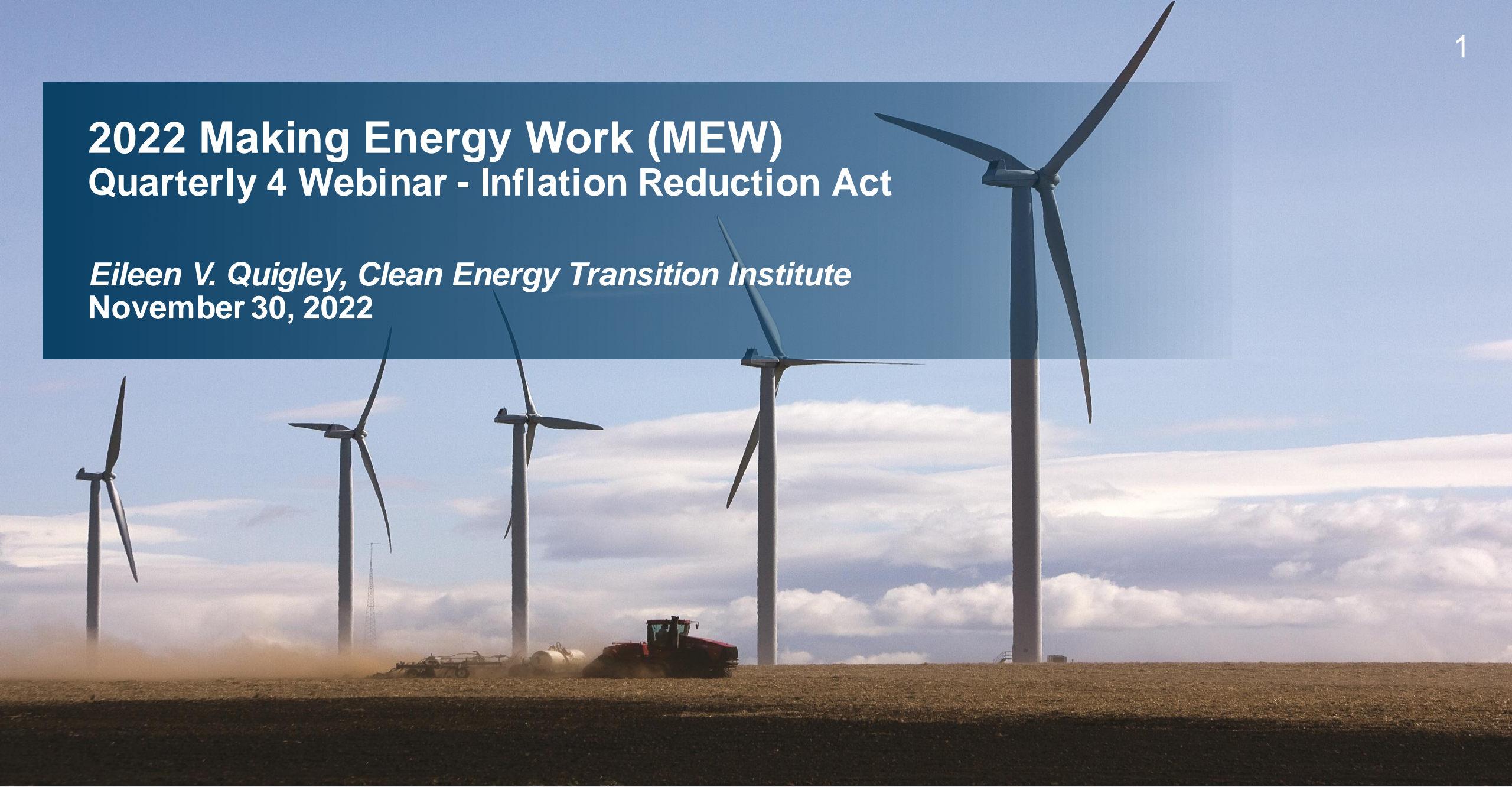


2022 Making Energy Work (MEW) Quarterly 4 Webinar - Inflation Reduction Act

Eileen V. Quigley, Clean Energy Transition Institute
November 30, 2022



Agenda

- Clean Energy Transition Institute
- Inflation Reduction Act
- Resources
- Net-Zero Northwest



