EWEB Climate Guidebook

Release v3.0 | April 2025

The McKenzie River. Adam Spencer, EWEB

CONTENTS

ACKNOWLEDGEMENTS

EWEB believes in a triple-bottom-line approach to sustainability that includes the economy, social impacts and equity, and the environment. EWEB's sustainability journey has been long, and it is expected to continue for years to come, building on a culture of continuous improvement as we learn and find new ways to apply our learning. The Climate Guidebook is an output of EWEB's sustainability efforts, focused on the ways the work of the utility intersects with climate issues.

Staff from many departments across the utility have contributed to the creation of this document and will be involved in providing future updates. Sincere thanks go out to all EWEB staff for their engagement in this process. Thanks also to YOU, the reader, for making the Climate Guidebook and its goal of providing useful information to a diverse set of audiences, into a reality.

For questions about the Climate Guidebook, to request new content, or if you have suggestions for future changes, please contact:

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A Message from EWEB's General Manager, Frank Lawson

EWEB recognizes that climate change presents significant challenges and opportunities, and is changing our physical, political, and social landscapes. Already, we're seeing more frequent and extreme heat waves, prolonged droughts, reduced snowpack, and more frequent and severe fires. This matches projections for Lane County, according to the Oregon Climate Change Institute. Legislation, regulations, and customer expectations are also being modified in response to climate change. To adapt to this changing landscape, the energy sector must take steps to reduce emissions of planet-warming greenhouse gases (GHGs). At EWEB, we believe that taking these actions is imperative.

In January 2022, EWEB's Board of Commissioners revised Climate Change Policy SD15, defining our commitment to reducing emissions associated with both the energy we provide and our operations. In 2023, the Board provided further guidance by developing and adopting both a Resiliency Policy (SD22) and Diversity, Equity, and Inclusion Policy (SD23). To guide our progress and share it with the community, we created this Climate Guidebook and are pleased to share our third major update in v3.0 here. Annually, we update the Guidebook with new information about our initiatives and our progress.

In Oregon, electricity is the second largest source of greenhouse gas emissions, after transportation. And as electricity needs grow because of the electrification of transportation, the actions of electric utilities such as EWEB will only become more important.

Our commitment to addressing climate change is built on five pillars: climate policy, power supply and transmission, customer decarbonization, EWEB-owned asset resiliency, and internal operations. These five pillars each make up a chapter in the Climate Guidebook.

- **Climate policy:** EWEB will participate in local, state, and regional efforts to encourage, develop, and enact measures to minimize and mitigate greenhouse gas emissions.
- **Power supply and transmission:** EWEB has committed to sourcing a low-carbon electric power portfolio that targets over 95% of annual energy from carbon-free resources by 2030, on a planning basis. Our energy is already approximately 90% carbon free.
- **Customer decarbonization:** EWEB has pledged to assist customers with achieving their GHG emission reduction goals. We do this by helping customers with energy efficiency, alternative fuels, electric and water conservation, and many other programs.
- **EWEB-owned asset resiliency:** EWEB is committed to providing essential Electric and Water Services to the community. To limit the likelihood, magnitude, and duration of disruptive events including those that develop over time—EWEB is dedicated to implementing a comprehensive resiliency program.
- **Internal operations:** EWEB has promised to mitigate GHG emissions from EWEB's operations by achieving carbon neutrality by 2050. We will meet other intermediate benchmarks along the way.

The guidebook will serve as an ongoing comprehensive reference document for EWEB staff as well as community stakeholders who care about EWEB's climate programs and progress. By compiling all relevant information about EWEB's climate work and impacts in one location that is easy to access, we can raise community awareness about EWEB's progress and role as an environmental steward.

Thank you for browsing this Guidebook. We look forward to partnering with our community to fulfill our mission and live our values.

Frank Lawson, CEO/General Manager

EXECUTIVE SUMMARY

INTRODUCTION TO THE CLIMATE GUIDEBOOK

EWEB's Climate Guidebook is a reference resource that articulates how EWEB is implementing its Board-approved Climate Change Policy (Strategic Direction Policy #15 – SD15) and how EWEB's work intersects with climate issues. It is structured based on the five areas outlined in SD15, with a chapter for each:

1. Climate Policy
2. Power Supply & Transmission
3. Customer Decarbonization
4. Climate Impacts on EWEB – Resiliency & Adaptation
5. EWEB's Internal Operations.

The Guidebook seeks to serve the needs of a variety of internal audiences (EWEB staff) and external audiences (customers and community members). It is a "living document" that will be updated periodically. Annually, readers can expect significant updates in April, in celebration of Earth Day.

EWEB staff have developed a public outreach plan to solicit and document public feedback and refine future content within the Guidebook to meet community needs.

The different sections contain the specific language from each of the five areas outlined in SD15, as well as their importance to the Guidebook and how they are addressed in this version as well as what is planned for future versions.

Restoration work on the McKenzie River. Courtesy of Brent Ross, McKenzie River Trust

CLIMATE POLICY

Strategic Importance & Connections with Other Guidebook Sections

Policy actions at the federal, regional, state, and local levels influence EWEB's work on climate change and progress in meeting climate goals. These policies connect to all the other areas of SD15 including power supply and transmission, customer decarbonization, climate impacts on EWEB, and even EWEB's internal operations.

EWEB Climate Change Policy SD15 – Climate Policy Section

The Board authorizes, delegates, and directs the General Manager to participate in local, state, and regional efforts to encourage, develop and enact measures to minimize and/or mitigate GHG emissions that contribute to climate change. Consistent with Board Policy (GP13), prior to legislative sessions the Board develops and guides EWEB's positions relative to legislation, including those related to climate and environmental policy supporting this directive.

The November 2024 presidential election has brought a significant change in climate policy to the federal government. In a series of Executive Orders, the new administration has begun the process to withdraw the United States from the Paris Agreement, has called for an assessment of the effectiveness of the Federal Emergency Management Agency (FEMA), seeks to increase production of oil and gas in the US, and has paused the disbursement of funds under the Bipartisan Infrastructure Law (BIL) (sometimes known as the Infrastructure and Investment in Jobs Act, or the IIJA) and the Inflation Reduction Act (IRA).

EWEB is closely tracking the efforts to freeze federal funding, which could have a significant impact on EWEB projects, yet the full extent of the funding freezes or changes in federal priorities is unknown at this time. All told, almost $20 million in previously awarded federal funding to EWEB is at risk. These projects relate to infrastructure improvements at EWEB's Carmen-Smith Hydroelectric Project on the McKenzie River and Federal Emergency Management Agency (FEMA) reimbursements for reconstruction after the January 2024 ice storm. EWEB had planned to apply for another $105 million in federal grants in 2025 that is also now uncertain. As of February 2025, EWEB has seven applications in progress across FEMA's Building Resilient Infrastructure & Communities Grant and Hazard Mitigation Grant Program that resulted from the January 2024 ice storm, as well as the National Oceanic and Atmospheric Administration's Restoring Fish Passage Through Barrier Removal Grant. Finally, there is at least another $25 million that major regional EWEB partners, such as Lane County and the City of Eugene, were previously awarded for resiliency projects that matter to EWEB that is also at risk.

At the state level, recent policies passed in Oregon, Washington and California impact the types, costs, and quantities of available power supplies within regional power markets, as well as how we must account for power purchases to track progress towards policy goals. Regulatory and voluntary initiatives aimed at improving regional power adequacy and resiliency are also changing how western power markets operate.

<u>Content currently included in v3.0:</u>

- Policy summaries and links for climate initiatives at the federal, regional, state, and local levels
    - Global/Federal: The Paris Accord, BIL/IIJA, IRA, SEC Enforcement Task Force on Climate & ESG
    - Regional: Western Energy Imbalance Market (EIM); Extended Day Ahead Market (EDAM); Western Regional Adequacy Program (WRAP); Western Climate Initiative (WCI); Regional Greenhouse Gas Initiative (RGGI); Regional Climate Forecasts and Analyses
    - California: AB-32 Cap-and-trade; Low Carbon Fuels Standard; SB-100 100 Percent Clean Energy Act; Tailpipe Emissions Standards; California Independent System Operator (CAISO)
    - Washington: I-937 Energy Independence Act, Clean Energy Transformation Act (CETA), Climate Commitment Act (CCA), Clean Fuels Standard

    - Oregon: Executive Order 20-04; Clean Electricity Standard; Clean Fuels Program; Clean Electricity and Coal Transition Plan; Renewable Portfolio Standard; Emissions Performance Standard
    - Eugene: Climate Recovery Ordinance; CAP 2.0
- Principles to guide EWEB investment of staff time and financial resources:
    - Carbon Policy & GHG Reduction Principles
    - Distributed Generation Principles
    - Green Hydrogen Principles
    - EWEB Rate Design Principles

<u>Content planned for future Guidebook Versions</u>:

- Additional principles to guide EWEB investment of staff time and financial resources

Power Supply & Transmission

Strategic Importance & Connections with Other Guidebook Sections

EWEB is unique as a Oregon public utility that both owns generation resources and relies on the Bonneville Power Administration (BPA) for a share of the federal power system. EWEB is also an active participant in the regional energy market.

EWEB's long-term power supply decisions are made within the context of state and regional climate policy and changing regulations, rising energy demands via customer decarbonization / electrification efforts, and the physical realities of a changing climate on temperatures and hydro conditions. Additionally, EWEB must live our values and maintain a focus on affordability.

EWEB Climate Change Policy SD15 – Power Supply & Transmission Section

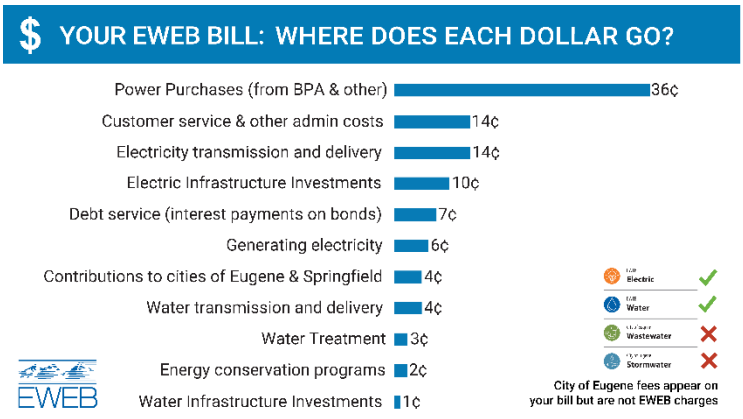
The Board is committed to supporting a low-carbon electric power portfolio that maintains, ***on a planning basis, over 90% of annual energy from carbon-free resources and targets over 95% of annual energy from carbon-free resources by 2030 to the extent possible and practical without distinct adverse impacts to customer-owners****.*

Using the Integrated Resource Plan (IRP) process including final adoption by resolution (GP7), the Board will work with the General Manager to establish the long-term (20-year) principles, priorities, approaches, definitions (including carbon-free, carbon intensity), measurements, and goals for the electric generation portfolio, demand response, conservation and energy efficiency, and customer impact limitations (including but not limited to reliability, cost, and equity) supporting this directive.

The climate benefits of electrification depend on both the cost and the carbon content of electric power. **Keeping rates low is climate action**. If the shift to low-carbon power supplies causes a material increase in electric rates, customers will feel less incentive to electrify, and the overall cost burden on average customers will increase. Since power purchases represent the largest share of each customer dollar EWEB receives, this is especially important when thinking about how we source our power.

EWEB's Energy Resource Study (ERS) contains a requirement to meet the SD15 goal of getting to 95% carbon-free resources on a planning basis. Actual annual emissions will be influenced by real customer demand (driven by local weather patterns and customer behavior) and EWEB's changing need to rely on market purchases to balance customer demand and resources continuously.

Figure 1: Your EWEB Bill - Where Does Your Dollar Go? (2024)



Content currently included in v3.0:

- Load Forecast
- Integrated Resource Plan (IRP)
  - 2025 Energy Resource Study & BPA contract decision info to date
  - 2023 Integrated Resource Plan
- EWEB's 2020 and 2021 Electrification Studies showing expected load growth through 2040

Content planned for future Guidebook Versions:

- 2025 Demand Side Potential Assessment
- 2025 Energy Resource Study & BPA 2028 Provider of Choice Contract Product Decision

CUSTOMER DECARBONIZATION

Strategic Importance & Connections with Other Guidebook Sections

Since 2011, EWEB has worked to offset load growth (community electricity demand) with investments in conservation and energy efficiency.

EWEB's integrated resource planning and load forecasting processes (Chapter 3) outline the resource needs to meet demand. Changes to EWEB's future resource portfolio, coupled with increased energy consumption across the region, require a deeper look at how EWEB will move forward with initiatives to manage load growth, incentivize time-based energy use, and achieve community decarbonization goals. As EWEB builds its future resource portfolio, reliability goals will only increase the need for strategically designed conservation efforts that continue to balance the other values of the organization: safety, affordability, environmental stewardship, and community/equity.

EWEB Climate Change Policy SD15 – Customer Decarbonization Section

The Board further authorizes, delegates, and directs the General Manager to assist customers with achieving their GHG emission reduction goals through partnerships, technical assistance, resources, and programs that support, but are not limited to, energy efficiency, alternative fuels, electric and water conservation, electrification, and carbon offsets and sequestration.

Long-term conservation, energy efficiency, and demand-response goals are established as part of the IRP process. Additional program objectives, incentives and budgets will be established annually, as applicable, and/or through revisions to the strategic plan.

EWEB's 2025 Energy Resource Study and 2025 Demand Side Potential Assessment (Chapter 3) seek to quantify conservation potential and define the relevant price thresholds for "cost-effective" energy efficiency and demand response programs from various points of view (cost-effective for the customer, for the utility, for the community) to deliver the greatest benefits to all stakeholders within our community.

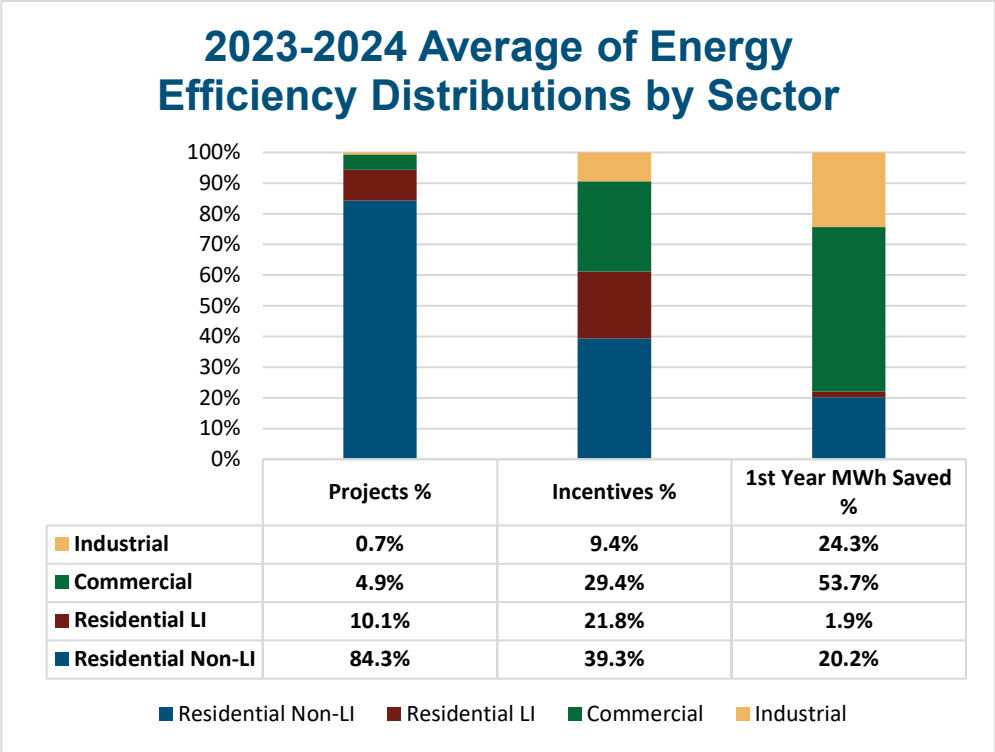
In 2024, due to grant availability and direction from EWEB's Board of Commissioners, EWEB intentionally increased its focus on residential and limited income energy efficiency projects. Total residential projects (residential non-limited income + residential limited income) increased by 40% between 2023 and 2024 with limited income projects increasing by 55% year-over-year. While EWEB is proud to have delivered robust efficiency project volume to the limited income residential sector, this effort was motivated by a commitment to address affordability and comfort for vulnerable customers. These projects do not yield significant energy savings, and by extension, meaningful carbon reduction. Furthermore, they are less cost-effective *for the utility*. This is because for limited income projects, EWEB covers all or nearly all the project cost, whereas for the residential non-limited income, commercial, and industrial projects, EWEB incentives leverage private investment to make the projects happen. This focus on residential projects in 2024 resulted in lower than usual total MWh of conservation achieved. While EWEB achieved 151% of its total peak (kW) 2024 efficiency target, it only achieved 66% of its 2024 energy efficiency (MWh) target.

Over the two-year period covering 2023-2024, residential limited income represented 10% of the total projects, received nearly 22% of available financial incentives, but yielded less than 2% of the energy savings. Conversely, over the same two-year period, commercial and industrial represented less than 7% of the total energy efficiency projects, received about 40% of the total available incentives, yet accounted for nearly 78% of the total energy savings (54% for commercial and 24% for industrial).

While this investment in the limited income customer segment is important from a social equity point of view, it is not driving community GHG emissions reductions. EWEB is committed in 2025 to review its limited income support programs to find ways to continue and expand support for making clean energy and water affordable for our most vulnerable customers. Yet project scale is another important component to drive significant energy

and emissions savings. Commercial and industrial projects tend to be much larger, so a fewer number of projects can generate significant energy and emissions savings compared to residential projects. From a conservation program perspective related to decarbonization goals, in the future EWEB will be more reliant on higher energy efficiency targets to support reliability and more cost-effective projects that can achieve greater environmental impact.

Figure 2: 2023-2024 Average Energy Efficiency Distributions by Customer Sector



	Projects %	Incentives %	1st Year MWh Saved %
Industrial	0.7%	9.4%	24.3%
Commercial	4.9%	29.4%	53.7%
Residential LI	10.1%	21.8%	1.9%
Residential Non-LI	84.3%	39.3%	20.2%

According to the Oregon Department of Energy and its Oregon Electric Vehicle Dashboard, as of October 2024, there were 5,375 electric vehicles in EWEB's service territory, nearly a 35% increase from August 2023, resulting in over 14,800 MT reduction in annual greenhouse gas emissions.

In 2024, EWEB invested in $835,000 of Oregon Clean Fuel Program funding into transportation electrification programs including rebates for EV charging infrastructure; incentives for e-bikes; electric mobility community grants for non-profit, academic, and public organizations; and electric vehicle car share programs at low-income housing developments. However, also in 2024 Oregon Clean Fuel Program credits significantly decreased in value. Credit prices had been more stable and consistently over $100 per credit since 2018 but dropped to under $30 in Sept 2024. Average credit prices in the early months of 2025 are in the low to mid-$40s. This will impact the amount of funding EWEB has available to invest in transportation electrification initiatives in coming years.

Content currently included in v3.0:

- Information on existing Green Options customer programs and efficiency / decarbonization incentives:
  - Live Green: Energy Conservation Programs for Residential Customers
  - Work Green: Energy Conservation for Commercial / Industrial Customers (General Service)
  - Move Green: Programs to Support Electric Mobility
  - Lead Green: Advanced Solutions for Climate Innovators
- Appendix D – EWEB's Diversity, Equity, and Inclusion Policy SD23
- Appendix E – EWEB's Carbon Intensity Guidance
- Appendix F – EWEB's Role in City of Eugene's CAP2.0

Content planned for future Guidebook Versions:

- Definitions and metrics regarding how EWEB programs reach and support diverse segments of our customer base, informed by the Demand Side Potential Assessment (DSPA).
- Enhanced options of Rate design.

