Development Standard (SDS) is a green building performance requirement for affordable housing projects that receive capital funds from the Washington State Housing Trust Fund. New construction projects must achieve 50 points by meeting certain criteria. Among these, projects can earn up to 15 points by including renewable generation.

3. **Adapt Energy Assistance Programs –** Programs such as the Low-Income Home Energy Assistance Program (LIHEAP) and WAP provide assistance for paying utility bills and reducing household energy costs. Including distributed energy resources as eligible for funding under these programs can reduce energy costs and increase energy security for those LMI families who are able to benefit from WAP and LIHEAP. Colorado, for example, includes rooftop solar in their WAP program. For approval to add solar to a state's implementation of WAP, a state must show that the investment would be cost-effective – achieving a Savings to Investment Ratio (SIR) of 1.0 or more.[6] Since 2015, Washington has received $40.7 million from WAP and $7.1 million from the State Energy Program (SEP) which has helped to fund a number of energy initiatives in the state.

4. **Fund Distributed Generation (DG) for Community Organizations –** Organizations or groups that provide support services for LMI communities can be provided funding to install solar or other distributed energy

[6] For guidance on the state approval process, see WAP Memorandum 024 (2017), the Solar Template for Incorporating Solar Photovoltaics into WAP, and the Preliminary Assessment Guide for Integrating Renewable Energy into Weatherization (2019).

resources. Sites such as homeless shelters, food banks, clinics, and community centers often have enough rooftop area for solar installations. After installation, these resources can reduce an organization's utility bills, freeing up funds for other activities that support the community. Washington's Grid Modernization Program encourages a diverse range of projects, including deployment of distributed energy sources for community organizations, Tribal and local governments, and utilities. The Sustainable Energy Trust offers low interest loans and on-bill financing options for energy efficiency improvements and clean energy projects for single and multi-family homes and non-profit facilities.

5. **Corporate Procurement –** Many Fortune 100 and 500 companies have established either climate goals or commitments to purchase renewable energy. Since 2014, over 64 gigawatts (GW) of renewable energy has been procured by corporate entities. In the first half of 2022, corporations entered contracts for 21 GW. This is leading policymakers to provide additional avenues for businesses to procure renewable energy. Washington's policy allows corporate procurement of clean energy through a variety of mechanisms, including green tariffs. Policymakers might consider incorporating corporate renewable procurement targets into the state's Integrated Resource Plan (IRP) process. By integrating these renewable purchase commitments into the IRP process, utilities can avoid over-building resources and stranding generation assets.

Utility-Oriented Policies

Some states have created programs that aim to reduce greenhouse gas (GHG) emissions and increase investments in clean energy resources. Washington requires the state's electric utilities to transition to renewable and non-emitting resources by 2045. The Climate Commitment Act of 2021 (Senate Bill 5126), created a comprehensive "cap and invest" program, the second in the country after California.

Washington's cap-and-invest program expected to generate more than $2 billion for state investments in clean energy, transportation, and natural habitats. One of the advantages of a market-based program is that it is designed to reduce emissions in the most economically efficient manner possible. Such a standard can also address other concerns such as pollution, asthma risk, environmental justice, and water use.

To increase utility adoption of clean energy technologies, Washington's policymakers might consider the following:

1. **Transmission Development Policies –** Renewable energy resources rely heavily on robust transmission networks that connect generation to demand. For states within regional transmission organizations (RTOs), state governments can fund utility commission and energy office engagement in RTO processes, and generally support transmission build-out through these channels. In non-RTO states or single-state RTOs like New York and California, one successful model has been the creation of a state transmission authority, which handles state transmission planning in cooperation with incumbent utilities. New Mexico's Renewable Energy Transmission Authority provides an instructive example – it informs transmission investments to push forward key transmission projects that achieve the state's clean energy goals cost-effectively.