Clean Energy Transition Institute

- **What We Are:** Independent, nonpartisan Northwest research and analysis nonprofit organization
- **Our Mission:** Accelerate an equitable clean energy transition in the Northwest
- **Our Role:**
 - Provide unbiased research and analytics
 - Offer an information clearinghouse for policymakers
 - Convene diverse stakeholders



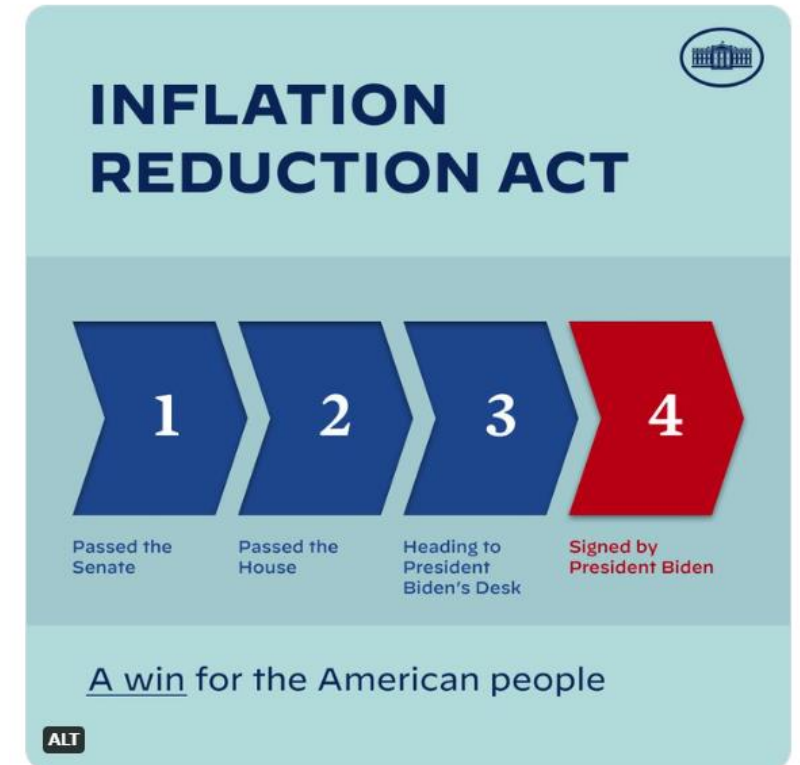
Inflation Reduction Act

Top-Level IRA Climate & Clean Energy Provisions

- CLEAN AFFORDABLE ELECTRICITY: \$158B
 - Extension of wind & solar tax credits
 - New/expanded investment & production tax credits
 - Rural electricity & transmission infrastructure investment
- CLEAN, EFFICIENT BUILDINGS: \$37B
 - Electrification & efficiency tax credits; rebates for homes & buildings
- CLEAN MANUFACTURING + INDUSTRY: \$60B
 - Expanded investment tax credit for new & existing facilities
 - Manufacturing production credit for clean energy techs
- CLEAN, EQUITABLE TRANSPORTATION: \$28.2B
 - Clean Vehicle/EV credits
 - Biofuel/biodiesel incentives



Big news: The Inflation Reduction Act is now law. This historic legislation delivers for American families, defeats special interests, and grows the economy from the bottom up and middle out.



Equity, Inclusivity, and Resilience

- Energy credit available for up to 1.8 GW/yr for low-income solar facilities placed in service in connection with low-income communities
- Greenhouse Gas Reduction Fund: \$27B grants for green banks or technology accelerators; \$7B of the funding reserved for low-income or disadvantaged communities
- Environmental and Climate Justice Block grants (\$3B) and technical assistance to implement community-led projects in disadvantaged communities
- Environmental and Climate Data Collection related to disproportionate negative environmental harms and climate impacts (\$32.5M)



→ Detail: Greenhouse Gas Reduction Fund (EPA)

- ▶ \$27B in competitive grants
 - \$7B reserved for low-income or disadvantaged communities
 - \$12B for eligible entities to provide financial and technical assistance to projects
 - \$8B for eligible entities to provide financial and technical assistance to projects in low-income and disadvantaged communities
- ▶ Stakeholder engagement
 - EPA National Public Listening Sessions (recordings available online from 11/01/22 and 11/09/22)
 - RFI seeking public comment on GHG Reduction Fund open until 12/05/22
- ▶ Learn more: <https://www.epa.gov/inflation-reduction-act/greenhouse-gas-reduction-fund>