Climate Impacts on EWEB – Resiliency & Adaptation

Strategic Importance & Connections with Other Guidebook Sections

EWEB defines resiliency as ***"the ability to reduce the likelihood, magnitude, and duration of sudden or gradual disruptive events through risk mitigation, emergency preparedness and response, and recovery strategies."***.

EWEB Climate Change Policy SD15: Climate Impacts on EWEB – Resiliency & Adaptation Section

Consistent with resiliency initiatives included in EWEB's approved strategic plan, the Board directs the General Manager to evaluate and enact measures, as necessary and appropriate, to prepare for and minimize the effects of climate change that could impact EWEB's water and electric supply and infrastructure, damaging EWEB's resiliency and reliability.

More than 100 years ago, EWEB was created to enable local control of vital community resources in the face of a public health emergency when a typhoid epidemic struck Eugene in the early 1900s, and the community needed a clean water supply.

Today, the Oregon Climate Change Research Institute (OCCRI) has identified a series of specific threats expected for Lane County based on best practices in climate modeling. **Climate-related threats include heat waves, heavy rains, flooding, wildfire, changes in ocean temperatures and chemistry, coastal hazards, drought, expansion of non-native invasive species, reduced air quality, and loss of wetlands**. Building on this work, EWEB is planning for identified threats in coordination with local partners through the Lane County Natural Hazard Mitigation Plan (NHMP), as well as through EWEB's Wildfire Mitigation Plan (WMP). **The NHMP process ranks the threats with highest potential impacts to our assets and customers as including winter storms, wildfire, and earthquakes**. These threats are the primary focus areas for EWEB's mitigation investments to our infrastructure and systems. Moderate threats noted include extreme heat, windstorms, flooding, landslides and drought. These documents also provide us with knowledge that could support EWEB customers in their climate adaptation efforts as well.

The NHMP & WMP are driven by regulation and influenced by EWEB's strategic commitment to infrastructure renewal and hardening against a range of potential disruptions. EWEB also has a robust watershed protection program to reduce the threats to the McKenzie River, which is Eugene's sole source of drinking water, while simultaneously planning for a second drinking water source on the Willamette River.

<u>Content currently included in v3.0:</u>

- Expected physical changes for Lane County, via Oregon Climate Change Research Institute
- Lane County Natural Hazard Mitigation Plan (NHMP)
- EWEB's Wildfire Mitigation Plan
- EWEB's Watershed Protection Program
- Second Source of Drinking Water Development on the Willamette River
- Appendix C – EWEB's Resiliency Policy (SD22)

<u>Content planned for future Guidebook Versions</u>:

- Link to EWEB's Annex to Lane County's NHMP once approved by FEMA
- SD22 Resiliency Policy implementation activities
- High-level results from EWEB's 2025 Business Impact Analysis
- Research results from EWEB's Forest Carbon Lab investments in partnership with University of Oregon

EWEB's Internal Operations

Strategic Importance & Connections with Other Guidebook Sections

EWEB has been tracking our internal GHG emissions annually since 2009, in accordance with industry standards and the World Resources Institute Greenhouse Gas Protocol and The Climate Registry's General reporting Protcol. EWEB's Climate Change Policy (SD15) set specific GHG reduction goals for EWEB's internal operations – see box.

EWEB Climate Change Policy SD15: Internal Operations Section

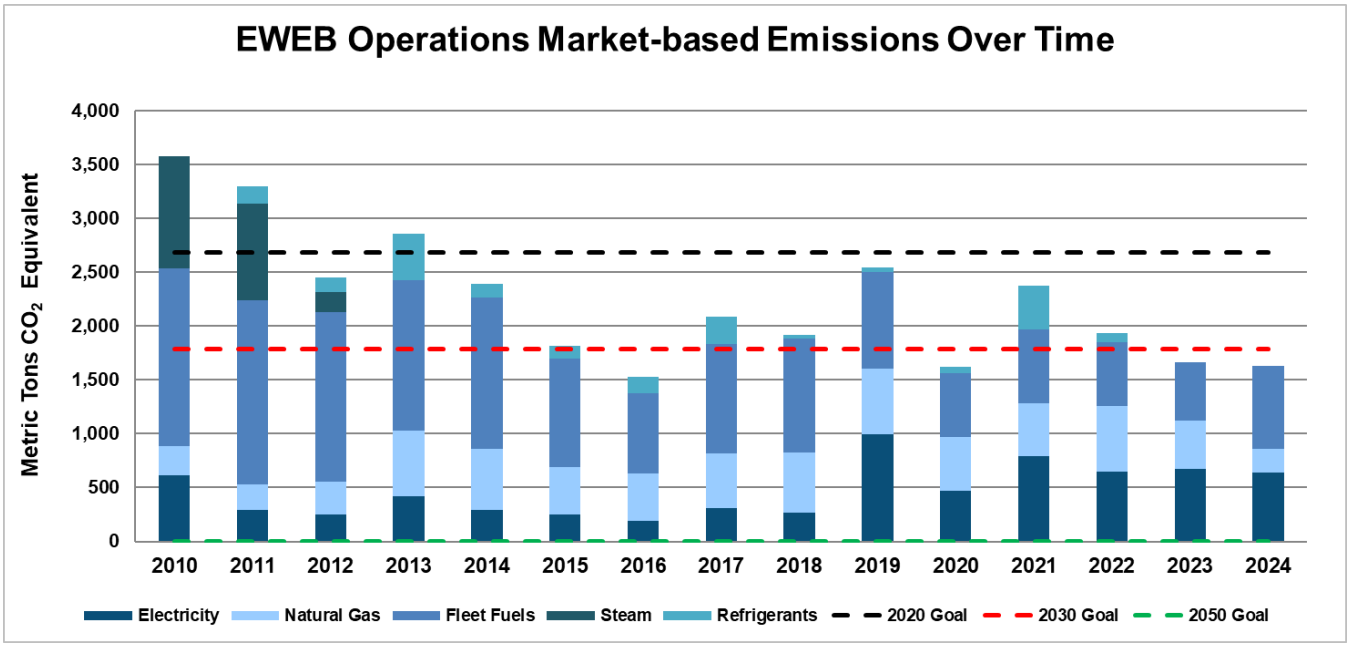
The Board further authorizes, delegates, and directs the General Manager to continue efforts to minimize and/or mitigate GHG emissions from EWEB's operations that contribute to climate change. As initially established in 2010, EWEB adopted a goal to reduce the Scope 1 and 2 (direct GHG emissions and energy) greenhouse gas emissions associated with its operations and facility management activities.

Accordingly, and as formally established by this directive, EWEB plans to reduce our net Scope 1 and 2 GHG emissions from operations relative to 2010 levels by:

- ***25% by 2020,***
- ***50% by 2030,***
- ***Achieve carbon neutrality from our operations by 2050.***

While there has been variation in annual emissions due to several factors, EWEB has met its 2020 goal of 25% reduction in 2010 baseline emissions consistently since 2014. In 2020, emissions dipped below the 2030 goal of 50% reduction compared to our 2010 baseline, but some of those reductions were temporary as a result of the COVID-19 pandemic and work-from home orders. In 2024, EWEB is pleased to report our emissions once again fell below the 2030 50% emissions reduction goal. In 2024, EWEB is reporting a drop of 55% compared to 2010 baseline emissions. This drop is primarily due to a lower electricity emissions factor, as calculated by Oregon DEQ for EWEB in 2023, lower fleet emissions, lower natural gas emissions due to the sale of the headquarters building in June 2023, and no recorded refrigerant or industrial gas recharge in 2024.

Figure 3: EWEB Greenhouse Gas Emissions from Internal Operations and progress towards climate goals (MT CO2e), 2010-2024



Progress towards EWEB's internal GHG goals is calculated using a market-based approach to electricity emissions and using the EWEB-specific emissions factor as calculated by Oregon DEQ's GHG reporting program.

EWEB's voluntary Board-approved goals align with goals set by both the State of Oregon and the City of Eugene, and EWEB seeks to be an active partner in these efforts to both decarbonize our operations and support our community in further decarbonization efforts. By developing a plan for carbon neutrality by 2050 and piloting various technologies in our operations, EWEB can gain the kind of firsthand knowledge that will be helpful as we support our customers in their decarbonization efforts. Additionally, since EWEB's internal electricity consumption makes the utility one of the largest electricity consumers in our community, we also have an opportunity to apply new rates, programs, policies to our own bills first – giving us valuable insights from a customer perspective.

Finally, EWEB seeks to stay aware of all relevant grant, tax, and incentive programs available from state and federal programs to maximize GHG reduction opportunities and simultaneously improve resilience and climate adaptation and we regularly work with our local partners to advance community approaches to emissions reduction efforts.

Content currently included in v3.0:

- Greenhouse gas emissions inventory for operational emissions only for calendar year 2024.

Content planned for future Guidebook Versions:

- Comprehensive Greenhouse Gas Inventory following The Climate Registry's Electric Power Sector Protocol (EPSP) and showing power delivery carbon intensity, water delivery carbon intensity, and operational emissions from shared services between the two utilities for 2024 and back to 2010.
- Updated language and goals outlined in SD15 that incorporates other sustainability objectives from SD2 EWEB's Environmental Policy.

1 INTRODUCTION

1.1 CLIMATE GUIDEBOOK PURPOSE, STRUCTURE AND RELEASE SCHEDULE

Welcome to EWEB's Climate Guidebook! The Climate Guidebook is a reference document to articulate how EWEB is addressing climate change throughout the utility and how EWEB's work intersects with climate issues generally. It is structured based on the five areas outlined in EWEB's Climate Change Policy (SD15) with a chapter for each. See Appendix B, EWEB's Climate Change Policy SD15 for the full text of SD15. The Guidebook provides a climate lens for the organization's goals, helping to make connections between EWEB's projects and initiatives and how they relate to climate change and SD15.

EWEB Climate Guidebook Purpose

The Climate Guidebook is a reference document to articulate how EWEB is addressing climate change in accordance with EWEB's Board-approved Climate Change Policy (SD15). It also demonstrates how the work of the utility intersects with climate issues, broadly.

The Climate Guidebook is a living document and will be updated at regular intervals, to serve as a resource for internal and external stakeholders. Different sections will meet the needs of different audiences by providing guidance on EWEB's strategy, information on existing programs, education on current events, and tools to be used in ongoing work.

1.1.1 Background leading to the Development of the Climate Guidebook

EWEB's Board of Commissioners developed its Climate Change Policy (SD15) in 2007 with major updates in 2018 and 2022. The next major update is planned for 2025 as EWEB seeks to combine SD15 with SD2, EWEB's Environmental Policy and update the goals in SD15 to coordinate with EWEB's new GHG accounting methods following The Climate Registry's Electric Power Sector Protocol.

SD15 directs the General Manager to act on climate change in the following five areas: Power Generation, Climate Policy, EWEB Operations, Customer Decarbonization, and Impacts on EWEB. In this document, the chapter related to what SD15 calls Power Generation has been broadened in its focus and renamed to Power Supply & Transmission. This change still reflects the intent from SD15 but expands beyond what power EWEB owns to reflect all decisions about EWEB's power supply and how it gets to EWEB customers via the transmission and distribution system.

In May 2022, EWEB hired our first Climate Policy Analyst & Advisor to provide strategic and technical insights and identify impacts to EWEB's business lines and strategic and operational plans. The development of the Climate Guidebook has come out of this work. Staff throughout the organization have contributed to this resource.

1.1.2 Timing for Future Updates

The first release, Version 1.0, was discussed at the March 2023 regular Board meeting and was limited in scope, with additional content planned for future versions. Version 1.1 was released in September 2023. Version 2.0 was released in April 2024. This is version 3.0. Any additional minor updates within 2025 will be indicated as version 3.1, 3.2, etc. Annually, readers can expect significant updates in April, in advance of Earth Day. These more significant updates will be indicated as version 4.0, 5.0, and so on.

1.2 Who Should Use this Document

EWEB's Climate Guidebook is designed for a wide array of internal and external audiences. This document is not designed for cover-to-cover reading. Rather, it is set up to be more of an encyclopedia style, where readers can look up key information within various sections. Some content is more general in nature. Other content is highly technical and designed for analysts or practitioners accustomed to using similar information or data.

If you have questions or suggestions about the content and/or the way it is presented, please see the Acknowledgements section for how to reach EWEB staff and provide your feedback about the Climate Guidebook.

1.3 Public Outreach Plan

Our public outreach efforts for the Climate Guidebook were planned for two phases.

1.3.1 Phase 1: January 2023 – March 2024 - Complete

Goals:

- Solicit feedback regarding Guidebook content and structure from key stakeholders who will use the Guidebook regularly to ensure usefulness of final deliverables.
- Teach key stakeholders, subject matter experts, and technical users how to navigate the Guidebook and use the content to support their work.

Image by Rudy and Peter Skitterians from Pixabay

Audiences:

- EWEB Board of Commissioners
- EWEB employees, especially those directly involved in accounting for EWEB's own carbon emissions and those who assist EWEB customers in calculating their own emissions.
- Key stakeholders, including representatives of local agencies such as Lane County and the City of Eugene, who are responsible for reducing community-wide carbon emissions.
- Local environmental groups who have an interest in helping our community reduce carbon emissions.

Methods and Results:

1. **Website**: Build a public website on eweb.org containing the Guidebook and supporting materials.

   Phase 1 of this work has been completed. All materials for the Climate Guidebook can be found on EWEB's website here.

2. **External Outreach**: Conduct one-on-one and small group meetings with identified audiences to share initial content and future planned content, educate key stakeholders on how existing content can support their work, and solicit direct feedback.

Phase 1 of this work has been completed. In fall 2022 and spring 2023, as EWEB was developing content for v1.0, EWEB met individually with sixteen different external organizations including environmental non-profits, industry associations, and fellow Large Lever Shareholders who also made commitments to GHG reductions as part of the City of Eugene's CAP2.0 process. These groups included: 350 Eugene, Beyond Toxics, Cascadia Wildlands, City of Eugene, Eugene Chamber of Commerce, Lane Community College, Lane County, McKenzie River Trust, NAACP Eugene-Springfield, Northwest Natural, Oregon Environmental Council, Oregon Physicians for Social Responsibility, Oregon Solutions, Public Generating Pool, Sierra Club, and University of Oregon. During these meetings, EWEB explained the purpose of the Guidebook, how to access it, and sought direct feedback on current and future content. This led to additional content development in v1.1 that was released in September 2023.

3. **Internal Outreach**: Present updates on the Guidebook to EWEB's Board of Commissioners and staff groups.

   Phase 1 of this work has been completed. After the release of v1.1 in September 2023, nine internal presentations of the content were conducted throughout fall 2023 to ensure all staff groups and divisions are aware of the Climate Guidebook and how information can support their role in customer service or support their day-to-day work directly. These presentations were tailored to each work group to highlight sections of content that most relate to that team's focus. Groups met with included: EWEB's Executive Team, the Customer Division, the Contact Center and Customer Service, the Energy Division, the Customer Solutions team, the Business Continuity Team, the Communications and Marketing team, the Finance Team, and the Operations Manager Team.

4. **Publish Employee News:** Utilize EWEB's internal SharePoint and email updates to provide on-going updates internally about the Climate Guidebook.

   Phase 1 of this work has been completed. Two Employee News stories were published on EWEB's internal SharePoint site in 2023. The first was on Feb 16, 2023 introducing the concept of the Guidebook, and the second was on Oct 26, 2023 announcing the release of v1.2.

1.3.2 Phase 2: April 2024 – December 2024 – Ongoing

Goals:

- Increase customer trust and confidence by demonstrating shared values and priorities relating to the environment, public health, reliability, and affordability.
- Raise public awareness of EWEB's efforts to reduce greenhouse gases contributing to climate change and protect natural resources.
- Establish EWEB as a community and industry leader on carbon/climate action.

Audiences:

- All customers
- Phase 1 audiences

Methods and Results:

EWEB is implementing ongoing communications about climate action utilizing all EWEB's available communications channels, emphasizing EWEB's climate commitments and describing progress towards reducing carbon emissions including successes and challenges. Specific tactics include:

- Media release(s) and interviews about the Guidebook publication, as well as progress on specific goals.
- A social media content highlighting specific actions EWEB has taken to reduce carbon emissions.
- Content in EWEB's email newsletter about progress on climate goals.
- Content in the bill insert (mailed to all residential and business customers) related to EWEB's climate actions.
- Community events and presentations when possible and when invited.

EWEB regularly conducts customer surveys to measure satisfaction with services, gauge awareness of key issues, and assess interest in future offerings. The last residential survey was conducted in 2022 and EWEB conducted another customer survey in 2024. Awareness of EWEB's efforts to reduce GHG emissions contributing to climate change increased from 43% in 2022 to 58% in 2024, an increase of 15 percentage points. We hope the climate guidebook was part of this increased awareness.

Figure 4: 2024 Customer Survey Results, compared to 2022 Results

	2022	2024
Water service reliability	77%	88%
Drinking water quality	70%	84%
Electric service reliability and outage restoration	68%	79%
Utility Service Average Rating	**72%**	**84%**
Communication and outreach with customers	55%	68%
Prompt response to customer questions and needs	61%	67%
Communication Average Rating	**58%**	**67%**
Efforts to protect the local watershed (drinking water source)	49%	75%
Efforts to increase resiliency and emergency preparedness	44%	69%
Investments in infrastructure resiliency	-	62%
Efforts to reduce greenhouse gas emissions contributing to climate change	43%	58%
Conservation, Resiliency, and Infrastructure Average Rating	**46%**	**67%**
Programs that help customers reduce energy use	44%	55%
Programs that help customers reduce water use	39%	53%
Efforts to control prices and costs	38%	40%
Programs and Cost Assistance Average Rating	**41%**	**50%**
Overall Average Rating	**53%**	**65%**

2 CLIMATE POLICY

2.1 CLIMATE POLICY INTRODUCTION AND POLICY LANGUAGE FROM SD15

Climate policy passed at the federal, regional, state, and local levels provides the setting for our work on climate change. Much is evolving. EWEB actively engages to meet and go beyond our compliance obligations, educate policymakers about the intricacies of the electric power and water sectors, and partner with key stakeholders to build the future that we want to see based on the values of our customers.

EWEB Climate Change Policy SD15 – Climate Policy Section

The Board authorizes, delegates, and directs the General Manager to participate in local, state, and regional efforts to encourage, develop and enact measures to minimize and/or mitigate GHG emissions that contribute to climate change. Consistent with Board Policy (GP13), prior to legislative sessions the Board develops and guides EWEB's positions relative to legislation, including those related to climate and environmental policy supporting this directive.

SD15 highlights the importance of participating in policy discussions to minimize and mitigate GHG emissions and adapt to a changing environment. This chapter outlines a summary of activities happening at various levels of government and describes the expected impacts to EWEB specifically, while providing readers with resources for additional information as desired. Additionally, EWEB articulates the guiding principles that staff follow in their work. Principles can relate to any topic where EWEB invests effort, staff time, or resources. principles related to climate change are published at the end of this chapter for transparency and ease of reference.