   A 2022 Report by the Washington Energy Facility Site Evaluation Council's Transmission Corridors Work Group (TCWG) outlines a series of overarching principles to guide transmission planning and development in Washington, including ways to expedite environmental review and permitting processes while upholding environmental protections. Such recommendations include, but are not limited to ensuring alignment between processes, timing, and analysis methodologies within and across federal laws like the National Environmental Policy Act (NEPA) and the State Environmental Policy Act (SEPA) and engaging in meaningful community engagement and tribal consultation during planning and siting processes. Enacted in the 2023 legislative session, House Bill 1216 creates an Interagency Clean Energy Siting Coordinating Council to identify and provide recommendations on actions to improve the siting and permitting of clean energy projects; directs the Department of Commerce to establish a clean energy projects of statewide significance program, which will expedite permitting for certain projects, including transmission; and creates a coordinated permitting process for certain clean energy projects, among other provisions.

2. **Competitive Procurement Requirements –** In most states, consumers have little choice about where their electricity comes from. As utilities find that renewable energy is increasingly the lowest-cost electricity source, they have to decide how much they should buy and when. Unfortunately for customers, utilities may have either

a vested interest in continuing to operate fossil plants, or they doubt the efficacy of new renewable resources. States can overcome reluctance to renewable energy by requiring utility procurement decisions to undergo a competitive process, revealing the lowest cost alternatives to the utility's existing contracts and fleet of power plants. A best practice is "all-source procurement," a process that allows all resources to compete to fill a system need identified by the utility. Policymakers in Washington might consider revisiting planning and procurement rules and asking whether the current process results in policy-aligned procurement.

ENERGY STORAGE

Energy storage offers a unique opportunity to dynamically manage supply and demand while also maximizing the value of grid resources. By deploying storage to strategic locations, utilities can more effectively manage their energy portfolios. First, storage allows utilities to manage intermittent demand – helping reduce peak demand requirements. Because the generation resources that provide peak power are the system's most expensive, reducing peak demand can save consumers money. Second, the responsiveness of energy storage can allow utilities to implement voltage regulation and other ancillary services, which improve system efficiency. Third, because storage technologies can both store and dispatch power, storage enables better integration of intermittent power generation resources, like wind and solar, to the grid.

The flexibility of battery storage combined with advanced metering infrastructure can allow customers to control how and when they use energy from the grid or from solar panels installed on their home or business. In most cases, this can provide greater cost savings than standalone solar systems. Combined with time-varying rates or real-time pricing programs, state policy can further support customer choice and open a new market for energy services. Prices that better reflect the time-varying and location-dependent costs of producing and delivering electricity can also lead to a number of economic and environmental gains.

Energy storage can also help the commercial sector avoid demand charges, which establish an incremental cost above energy usage based on the highest period (highest 15 minutes, for example) of demand during the month. Eliminating spikes in demand with storage can reduce these costly charges for businesses. As utilities around the country consider implementing or extending demand charges to other sectors, energy storage will become more relevant as both a customer cost-saving investment and a system efficiency measure.

Declining costs and technological advancements in battery storage have contributed to increased deployment. The EIA expects total battery storage deployment to nearly triple from 7.8 GW in 2022 to 30 GW in 2025. State policies can further encourage this by establishing both a framework for easy integration of energy storage resources onto the grid and a marketplace that monetizes the benefits of energy storage for cost-effective investment.

The IIJA provides a unique opportunity for funding energy storage projects. The IIJA provides $505 million for grants to support energy storage demonstration projects, more than $7 billion for building out the U.S. battery supply chain, and $14 billion for grid resilience programs that include energy storage as a qualified technology. The IRA extended the ITC to include standalone energy storage systems. When the ITC is replaced by the technology neutral Clean Electricity Investment Tax Credit (CEITC) in 2025, qualified storage facilities placed in service after 2024 will remain eligible. The advanced manufacturing production credit will apply to battery cells and modules and the critical minerals used in their production. The $27 billion GHG Reduction Fund, also established by the bill, will provide funding enabling low-income or disadvantaged communities to adopt zero-emission technologies including energy storage.