Decarbonized Transportation Energy Systems

- Neighborhood Access and Equity Grant Program (\$3B, emphasis on underserved communities) to improve transportation access and address harms caused by past infrastructure projects
- Tax credits for biodiesel and biodiesel mixtures; alternative fuels; second generation biofuels
- Tax credit for purchasing plug-in electric vehicles (up to \$7,500), as well as previously owned clean vehicles (up to \$4,000)
- Tax credit for qualified commercial electric clean vehicles
- Direct loans (\$3B) for advanced technology vehicle manufacturing
- \$2B in grants for domestic production of clean vehicles



→ Detail: Clean Vehicle Credit

- ▶ Amended previous Electric Vehicle credit, added new tax credits for used and commercial clean vehicles, added requirement for final assembly in North America
- ▶ Income tax credit for plug-in electric vehicles (up to \$7,500) and previously owned clean vehicles (up to \$4,000)
- ▶ Eligibility criteria:
 - Consumer income limits (single filers: under \$150,000 for new EV, \$75,000 for used)
 - Price limits (new compact cars under \$55,000, vans/SUVs under \$80,000; used vehicles under \$25,000)



→ Detail: Clean Vehicle Credit (cont.)

- ▶ Vehicle eligibility based on:
 - North America final assembly
 - Sales cap for manufacturers (capped at 200,000 EVs per manufacturer until January 2023)
 - Battery requirements for critical minerals and manufacturing of battery components in North America

- ▶ Learn more:
<https://afdc.energy.gov/laws/409>

Eligibility requirement	August 16, 2022 – December 31, 2022	January 1, 2023–onward
North America final assembly requirements	Yes	Yes
Sales cap	Yes	None
Battery requirements	None	Yes

Source: <https://betterenergy.org/blog/understanding-the-inflation-reduction-acts-electric-vehicle-tax-credits/>

Building Energy Consumption and Emissions Reductions

- \$1B in grant assistance for states and local governments to adopt improved building codes
- Low-carbon transportation materials grants (\$2B)
- HEEHRA: High-efficiency electric home rebate program (\$4.275B), including heat pumps, heat pump water heaters, electric stoves, and more
- HOMES: Home energy performance-based, whole house rebates (\$4.3B)
- Energy efficiency workforce training programs (\$200M)
- 30% tax credit for energy efficiency improvements, such as heat pumps, heat pump water heaters, energy efficiency standards, and more
- Residential clean energy credit (solar electric systems, small wind energy, geothermal heat, etc.)
- Energy efficient commercial buildings deduction
- Tax credit for energy efficient homes



→ Detail: Home Energy Rebate Programs (DOE)

- ▶ \$9B for states and Tribes to implement two programs:
 - High-efficiency electric home rebates (HEEHRA)
 - Energy performance-based, whole house (HOMES rebate program)
- ▶ State allocations published on 11/02/2022
 - \$225M allocation to Tribes not yet determined
 - Oregon allocation = **\$113,760,690** (\$57,046,250 for HOMES rebates and \$56,714,440 for HEEHRA)
- ▶ Timeline:
 - DOE will hold listening sessions from Nov. 2022 – Jan. 2023
 - Request for Information (public input) in early 2023
 - Funding available to states and Tribes by Spring 2023, then available to the public later in the year
- ▶ Learn more: <https://www.energy.gov/articles/biden-harris-administration-announces-state-and-tribe-allocations-home-energy-rebate>



→ Detail: Residential Clean Energy Credit

- ▶ The Residential Clean Energy Credit included in the new law provides a tax credit of up to 30% to households that invest in clean energy such as solar, and it's retroactive to the beginning of 2022
- ▶ Solar electric systems, small wind energy, geothermal heat, etc.
- ▶ White House projections estimate that 75,000 additional Oregonians will install rooftop solar as a result



Industrial Decarbonization

- Tax credit for carbon dioxide sequestration (45Q extension for CCUS)
- Clean fuel production tax credit (45Z available from 2025-2027)
- \$10B available advanced energy project credit (facilities to refine/process critical minerals, re-equipping industrial facilities to reduce greenhouse gas emissions, etc.)
- Advanced manufacturing production credit PV cells, wind energy blades, critical minerals production process, etc. (45X)



Industrial Decarbonization (cont.)