Content currently included in v3.0:

- Policy summaries and links for climate initiatives at the federal, regional, state, and local levels
  - Global/Federal: The Paris Accord, BIL/IIJA, IRA, SEC Enforcement Task Force on Climate & ESG
  - Regional: Western Energy Imbalance Market (EIM); Extended Day Ahead Market (EDAM); Western Regional Adequacy Program (WRAP); Western Climate Initiative (WCI); Regional Greenhouse Gas Initiative (RGGI); Regional Climate Forecasts and Analyses
  - California: AB-32 Cap-and-trade; Low Carbon Fuels Standard; SB-100 100 Percent Clean Energy Act; Tailpipe Emissions Standards; California Independent System Operator (CAISO)
  - Washington: I-937 Energy Independence Act, Clean Energy Transformation Act (CETA), Climate Commitment Act (CCA), Clean Fuels Standard
  - Oregon: Executive Order 20-04; Clean Electricity Standard; Clean Fuels Program; Clean Electricity and Coal Transition Plan; Renewable Portfolio Standard; Emissions Performance Standard
  - Eugene: Climate Recovery Ordinance; CAP 2.0
- Principles to guide EWEB investment of staff time and financial resources:
  - Carbon Policy & GHG Reduction Principles
  - Distributed Generation Principles
  - Green Hydrogen Principles
  - EWEB Rate Design Principles

Content planned for future Guidebook Versions:

- Additional details about federal funding opportunities under the BIL/IIJA and IRA
- Additional principles to guide EWEB investment of staff time and financial resources

2.2 Global / Federal Initiatives

2.2.1 Global Efforts & the Paris Accord

The past three decades have produced a series of international multilateral treaties, agreements, and frameworks on climate change policy as part of a worldwide effort to reduce GHG emissions and the impacts of global climate change. These international efforts have been based on the research produced by the Intergovernmental Panel on Climate Change (IPCC), the United Nations body for assessing the science related to climate change that represents 195 member organizations.

The first notable and binding of these international agreements was the Kyoto Protocol, signed in 1997 and building upon the 1992 United Nations Framework Convention on Climate Change (UNFCCC). The Protocol sought to reduce GHG emissions in the atmosphere to "a level that would prevent dangerous anthropogenic interference with the climate system". There were two compliance periods. The first ran from 2008-2012 and the second from 2012-2020. As of 2020, the United States was the only signatory that did not ratify the Protocol. Currently there are 192 parties to the Kyoto Protocol.

Most recently, the Paris Agreement, an international treaty intended to keep the rise in mean global temperature to well below 2 °C (3.6 °F) above pre-industrial levels and preferably limit the increase to 1.5 °C (2.7 °F), was signed in 2016. It is estimated that to stay below 1.5 °C of global warming, global emissions need to be cut by roughly 50% by 2030. As of 2023, 195 members of the UNFCCC are parties to the agreement. The United States signed the Paris Agreement in 2016, subsequently withdrew in 2020, rejoined in 2021, and in early 2025 the process has begun to withdraw the United States again.

While international agreements are notable progress in an international response to global climate change, they are also generally viewed by experts as not binding with sufficient rigor and not always practicable (i.e., some countries lack sufficient financing capability to reach targets) to the extent required to ensure targets are reached. Further global coordination and commitment to GHG reduction efforts is essential.

Why does this matter to EWEB?

Since current international agreements are nonbinding, direct impacts on EWEB will be minimal. However, if world leaders continue to delay on robust climate action, the resulting physical changes to the climate will impact every community around the globe, including EWEB's. Federal investments in funding for programs to reduce emissions (Inflation Reduction Act and Infrastructure Investment in Jobs Act) have made new sources of grant funding available to groups like EWEB.

Links and Relevant Resources:

- Intergovernmental Panel on Climate Change (IPCC) and Assessment Reports (include AR6 from 2023)
- United Nations work on Climate Change
- Kyoto Protocol Text
- United Nations Framework Convention on Climate Change, Information about the Paris Agreement

2.2.2 U.S. Federal Policy

At a national level, in 2021 the United States had made a major change in its approach to national climate policy after two decades of repeated failures of national market-based emissions trading programs in Congress and regulatory efforts. Instead, a clean energy investment approach to national GHG reduction policy had been politically successful under the Biden Administration as evidenced by key climate provisions advanced in the passage of the Infrastructure Investment and Jobs Act (IIJA) in Nov. 2021 and the Inflation Reduction Act (IRA) in Aug. 2022.

However, the viability of the federal funding provisions of IIJA and IRA are in question in the aftermath of the 2024 election and there are efforts in the executive branch and Congress to halt IIJA and IRA spending permanently. The future of IIJA and IRA is extremely uncertain currently. Any upcoming national proposals to cap emissions are extremely unlikely.

The U.S. Capitol building. Image by Trev Adams from Pexels.

Why does this matter to EWEB?

The IIJA and IRA were starting to have profound impacts on the clean energy economy. Tax credits for clean energy producers may continue to lead to greater investment in renewable energy and lower prices. Energy consumers – such as EWEB customers – have been able to take advantage of rebates and incentives to install high-efficiency electric heat pumps and to buy electric vehicles, among other electric products. Due to this legislation, it was expected that renewable energy would be more abundant and cheaper for EWEB to procure, while demand for electricity will be higher as EWEB's customers continue to electrify. The impact of these programs are now uncertain with the change in federal direction.

Links and Relevant Resources:

- United States Department of Energy, Inflation Reduction Act of 2022
- Congress.gov – Infrastructure Investment in Jobs Act
- IIJA Implementation Resources from Government Finance Officers Association
- US Securities and Exchange Commission Climate and ESG Risks and Opportunities
- CDP Global Disclosure System

2.3 Regional Initiatives

2.3.1 The U.S. Electricity Grids

People often refer to "the electricity grid" in the United States as if it were a single network of generating resources and infrastructure to deliver electricity from where it is produced to where it is consumed. In reality, within North America there are four grids, or major electric system networks, as shown in the map. The Western Interconnection (of which EWEB is part) and the Eastern Interconnection are the two major networks. Texas and Quebec are served by two smaller networks. The Western and Eastern Interconnections are divided by the Rocky Mountains and very little, if any, electricity is passed between them.

Figure 5: Four North American Electricity Interconnections Map. Source: WECC.org

Electricity in the US is managed under the Federal Energy Regulatory Commission (FERC). FERC is an independent agency responsible for regulating the interstate transmission of electricity, natural gas, and oil. The North American Electric Reliability Corporation (NERC) is a nonprofit international regulatory authority whose mission is to assure the effective and efficient reduction of risks to the reliability and security of the grid[1]. FERC and Canadian governmental agencies oversee NERC's operations.

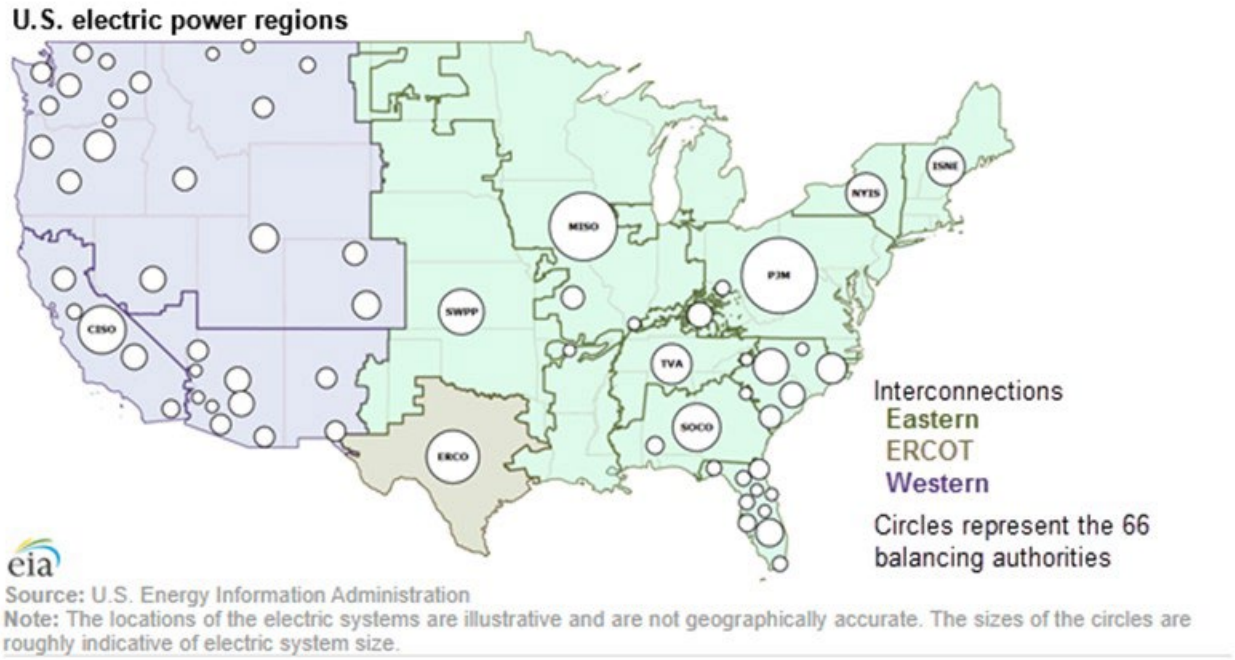
The Western Interconnect includes two Canadian provinces, 14 Western U.S. states, and northern Baja Mexico. It has several unique characteristics that distinguish it from the other North American interconnects. Within the Western Interconnect, 87% of land is public or protected compared to only 27% within the Eastern Interconnect. In the West, we also have longer transmission lines compared to the East that connect remote electricity generating facilities to population centers. This pattern allows the West to take advantage of different supply-and-demand patterns, and different renewable energy sources, as electricity is transported over long distances.

[1] https://www.nerc.com/AboutNERC/Pages/default.aspx

Another difference between the East and West has to do with how electricity supply and demand is managed. The map from The U.S. Energy Information Administration (EIA) shows the balancing authorities within each of the U.S. interconnections. Per the Energy Information Administration (EIA), a Balancing Authority is an entity that, "ensures, in real time, that power system demand and supply are balanced. This balance is needed to maintain the safe and reliable operation of the power system. If demand and supply fall out of balance, local or even wide-area blackouts can result." All the regional transmission organizations (RTOs) or independent system operators (ISOs) in the U.S. also function as balancing authorities.

- The Eastern Interconnection includes 36 balancing authorities, of which five are in Canada and the rest are in the United States.
- ERCOT, or the Electric Reliability Council of Texas, contains one balancing authority.
- The Western Interconnection has 37 balancing authorities, including two in Canada, one in Mexico, and the remainder in the U.S.

Figure 6: Map of US Electric Power Regions and Balancing Authorities, Courtesy of US Energy Information Administration (2023)



Why does this matter to EWEB?

EWEB is part of the Western Interconnection and therefore the electricity EWEB delivers to customers comes from this large, subnational grid. In some circumstances, it makes sense to calculate the carbon intensity of electricity based on the overall makeup of this large Western grid, since electrons flow freely across it. In other circumstances, it makes more sense for EWEB to calculate the carbon intensity of electricity based just on the energy EWEB generates or buys.

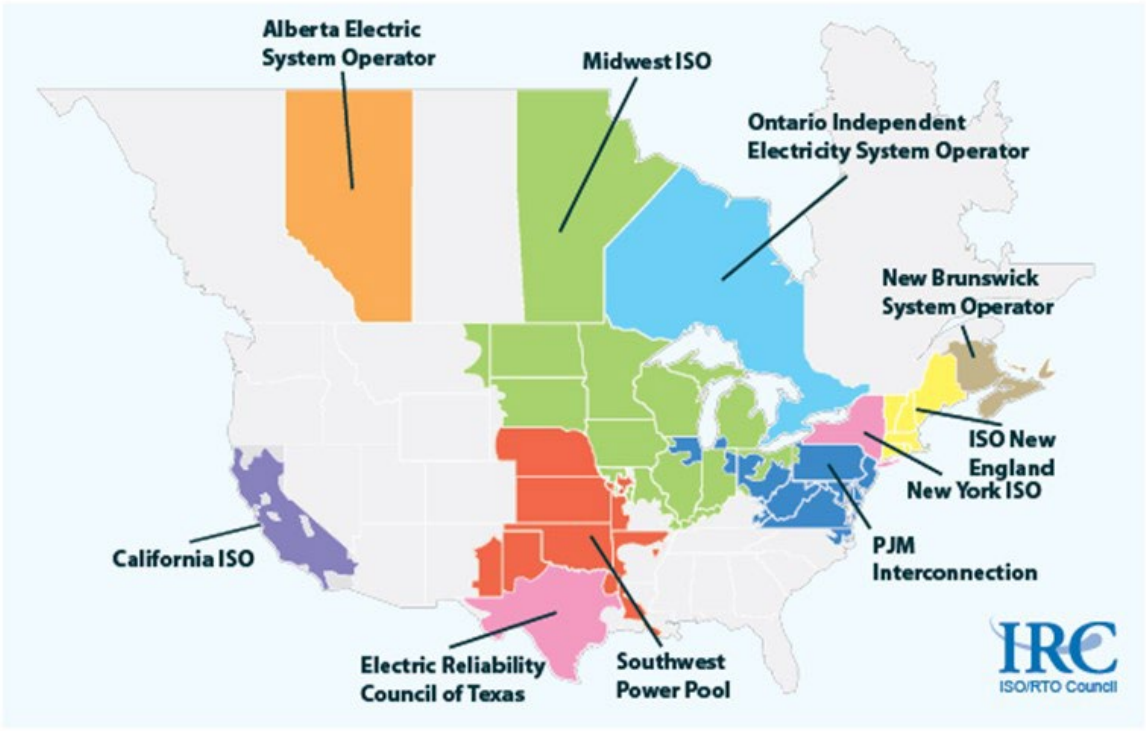
Links and Relevant Resources:

- Federal Energy Regulatory Commission (FERC)
- North American Electric Reliability Corporation (NERC)
- Western Electricity Coordinating Council (WECC)
- Energy Information Administration, U.S. Electric Power Regions

2.3.2 Regionalization and Organized Markets

While approximately 60% of the U.S. electric supply is managed by an Independent System Operator (ISO) or a Regional Transmission Organization (RTO), Pacific Northwest utilities do not presently participate in an organized market, except for those utilities that voluntarily participate in the real-time Western Energy Imbalance Market (EIM).

Figure 7: Map of US Independent System Operator / Regional Transmission Organizations, Sourced from US Energy Information Administration (2023)



Currently, most electricity market transactions in the Pacific Northwest are conducted bilaterally (1:1) between utilities, independent power producers, and marketers. Similarly, the Pacific Northwest's transmission system is operated by individual transmission owners, requiring projects to pay separate charges (often referred to as "wheeling" charges) to deliver power across each transmission system. There are approximately three dozen balancing authorities (BAs) currently operating across the Western United States, with each responsible for balancing supply and demand within their footprint. Over the last 25 years, the region has considered several utility-led initiatives to coordinate transmission planning and operations or to centralize electricity market functions. The only initiative that has been implemented to date is the Western EIM.

There are multiple regional efforts and initiatives underway past and present that endeavor to fulfill multiple functions that an organized/centralized market can provide:

- Shared transmission planning by a single entity
- Single transmission provider and tariff administrator
- Single transmission operator
- Single Balancing Authority
- Common Resource Adequacy Standard

- Market Operator: a single independent entity and centralized day ahead and/or within-hour optimization and dispatch with reliability

The Western EIM has achieved success with a low-cost, voluntary option using available and free transmission and leveraging the existing California Independent System Operator (CAISO) infrastructure. However, the Western EIM serves only a small portion of the functions that are offered by traditional ISOs and RTOs, and free transmission is not replicable in future approaches. Regional efforts to advance a Pacific Northwest organized market have been hampered by the uniqueness of the Bonneville Power Administration, statutory preference to power rights for publicly owned utilities in the region, and proper valuation of hydropower resources.

Agreement on governance models and the equitable allocation of costs and benefits in an organized market is a complicated task to successfully complete. However, utilities and stakeholders continue work on initiatives such as an Extended Day Ahead Market (EDAM) through CAISO or via the Markets+ model being proposed by the Southwest Power Pool. The hope with these two different models for a day ahead market is that significant societal and environmental benefits in grid efficiency, consumer savings, and decarbonization will result from optimizing load and generation diversity over large geographical and climate footprints. Initiatives can also use the existing transmission system more efficiently and work on planning, investing, and building necessary new transmission more effectively to move energy from where it is plentiful to where it is not, at any given time.

Why does this matter to EWEB?

Organized markets or other regional initiatives could carry with them requirements around resource adequacy or the dispatch of electricity generating resources. This means that EWEB may be required to plan to have a buffer of extra energy resources available, so that shortages don't occur during times of high demand. EWEB is tracking the evolving requirements that may arise and is accounting for them in our Integrated Resource Planning process.

Links and Relevant Resources:

- Western Energy Imbalance Market website
- CAISO Extended Day-Ahead Market (EDAM)
- Markets+, Southwest Power Pool
- Western Resource Adequacy Program

2.3.3 Regional Climate Policies

In the absence of a national binding emissions cap and/or comprehensive regulatory emissions reduction targets, state efforts to accomplish regional equivalents have been established. Current initiatives include the Western Climate Initiative (California, Quebec, Novia Scotia, and Washington, which is pending) and the electric sector only Regional Greenhouse Gas Initiative (RGGI) including Maine, New Hampshire, Vermont, Connecticut, New York, New Jersey, Delaware, Massachusetts, Maryland, and Rhode Island.

Why does this matter to EWEB?

Regional climate policies could affect the price of carbon and the availability of certain kinds of energy resources.

Links and Relevant Resources:

- Western Climate Initiative (WCI) website
- Regional Greenhouse Gas Initiative (RGGI) website

2.3.4 Regional Climate Forecasts & Analyses

In 1980, The Northwest Power Act authorized the states of Montana, Idaho, Washington, and Oregon to plan for the energy future of the Pacific Northwest and to balance energy requirements with environmental concerns. The Northwest Power and Conservation Council was created to do this work. The Act required the new organization to both create a fish and wildlife program and to develop a 20-year least-cost power plan to be updated every five years. The Power Plan includes forecasts for both future electricity demand as well as future electricity and natural gas prices. It also includes an assessment of the amount of cost-effective energy efficiency that can be acquired over the 20-year term of the plan, and an assessment of a least-cost generating resources portfolio. The plan supports Bonneville Power Administration's resource decision-making.

Other regional organizations in the Pacific Northwest are in the process of evaluating the patchwork of state-level policies within the region and how they intersect, as well as various pathways to get to net-zero greenhouse gas emissions within the Pacific Northwest.

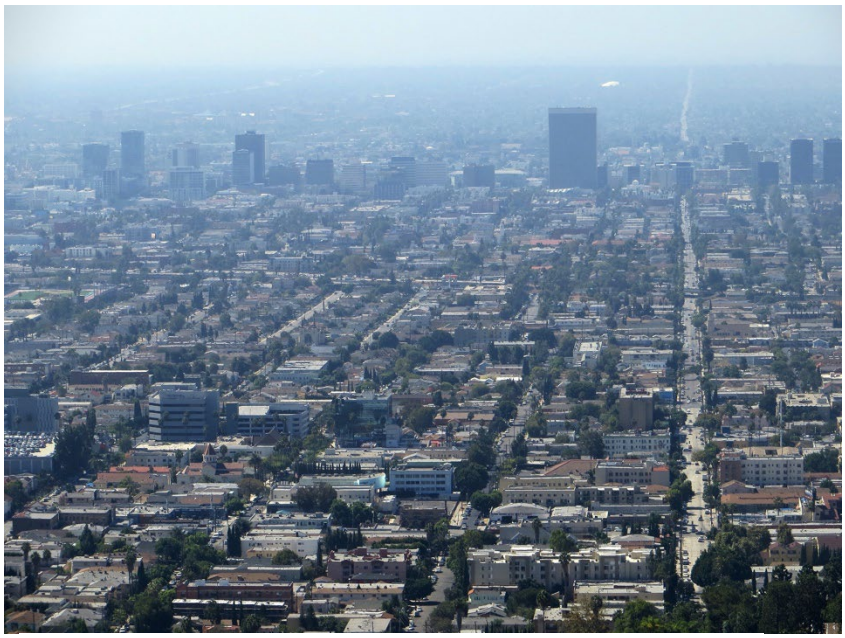
Links and Relevant Resources:

- 1980 Northwest Power Act
- Northwest Power and Conservation Council
- 2021 Northwest Power Plan (March 2022)
- Pacific Northwest Power Supply Adequacy Assessment for 2027 (January 2023)
- Net-Zero Northwest: Technical and Economic Pathways to 2050 (NZNW) (June 2023)
- The Brattle Group Greenhouse Gas and Clean Energy Accounting Methodology Catalogue (June 2023)

2.3.5 Neighboring State Initiatives

2.3.5.1 California: AB 32 – Cap and Trade and Low Carbon Fuel Standard (LCFS)

The California legislature passed AB 32 in 2006 requiring the California Air Resources Board (CARB) to undertake a statewide effort to reduce global warming pollution. After extensive stakeholder input, research and analysis, CARB decided that cap-and-trade regulation should be the centerpiece of the 70 separate measures used to cut GHG emissions. Other measures included statewide regulations on building, vehicle, and appliance energy efficiency standards. AB 32's cap-and-trade rule became active Jan. 1, 2013. The sunset date of the cap-and-trade program was extended from 2020 to 2030 through the passage of AB 398 in 2017 and the program is now designed to meet a target of reducing emissions by at least 40% below 1990 levels by 2030.