Washington does not have a procurement target or goal for energy storage. However, the state's incentives and other policies supportive of energy storage encourage utilities in the state to pursue and develop energy storage. In 2017, the UTC issued a policy statement directing the state's investor-owned utilities to include energy storage in their planning processes. The Washington Clean Energy Fund has provided grants for a number of storage projects in the state. Washington's Solar plus Storage for Resilient Communities program funds solar and battery back-up to provide communities access to power for essential services during power outages. These grants support both planning and installation work for solar plus storage systems for community buildings and local governments. The program also offers technical assistance to communities to prepare for grant opportunities. The existing 320 MW of utility scale energy storage in the state is provided almost entirely by pumped hydroelectric facilities, forthcoming projects, like the Goldengale Energy Storage project will provide additional energy storage capacity.

There are policy opportunities to take advantage of the growing technological advances in and declining costs of energy storage and build upon recent federal initiatives. The recommendations here draw heavily from the Interstate Renewable Energy Council's (IREC) 2017 report, "Charging Ahead – An Energy Storage Guide for Policymakers." Policymakers in Washington could consider the following:

1. Amend existing interconnection and net metering policies to ensure that storage can connect to the grid through a transparent and simple process. IREC has produced a series of protocols that states can adopt. States can establish best practices for interconnection and net metering in statute, or legislation can provide an instruction to the utilities commission to implement these best practices.

2. Require the inclusion of energy storage as a critical piece of the energy system as both a demand and supply management resource. Some states have required that utilities evaluate the cost effectiveness of non-wires alternatives to large transmission and generation investments. Alternatively, states might want to require that utilities develop a distribution investment plan that identifies the locations on the distribution system where energy storage or other distributed resources would offer the greatest value.

3. Consider creating a mandatory energy storage procurement target or requirement for energy storage with a documented process for periodic review of progress towards that goal. Procurement targets can include provisions limiting the amount of utility owned storage to be procured, requiring that a certain percent of the storage procurement goal be targeted to low-income customers, and creating carve-outs for specific amounts of storage to be procured at the transmission, distribution, and customer levels. Procurement targets can jumpstart market creation, spur fast learning, and guide the development of a regulatory framework.

4. Finance and incentivize energy storage for customers and utilities. Incentives can enable customers to use storage to manage their electric load and store locally produced renewable energy. Incentives in the form of rebates, grants, and tax credits can provide a bridge to scalable deployment of storage. These incentives can also be designed to decline as the value of storage becomes more readily monetized, and/or as the cost of storage decreases. Policymakers can allow utilities that provide storage incentives to customers to also recover the costs of installing smart meters. This would enable dynamic and time-varying energy management from multiple distributed battery systems, while better aligning customer costs with system costs. Financing energy storage installations for commercial customers can help reduce their demand charges. Policymakers might start first with a policy that provides grants to pilot projects, and/or that targets existing solar system owners. Financial incentives should be designed to ensure that the state meets other goals including emissions and peak demand reductions, and equitable access to clean energy.

5. Consider taking advantage of the "direct pay" option available to state and local governments for energy storage investment tax credits (ITC) available in the IRA. The direct pay option allows states (or other qualified entities without tax obligations) to be directly refunded a 30% ITC from the federal government after the project is online. The IRA also allows for up to a 70% credit for projects that incorporate domestic components, serve low-moderate income communities, and/or are located in energy communities.

THE BUILT ENVIRONMENT

In the U.S., buildings consume nearly 40% of total energy used.[7] Because it reduces energy demand and emissions and creates savings for utility customers, energy efficiency[8] often plays a prominent role in state energy and climate policies. Coupled with beneficial electrification, which involves replacing direct fossil fuel use with electricity, there is even greater potential to reduce energy costs and pollution, and provide more resilient, comfortable, and healthy buildings. This is especially the case in states where increasing levels of low carbon resources are supplying the electric grid. When policies are adopted to shift energy sources for such things as space

[7] For additional information, see ACEEE Building Policies and Codes.

[8] Energy efficiency includes a multitude of measures to reduce energy consumption. These measures range from behavioral changes to installing energy efficient appliances to full building renovations, including updating a building's envelope.

and water heating, to highly efficient electric alternatives, states can maximize achieving the dual objectives of increased energy efficiency and reduced emissions. In some cases, this can also result in lower energy costs.