- \$5.81B in competitive grants for DOE to provide financial assistance to projects installing and implementing advanced industrial technology at industrial facilities
- Sustainable aviation fuel (SAF) credit (\$1.25/gal) and grant program for projects to develop SAFs
- Clean hydrogen production credit (\$3/kg)
- Environmental Product Declaration (EPD) Assistance and labeling program for EPDs for construction materials used in transportation projects (\$250M)
- \$5B for reinvestment financing for energy communities (DOE Loan Programs Office)



Clean Electricity for a Decarbonized Economy

- Clean electricity Production Tax Credit (PTC) and Investment Tax Credit (ITC)
 - Increased credit if the project meets domestic requirements or if located in an energy community
 - Newly eligible properties include energy storage, microgrid controllers, and more
 - Creates a new “direct pay” option allowing non-taxable entities, such as electric cooperatives, to benefit
- Transmission line and intertie incentives (\$2B in direct loans)
- \$760M in grants to facilitate interstate transmission lines siting
- Increased clean electricity investment credit for facilities placed in service in connection with low-income communities
- USDA Clean Energy Financing Program (\$9.7B) for electric cooperatives to purchase or build renewable energy systems



→ BIL Detail: Building a Better Grid Initiative (DOE)

- ▶ Funded by the Bipartisan Infrastructure Law (BIL)
- ▶ (\$10.5B) Grid Resilience Innovative Partnership (GRIP): New financing opportunities for the expansion and modernization of the U.S. electric grid
 - Grid Resilience Utility and Industry Grants (\$2.5B)
 - Smart Grid Grants (\$3B)
 - Grid Innovation Program (\$5B)
 - *First round of funding announced on 11/18/2022*
 - *Concept papers due 12/16/2022/ 01/13/2022*
 - *Public webinar held 11/29/2022*
- ▶ (\$2.5B) Transmission Facilitation Program
 - DOE assisting with construction of high-capacity transmission lines or increase capacity of already planned lines
 - First phase submission deadline = 02/01/2023
 - Public webinar 11/30/2022 (today)
- ▶ Learn more: <https://www.energy.gov/articles/biden-harris-administration-announces-13-billion-modernize-and-expand-americas-power-grid>



→ Detail: Opportunities for Rural Development (USDA)

- ▶ USDA Clean Energy Financing Program (\$9.7B) for electric cooperatives to purchase or build renewable energy systems (Section 22004)
 - Electric cooperatives serve about 215,000 homes, businesses, and other customers in Oregon
- ▶ Up to \$1B in loans for renewable energy infrastructure (Section 22001)
- ▶ Up to \$2.025B for the Rural Energy for America Program (REAP) (Section 22002)
- ▶ Up to \$500M in grants for infrastructure improvements to blend, store, or distribute biofuels (Section 22003)
- ▶ Stakeholder engagement
 - USDA hosted two virtual listening sessions in November, recordings available online. Public comments were due 11/28/2022
- ▶ Learn more: <https://www.rd.usda.gov/inflation-reduction-act>



Additional Resources

- [IRA Savings Calculator](#) (Rewiring America)
- [User Guide to the Inflation Reduction Act](#) (BlueGreen Alliance)
- [The Inflation Reduction Act For Oregon](#) (Oregon Environmental Council)
- [Inflation Reduction Act State Fact Sheets](#) (The White House)
- [Building a Better America](#) (The White House)
- [Bipartisan Infrastructure Law Technical Assistance Guide](#) (The White House)

Additional Resources – Local Community-Specific

Hot off the Press! ACEEE-Great Plains Institute Fact Sheets:

- [Connecting Communities with Historic Federal Clean Energy Investments](#)
- [Transportation Efficiency; New Federal Funding Opportunities](#)
- [Strategies for Local Governments to Access Federal Funding](#)

Resources

- [Clean Cities Coalition Network Technical Assistance](#) (U.S.DOE)
- [Local Infrastructure Grant Application Bootcamp](#) (National League of Cities)