Smog in Los Angeles. Image by misterfarmer from Pixabay.

The Low Carbon Fuel Standard (LCFS) was also a key measure recommended through AB 32 that began implementation in 2011. This is a program designed to decrease the carbon intensity of transportation fuels to reduce greenhouse

gas emissions, reduce dependency on petroleum products, and improve air quality. Oregon's Clean Fuels Program is modeled after the California LCFS.

Links and Relevant Resources:

- California Air Resources Board, AB-32 Global Warming Solutions Act of 2006
- California Air Resource Board, AB-32 Climate Change Scoping Plan
- California Low Carbon Fuels Standard

2.3.5.2 California: SB 100 – 100 Percent Clean Energy Act

Passed in 2018, SB 100 marks California's commitment to developing renewable electricity infrastructure to replace fossil fuel-powered electricity. Its two main goals are: a) by 2030, 60% of all electricity generated will be from renewable sources; b) by 2045, 100% of electricity for the whole state will be renewable. Legacy hydropower is not eligible for the 60% target, but after 2030 hydropower may qualify for the remaining 40% of SB 100 compliance.

Links and Relevant Resources:

- California Energy Commission SB 100 Joint Agency Report

2.3.5.3 California: Tailpipe Emissions Standards

Under Section 209 of the Clean Air Act (CAA), California was given the ability to apply for special waivers to apply its own emission standards for new motor vehicles, rather than the federal standard. In 1967, the California Air Resources Board (CARB) was formed and enacted the nation's first stringent vehicle emission standards. Other states began to consider their own standards. Fearing a patchwork of differing state standards, automakers lobbied successfully for the passage of a National Emissions Standards Act that restricted states from enacting standards more restrictive than the new national standard. However, the existing stringent California standard was granted a permanent waiver; legal precedent has determined that other states may exceed federal standards if they adopt an equivalent facsimile of the California standard. Oregon is one of 16 states to adopt the California standard.

In August 2022, California set new targets requiring 100% new car sales to be zero emission by 2035. Oregon followed suit and adopted California's rule just a few months later.

Links and Relevant Resources:

- California Air Resources Board: 100% new zero-emission vehicle sales by 2035

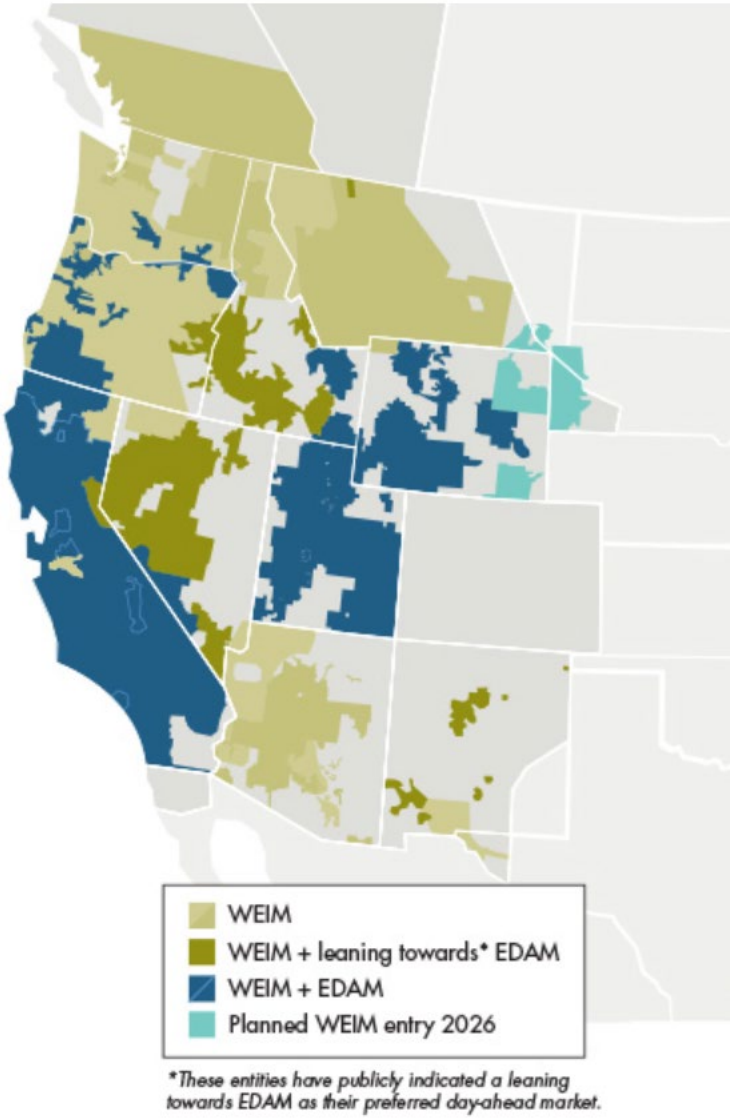
2.3.5.4 California: CAISO and Western Energy Imbalance Market (EIM)

In 1998, the California Legislature created the California Independent System Operator (CAISO), a nonprofit Independent System Operator (ISO) that oversees the majority of California's bulk electric system, transmission lines, electricity market, and infrastructure planning on behalf of members, instead of individual entities. CAISO forecasts electrical demand and dispatches the lowest cost generator to meet demand while ensuring enough transmission capacity for delivery of power.

In 2014, the Western Energy Imbalance Market (EIM) was launched by the CAISO to establish lower cost and cleaner approaches to integrating fluctuations in intermittent renewable power generation into supply and demand by automatically finding lower-cost resources over broader geographical footprints to meet real-time power needs. While the CAISO was directed by the California legislature to participate in the EIM, non-CAISO entities may also join the Western EIM. PacifiCorp was the first initial volunteer, and today there are 23 EIM participants.

The voluntary Enhanced Day Ahead Market (EDAM) has been proposed and would build on the success of the EIM in pursuit of reliability, economic, and environmental benefits through increased regional coordination and resource optimization. It would provide additional market efficiency by integrating renewable resources using day-ahead unit commitment and scheduling across a larger area. The EDAM will launch in 2026 with the participation of PacifiCorp and Portland General Electric (PGE), with additional participants committed to join in 2027 and beyond.

Figure 8: Western Energy Imbalance and Extended Day Ahead Market Participation, Copyright 2025 CAISO



Links and Relevant Resources:

- California Independent System Operator (CAISO)

2.3.5.5 Washington: I 937 Energy Independence Act (EIA)

Washington State has also passed several laws to address greenhouse gas emissions and renewable energy provisions. The Energy Independence Act (EIA), approved by the voters in 2006 through the passage of Initiative 937, requires Washington electric utilities serving at least 25,000 retail customers to use renewable energy and energy conservation. There are 18 Washington utilities subject to the EIA. They provide 80% of the electricity sold to Washington retail customers.

The EIA established a renewable portfolio standard (RPS) with renewable energy targets as a percentage of customer load. The targets increased over time, from 3% in 2012, to 9% in 2016, to 15% in 2020. Eligible resources include water, wind, solar energy, geothermal energy, landfill gas, wave, ocean or tidal power, gas for sewage treatment plants, and biodiesel fuel and biomass energy. Hydropower eligibility is limited to incremental generation due to efficiency improvements made after 1999, and the hydro project must be either owned by one of the 18 EIA-qualifying utilities or marketed by the Bonneville Power Administration.

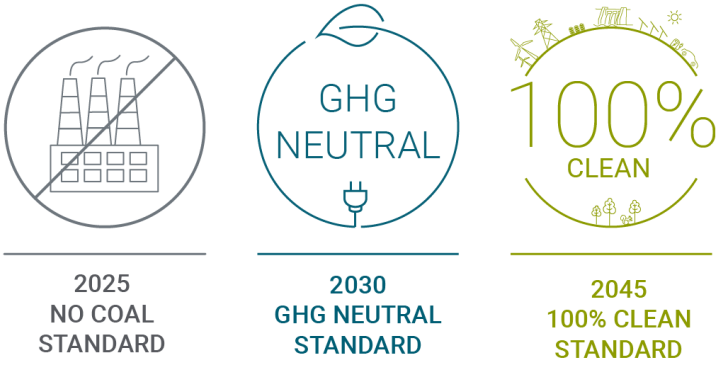
Significantly, EIA requires that utilities must pursue all conservation that is cost-effective, reliable, and feasible. They need to identify the conservation potential over a 10-year period and set two-year targets.

Links and Relevant Resources:

- Washington State Department of Commerce, Overview Energy Independence Act (EIA or I-937)

2.3.5.6 Washington: Clean Energy Transformation Act (CETA)

SB 5116, the Clean Energy Transformation Act (CETA) was approved by the Washington Legislature in 2019, committing Washington to an electricity supply free of greenhouse gas emissions (all non-emitting electricity sources qualify) by 2045 via staged compliance:



Key elements of the Washington Clean Energy Transformation Act (CETA). Courtesy of the Washington Department of Commerce.

- By 2025 utilities will remove coal-fired generation from Washington's allocation of electricity.
- By 2030, Washington retail sales will be carbon-neutral (20% of compliance can be achieved using Renewable Energy Certificates, alternative compliance payments ($100 per ton of carbon), or Energy Transformation Projects that decarbonize other sectors of the economy.
- By 2045, Washington retail sales will be 100% renewable and non-carbon-emitting.

CETA has other notable provisions. It grants the Washington Utilities and Transportation Commission (UTC) the authority to shift investor-owned utilities from a return-on-capital model to a performance-based model. Rather than profit (and returns to shareholders) coming purely from investments in capital projects, utilities' returns could be determined based on their performance against metrics set by the UTC, such as carbon reduction or equity. The bill also requires utilities to consider equity in electric system benefits and increase customer bill assistance.

Links and Relevant Resources:

- Washington State Department of Commerce, Clean Energy Transformation Act (CETA)

Why does this matter to EWEB?

Initiatives in neighboring states have varying levels of impact on EWEB. Broadly speaking, policies in California and Washington can increase or decrease the availability of certain kinds of energy resources, affecting region-wide energy markets.

2.3.5.7 Washington: Climate Commitment Act (CCA)

The Climate Commitment Act (CCA) is a comprehensive market-based cap-and-trade greenhouse gas emissions program applicable to Washington's largest emitting sources and industries, allowing businesses to find the most efficient path to lower emissions, towards the goal of Washington achieving its adopted statutory state greenhouse gas emission target of a 95 percent reduction by 2050. A statewide initiative (2117) to repeal the CCA was defeated in Washinton's 2024 election 62 percent to 38 percent.

Businesses covered by the program must obtain allowances equal to their emissions and submit them to Ecology according to a staggered four-year compliance schedule. Emissions-Intensive Trade-Exposed (EITEs) industries and electric and gas utilities receive an allocation of free allowances while the remainder of allowances are auctioned off quarterly and subject to floor and ceiling price standards. Auction proceeds are deposited and reinvested into specific climate, environmental justice, and ecological projects. Washington CCA-funded investments have a strong emphasis on reducing transportation emissions, alternatives to single occupancy

passenger vehicles, and emissions reductions programs for freight, ferries, and ports – a reflection of the regional importance of Puget Sound and marine transportation.

The CCA regulates the electric sector in two different ways; 1) in-state electric generating units (EGUs) are regulated at the source (EGU owner/operator is responsible for compliance); 2) compliance responsibility for electricity imported into Washington is assigned to entities defined as "First Jurisdictional Deliverer" (FJD) of the electricity. Starting on January 1st, 2025, the new reporting threshold states that an entity that has any unspecified electricity imports has a requirement to submit GHG reports to WA, and have a compliance obligation to the CCA. Since EWEB has previously crested the 10,000 MTCO2e threshold for GHG in 2023, EWEB will continue to have a reporting requirement going forward, regardless of future emissions levels.

Why does this matter to EWEB?

EWEB buys and sells wholesale electricity in the region. EWEB is preparing for reporting and compliance obligations. Generally, EWEB's compliance costs from carbon pricing programs are offset by the resulting higher wholesale power prices that put a premium on cleaner electricity, which produces more revenue from EWEB's sales of clean or low-carbon electricity.

Links and Relevant Resources:

- Washington Department of Ecology Climate Commitment Act

2.3.5.8 Washington: Clean Fuel Standard

The Washington Clean Fuels Standard is modeled after programs previously adopted in California, Oregon, and British Columbia. The Washington Clean Fuel Standard requires fuel suppliers to gradually reduce the carbon intensity of transportation fuels to 20% below 2017 levels by 2034. There are several ways for fuel suppliers to achieve these reductions, including: improving the efficiency of their fuel production processes; producing and/or blending low-carbon biofuels into the fuel they sell; and purchasing credits generated by low-carbon fuel providers, including electric vehicle charging providers.

Why does this matter to EWEB?

Because the Washington legislation is designed to integrate into existing LCFS programs in Oregon and California, these markets will cover the entire West Coast, creating a West Coast market for transportation-electrification credits, biofuels, green electrolytic hydrogen and other low-carbon transportation fuels. Approximately 20 million vehicles are located in these states, which promises to make this a robust market. Competition for limited supplies of certain fuels could impact availability in OR.

Links and Relevant Resources:

- Washington Department of Ecology Clean Fuels Standard

2.4 State of Oregon Initiatives

2.4.1 Climate Action Plan (CAP) – Executive Order 20-04

Gov. Kate Brown signed Executive Order 20-04 on March 10, 2020, directing multiple state agencies to take actions to reduce greenhouse gas emissions to avoid the worst effects of climate change. EO 20-04 outlined State of Oregon GHG reduction goals of at least 45% below 1990 emissions levels by 2035 and at least 80% below 1990 levels by 2050.

The centerpiece of EO 20-04 was the establishment of the Climate Protection Program (CPP). The Climate Protection Program set a declining limit, or cap, on greenhouse gas emissions from fossil fuels used throughout Oregon, including diesel, gasoline, natural gas, and propane used in transportation, residential, commercial, and industrial settings – targeting a 90% reduction in emissions from these fuels by 2050 with a 50% interim reduction benchmark in 2035. The program also regulated site-specific greenhouse gas emissions at manufacturing facilities, such as emissions from industrial processes, with a best available emissions reductions approach. Notably, the program did not apply to electricity, a decision made because the legal authority of the program did not extend to electricity imported from out of state and there would be complications from applying the program only to in-state electric generating units. The CPP required that covered entities reduce greenhouse gas emissions and allowed covered entities to comply in part with Community Climate Investments (CCIs)– contributing funds to authorized third-party entities to implement projects that reduce greenhouse gas emissions in Oregon.

In December 2023, the CPP was invalidated by the Oregon Court of Appeals due to insufficient notice requirements during the 2021 rulemaking process. Oregon Department of Environmental Quality (DEQ) repeated rulemaking and a revamped Climate Protection Program, nearly identical to the previous program, was approved by the Environmental Quality Commission (EQC) in November 2024. The first CPP compliance period started January 1, 2025, and covers emissions through the end of 2027

Why does this matter to EWEB?

The Climate Protection Program, if reinstated, could affect the market for fossil fuel-based technologies, contributing to electrification of transportation and other sectors. This could increase demand for the electricity that EWEB supplies.

Links and Relevant Resources:

- State of Oregon, Executive Orders
- Oregon Public Utility Commission, Executive Order 20-04 Resources
- Oregon Department of Energy, Reducing Greenhouse Gas Emissions, State GHG reduction goals
- Oregon Department of Environmental Quality Climate Protection Program 2024

2.4.2 HB 2021 - Oregon Clean Electricity Standard (CES)

Oregon's CES was enacted in 2021 and sets targets requiring Oregon's two largest and investor-owned utilities, Portland General Electric and PacifiCorp, as well as assorted Electricity Service Suppliers (ESSs), to reduce the greenhouse gas emissions associated with their retail electricity sold in Oregon to:

- 80% below baseline emissions levels by 2030;
- 90% below baseline emissions levels by 2035; and
- 100% below baseline emissions levels by 2040.

The CES also enacted a permanent moratorium on the siting of new natural gas power plants in Oregon and established an annual statewide Community Energy Grant Program.

Why does this matter to EWEB?

Though EWEB is not subject to the emissions reduction requirements of HB 2021, the requirements will prompt Oregon's two largest utilities (PGE and PacifiCorp) to build increasing amounts of carbon-free resources, such as wind and solar which will affect regional energy markets in hard to predict ways.

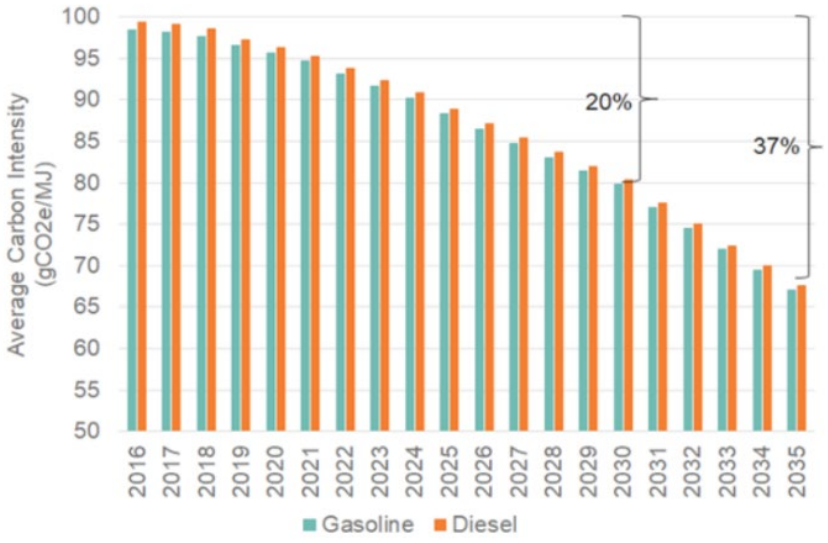
Links and Relevant Resources:

- HB 2021 Oregon Clean Electricity Standard
- Oregon Clean Energy Targets (Oregon Department of Environmental Quality)

2.4.3 Oregon Clean Fuels Program (CFP)

The Oregon CFP is a program designed to reduce the carbon intensity of transportation fuels, similar to laws in both CA and WA. The original CFP legislation set a target of a 10% reduction in carbon intensity by 2025. Under Executive Order 20-04, the program was expanded, and additional targets were set: a 20% reduction by 2030 and 37% reduction by 2035.

Figure 9: Oregon Clean Fuels Program Basic Structure, Sourced from Oregon Clean Fuels Program



Regulated entities include transportation fuel producers and importers of fossil gasoline, fossil diesel, ethanol, biodiesel, and renewable diesel. They are required to meet the declining carbon intensity cap for the fuels they sell.

One way to meet the program requirements is to purchase credits from entities that generate credits by developing low-carbon transportation fuels. Credits are measured in metric tons of GHGs. Credits can be sold to regulated entities, which in turn produce revenue to pay for projects that lower GHGs. For information about how to estimate credits or to which entities the credits will flow under the program, please see Appendix E: Resources for Entities Seeking to Estimate the GHG Impact of Transportation Electrification Projects and Potential Credit Generation Under the Oregon Clean Fuels Program.