Washington has taken several steps to incorporate energy efficiency and beneficial electrification into its built environment. State statute requires that the State Building Code Council (SBCC) adopt updated codes every three years and that these updates result in a 70% reduction in building energy use by 2031. Washington has adopted, as a mandatory building code, the International Energy Conservation Code (IECC) 2018 Edition, with amendments for commercial and residential energy efficiency and conservation. The resulting residential building code achieves savings approximately 5% higher than the 2018 IECC and incorporates a standard directly addressing carbon emissions reductions. The inclusion of the emissions standard provides incentives for the use of high efficiency heat pumps and water heating systems in homes. The state building code council adopted an updated commercial code in 2022. The new code, effective July 2023, continues to include a carbon emissions reduction standard, requires electric heat pumps for most space and water heating, and requires solar readiness. Enacted during the 2022 legislative session, Senate Bill 5722 requires the state's Department of Commerce to adopt a state energy management and benchmarking requirement for "Tier 2 covered buildings," including multifamily buildings, by December 2023. As part of this, the Department will establish a customer support program for building owners.

ESPCs are a financing mechanism for energy efficiency upgrades. ESPCs are often used within large institutions, such as college or government campuses, allowing them to meet their energy and environmental goals. An energy service company will pay the upfront cost of efficiency upgrades and execute the project, often guaranteeing the projected energy savings. The large institution will then pay back the service company with savings from their utility bills. This allows institutions to pay for their upgrades from their operating budget, instead of finding new financing, such as loans or bonds, for capital upgrades. Essentially, they pay their upgrade costs with their energy savings. Washington has an "extensive" energy performance contracting program through the Department of Enterprise Services. In 2023, the state legislature expanded the authorized use of performance-based contracts for energy services via House Bill 1777.

The IIJA provides $500 million for grants to fund energy efficiency and renewable energy upgrades in public schools, $3.5 billion for the Weatherization Assistance Program, and increases funding for the Energy Efficiency and Conservation Block Grant program by $550 million and the State Energy Program by $500 million. The IRA appropriates $4.3 billion to DOE for an energy efficiency rebate program that will be administered through state energy offices. Another $4.3 billion appropriation will fund electrification rebates for single- and multi-family homes. The bill also extends the tax credits for residential energy efficiency improvements and new efficient home construction and increases the maximum deduction for energy efficient commercial buildings. A $837.5 million appropriation will be used by the Department of Housing and Urban Development (HUD) for resiliency, energy efficiency, renewable energy, and grid integration projects at public housing units.

Policymakers in Washington can consider a variety of policies to encourage energy efficiency and beneficial electrification:

Energy Efficiency Policies

1. **Building Codes –** The DOE projects that, over time, improvements in building codes can have the greatest single impact on energy efficiency within the built environment. On average, commercial buildings waste 30% of energy used.[9] Because buildings will be around for generations, energy efficiency within the built environment is a matter of statewide and long-term importance. States can set requirements for energy systems, require statements of energy use, and set performance standards for energy use or emissions. Building codes can be required by state legislation or implemented through 'home rule', where local governments set their own standards or adopt more strict building codes than those mandated by the state.

   The IIJA includes a $225 million appropriation for a competitive grant program to support the "sustained cost-effective implementation of updated building energy codes." The grant program will run for five years, through fiscal years 2022 – 2026. In December 2022, DOE issued the Resilient and Efficient Codes Implementation

[9] For more information, see the Office of Energy Efficiency & Renewable Energy's Commercial Buildings Integration (CBI) Program.

Funding Opportunity Announcement to support the adoption of updated building energy codes. Approximately $45 million is available for this competitive grant program. The program requires the participation of a "relevant state agency" and projects must be tied to "an updated building energy code."

2. **Appliance Efficiency Standards –** Appliance efficiency standards set minimum requirements for efficiency in everything from washing machines to water heaters. Efficiency standards save consumers money on utility bills and reduce energy demand on the grid, most importantly reducing peak energy demand. Some states have elected to adopt the federal appliance standards that were in effect on January 1, 2017.[10] These include, among other things, standards on metal halide lamp fixtures, residential furnaces and boilers, and external AC to DC power supplies. Enacted in 2022, House Bill 1619 set appliance efficiency standards for several products. Policymakers could consider implementing additional efficiency standards for other types of appliances.

