Accelerating Equitable Decarbonization in the Northwest

Microsoft October GIVE

Eileen V. Quigley—October 28, 2022
Agenda

- Clean Energy Transition Institute
- Programs
  - Decarbonization Modeling
  - Building Decarbonization
  - Industrial Decarbonization
  - Rural & Tribal Decarbonization
- Operations
- Questions and Answers
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
Deep Decarbonization Studies
Why Northwest Deep Decarbonization Studies?

**Common set of assumptions** to inform decisions about how the clean energy transition could unfold over the coming decades

- Unbiased, analytical baseline for the region
- Variety of pathways to lower carbon emissions
- Surface trade-offs, challenges, and practical implications of achieving mid-century targets
- Broaden conversations about actions needed
Northwest in the Context of a Western Grid

- Holistic Approach
  - Integrated across geographies and economic sectors
- Regional Representation
  - Other state’s actions impact the availability and cost of solutions
  - 11 Western states
- Remainder of the U.S. also modeled
Deep Decarbonization Pathways/Pillars

- **Energy Efficiency**
  - Energy Consumption (Gigajoules/person)

- **Clean Electricity**
  - Electricity Carbon Intensity (Grams CO₂ per kWh)

- **Electrification**
  - Electricity Share of Total Energy (% of Final Energy)

- **Clean Fuels**
  - Fuels Carbon Intensity (kG/MMBtu)

- **Carbon Sequestration**
  - (Million tonnes CO₂)

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### Electric Fuels & Boilers

- 2020:
  - Gigajoules/person: 150
  - Grams CO₂/kWh: 80
  - % of Final Energy: 60%

- 2050:
  - Gigajoules/person: 100
  - Grams CO₂/kWh: 60

### Electricity

- 2020:
  - % of Final Energy: 50%

- 2050:
  - % of Final Energy: 40%

### Clean Fuels

- 2020:
  - kG/MMBtu: 60

- 2050:
  - kG/MMBtu: 50

### Carbon Sequestration

- 2020:
  - Million tonnes CO₂: 0.6

- 2050:
  - Million tonnes CO₂: 0.4
Decarbonization Pathways Studies 2019-2021

2019

Meeting the Challenge of Our Time: Pathways to a Clean Energy Future for the Northwest

2020

Montana Climate Solutions Plan

2021

Washington 2021 State Energy Strategy

2021

Oregon Clean Energy Pathways Analysis Executive Summary

July 2, 2021
Building Decarbonization
Operation 2030 Program-January 2022

- Independent analysis of data from the Washington 2021 State Energy Strategy deep decarbonization modeling
- Focus on systemic ramp-up required to take building decarbonization to scale by 2030
- White paper, analytics, workshops
- Dept. of Commerce used analysis as basis for RFP
Operation 2030 Materials

Operation 2030 Documents

White Paper

Key Findings

Building Sector Data

Operation 2030 Stakeholder Engagement

Outreach Summary & Strategy Implications
(September 2022)
Industrial Decarbonization
Washington State Industrial Emissions Analysis Documents:

- **Final Report**
  - Washington State Industrial Emissions Analysis
  - Prepared for the Washington State Department of Commerce
  - July 2021

- **Cement Case Study**
  - Washington State Industrial Emissions Analysis—Cement Case Study
  - Prepared for the Washington State Department of Commerce
  - July 2021

- **Characterization Tables**

Visit [this link](https://www.cleanenergytransition.org/projects/washington-state-industrial-emissions-analysis) for more information.
Clean Materials Manufacturing Analysis - May 2022

- Analysis of six key manufacturing sectors in Washington state
  - Emissions profiles
  - Decarbonization pathways
  - Workforce

- In advance of June 23 & June 28 Summit
Pulp and Paper (one example)

Industry Description
Paper and paper-based manufacturing involves processing wood, recycled paper products, and other sources of cellulose fibers into pulp and paper. This is due to the use of hydraulic mills, such as a pounding, and wet mills.

Greenhouse Gas Footprint
There are 15 pulp and paper facilities in Washington with over 10,000 metric tons in aquatic carbon dioxide equivalent (CO2e) emissions. Together, these pulp and paper facilities accounted for roughly 5.7 million metric tons of CO2 in 2018. To reduce these emissions, Washington's leading pulp and paper facilities are using technologies such as Fabric Filter, Surface water treatment facilities, and other industrial processes.