In 2024, CFP credits significantly decreased in value. Credit prices have been fairly stable and consistently over $100 per credit since 2018, but dropped to under $30 in Sept 2024. Average credit prices in the early months of 2025 are in the low to mid-$40s.

Why does this matter to EWEB?

Under the Oregon Clean Fuels Program (CFP), EWEB is an aggregator of residential EV charging credits. EWEB may use revenue from these credits to invest in transportation electrification and decarbonization. Additionally, EWEB owns EV charging infrastructure at the Roosevelt Operations Center (for both our owned fleet vehicles and for public use in our employee parking lot), and at our Hayden Bridge water treatment facility in Springfield. EWEB generates additional CFP credits from these owned charging stations. Decreases in credit prices mean EWEB has less revenue to invest in transportation electrification programs.

Links and Relevant Resources:

- Oregon Department of Environmental Quality, Oregon Clean Fuels Program website

2.4.4 SB 1547, Clean Electricity and Coal Transition Plan

Enacted in 2016, SB 1547 requires Oregon's two largest investor-owned utilities, Portland General Electric and PacifiCorp, to phase out coal-fired electricity from their retail sales in Oregon by 2030 and double their original Oregon Renewable Portfolio Standard (RPS) targets from 25% to 50% by 2040.

Why does this matter to EWEB?

Fewer coal plants result in less dispatchable (able to be turned on and off) energy on the grid, making regional grid reliability more challenging. EWEB, like utilities across the region, must adapt to these new dynamics.

Links and Relevant Resources:

- Oregon State Legislature SB 1547 bill information and overview
- Oregon Public Utility Commission 2021 Report to the Oregon Legislatures on SB1547 (2016): Impact of Increased Renewable Portfolio Requirements

2.4.5 Renewable Portfolio Standard (RPS)

The Oregon RPS requires large electric utilities (over 3% of Oregon electric load), including EWEB, to meet 25% of their electric load with qualifying renewable electricity. Two tiers of small electric utilities are required to meet 10% or 5% of electric load with qualifying renewable electricity respectively. Although legacy hydropower is not a qualifying renewable source of electricity under the RPS, legacy hydropower is exempt from displacement and carries no compliance/mitigation requirement.

Why does this matter to EWEB?

Because of EWEB's hydropower-dominant portfolio, the utility has been exempted from RPS requirements. However, this exemption is not guaranteed if EWEB's portfolio mix changes.

Links and Relevant Resources:

- Oregon Department of Energy, Renewable Portfolio Standard website

2.4.6 Emissions Performance Standard (EPS)

The EPS sets a greenhouse gas emissions limit of 1,100 pounds (0.5 metric tons) of greenhouse gases per megawatt-hour (MWh) of electricity for the siting of any new electricity generation facility in Oregon, effectively prohibiting the construction of any new coal-fired electricity generating unit in Oregon. Though natural gas electric generating units would meet the 1,100 pounds threshold, they are now prohibited by the recently enacted Oregon Clean Electricity Standard (see above).

Why does this matter to EWEB?

The prohibition on these carbon-intensive dispatchable fossil fuel sources of electricity in Oregon can affect reliability across the entire region, especially during peak times of high electricity demand when dispatchable power is often required, if they can't be replaced with low-carbon dispatchable sources.

Links and Relevant Resources:

- Oregon Department of Energy, Oregon Energy Facility Siting Council's Carbon Dioxide Emissions Standards (March 2018)

2.4.7 Advanced Clean Car II Rule

In 2022, the Oregon Department of Environmental Quality adopted the Advanced Clean Car II Rule, which is modeled after California's Tailpipe Emissions Standards. Both rules require that 100% of new, light-duty vehicle sales in their states be zero emission by 2035.

Why does this matter to EWEB?

EWEB's electrification forecasts already assume high levels of electric vehicle adoption in the next 20 years. The Advanced Clean Car II Rule effectively formalizes that demand increase. EWEB predicts that vehicle electrification will be the greatest driver of increases in demand for electricity in the next 20 years. It will be critical for EWEB to manage EV charging to avoid significant increases to peak demand as EV adoption increases.

Links and Relevant Resources:

- Oregon Department of Environmental Quality Advanced Clean Cars II Rule

Aerial view of Eugene. Courtesy of City of Eugene.

2.5 Local Eugene Initiatives

2.5.1 Eugene Climate Recovery Ordinance (CRO) and Climate Action Plan (CAP) 2.0

Eugene has a long history of climate action within both city government operations and the community. The city conducted its first Community Climate and Energy Action Plan in 2010. In 2014, City Council passed the first version of its Climate Recovery Ordinance (CRO), which was updated to its current form in 2016. The CRO includes four bold goals – two focused on the community, including residents and businesses, and two focused on city operations (see box).

Eugene's Climate Recovery Ordinance

Community goals:

- Reduce community fossil fuel use by 50% of 2010 levels by 2030.
- Reduce total community greenhouse gas emissions to an amount that is no more than the City of Eugene's average share of a global atmospheric greenhouse gas level of 350 ppm by 2100, which was estimated in 2016 to require an annual average emission reduction level of 7.6%.

City Operation goals:

- All City of Eugene owned facilities and operations shall be carbon neutral by 2020, meaning no net release of greenhouse gas emissions.
- Reduce the City of Eugene's use of fossil fuels by 50% compared to 2010 usage.

Source: City of Eugene, Climate Recovery Ordinance

To implement the CRO and determine what actions are already planning and/or underway, and what actions are still needed to reach the goals of the CRO, Eugene launched its Climate Action Plan (CAP) 2.0 process beginning in 2018. EWEB was an active participant in the CAP 2.0 development process from 2018-2019 as a large-lever shareholder. Large-lever shareholders participating in the Eugene Climate Collaborative (ECC) were deliberately defined as "organizations who have significant oversight and impact on community-wide fossil fuel use and emissions or have the ability to affect or alter systems that will enable the community to adapt and prepare for climate change."[2]

ECC partners include: the City of Eugene, Lane County, Bethel School District, Eugene 4J School District, Lane Community College (LCC), University of Oregon, Lane Transit District (LTD), **Eugene Water & Electric Board (EWEB)**, Metropolitan Wastewater Management Commission (MWMC), Northwest Natural, PeaceHealth, and the Eugene Area Chamber of Commerce.

CAP 2.0 was published in summer 2020 and includes many voluntary commitments within the document from Eugene Climate Collaborative partners, including 15 commitments from EWEB. Please see Appendix F for specific reporting on EWEB's commitments in CAP2.0.

Why does this matter to EWEB?

EWEB supports the objectives of the Climate Recovery Ordinance and is committed to advancing our commitments in Eugene's CAP 2.0, including tracking our progress through this Guidebook.

Links and Relevant Resources:

- City of Eugene, Climate Recovery Ordinance
- City of Eugene, CAP2.0 Home
- City of Eugene, CAP2.0 Data Dashboard

[2] Eugene CAP2.0, page 15, Eugene Climate Collaborative Partners. Downloaded from https://www.eugene-or.gov/4284/Climate-Action-Plan-20.

2.6 EWEB's Climate Guidebook Principles to Guide Policy and Programs

Within the Climate Guidebook, EWEB wishes to include a set of principles meant to define the general direction EWEB seeks to move towards on issues, mostly public policy, related to climate change. These principles are built on EWEB's values, which are set by the Board of Commissioners and in alignment with established best practices in the utility industry.

EWEB's organizational core values per Strategic Direction Board Policy SD1 include:

- SAFE: We value the safety, physical and psychological wellness of our workforce and the public, the security and integrity of cyber assets and data, and the protection of our customers' assets
- RELIABLE: We value the ongoing continuous on-demand delivery of drinking water and electricity, and the dependability of our response to our customers.
- AFFORDABLE: We value and respect our customer-owners' financial resources by making wise investments and controlling costs and rates.
- ENVIRONMENTAL: We value the prudent and sustainable stewardship of the environment and natural resources, including preserving our watershed, and our role in reducing the greenhouse gases (GHGs) contributing to climate change.
- COMMUNITY/CULTURE: We value a culture of intentional actions and outcomes, continuous improvement, diverse perspectives, that is trustworthy, respectful, equitable, and inclusive to employees and community members. We are dedicated to our public service, professions, local governance, and commitment to serve our community honestly and with integrity.

Developing a set of principles will guide the General Manager, and thus the organization, in fulfilling the Strategic Directive Policies such as SD15 from the Board.

A "principle" is a North Star – a position towards which EWEB seeks to move, based on our values. A principle is not a rulebook. As EWEB seeks to make positive changes in our community, we must first define the nature of those positive changes. Clearly articulated and transparent principles help us get there by orienting us in a certain direction. Policy development, program implementation, investment of EWEB staff time and/or investment of financial resources is the mechanism by which we move towards these principles.

As we better define our principles on various topics, we may discover that some of EWEB's existing policies and programs do not currently meet all our aspirations. Recognizing any potential misalignment, may be the first step in eventually ensuring that they do. Identifying any potential misalignment may also help us identify and articulate to our stakeholders what barriers might exist and must be overcome before alignment is possible.

As EWEB further articulates its principles on a variety of topics, they will be included here for transparency and ease of reference. The topics can span from providing guidance on how to advocate for policy in Salem or Washington D.C, to informing internal program development, to articulating how a new technology relates to EWEB's long-term interests. Topics submitted for inclusion could relate to climate change and the role the energy industry plays in decarbonizing society. Additional topics that merit development of their own set of principles will undoubtedly arise in the future and will be added over time. Context on the various topics and why / how the draft principles were developed is included here:

Carbon Policy & GHG Reduction Principles: Through the years, EWEB has worked with many regional partners on supporting climate and carbon policies at the state, regional, and federal levels. EWEB has been guided by a set of principles supported by previous Boards of Commissioners and in coordination with other public utility members of the Public Generating Pool. The principles included here are a refined version of those previously articulated principles.

Distributed Generation Principles: EWEB's customers are increasingly interested in installing distributed energy generation and/or storage at their homes and businesses. How we compensate customers for the energy they produce and/or access through distributed technologies will become more important in the years ahead. The Distributed Generation Principles are in alignment with information staff has been providing verbally to the Board over time, are used to guide EWEB positions on relevant public policy, and are based on work done in coordination with best practices among comparable public utilities in the region.

Green Hydrogen Principles: Electric utilities are increasingly interested in how hydrogen can play a role in decarbonizing the economy. Here in Eugene, discussions have arisen about whether hydrogen should be blended into natural gas pipelines as a method of lowering the carbon content of the gas system. At the same time, regional coalitions are seeking funding for green hydrogen projects that may involve transportation fueling or other uses. A set of principles will help EWEB define and articulate our interest in hydrogen, as well as the types of projects we may pursue. The principles included here are based on alignment with principles advocated by U.S. Department of Energy, Oregon Department of Energy, and several regional partners.

Rate Design Principles: One of EWEB's five organizational values is affordability, and as discussed in Chapter 3, keeping rates low for customers is climate action. EWEB has long held a set of principles, based on industry accepted principles, for meeting legal standards and achieving best practices in rate making.

2.6.1 EWEB's Carbon Policy & GHG Reduction Principles

Revision date: April 2024

Policies and laws to reduce greenhouse gas (GHG) emissions are a viable tool if society is to avoid the worst effects of climate change. Because electric utilities rely on an interconnected grid, policies that impact this grid also impact local electric utilities. Electric utilities rely on the grid to meet customer needs, sell surplus resources, and ultimately work together to keep rates as low as possible. Even with EWEB's ambitious voluntary internal climate policy goals for our owned and contracted resources, there are times when we buy power from the market. Getting to a fully decarbonized Western grid – the Western Interconnect (WECC) – and ultimately a fully decarbonized economy will require policies to reduce GHG emissions at the federal, regional, state, and/or local levels.

The most ambitious proposed federal policy on GHG reductions died in 2009 when Congress failed to pass a bill that would have instituted a nationwide plan to cap carbon emissions and allow emitters to trade pollution credits - a cap-and-trade system. Since then, only minor federal action occurred, until 2022 when Congress passed the Inflation Reduction Act (IRA). The IRA signaled a change in the federal approach to GHG emissions - rather than punish emitters, the IRA subsidizes emissions-free energy such as wind and solar.

In the absence of comprehensive federal legislation, Oregon has attempted to implement GHG policies. In 2019 and 2020, Republican legislators walked out of the Capitol to prevent votes on cap-and-trade legislation. So, Gov. Kate Brown implemented executive orders. In 2022, the Climate Protection Program took effect, setting a declining cap on emissions from fossil fuels - but it did not apply to electricity generation, which already must meet goals under the State's Renewable Portfolio Standard. In December 2023, the Climate Protection Program was invalidated by the Oregon Court of Appeals, yet Oregon Department of Environmental Quality seeks to reestablish a climate mitigation program. At the same time, the state's Clean Electricity Standard, which was enacted in 2021, requires the state's two largest utilities - but not publicly owned utilities such as EWEB - to achieve net-zero GHG emissions by 2040. Additionally, the State's Clean Fuels Program addresses GHG emissions from transportation fuels and provides credits for entities that invest in transportation electrification among other low-carbon transportation fuel choices.

As EWEB advocates for comprehensive climate policies as directed in EWEB Board Policy SD15, we will be guided by the following principles.

Relating to climate policy, EWEB prefers and supports policies that:

- facilitate the reduction of GHG emissions most efficiently and at the least overall cost to society.
- are technology-neutral, economy-wide, and market-based.
- recognize the role of legacy hydropower in limiting GHG emissions, ensure that existing hydropower resources will not be disadvantaged relative to newer renewables, and are compatible with a variety of future physical climate and hydropower production conditions.
- measure carbon emissions as far upstream and nearest to the point of production as possible and are as resource specific as possible; in pursuit of more effective signals favoring the dispatch of cleaner resources and simpler and/or reduced administrative burden.
- preserve a path for load/resource growth and flexibility for utilities that pursue cross-sector decarbonization.
- are regionally consistent.
- consider the equity of the impacts on diverse segments of the population and are consistent with EWEB's Diversity, Equity, and Inclusion Policy SD23.

2.6.2 EWEB's Distributed Generation Principles

Revision date: April 2024

Traditionally, power plants have been large and centralized structures such as hydroelectric, nuclear, coal, or natural gas plants, usually located far from where most of the power output will be consumed and connected to these load centers via a long-distance transmission and distribution system.

The U.S. EPA[3] defines the term distributed generation to include a variety of technologies that are decentralized and often located close to where the power will be consumed. Due to the decentralized nature, these resources tend to be smaller in size than traditional centralized power sources. Distributed generation technologies may serve a single building such as a home or business or participate in a microgrid (a smaller grid that is connected into the larger electricity delivery system) that could serve a wider area such as an industrial facility, a college campus, a military base, or a downtown district for example.

Per EPA, in the residential sector, common distributed generation systems include:

- Solar photovoltaic panels
- Small wind turbines
- Fuel cells, usually fueled by natural gas
- Emergency backup generators, usually fueled by gasoline or diesel fuel

Per EPA, in the commercial and industrial sectors, distributed generation can include resources such as:

- Combined heat and power systems
- Solar photovoltaic panels
- Wind
- Biomass combustion or cofiring
- Municipal solid waste incineration
- Fuel cells fired by natural gas or biomass or hydrogen
- Emergency backup generators, usually fueled by diesel fuel

Local development of distributed generation technologies is allowing EWEB's customers to generate their own electricity and even generate surplus electricity that they can sell to EWEB via a process called net metering. These distributed generation technologies seek to make our community more resilient to disasters, reduce losses from the long-distance transmission system, and give customers choices about where to get their energy.

At the same time, customers with distributed energy resources are still connected to EWEB's grid. These customers rely on EWEB's grid for energy when their generators aren't producing and to distribute excess energy to other consumers connected to the grid. Solar homes, for instance, still need energy from EWEB's grid at night. And these customers also rely on EWEB's grid of distribution and transmission lines when they sell surplus energy to EWEB.

EWEB incurs significant costs maintaining a robust grid and procuring energy for all customers, even those with distributed generation technologies. EWEB believes that these costs should be equitably shared among all customers.

[3] US Environmental Protection Agency, Energy, and the Environment: Distributed Generation of Electricity and its Environmental Impacts. Distributed Generation of Electricity and its Environmental Impacts | US EPA

With that goal in mind, EWEB has developed the following principles:

- EWEB supports and facilitates customer choice to install non-utility owned distributed generation equipment and infrastructure.
- EWEB recognizes that some distributed generation technologies are better at meeting the community's historical electricity demand (load) than others.
- EWEB supports pricing mechanisms that fairly compensate customers for electricity they supply to the grid and that do not transfer unpaid costs to other customers.
- EWEB strives for the equitable allocation of costs among all customers to maintain the electric grid.
- EWEB will need a rate design that fairly assigns the costs of procuring energy (including peak energy needs) and maintaining the electric grid to the customers who cause those costs.
- EWEB prioritizes the safety of utility workers and customers and will develop interconnection standards that ensure safety and reliability.
- EWEB supports policies and practices that consider the equity of the impacts on diverse segments of the population and are consistent with EWEB's Diversity, Equity, and Inclusion Policy SD23.

Solar panels are installed at St. Vincent de Paul in Eugene. EWEB photo.

2.6.3 EWEB's Green Hydrogen Principles

Revision date: April 2024

U.S. Department of Energy Hydrogen Shot initiative.

The most abundant element in the universe – hydrogen – is evolving as a tool to decarbonize sectors of the economy that have few or no other low-carbon options. In 2021, the federal government set a goal of reducing the cost of hydrogen to one dollar for one kilogram within one decade (1 1 1)[4]. Also in 2021, the Oregon legislature passed SB 333 that directed the Oregon Department of Energy to conduct a study on the potential benefit of, and barriers to, production and use of renewable hydrogen in Oregon.[5]

The Oregon Department of Energy provides an overview of renewable hydrogen as follows:

> *"Hydrogen is currently used in several industrial processes – it is a fundamental input for manufacturing ammonia, which is then used for fertilizer production; it is used to process crude oil into refined fuels, like gasoline and diesel; and it is also used in the metallurgic industry. However, most of the hydrogen produced today is derived from natural gas or coal, which is "grey" hydrogen. "Blue" hydrogen is also derived from fossil fuels but with the associated carbon emissions captured and stored. Most "green" or renewable hydrogen is produced using renewable electricity to power an electrolyzer that splits water into its component parts of oxygen and hydrogen.* ***SB 333 refers to renewable hydrogen as "hydrogen derived from energy sources that do not emit greenhouse gases****." Renewable hydrogen could be used to replace grey hydrogen where it is currently used, as a transportation fuel, or as a replacement for natural gas in some applications."*

As part of the IIJA, the U.S. Department of Energy committed $7 billion in competitive funding for entities and groups forming regional hubs to pursue research and deployment of clean hydrogen. And the 2022 Inflation Reduction Act contains tax credits for both investing in hydrogen projects and producing hydrogen using renewable energy. In October 2023, the US Department of Energy selected the Pacific Northwest Hydrogen Hub as one of seven regional hydrogen hubs nationwide.

The energy storage capabilities of hydrogen offer intriguing possibilities for utilities planning to incorporate more intermittent, renewable energy resources into their portfolios. Excess electricity from renewables such as wind and solar can be used to create hydrogen and that hydrogen can be converted back to electricity when it's needed later or sold for use in other secondary applications. Producing hydrogen, rather than curtailing resources during times of surplus, will reduce the overall cost and justify further investment in intermittent renewable energy sources. By storing energy, hydrogen can help balance fluctuations in renewable energy production, while also fostering a secondary market for abundant renewable energy.