3. **Low-Income Energy Efficiency Programs –** While equity should be incorporated into all policy development, it is often necessary to ensure that specific programs are targeted towards historically underserved populations. Recent research suggests that weatherization improvements can reduce energy use by 25-35%, allowing households to reduce their financial energy burden. The federal WAP program provides energy efficiency upgrades for income qualified homeowners. However, there might be difficulty in reaching individuals who are eligible. Policymakers might require outreach and education programs targeted at eligible groups.

   In Washington, the Low-Income Home Energy Assistance Program (LIHEAP) provides energy cost assistance, heating or cooling system repairs, and weatherization to eligible households through community action agencies and local partners.

4. **Energy Efficiency Resource Standards (EERS)** – EERSs require utilities to demonstrate a reduction in energy demand from programs offered to their consumers. Because this means selling less energy and reducing revenues, there is not always an incentive for the utility to make their consumers more productive or efficient users of energy. If legislatures want to ensure a more productive and efficient energy distribution system that takes advantage of the latest technological innovations, they may want to require that a utility demonstrate a percent reduction in demand through efficiency or "demand side" programs. Legislators can also instruct their utility commissions to consider energy efficiency when approving rate cases by allowing cost-recovery of energy efficiency improvements through utility bills.

   Washington voters approved Ballot Initiative 937, the Energy Independence Act, in November 2006, which set renewable energy resource and conservation requirements for large electric utilities. The law requires utilities to use methodologies consistent with those of the Northwest Power and Conservation Council (NPCC) "to determine their achievable ten-year cost-effective conservation potential and update that potential assessment every two years." House Bill 1257, enacted in 2019, established a natural gas EERS, which took effect in 2022.

5. **Revenue Decoupling and Performance-Based Incentives –** Utilities earn revenue by selling energy. As a result, there is little to no incentive for them to promote energy efficiency because it leads to a reduction in sales, and therefore a reduction in revenue. Revenue decoupling disconnects revenue from the amount of energy sold. This provides utilities a set amount of revenue regardless of the amount of energy sold. While this does not directly incentivize energy efficiency, it does remove the inherent disincentive to promote energy efficiency.

   Incentive policies can be layered on top of a decoupling policy. For example, if a utility meets set energy reduction targets, then performance-based incentives can provide monetary rewards for meeting those targets. Washington allows decoupling for electric utilities, but as the energy mix changes, it is important to incorporate a regular review of decoupling and other incentive policies to ensure they are still meeting their intended purpose. While Washington does not have an incentive mechanism in place, investor-owned utilities can propose one.

Electrification Policies

1. **Strategically Target Beneficial Electrification –** Target areas of beneficial electrification in buildings include space and water heating systems and other systems and appliances that typically use natural gas or another

[10] Based upon research conducted by the Center for the New Energy Economy.

fossil fuel as an energy source. According to the Environment and Energy Study Institute, new electric heat pump technology can heat space and water at efficiencies of 200 to 300 percent, compared to 67 percent efficiency in typical Energy Star gas water heaters.[11] This not only allows savings on energy bills, but it also results in reduced GHG emissions and improved indoor air quality.

2. **Adopt Tools for Advancing Electrification –** Building codes and financial incentive programs can be used to advance beneficial electrification. While in some states, local governments are primarily responsible for adopting and implementing building energy codes, in other states, a state legislature, or a code commission tasked by the legislature, adopts and implements statewide standards. Incentive programs established and implemented by states, local governments, or utilities can target replacing systems and appliances that traditionally rely on fossil fuel resources with high efficiency electric systems and appliances including water heaters, furnaces, ovens, and ranges. As an example, heat pump water heaters and space heating systems can serve as high efficiency replacements for traditionally fossil-based equipment. In conjunction with utility regulatory policy, these technologies can also serve as demand response tools. Washington's 2021 State Energy Strategy notes that to meet the state's GHG emissions goals, emissions from gas in buildings must be decreased by 14% by 2030, with declines occurring at an increasing rate through 2050.