Additional Resources – Rural Resources

- [Rural Infrastructure Playbook](#) (The White House)
- [Rural Partners Network](#) (The White House)
- [Charging Forward: A Toolkit for Planning and Funding Rural Electric Mobility Infrastructure](#) (U.S. DOT)

Key Takeaways

- SO much still that is unknown
 - How the IRA, Bipartisan Infrastructure Law, and CHIPS and Science Act all work together
 - How the tax credits will be regulated
 - How the formula grants will be allocated
 - How the competitive monies will be structured
 - How much each state will receive
- One thing that IS known
 - States and local governments are going to be **THE KEY** to successful implementation





Net-Zero Northwest



Thank you very much
Eileen V. Quigley eileen@cleanenergytransition.org

Net-Zero Northwest Overview

➤ Analysis Goal

- Produce pathways and employment analysis to guide actions in the four NW states through 2030 to put the region on the path to net-zero in 2050

➤ Why now? What is new?

- Incorporates Inflation Reduction Act
- Focus on actions from now to 2030
- Employment analysis
- Health metrics analysis



Inflation Reduction Act Assumptions—NZNW Study

Supply Side

- Supply-side incentives will be included in all scenario modeling
- Incentives will influence which resources the model selects, the timing for building new resources (e.g., renewables will likely be constructed at an accelerated pace in order to qualify for incentives), and the total cost of decarbonization

Demand Side

- Demand-side incentives represented in the total cost of decarbonization
- IRA incentives not expected to accelerate adoption of energy efficiency, distributed energy resources, or electric vehicles relative to the adoption trajectories typically modeled

IRA Detail: Net-Zero Northwest Supply Side

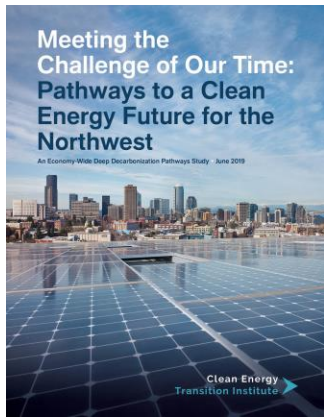
Provision	Modeling Assumptions	
Renewable energy PTC	\$26/MWh credit for PV, onshore wind, geothermal, and certain offshore wind resource classes and zones Commence construction by 2032, online by 2035, 10-year PTC duration	
Renewable energy ITC	30% for batteries, fuel cells, and certain offshore wind resource classes and zones Commence construction by 2032	
Carbon sequestration tax credit (45Q)	\$85/ton CO2 stored for ethanol with CCS, BECCS hydrogen with CCS, power with CCS and cement with CCS, \$180/ton CO2 stored from DAC Commence construction by 2032, credit paid for first 12 years of operations	
Clean fuel PTC	2022-2024: \$1/gallon biodiesel \$1.01/gallon cellulosic ethanol \$1.25/gallon sustainable aviation fuels (bio-Fischer-Tropsch (FT)) \$1.75/gallon bio-FT with CCS	2025-2027: \$1/gallon for all zero or negative emissions transportation fuels \$0.82/gallon for cellulosic ethanol w/o CCS \$1.75/gallon zero-emissions (FT) aviation fuels
Clean hydrogen PTC	\$3/kg for hydrogen produced via electrolysis Blue hydrogen: \$1/kg 10-year PTC for hydrogen production facilities constructed between 2023 and 2032	
Nuclear ITC and PTC	30% ITC for nuclear that commences construction between 2025-2032 10% additional ITC for sites in energy communities, which we assume to be only coal power plant repowering PTC assumed to prevent economic retirements of nuclear through 2032	