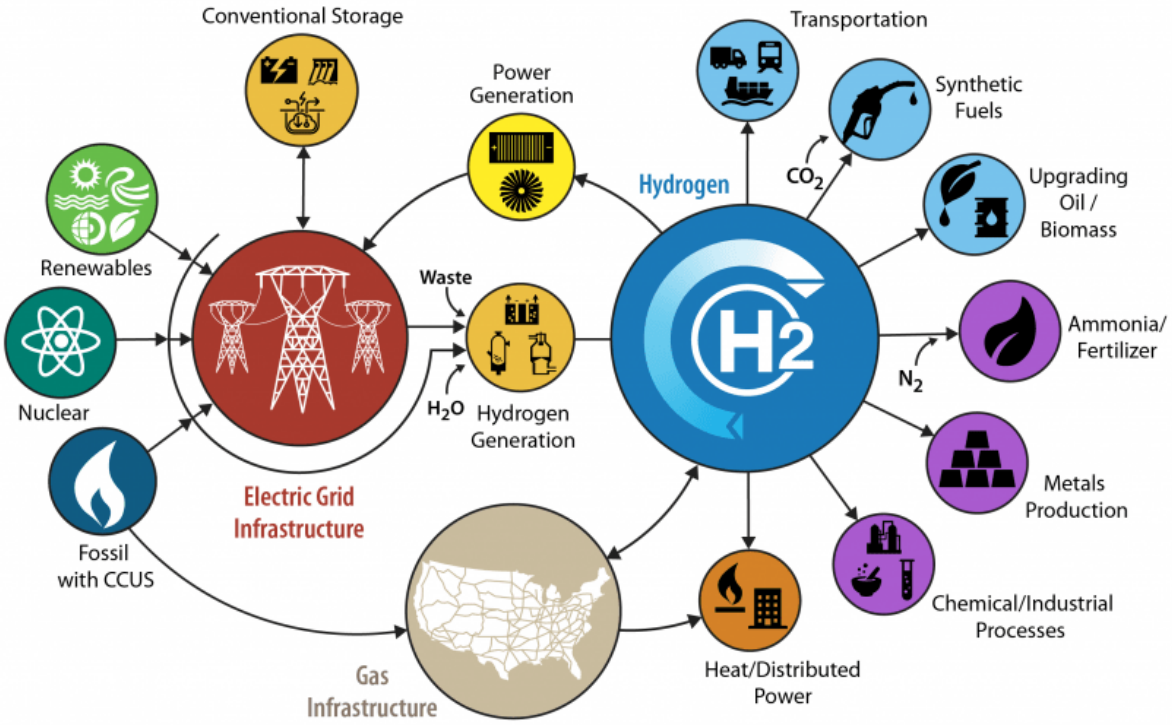
The technology for hydrogen is advancing rapidly. While more than 95% of hydrogen used in the U.S. today is generated using fossil fuels, researchers are improving methods of creating clean, green, renewable hydrogen. And utilities are launching pilot projects to test hydrogen's energy storage potential.

[4] US Department of Energy, Hydrogen Shot: Hydrogen Shot | Department of Energy

[5] Oregon Department of Energy, Renewable Hydrogen Study

To guide us in proactively pursuing technologies to harness the power of hydrogen produced from non-emitting sources, EWEB supports policies that:

- support hydrogen production that results in the lowest possible lifecycle greenhouse gas emissions[6] and facilitates the use of and/or investment in non-carbon emitting electricity generation resources.
- provide opportunities for electric utilities, or independent power producers, to use hydrogen production to capture value from otherwise curtailed intermittent renewable generating resources, further incentivizing investment in renewables.
- consider hydrogen and other non-emitting options as generic alternatives for energy storage applications.
- does not exclude hydrogen, including other non-emitting chemistries, fuel cells, and/or direct combustion, as a decarbonizing energy alterative in other sectors such as industrial processes and medium/large vehicle transportation.
- provide options for utilities to use hydrogen or other storage alternatives to improve the reliability and/or performance of local and/or distributed portions of the grid.
- provide for diverse forms of clean energy storage to improve the resiliency of local communities.
- consider the equity of the impacts on diverse segments of the population and are consistent with EWEB's Diversity, Equity, and Inclusion Policy SD23.



U.S. Department of Energy's H2@Scale initiative, which seeks to advance affordable hydrogen production, transport, storage and use to decarbonize sectors of the economy.

[6] Lifecycle greenhouse gas emissions are the overall GHG impacts of the production of a particular fuel. Depending on the boundaries of the analysis, this could include the GHG impact of feedstock production and transportation, fuel production and distribution, and use of the finished fuel. There are different lifecycle GHG emissions associated with different hydrogen production methods. For example, using renewable power to split a water molecule via electrolysis has a different lifecycle GHG value compared to a process that uses fossil-based energy to crack fossil natural gas molecules via steam methane reformation technology. EWEB seeks to be technology agnostic and move towards ever-evolving technologies that result in the lowest climate impacts.

2.6.4 EWEB Rate Design Principles

Revision date: April 2025

Utility rates have a legal duty to establish rates that are "reasonable" and not "unduly discriminatory"[7] and EWEB has closely aligned its rate making principles with industry accepted principles that provide the basis for meeting legal standards and best practices in rates making.

EWEB ratemaking principles are codified in Board Policy SD9. The EWEB Board has exclusive jurisdiction to approve annual operating budgets and establish rates for electric service.

Although EWEB's electric rates are not subject to regulatory review by any federal or state utility commission or similar agency, the Board must comply with the requirements of applicable state and federal statutes as they pertain to the development of rates and the general conduct of utility business. Current statutes and related case law provide two general standards and the first two rate design principles concerning the establishment of retail electric rates.

RATE SUFFICIENCY PRINCIPLE: Rates and charges will be adequate recover the ongoing costs of utility operations and to provide revenues sufficient to maintain a degree of financial soundness over and above requirements for compliance with existing bond covenants. These costs include annual operating expense, requirements for capital additions, interest and amortization of outstanding debt, and applicable tax obligations. This standard is intended to ensure the financial integrity of the utility, while defining the costs of operation, which can be lawfully recovered through rates.

EQUITY PRINCIPLE: Rates will conform with the legal standard that requires that rates and charges for utility service be fair and nondiscriminatory. Rates are considered nondiscriminatory when customers receiving like and contemporaneous service under similar circumstances are treated equally in the development and application of specific rates. This second standard protects the equity concerns of individual utility customers, based on established utility policies and practice for allocating costs among customers and customer classes.

EFFICIENCY PRINCIPLE: Rates, fees, and prices will be set at an economically efficient level. The prices should reflect, as closely as possible, the true cost of providing reliable electric services to each customer class and should not inadvertently distort the market. This may include consideration of embedded average costs, market-based pricing, short-term and long-term marginal costs, or other behavioral cost-based pricing. Setting an electricity price that does not align with costs has significant consequences for utilities.

COST BASIS PRINCIPLE: Cost allocation and rate design are cost based in accordance with all applicable federal, state, and local laws and regulations. The Cost Base will be established by utilizing cost of service analysis or COSA, short- or long-term marginal costs, market-based pricing, behavioral cost basis, or other reasonable cost-based pricing mechanism.

AFFORDABILITY PRINCIPLE: Rate affordability is included in Board policy SD1, Mission, Vision, Values & Legacy. "Affordable" is listed as one of the utility's five values.

GRADUALISM PRINCIPLE: Rate and customer bill Gradualism refers to the need to ensure that electricity tariffs remain relatively stable over time. The cost of electricity can vary hour to hour and large capital projects can produce significant volatility and cost. Gradualism provides a framework for insulating customers from the impact of the volatility. EWEB develops a 10-year financial plan and manages its financial plans to mitigate rate shock and volatility in retail rates and prices

[7] *Federal Power Commission v. Hope Natural Gas Co., 320 U.S. 591 at 645 (1944).*

The above standards, and approved policies allow EWEB to maintain rates at the lowest possible level consistent with sound financial principles and traditional utility ratemaking practice. They also give EWEB's elected Board of Commissioners complete authority to approve rates which are cost-based, nondiscriminatory, and in concert with the needs of EWEB's customers.

The intent of these established rate design principles is to align EWEB rate development processes with the legal framework and utilizing industry standard practices of establishing its revenue requirement and cost allocation, while providing the Board of Commissioners adequate discretion within these principles to meet competing objectives, organizational goals, and community values.

Links and Relevant Resources:

- EWEB Board of Commissioner Policies. Includes Strategic Direction Policies SD 1, SD 3, SD 6, SD 9, and SD23 referenced in this section.

3 POWER SUPPLY & TRANSMISSION

3.1 POWER SUPPLY AND TRANSMISSION INTRODUCTION AND POLICY LANGUAGE FROM SD15

EWEB is unique in Oregon as a public utility that both owns generation resources and relies on the Bonneville Power Administration (BPA) for a share of the federal power system. EWEB is also an active participant in the regional energy market. EWEB is the third largest electric utility (behind Portland General Electric and PacifiCorp) and the largest consumer-owned municipal utility in the state in terms of customers served. EWEB is the fourth largest electric utility (behind Portland General Electric, PacifiCorp, and Umatilla Electric Cooperative) in terms of total electricity sales.

EWEB's long-term power supply decisions must be made within the context of state and regional climate policy and changing regulations, rising energy demands via customer decarbonization / electrification efforts, and the physical realities of a changing climate on temperatures and hydro conditions.

EWEB Climate Change Policy SD15 – Power Supply & Transmission Section

The Board is committed to supporting a low-carbon electric power portfolio that maintains, ***on a planning basis, over 90% of annual energy from carbon-free resources and targets over 95% of annual energy from carbon-free resources by 2030 to the extent possible and practical without distinct adverse impacts to customer-owners****.*

Using the Integrated Resource Plan (IRP) process including final adoption by resolution (GP7), the Board will work with the General Manager to establish the long-term (20-year) principles, priorities, approaches, definitions (including carbon-free, carbon intensity), measurements, and goals for the electric generation portfolio, demand response, conservation and energy efficiency, and customer impact limitations (including but not limited to reliability, cost, and equity) supporting this directive.

<u>Content currently included in v3.0:</u>

- Load Forecast
- Integrated Resource Plan (IRP)
    - 2025 Energy Resource Study & BPA contract decision information to date
    - 2023 Integrated Resource Plan
- EWEB's 2020 and 2021 Electrification Studies showing expected load growth through 2040

<u>Content planned for future Guidebook Versions</u>:

- 2025 Demand Side Potential Assessment
- 2025 Energy Resource Study & BPA 2028 Provider of Choice Contract Product Decision

3.2 LOAD FORECAST

EWEB has developed a regression-based load forecast to analyze historical data and predict future energy demand or "load". Key variables include historical load information, weather variables, economic indicators, and seasonal or temporal factors. Known drivers with a direct impact on EWEB's load were incorporated into the forecast. These drivers include anticipated trends in **light-duty vehicle electrification** as well as **projected growth in the industrial sector** based on discussions with EWEB's largest customers.

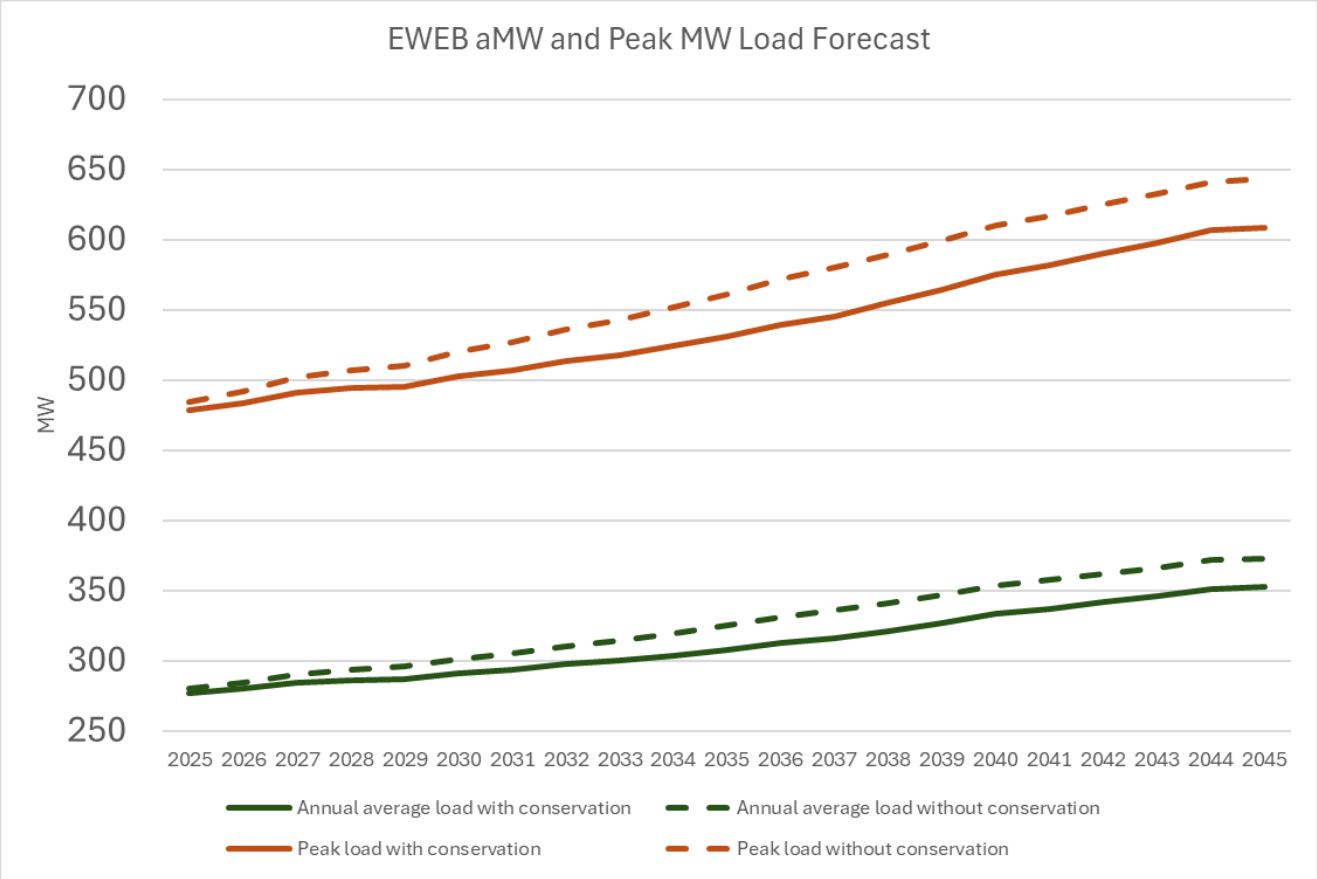
The load forecast reflects EWEB's commitment to understanding evolving electricity consumption patterns. It serves as a strategic tool to guide decisions and investments in electricity generation, delivery infrastructure, rate design, and customer program development. The forecasts are designed to prepare EWEB for a variety of

potential future scenarios. They do not advocate specific positions nor fully align with the targets or assumptions of other agencies but aim to provide an informed and adaptive perspective.

EWEB's forecast plays a critical role in utility planning, resource allocation, and reliability management within its service territory. Additionally, it contributes to regional planning efforts by informing reliability and resource adequacy metrics. This ensures a robust and dependable system at both the local and regional levels.

Overall, EWEB's 2025 load forecast anticipates increases in average and peak energy use over the next 20 years. This is primarily due to increased electrification of light duty vehicles and modest population growth of 1% per year over the next two decades. The chart below shows the 2025 load forecast and illustrates the impacts of EWEB's existing conservation programs continuing into the future.

Figure 10: EWEB Load Forecast, 2025-2045



3.3 2025 Demand Side Potential Assessment

EWEB's 2023 Integrated Resource Plan projected that, by 2028, electricity consumption could outpace our current energy conservation efforts due to electrification trends and population growth. To better understand the potential to offset future load growth, the 2023 IRP action plan directed staff to conduct a Demand Side Potential Assessment to estimate the cost and potential for demand-side measures to offset anticipated growth in customer energy and peak capacity consumption. Furthermore, EWEB wanted to understand the potential impacts of customer-owned solar as well as electrification on EWEB's loads in the future.

In early 2024, EWEB staff began work on a Demand Side Potential Assessment (DSPA) over the 2024-2045 time period. The DSPA was separated into two phases:

- **Phase 1** - Conservation Potential Assessment and Demand Response Potential Assessment with initial deliverables in Q1 2025 and final deliverables in Q2 2025.
- **Phase 2** - Electrification Potential Assessment and Customer-Owned Solar Photovoltaic Potential Assessment with initial and final deliverables in Q2 2025.

The deliverables from this study, especially those from Phase 1 will provide essential input assumptions for EWEB's Integrated Resource Planning model, enabling direct cost-effectiveness comparisons between demand-side options (energy conservation and demand response) and supply-side options (wind, solar, utility-scale batteries, etc.). Additionally, the DSPA will assist in determining how customer programs could meet EWEB's long-term energy needs over the next 20 years.

Results of this study will be provided in Climate Guidebook v4.0 (expected publication April 2026).

3.4 Integrated Resource Planning (IRP) Process

An IRP is a long-term modeling exercise to assess a utility's energy needs over the next 20 years and identify the best mix of resource options to meet those needs. Unlike Investor-Owned Utilities (IOUs), EWEB as a public utility is not required to complete an IRP on a specific timeframe. EWEB had completed an IRP in 2011, but with demand staying steady, had not undergone a full-scale IRP again until 2022-2023. EWEB is now planning to conduct regular IRPs on a 2-year cycle. For 2025, staff are preparing an Energy Resource Study (ERS) to compare the BPA product options for the 20-year Provider of Choice contract. The 2025 ERS will be used to inform management's BPA product recommendation.

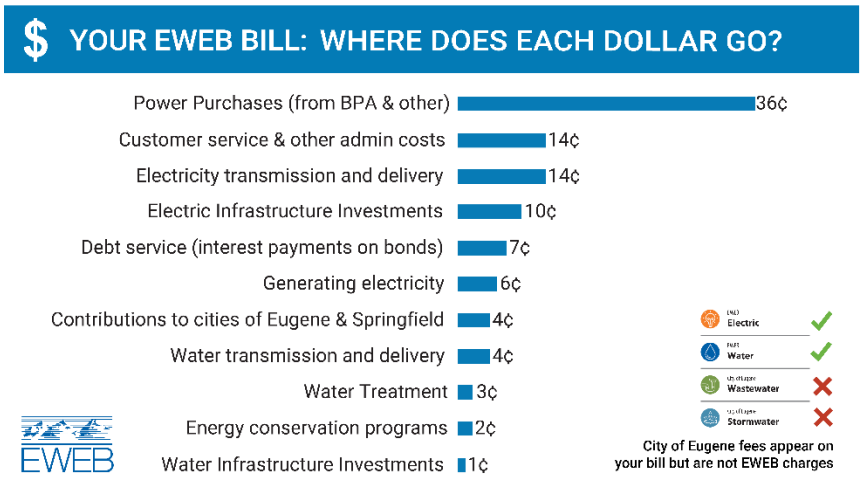
What is an IRP?

An Integrated Resource Plan is a long-term planning process to identify EWEB's energy needs and the best resource options to meet those needs. **There are two main components to a standard IRP:** an Energy Resource Study that relies on modeling and analysis and public input to provide a 20-year look at future portfolio options and a nearer-term (2-5 year) Action Plan. Best resource options will be identified in accordance with EWEB's organizational values.

These long-term power supply decisions are made within the context of state and regional climate policy and changing regulations, rising energy demands via customer decarbonization / electrification efforts, and the physical realities of a changing climate on temperatures and hydro conditions. Additionally, EWEB must live our values, one of which is to maintain a focus on affordability. The climate benefits of electrification depend on both the cost and the carbon content of electricity. If the shift to low-carbon power supplies causes a material increase in electric rates, the incentive to electrify will be reduced, and the overall cost burden on average customers will increase. **Keeping EWEB rates low is climate action.**

Power purchases represent the largest share of each customer dollar EWEB receives, so we must be especially cognizant of how we source our wholesale power. Additionally, the carbon intensity of EWEB's power relates directly to the carbon reduction benefit of electrification.