   As a note, cities across the country are implementing new building codes promoting beneficial electrification by limiting or banning the installation of natural gas in new construction as the Washington State Building Code Council has done. State legislatures can pass enabling legislation, allowing municipalities to make independent decisions on beneficial electrification. On the other hand, some states have adopted pre-emptive legislation, banning local governments from adopting policies that limit utility service.[12]

Programmatically, there will always be greatest benefit by combining measures – incentives that bundle improvements will generate greater gains than individual measures. For example, a high efficiency heat pump will be much more effective and efficient when coupled with improved building insulation. Rather than only realizing the gains of the new mechanical component, this combination of measures will increase the efficiency of the entire system.

ELECTRIFICATION OF THE TRANSPORTATION SECTOR

Bloomberg New Energy Finance estimates that nearly 80% of new car sales in the U.S. will be electric by 2040. Therefore, a key part of building a modernized grid involves designing infrastructure that will facilitate easy connection of electric vehicles (EVs) to the grid. One of the most important barriers to increased adoption of EVs is the consumer's awareness of the availability of EV charging stations, as drivers want to be sure that their car gets them where they need to go. The good news is that both supportive policies for developing charging infrastructure and technological advancements have eased this "range anxiety."

The American Council for an Energy Efficient Economy (ACEEE) published a State Transportation Electrification Scorecard in 2021 that evaluates states' progress in electrifying transportation in six key policy areas and offers nationally applicable policy recommendations. Washington ranked sixth in the 2021 report.

Washington has several policies that incentivize EV purchases and the installation of charging infrastructure. In 2020, Washington adopted California's low-emission vehicle (LEV) and zero-emission vehicle (ZEV) standards and joined 14 other states and the District of Columbia in signing an MOU to support the deployment of medium- and heavy-duty ZEVs. House Bill 1091, enacted in 2021, requires the Washington Department of Ecology to develop a Clean Fuels Program to reduce the carbon intensity of transportation fuels to 20% below 2017 levels by 2038. Also enacted in 2021, House Bill 1287 directs the Washington Department of Commerce to maintain a publicly available mapping and forecasting tool for electric vehicle charging infrastructure. The bill also requires utilities with more than 25,000 customers to assess how their integrated resource plans accommodate forecasted EV adoption. The Department of Transportation's ZEV Infrastructure Partnerships grant program provides funding for EV charging and hydrogen fueling infrastructure along priority corridors in the state.

[11] For more information, see EESI's Beneficial Electrification.
[12] See: "Battle Brews over Banning Natural Gas to Homes." The Wall Street Journal, 1 June 2021. Available: https://www.wsj.com/articles/battle-brews-over-banning-natural-gas-to-homes-11622334674.

Enacted in 2022, House Bill 1793 restricts common interest communities from unreasonably restricting installation or use of an EV charging station. Enacted in 2023, House Bill 1236 authorizes public transportation agencies to produce, use, and distribute green electrolytic and renewable hydrogen as a transportation fuel.

The IIJA provides nearly $5 billion over the next five years to support the electrification of the transportation sector. In 2022, $615 million was made available for the installation of charging stations along designated alternative fuel corridors, through a new National Electric Vehicle Infrastructure (NEVI) formula grant program. To be eligible to receive this funding, states must have submitted a NEVI plan to the Federal Highway Administration (FHWA) by August 2022. All 50 states plus D.C. and Puerto Rico submitted a NEVI plan. Washington will receive an estimated $15,093,948 in Fiscal Year 2023. The Act also provides approximately $1.1 billion for grants to state and local governments to assist with the purchase or lease of low- or no-emission vehicles for transportation fleets. To be eligible, a state must have a Zero-Emission Fleet Transition Plan in place. Executive Order 21-04 requires Washington's state agencies to meet fleet electrification targets of 100% by 2035 for passenger vehicles and light duty trucks and 100% by 2040 for medium- and heavy-duty vehicles.