IRA Detail: Net-Zero Northwest Demand Side

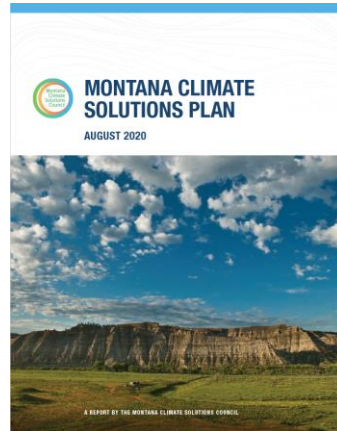
Provision	Modeling Assumptions
Electric vehicle incentives and funding	<ul style="list-style-type: none"> \$7,500 incentive for light duty EVs 30% reduction in cost for medium and heavy duty EV and FCV, capped at \$40,000 per vehicle 30% reduction in charger and fueling costs for non-commercial LDVs and all MD and HD EVs and FCVs \$1,000 additional reduction in charger costs for LDVs in certain geographies (all outside the West / Northwest) \$1B allocated to incremental cost of HD EVs and FCVs (clean heavy duty vehicles provision) \$3B allocated to MD EV incremental cost (Postal Service provision) \$1.5B allocated to MD/HD ZEV incremental cost (EJ Block Grants)
Energy efficiency funding	<ul style="list-style-type: none"> \$1.72B allocated to agricultural energy efficiency (Rural Energy for America) \$1B allocated to multifamily residential energy efficiency (Affordable Housing) \$4.3B allocated to residential building shell and heat pump HVAC costs (Home Energy Performance-Based Rebates) \$4.5B allocated to residential heat pump space and water heating (High-Efficiency Electric Home Rebates) \$5.8B allocated to industrial efficiency improvements (Advanced Industrial Facilities) \$0.25B allocated to commercial building shell and HVAC improvements (federal buildings provision) \$1.5B allocated to residential building shell incremental costs in disadvantaged communities (EJ Block Grants)

Research and Analytics to Support Policymakers

2019



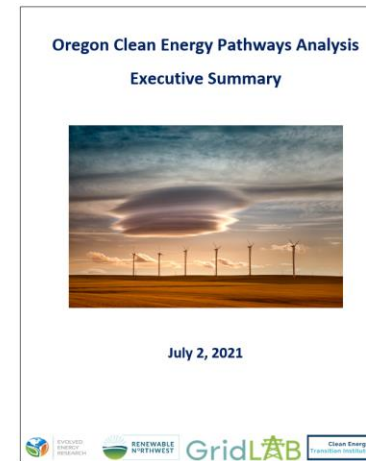
2020



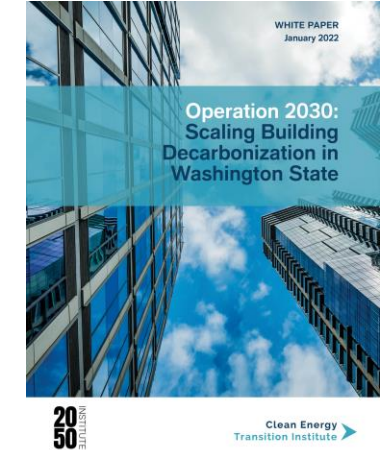
2021



2021



2022



- First economy-wide deep decarbonization study mapped to the Northwest’s economic & institutional realities
- First regional de-carbonization study in nation

- Provided technical analysis for a chapter in the Montana Climate Solutions Council Plan
- Presented to Montana stakeholders in 2019, 2020, & 2021

- Provided technical and economic analysis for the 2021 Washington State Energy Strategy
- Roadmap to get WA on the path to net zero over next decade

- Examined technical and economic implications of accelerating decarbonization in OR
- Results informed 2021 OR clean energy standard bill

- Charts the targets and requirements for how Washington can scale building decarbonization by 2030
- Released January 5, 2022

Clean Energy Transition Institute Releases

- [Meeting the Challenge of Our Time: Pathways to a Low-Carbon Future for the Northwest \(NWDDP Analysis\)](#)—June 2019
- [Montana Governor’s Climate Solutions Council](#)—September 2020
- [Washington 2021 State Energy Strategy; Chapter B from the WA SES; Deep Decarbonization Modeling Final Report](#)—January 2021
- [Oregon Clean Energy Pathways Analysis](#)—July 2021
- [Washington State Industrial Emissions Analysis](#)—July 2021
- [Operation 2030: Scaling Building Decarbonization in Washington State](#)—January 2022
- [Northwest Clean Energy Atlas](#)—May 2022
- [Washington State Clean Industrial Economy Summit](#)—June 2022
- [Rural Community-Defined Decarbonization](#)—September 2022
- [Claiming Power: Stories of Rural Communities and Clean Energy](#)—October 2022