Figure 11: Your EWEB Bill - Where Does Your Dollar Go? (2024)



Through EWEB's IRP process, EWEB will develop resource plans to meet the SD15 goal for getting to 95% carbon-free resources by 2030 *on a planning basis.* Actual annual emissions will be influenced by real customer demand (driven by local weather patterns and customer behavior) and EWEB's changing need to rely on market purchases to balance customer demand and resources continuously. For example, EWEB's current portfolio is predominantly hydro power, so poor water years with low hydro supply will likely cause EWEB to make additional market purchases to balance supply and demand.

3.4.1 2025 Energy Resource Study

The 2025 Energy Resource Study (ERS) will focus on the new power products that the Bonneville Power Administration is planning to offer when the existing regional contract expires in 2028. The 2025 Energy Resource Study will build off the initial analysis and assumptions used in the 2023 IRP.

Why is the BPA 2028 contract renegotiation important?

BPA sells power from 31 federal dams and a nuclear plant (called the Federal Columbia River Power System or "FCRPS"), which provide EWEB with cost-based, low-carbon, dispatchable power. Historically, BPA's costs have been relatively low due to the size and scale of these legacy assets. EWEB's current 17-year take-or-pay[8] BPA power contract is called the Regional Dialogue Contract and is set to expire in September 2028. This BPA contract costs EWEB approximately $80 million annually and provides roughly 80% of EWEB's energy. Negotiations for BPA's next contract offering, referred to as the Provider of Choice (PoC) contracts, are underway. The regional negotiations involve in-depth discussion and analysis of various power products that BPA intends to make available to their customers[9], as well as other contract and rate principles. For example, this includes contract details such as billing determinants and organized market compatibility. Customers expect to be asked to sign BPA PoC contracts in December of 2025.

Within the 2025 ERS, staff will compile useful information for making the BPA product decision in 2025. The completion of this ERS in mid-2025 will allow EWEB management to review the study results before preparing a BPA product recommendation and a first draft of an IRP action plan. In Q4 2025, the Board will review management's recommendation and endorse an Action Plan, including a BPA product selection.

[8] In a take-or-pay contract, the buyer takes the product from the supplier or pays the supplier a penalty. Effectively, EWEB is committing to purchase power from BPA whether or not EWEB actually takes delivery of such power.
[9] BPA customers include over 130 Northwest (NW) entities including NW public utilities, like EWEB, and a few direct use industrial customers

Links and Relevant Resources:

- 2025 Energy Resource Study Board of Commissioners Presentations:
  - Board of Commissioners Regular Meeting – March 5, 2024: 2025 IRP & Energy Resource Study Kickoff, Scope & Analytical Plan
  - Board of Commissioners Regular Meeting – July 9, 2024: 2025 Energy Resource Study: BPA Product Choice Overview
  - Board of Commissioners Regular Meeting – September 3, 2024: Annual Energy Resource Study Update
  - Board of Commissioners Work Session – October 15, 2024: Qualitative Considerations for BPA Product Choice
  - Board of Commissioners Regular Meeting – December 3, 2024: 2025 Energy Resource Study: Initial Results of BPA Quantitative Analysis
- EWEB Website: 2023 Integrated Resource Plan
- 2023 Integrated Resource Plan Fact Sheets:
  - Is Solar a Good Fit for Our Community's Energy Needs?
  - How can EWEB's IRP Incorporate Diversity, Equity, and Inclusion?
  - What are Considerations Around Utility-Scale Storage in EWEB's Future Portfolio?
  - IRP Next Steps: How and When Will EWEB Acquire New Resources?
  - Planning for Long-term Carbon Reduction Goals in the IRP

3.4.2 2023 IRP

The 2023 IRP used modeling software to determine a reference case, built on a set of assumptions, along with a set of sensitivity analyses. The full modeling results and the near-term Action Plan were published in July 2023.

Key insights from the 2023 modeling and analysis included:

- **Energy demand will rise**: While our overall demand has fallen or remained flat in recent years despite population growth due to conservation investments, we expect this trend to change starting around 2030 due to electrification.
- **Peak needs will continue to occur during the winter**: For the next 20 years, EWEB is expected to remain a winter-peaking utility despite the impacts of climate change that are expected to increase summer demand. The primary driver for increased peak energy use is unmanaged electric vehicle charging.
- **Hydropower is a good fit:** Currently more than 80% of EWEB's energy comes from hydropower, both from BPA and EWEB-owned projects on the McKenzie and Clackamas Rivers. IRP analysis points towards BPA hydropower remaining a cost-effective, low-carbon way to meet most of EWEB's needs.
- **Wind and batteries are promising options:** The IRP modeling analysis indicated that a combination of wind and batteries is a competitive option to meet growing demand in the future.
- **Customer Partnerships will be vital:** Customers are likely to play an integral role in helping reduce peak energy usage. Programs such as conservation, demand response, and new rates designs, such as time-of-use rates, were all indicated as competitive options across various portfolios.
- **Zero-carbon, dispatchable resources will likely be necessary in the future:** As EWEB and the Pacific Northwest region pursue full decarbonization, there will likely be a need for dispatchable resources that do not create emissions and can be relied upon for extended periods of time.

The 2023 IRP Action Plan included several action items outlined below with status updates:

- **BPA Contract**: EWEB committed to participating in BPA's "Provider of Choice" regional negotiations and to incorporate BPA product details into future IRP modeling as information becomes available. Update:

staff continue to actively engage in regional discussions to define a post-2028 BPA contract. This process involves over a hundred utilities who all have a right to cost-based preference power from BPA.

- **Conservation/Demand Response**: EWEB committed to commissioning a study to quantify the amount and cost of available energy efficiency/conservation and availability and value of demand response within EWEB's territory through 2045. Update: EWEB has initiated this Demand-Side Potential Assessment, and the work is expected to be completed in 2025.
- **Existing Energy Resources Contracts**: EWEB committed to engaging with existing local resource contracts to improve terms and identify future generation opportunities. Update: EWEB's Board has extended the joint operation contract for the 25 MW steam turbine generator located on International Paper's property through September 2028 to align with the current BPA contract. This extension fills resource gaps in the portfolio and benefits EWEB customers, including International Paper.
- **Western Markets Analysis**: Update: EWEB conducted a Power Markets Gap Analysis to identify investments required in systems, processes, and resources to participate in new markets.
- **Ongoing IRP Modeling Refinements**: Update: EWEB analysts continue to identify modeling improvements such as incorporating monthly capacity targets (instead of annual) into our least-cost portfolio selection process. These monthly targets are anticipated to impact EWEB's least-cost portfolio solutions by identifying a resource mix which helps meet EWEB's growing summer peak needs in addition to our higher winter peak capacity requirements. This enhancement is also expected to better align with the reliability standards utilized in the Western Resource Adequacy Program.
- **Prepare for the 2025 IRP**: Update: EWEB will publish Energy Resource Study results 2025.

3.5 Electrification Study (Phase 1 – 2020, Phase 2 – 2021)

In early 2020, EWEB's management and Commissioners agreed to develop a better understanding of the impacts of electrification on EWEB's future planning efforts. EWEB's first Electrification Study (released in November 2020), focused on the potential impacts of electrification without analyzing the costs to customers choosing to electrify. The Phase 2 report from 2021 built on the 2020 analysis by considering the economics of electrification from multiple perspectives.

In both studies, the sources of electrification analyzed within the transportation sector focused on light-duty vehicle electrification, while the building sector analysis focused on the electrification of space and water heating technologies for existing residential and small commercial buildings. Heavy-duty transportation electrification and industrial electrification were outside the scope of the analysis.

These reports reflect EWEB's ongoing assessment of evolving electricity consumption patterns that will help guide decisions and investments associated with electricity generation, delivery infrastructure, utility rate design, and customer program development. These studies do not advocate a position, or necessarily fully align with other agency targets or assumptions but are an attempt to inform and prepare EWEB for a range of different future conditions. These electrification studies form the foundation of EWEB's current load forecasting practices, which are updated and published as part of the Integrated Resource Planning and Energy Resource Study efforts.

Links and Relevant Resources:

- EWEB Website: EWEB is Exploring the Impacts of Widespread Electrification in our Community
- EWEB Electrification Study – Phase 1 Report (Oct 2020)
- EWEB Electrification Study – Phase 2 Report (Nov 2021)

4 CUSTOMER DECARBONIZATION

4.1 CUSTOMER DECARBONIZATION INTRODUCTION AND POLICY LANGUAGE FROM SD15

Since 2011, EWEB has aligned its investments in energy efficiency with forecasted load growth. As a result, EWEB's electric load has remained relatively flat despite our growth in population. EWEB has a great legacy for innovating energy efficiency programs and consistently investing in conservation to lower customer costs and simultaneously reduce greenhouse gas emissions and other pollution.

This legacy began two generations ago when visionary EWEB Board members and staff embraced a wholistic path towards mitigating the need for new generation by managing demand with customer-centric conservation programs. EWEB's energy efficiency programs were the first in the northwest and even preceded BPA programs by several years. In 1976, EWEB embraced the latest advances in home insulation and began offering home audits and certifications. These early innovative programs plotted EWEB's future as a leader in conservation. In recent years, EWEB customers have benefited from mature and robust conservation programs undertaken by the utility. When other BPA customers fall short of conservation targets, EWEB has been the beneficiary, receiving additional reimbursements, above and beyond that which is embedded in the BPA power costs borne by our community.

EWEB Climate Change Policy SD15 – Customer Decarbonization Section

The Board further authorizes, delegates, and directs the General Manager to assist customers with achieving their GHG emission reduction goals through partnerships, technical assistance, resources, and programs that support, but are not limited to, energy efficiency, alternative fuels, electric and water conservation, electrification, and carbon offsets and sequestration.

Long-term conservation, energy efficiency, and demand-response goals are established as part of the IRP process. Additional program objectives, incentives and budgets will be established annually, as applicable, and/or through revisions to the strategic plan.

Changes to EWEB's future resource portfolio, coupled with increased energy consumption across the region, require a deeper look at how EWEB will optimize supply resources through cost-effective, demand-side customer engagement to secure reliability. As EWEB builds its future resource portfolio, reliability goals will increase the need for conservation efforts that have been historically centered around the utility values of affordability and the environment.

EWEB's Energy Resource Study and Demand Side Potential Assessment (See Chapter 3) seek to quantify conservation potential and define the relevant price thresholds for "cost-effective" energy efficiency and demand response programs to deliver the greatest benefit to all stakeholders. As society undergoes the largest energy transformation since the industrial revolution, there are additional opportunities to engage with our community, reduce harm to disadvantaged populations, and increase our resilience to natural disasters simultaneously.

<u>Content currently included in v3.0:</u>

- Information on existing Green Options customer programs and decarbonization incentives:
    - Live Green: Energy Conservation Programs for Residential Customers

- Work Green: Energy Conservation for Commercial /Industrial Customers (General Service)
- Move Green: Programs to Support Electric Mobility
- Lead Green: Advanced Solutions for Climate Innovators

- Appendix D – EWEB's Diversity, Equity, and Inclusion Policy SD23
- Appendix E – EWEB's Carbon Intensity Guidance
- Appendix F – EWEB's Role in City of Eugene's CAP2.0

Content planned for future Guidebook Versions:

- Definitions and metrics regarding how EWEB programs reach and support diverse segments of our customer base, informed by the DSPA.
- Enhanced options of Rate design

4.2 Green Options Programs

Through EWEB's Climate Change Policy SD15, the Board directed staff to expand on options for customer decarbonization. Staff responded with the development and roll out of Green Options, which are voluntary programs designed to help customers reduce their carbon footprint in a variety of ways. The Green Options programs includes four areas of focus: Live Green, Work Green, Move Green, and Lead Green as described. A guiding principle of customer programs is to offer value-added products, accessible to all customer segments, facilitating carbon reduction based on individual customer preferences.

4.2.1 Live Green – Energy Conservation for Residential Customers

Live Green includes incentives and zero interest loans for home investments that can save energy, reduce carbon emissions, and improve the safety and comfort in homes. Residential programs experienced high demand in 2024. Total residential projects (Residential + Limited Income) increased by 40% between 2023 and 2024 with Residential Limited Income projects increasing by 55%. Federal and State funding, combined with EWEBs incentives and outreach led to significant increases in residential project volume, and zero interest loan balances. EWEB issued 500 residential loans in 2024 compared with 300 in 2023, a 67% increase.

Figure 12: Energy Efficiency Projects by Customer Segment, 2019-2024

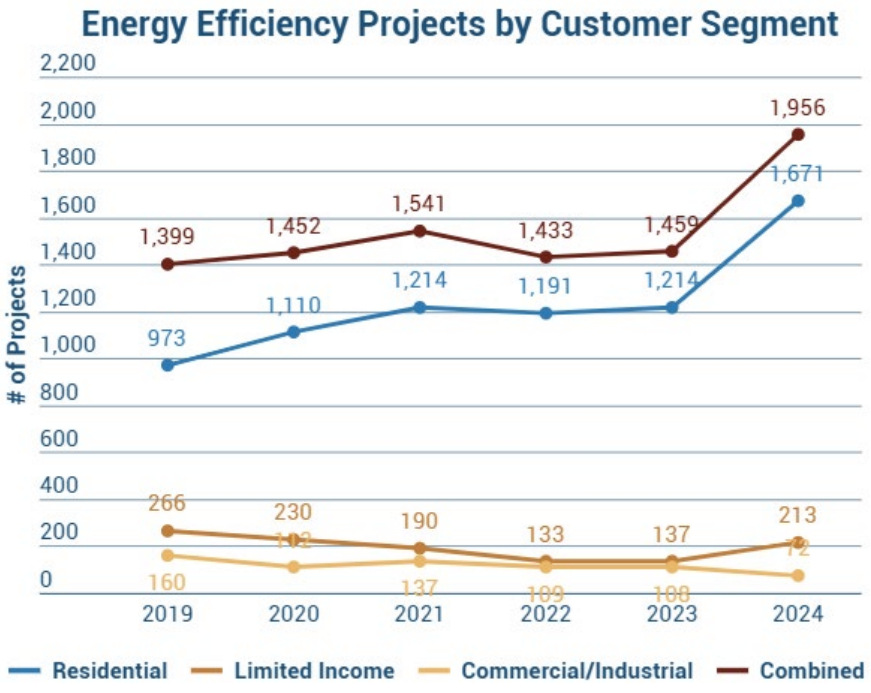


Figure 13: Outstanding Loan Balances 2022-2024 and Number of Heat Pump Projects 2022-2024

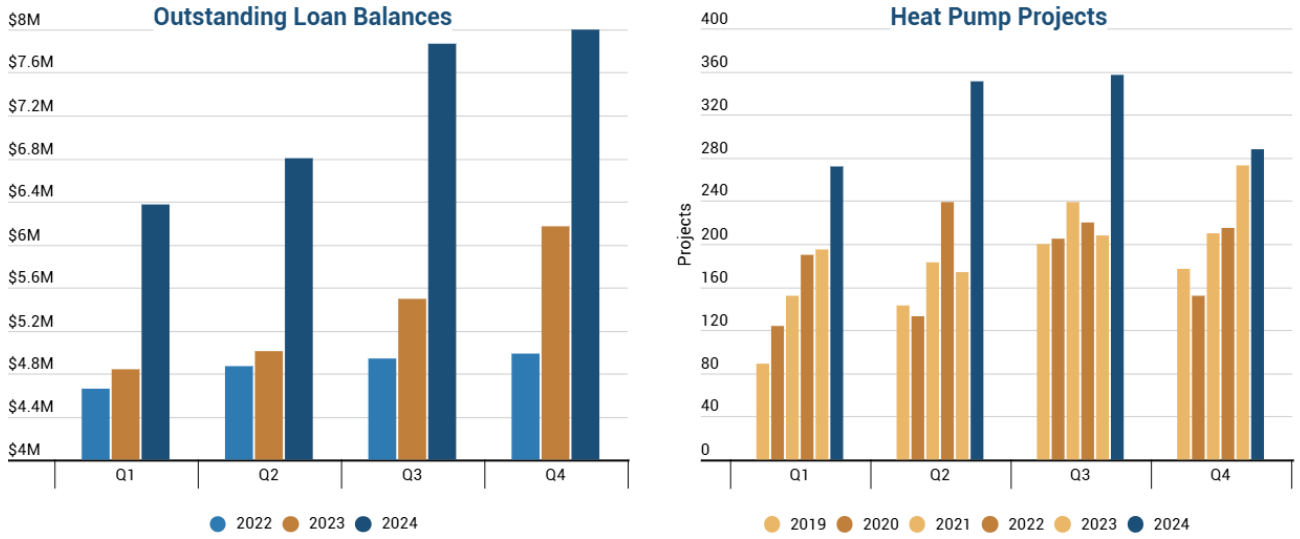
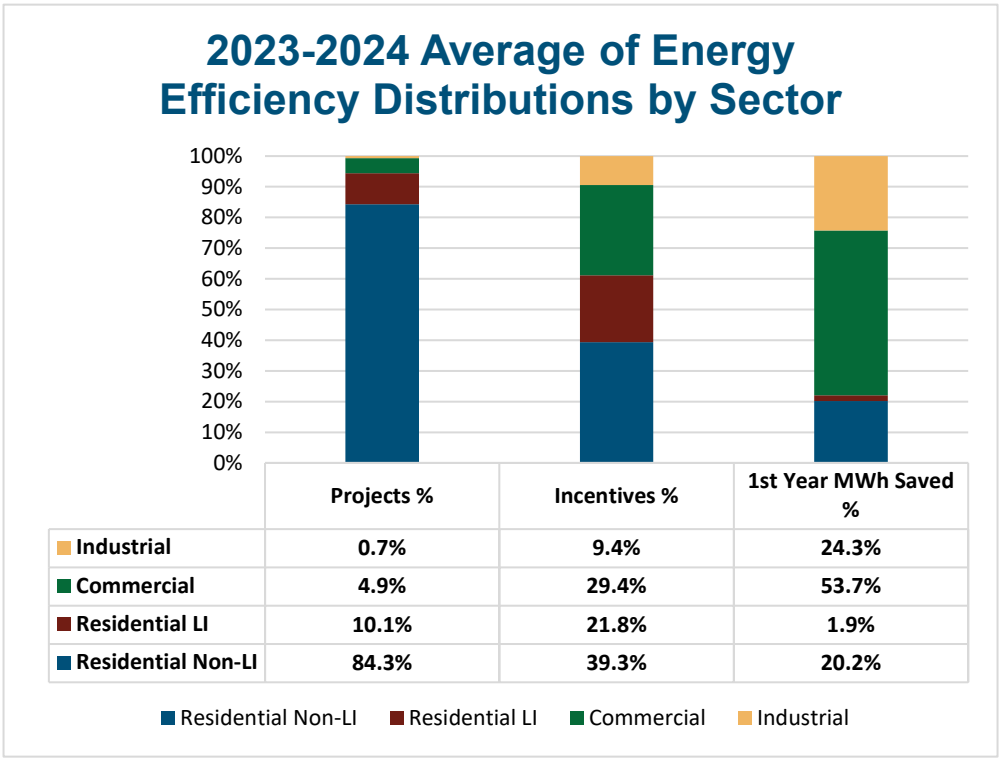


Figure 14: 2023-2024 Average Energy Efficiency Distributions by Customer Sector including Industrial, Commercial, Residential Limited Income, and Residential Non-Limited Income



	Projects %	Incentives %	1st Year MWh Saved %
Industrial	0.7%	9.4%	24.3%
Commercial	4.9%	29.4%	53.7%
Residential LI	10.1%	21.8%	1.9%
Residential Non-LI	84.3%	39.3%	20.2%

While EWEB is proud to have delivered robust efficiency project volume to the limited income residential sector, this effort was motivated by a commitment to address affordability for vulnerable customers. These projects do not yield significant energy savings, and by extension, meaningful carbon reduction. Furthermore, they are less cost-effective *for the utility*. This is because for limited income projects, EWEB covers all or nearly all the project cost, whereas for the residential non-limited income, commercial, and industrial projects, EWEB incentives leverage private investment to make the projects happen. This focus on residential projects in 2024 resulted in lower than usual total MWh of conservation achieved. While EWEB achieved 151% of its total peak (kW) 2024 efficiency target, it only achieved 66% of its 2024 energy efficiency (MWh) target.