The IRA extended the $7,500 EV tax credit for purchases of new plug-in EVs through 2032 and removed the eligibility cap based on number of vehicles sold by manufacturers. The Act includes requirements for material sourcing that must be met by manufacturers starting in 2027. The IRA also created a new $4,000 refundable tax credit for the purchase of used EVs and a new credit for commercial EVs. Appropriations in the Act include $1 billion for replacing medium- and heavy-duty vehicles with EVs, $3 billion to fund projects to reduce transportation sector emissions, and $3 billion to procure alternatively fueled vehicles for the federal fleet.

There are policy opportunities to further encourage and prepare for increased market penetration of EVs in the state, including:

1. **Utility Investment in "Make-Ready" Infrastructure and Utility-Run Programs –** "Make-ready" means building and upgrading the infrastructure necessary for the installation of a charging station. RMI recommends that policies providing incentives for utilities to invest in make-ready infrastructure or charging infrastructure itself should be performance-based and encourage investments in locations that are unlikely to be targeted by the private sector, such as low-income and multi-unit dwellings. Additionally, utilities can incentivize EVs by incorporating charging rate incentives and time of use rates to reduce the cost of electricity used for charging. Eligibility for a charging rate incentive may be limited to users with separate or advanced metering systems. Some utilities also offer financial incentives for the purchase of EVs or EV charging equipment. In some states, enabling legislation might be required to direct or authorize a public utilities commission to allow regulated utilities to recover the costs of providing these incentives.

2. **Charging Infrastructure Plan –** Locating charging infrastructure is different from locating conventional fueling stations. While some drivers will need to charge more quickly, others will refuel when they are parked for longer periods of time, for example when shopping at the mall or going to work. Charging infrastructure plans should attempt to pair the appropriate level of charging (level 2 or direct current fast charging) with a reasonable amount of time a person will be at that location. In Washington, a portion of the revenue collected through EV registration fees is used to fund charging infrastructure development across the state. Regional transportation planning organizations with a territory that includes at least one county with a population greater than one million are required to collaborate with state and local government agencies to develop EV charging infrastructure plans and model local ordinances.

3. **Parking Infrastructure Requirements –** In tandem with the development of a statewide plan, legislation could set requirements for parking lots and other infrastructure. Some states have adopted permitting standards for parking lots, requiring, for instance, that for every 100 parking spaces, there must be at least one EV charging space. Legislation could also incentivize utilities to develop make-ready locations.

   Effective July 2023, WAC 51-50-0429 requires ten percent of all parking spaces be equipped with EV charging infrastructure in compliance with Washington statute. In addition, electrical rooms serving buildings with on-site parking spaces must be sized to serve a minimum of 20% of the total parking spaces with 208/240 V 40-amp, circuit, or equivalent EV charging infrastructure. The rule has a suite of other requirements for parking structures to accommodate a larger share of EVs.

4. **EV and Charging Equipment Financing and Financial Incentives –** Providing financial incentives and innovative financing options can help spur greater market penetration of EVs. Sales, property, and income tax credits are some of the simplest methods for addressing the high up-front costs of EVs and EV charging equipment. While sales tax credits are typically applied at the time of purchase, property and income tax credits may do less to address upfront cost barriers, as the credit is not applied at the time of purchase.[13] States have adopted other financial incentives including low-interest loans, grants, vouchers, and rebates. A handful of states qualify EV charging equipment under their property assessed clean energy (PACE) programs. A simple solution is to increase and expand existing tax credits to incentivize commercial, publicly available charging stations.

   States might consider adopting programs to incentivize the purchase of used EVs. With increasing battery capacities and falling prices, there are an increasing number of EVs with relatively low mileage that are being traded in. States might also consider programs that target low- and moderate-income (LMI) customers that may not qualify for a loan directly. Such a program could facilitate sales through such things as loan loss reserve and interest buy down programs.

5. **HOV and HOT Incentives** – Allowing EVs to use high-occupancy vehicle (HOV) or high-occupancy toll (HOT) lanes, regardless of number of passengers and without paying the toll, may make EV ownership more attractive. Most states require that EVs using these lanes display a decal or a particular license plate; others also limit eligibility to certain types of vehicles or to a certain number of vehicles.