Industrial Process and Decarbonization
Pulp and paper products require turning the raw materials into pulp. There are three dominant processes: Kraft, Sulphite, and mechanical. The three processes are used in Washington. The Kraft chemical pulping process and accounts for over 95% of the industry's reported emissions.

Figure 1. Washington pulp and paper manufacturing direct-reported emissions, 2016–2020

- Dominant Emissions Sources
  - Kraft pulp and paper mill, accounting for 95% of the total emissions.
  - Sulphite pulp and paper mill, accounting for 4.3% of the total emissions.
  - Mechanical pulp and paper mill, accounting for 0.6% of the total emissions.

- Decarbonization Strategies
  - Energy Use Efficiency: Reducing energy consumption by installing new technology and improving processes.
  - Low-Carbon Pulp and Paper: Developing new pulp and paper technologies, such as biorefineries and bio-based pulp and paper.
  - Carbon Capture and Storage: Capturing carbon dioxide from the air or during industrial processes and storing it in geological formations.

- Carbon Footprint: Calculating the amount of greenhouse gas emissions produced by the pulp and paper industry.

https://www.cleanenergytransition.org/cmm
Rural and Tribal Decarbonization
Community-Defined Decarbonization-Sept. 2022

- Understand barriers to decarbonizing building for rural and Tribal, low-income, energy-burdened households

- Determine whether decarbonization strategies and clean energy development could address energy inequities in these communities
Video story-telling project that explores how Northwest rural communities experience the clean energy transition

- Harvesting the Sun, lead-off film, three small businesses benefited from the USDA REAP program
- Lummi Nation, energy sovereignty
- Okanogan Count, economic development
Explore the Northwest Clean Energy Atlas

Emissions → Energy → Utilities → Equity →

The Northwest Clean Energy Atlas provides regional stakeholders interactive tools to explore energy data relevant to deep decarbonization in Idaho, Montana, Oregon, and Washington.
Net-Zero Northwest
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 impacts of decreasing pollutants
Operations
Financials

➢ 2022 Budget
  - Income: $535,912
  - Expenses: $510,336
  - Net Income: $34,576

➢ Q3-2022 Financials
  - Income: $381,756
  - Expenses: $377,352
  - Cash on hand: $205,000

➢ Net-Zero Northwest Budget
  - Total Budget: $455,000
  - Consulting: $375,000; to raise $131,500
  - CETI/Communications: to raise $80,000
Clean Energy Transition Impact 2018-2022

- Download our Case Statement
- Download our Impact Report

Accelerating an Equitable Clean Energy Transition in the Northwest
2022 Case Statement

Now is the time to act swiftly to decarbonize the Northwest.
This clean energy transition is critical and we have the knowledge and resources to get on a rapid decarbonization path, but we cannot delay. From 2023 to 2025, we must pass the policies, develop the programs, and prepare the market for massive and rapid transformation to achieve reductions throughout the region by 2050.

Our Vision
- Accelerate the transition to a clean energy economy in the Northwest

Our Approach
- Synthesize independent, systematic, and economy-wide assessments to advance technical, economic, and equitable decarbonization strategies

Our Role
- Provide unbiased research and analytics on the path to a clean energy economy
- Offer an information clearinghouse for decision making and solutions
- Elevate diverse collaborations to address the opportunities, risks, and trade-offs of carbon emissions reduction approaches

Our Impact
- Developed the ability to guide creation of the programs, policies, and market transformation that will reduce new emissions buildups by 2030 with Operation 2030
- Analyze the industrial emissions to pulp and paper, refineries, wood products, food production, chemicals, ovens, transportation manufacturing, and glass, and evaluate their climate impacts
- Created a Northwest Clean Energy Atlas to enable citizens and policymakers to understand decarbonization in the context of the Northwest energy landscape

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Clean Energy Transition Institute Program 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
- 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
- Clean Materials Manufacturing Analytics — May 2022
- Washington State Clean Materials Manufacturing Summit — June 2022
- Rural & Tribal Community-Defined Decarbonization — September 2022
- Claiming Power: Stories of Rural Communities and Clean Energy — October 2022
Thank you very much
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Questions & Answers