6. **Federal Congestion Mitigation and Air Quality (CMAQ) Funds** – CMAQ funds (almost $2.6 billion in fiscal year 2023) are available to states to assist them in meeting Clean Air Act requirements. State funds can be used to deploy EV charging infrastructure. There may be a unique opportunity to pair a request for CMAQ funds with a commitment from utilities to invest in charging infrastructure as a public/private partnership that would leverage the federal investment.

NEWS

- June 9, 2023: Washington Regulators Conditionally Approve Puget Sound Energy's 63% Clean Electricity by 2025 Target
- May 25, 2023: UW's Clean Energy Testbeds Integral to Washington's Clean Energy Future
- May 25, 2023: Washington Passes Climate Goals for Data Centers, Oregon's Effort Fails
- May 11, 2023: Washington State 2023 Energy Report Shows Significant Progress toward Clean Energy Transition, Notes Key Policy and Funding Opportunities
- May 3, 2023: Inslee Signs Slew of Laws Aimed at Moving Washington to Clean Energy
- April 9, 2023: Washington's Updated Building Codes Seen as Vital Tool to Fight Climate Change
- April 6, 2023: EPA Announces $4 Million for Washington to Tackle Climate Pollution

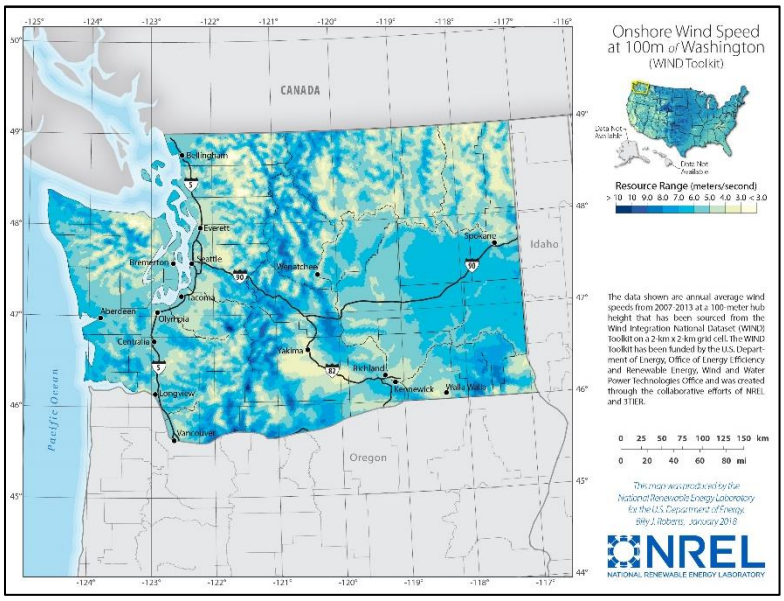
OTHER RESOURCES

- Washington State Energy Office: https://www.commerce.wa.gov/growing-the-economy/energy/washington-state-energy-office/
- The American Council for an Energy-Efficient Economy State and Local Policy Database, Washington: https://database.aceee.org/state/washington
- The Database of State Incentives for Renewables and Efficiency, Washington: https://programs.dsireusa.org/system/program?fromSir=0&state=wa
- U.S. Department of Energy's Alternative Fuels Data Center, Washington: https://afdc.energy.gov/states/wa
- U.S. Energy Information Administration, Washington: https://www.eia.gov/state/?sid=WA
- American Clean Power Association, State Fact Sheets: https://cleanpower.org/facts/state-fact-sheets/
- SPOT for Clean Energy, Washington: https://spotforcleanenergy.org/state/washington/

[13] A study by the Congressional Research Service suggests that tax credits are important tools for ensuring increased adoption of alternative-fueled vehicles.

WASHINGTON'S WIND RESOURCES

WIND https://windexchange.energy.gov/states/wa



Our Resources

CNEE Homepage: http://cnee.colostate.edu/

The SPOT for Clean Energy: https://spotforcleanenergy.org/

The Advanced Energy Legislation (AEL) Tracker: https://www.aeltracker.org/

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