As illustrated, over the two-year period covering 2023-2024, residential limited income represented 10% of the total projects, received nearly 22% of available financial incentives, but yielded less than 2% of the energy savings. While this investment in the limited income customer segment is important from a social equity point of view, it is not driving GHG emissions reductions. EWEB is committed in 2025 to review its limited income

support programs to find ways to continue and expand support for making clean energy and water affordable for our most vulnerable customers. Project scale is another important component to drive significant energy and emissions savings. Commercial and industrial projects tend to be much larger, so a fewer number of projects can generate significant energy and emissions savings compared to residential projects. From a conservation program perspective related to decarbonization goals, in the future EWEB will be more reliant on higher energy efficiency targets to support reliability and more cost-effective projects that can achieve greater environmental impact.

In addition to rate-funded programs, EWEB is a proactive partner with agencies that contribute external grant funding to our service territory. In 2024, EWEB distributed grants worth $234,000 for energy efficiency projects in moderate income households, $532,000 in septic grants within the McKenzie Watershed, and $265,000 from the Oregon Community Heat Pump Deployment program.

Links and Relevant Resources:

- EWEB Website: Residential Energy Conservation Programs

4.2.2 Work Green – Energy Conservation for Commercial & Industrial (General Service) Customers

Incentives and loans for commercial and industrial investments that can save energy, reduce carbon emissions, and improve the operational efficiency of businesses. These may include standardized measures or custom projects specific to the facility.

EWEBs commercial customers contribute heavily to energy efficiency, with low cost, high-impact projects. From 2019 – 2024, the commercial sector contributed 75,000 MWhs of energy savings, with the support of $72 in incentives. These savings represent a significant share of total conservation. Over the past two years, in fact, commercial and industrial energy efficiency projects received about 40% of the total available incentives, yet accounted for nearly 78% of the total energy savings (54% for commercial and 24% for industrial).

Commercial electrification projects also help to reduce carbon emissions within the community. In the past 6 years, commercial customers have received over $200,000 incentives to support transportation electrification and $260,000 for building electrification.

Links and Relevant Resources:

- EWEB Website: Commercial Energy Conservation Programs

4.2.3 Move Green – Transportation Electrification

Leveraging financial support from the State of Oregon Clean Fuels Program, EWEB offers various incentives and efforts to facilitate the switch from fossil fuel-based transportation options to electric options. As a load serving entity, EWEB allocates Clean Fuels Credit funding (CFCs) to equitably balance EWEB's values of reliability and community and to optimize the benefits and impacts to all customers.

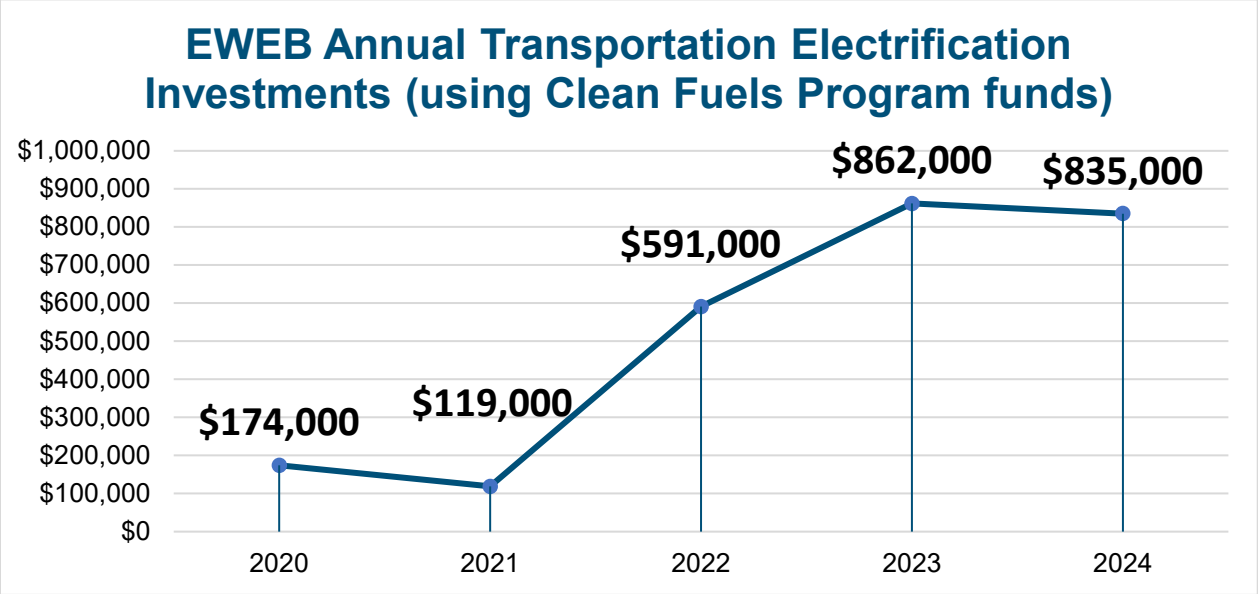
According to the Oregon Department of Energy and its Oregon Electric Vehicle Dashboard, as of October 2024, there were 5,375 electric vehicles in EWEB's service territory, nearly a 35% increase from August 2023, resulting in over 14,800 MT reduction in annual greenhouse gas emissions. Of these vehicles, 5,129 fall under the categories of cars, light trucks, SUV, and vans, bringing over 14,100 MT reduction in annual greenhouse gas

emissions for this subgroup. Emissions calculations assume a reduction of 2.75 MT CO2e per EV per year compared to an internal combustion engine as described in EWEB's 2021 Electrification Study (see Chapter 3)[10].

In 2024, EWEB invested in $835,000 of Oregon Clean Fuel Program funding into transportation electrification programs including rebates for EV charging infrastructure; incentives for e-bikes; electric mobility community grants for non-profit, academic, and public organizations; and electric vehicle car share programs at low-income housing developments.

As mentioned in Chapter 2, **in 2024 Clean Fuel Program credits significantly decreased in value. Credit prices had been fairly stable and consistently over $100 per credit since 2018, but dropped to under $30 in Sept 2024.** Average credit prices in the early months of 2025 are in the low to mid-$40s. This will impact the amount of funding EWEB has available to invest in transportation electrification initiatives in coming years.

Figure 15: 2024 Investments in Transportation Electrification (using Clean Fuels Program funds)



Links and Relevant Resources:

- EWEB Website: Electric Mobility Programs
- State of Oregon Website: Clean Fuels Program
- State of Oregon Website: Oregon Electric Vehicle Dashboard

4.2.4 Lead Green – Advanced Solutions for Climate Innovators

For customers that have done all they can to maximize energy efficiency at home and at work, or adopt electric transportation, EWEB offers programs for customers eager to do more. EWEB's Lead Green program includes a suite of additional product offerings including:

- Cleanpower
- Greenpower
- Carbon Forestry Lab
- Solar Electric Program

[10] EWEB Electrification Study – Phase 1 Report (Oct 2020)

Figure 16: Annual Lead Green New Enrollments and Total RECs Retired on Behalf of EWEB Customers (MWh)

Participation and Direct Carbon Impact

	2018	2019	2020	2021	2022	2023	2024
Total Participants	1,707	1,629	1,590	1,590	1,622	1,660	*
Contributed Revenues	$234,098	$212,421	$193,438	$192,587	$199,419	$198,341	$183,411
Renewable Energy (MWh)	22,593	20,439	18,578	18,520	19,392	19,731	16,346
Carbon Offsets	Carbon Offset program launched April 2022				16	59	67
EWEB Carbon Intensity	0.015	0.055	0.026	0.040	0.034	0.036	0.036
Total MT CO2e	339	1124	483	741	791	777	662

*** Reporting on total participation was not available at time of publish due to new Customer Information Systems (SAP)**

Cleanpower

EWEB Cleanpower invites customers to voluntarily match their energy usage with the purchase of Renewable Energy Certificates (RECs). **Cleanpower is EWEB's most cost-effective program for the bulk purchase of RECs to enable large customers to address their carbon emissions from electricity use through investment in new renewable electricity sources**. Investing in RECs allows developers of wind, solar and other renewable energy resources to build more zero-emission generation, because they know they will be supported financially.

Greenpower

EWEB Greenpower is a voluntary program for customers who want to support the development of *local* renewable energy. Like Cleanpower, Greenpower customers also match their electricity usage with the purchase of Renewable Energy Certificates (RECs) to address the carbon emissions from electricity use by investing in new renewable energy sources. **But Greenpower goes beyond simply purchasing RECs by supporting the development of local solar projects and providing grants for community environmental projects.**

Funds generated from the voluntary Greenpower program also provide $50,000 Greenpower Grants to local non-profit organizations for renewable energy projects, clean energy education, the adoption of emerging technologies, or projects that increase carbon sequestration. Greenpower customers vote every two years on which projects they want to fund. Greenpower is available to all EWEB customer categories. The next round of funding will be voted on in 2025. In 2023, Greenpower subscribers awarded the grant to Friends of Trees. This was the third time Friends of Trees had received the grant, having won the grant in 2018 and 2021. Their latest grant funded the expansion of their neighborhood tree program into areas in Eugene with low tree equity scores. **In addition to sequestering carbon while the trees grow, enhancing the urban tree canopy can mitigate the urban heat island effect by providing shade, reducing surface temperatures, reducing energy consumption, and promoting evaporative cooling**. Other past grant recipients include the Eugene Mission and St. Vincent de Paul of Lane County.

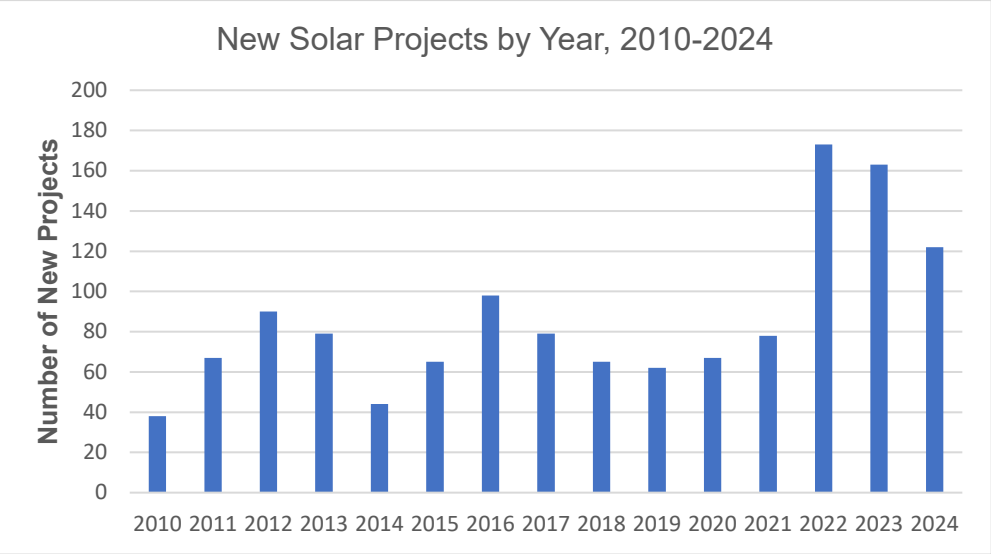
Solar Electric Program

Greenpower customers help support local solar installations by funding EWEB Solar Electric Program. Commercial and Residential customers can receive incentives for installation and may receive bill credits during periods where solar generation exceeds energy use.

Figure 17: Eugene Solar Installations, Residential and Commercial, 2001-2024

Eugene Cumulative Solar Installations, Residential and Commercial, 2001-2024			
System Type	**Total Projects**	**Total Capacity (MW)**	**Annual Energy (MWh)**
Net Metered	1,367	9.2	9,366
Direct Generation	49	2.9	2,937
Total	**1,416**	**12.0**	**12,303**

Figure 18: EWEB Solar Electric Program New Installations by Year, 2010-2024



Carbon Forestry Lab

The Carbon Forest Lab is an opportunity to invest in local carbon forestry projects aimed at expanding our understanding of natural climate solutions and enhancing the McKenzie Watershed, EWEB's sole source of drinking water. EWEB has partnered with cutting-edge researchers at the University of Oregon to explore ways to quantify and enhance natural climate solutions (NCS). The World Economic Forum defines natural climate solutions as, "actions that avoid greenhouse gas emissions and increase carbon storage in forests, grasslands, and wetlands."[11]

The project seeks to answer a few core questions:

- What kinds of plants and trees sequester the most carbon?
- How can we maximize carbon sequestration in the soil to ensure long term capture that is impervious to wildfire?
- What is the best planting method for long-term planting success?
- How do we balance the benefit of more trees with the risk of wildfire?

This is long-term research and initial soil carbon sampling and reportable carbon data results are expected in the 2029-2030 timeframe.

Customers can support the development of carbon forestry technologies, improve McKenzie Watershed habitat, and develop local jobs and research training, while protecting the watershed. Voluntary revenues augment and

[11] What are natural climate solutions? | World Economic Forum (weforum.org)

expand project capacity, leveraging existing funds from University of Oregon grants and EWEB watershed protection programs.

Links and Relevant Resources:

- EWEB Lead Green Program Options
- EWEB Cleanpower Program Details
- EWEB Greenpower Program Details
- EWEB Greenpower Grant Recipients
- EWEB Carbon Forest Lab Program
- YouTube Video explaining EWEB High Banks Carbon Forest Lab project
- University of Oregon, Soil Plant Atmosphere Lab
- EWEB Solar Electric Program
- EWEB Commercial Solar Electric Program
- EWEB Residential Solar Electric Program
- Resources for Solar Electric Contractors
- Solar Generation Rates

5 CLIMATE IMPACTS ON EWEB – RESILIENCY & ADAPTATION

5.1 CLIMATE IMPACTS ON EWEB INTRODUCTION AND POLICY LANGUAGE FROM SD15

EWEB defines resiliency as, ***"the ability to reduce the likelihood, magnitude, and duration of sudden or gradual disruptive events through risk mitigation, emergency preparedness and response, and recovery strategies."*** The U.S. EPA, within its Regional Resilience Toolkit[12] says, "Resilience is about building the capacity of the community, at various scales, to prepare for, withstand, recover, and maintain its identity in the face of actual or anticipated hazard occurrences, allowing for continuity of community and quick recovery if a disaster occurs."

> **EWEB Climate Change Policy SD15:**
> **Climate Impacts on EWEB - Resiliency & Adaptation Section**
> *Consistent with resiliency initiatives included in EWEB's approved strategic plan, the Board directs the General Manager to evaluate and enact measures, as necessary and appropriate, to prepare for and minimize the effects of climate change that could impact EWEB's water and electric supply and infrastructure, damaging EWEB's resiliency and reliability.*

When thinking about resiliency to both sudden and gradual disruptive events, it's helpful to remember EWEB got its start back in the early 20th century to enable local control of vital community resources in the face of a specific public health threat. When a typhoid epidemic struck Eugene in the early 1900s, the outbreak was traced to the privately-owned water company. In response, outraged citizens voted in 1908 to buy the system and create a municipal, citizen-owned water utility. The Eugene City Council authorized the construction of a hydroelectric power plant that would power the pumps necessary to bring water to the people and then transferred control of the utility to a separate citizen board in early 1911. When the Walterville Power Plant (still in operation today) generated surplus electricity beyond what was needed for the water pumps, EWEB took the necessary steps to become the full-service electricity and water provider that it is today.

More than one hundred years later, EWEB continues to be forward-thinking in its long-range planning. The utility strives to continually serve our community with life-sustaining water and electricity every minute of every day, and into the future forever. Flexibility and adaptability in our plans and operations will be necessary to remain resilient to a wide-variety of natural and human-caused threats if we are to maintain this level of reliability for the next 100 years.

While there are many threats the utility must prepare for and work to avoid that are *not* directly due to climate change (such as domestic terrorism and/or cyber security threats), we know that climate change is already impacting our physical environment, our human capital, our public health, our policy landscape, and our resource availability in new and challenging ways. Often, stresses from these new challenges are layered on top of one another, and deciphering cause and effect to determine effective responses is becoming more complicated. The layering of simultaneous challenges taxes the capacity of any organization's response. Never was this more apparent as our community struggled to respond to the intense stresses of the COVID-19 pandemic and the devastating Holiday Farm fire simultaneously in September 2020. While everyone in our community will be impacted by the physical effects of climate change in one way or another, EWEB also recognizes that the most vulnerable members of our community will be least able to prepare and adapt to this

[12] EPA Regional Resilience Toolkit, July 2019: Regional Resilience Toolkit: 5 Steps to Build Large-Scale Resilience to Natural Disasters (epa.gov)

Road damage on Highway OR 126 during the Holiday Farm Fire in September 2020. Courtesy of Oregon Department of Transportation.

wide range of changing conditions. No matter where the challenges originate, EWEB must find new ways to increase redundancy and resiliency across the organization and throughout our infrastructure. In doing so, EWEB must consider how to support members of our community who have been historically under-served and/or are most vulnerable to service disruption, bringing an equity focus to the work.

Climate Policy SD15 requires the General Manager to evaluate and enact measures to prepare for and minimize the effects of climate change on EWEB's water and electric supply and infrastructure. Therefore, this chapter of the Climate Guidebook will focus on resiliency initiatives related to expected changes to our physical environment in Lane County, our drinking water quality and water availability for both drinking and hydropower production, and the ability of our EWEB-owned infrastructure to adapt to changing physical conditions. This section will be expanded over time in response to stakeholder needs and feedback and as our programs grow and change in response to where the need is greatest.

<u>Content currently included in v3.0:</u>

- Expected physical changes from climate change for Lane County, via Oregon Climate Change Research Institute
- Lane County Natural Hazard Mitigation Plan (NHMP)and other planning efforts at the State and County levels
- EWEB's Wildfire Mitigation Plan
- EWEB's Watershed Protection Program
- Second Source of Drinking Water Development on the Willamette River
- Appendix C – EWEB's Resiliency Policy (SD22)

<u>Content planned for future Guidebook Versions</u>:

- Link to EWEB's Annex to Lane County's NHMP once approved by FEMA
- SD22 Resiliency Policy implementation activities
- High-level results from EWEB's 2025 Business Impact Analysis
- Research results from EWEB's Forest Carbon Lab investments in partnership with University of Oregon

5.2 Expected Physical Climate Changes for Lane County

In July 2022, the Oregon Climate Change Research Institute (OCCRI) finished a report for the Oregon Department of Land Conservation and Development called, "Future Climate Projections: Lane County, OR." The study evaluated 12 natural hazards and related climate metrics (Table 2 in the OCCRI report) to determine if the risks in Lane County from those hazards was increasing, remaining unchanged, or decreasing and the confidence level of each. The Executive Summary of this report states:

Figure 19: Image from Oregon Climate Change Research Institute July 2022 Report, "Future Climate Projections: Lane County, OR". Introduction Table 2.

Table 2. Selected natural hazards and related climate metrics.

Heat Waves Hottest Day, Warmest Night Hot Days, Warm Nights	**Cold Waves** Coldest Day, Coldest Night Cold Days, Cold Nights
Heavy Rains Wettest Day, Wettest Five Days Wet Days, Landslide Risk Days	**River Flooding** Annual Maximum Daily Flows Atmospheric Rivers Rain-on-Snow Events
Drought Summer Flow, Spring Snow Summer Soil Moisture Summer Precipitation	**Wildfire** Fire Danger Days Extremely Dry Air Days
Reduced Air Quality Days with Unhealthy Smoke Levels	**Coastal Erosion and Flooding** Sea Level Rise Waves
Changes in Ocean Temperature and Chemistry	**Loss of Wetlands**
Windstorms	**Expansion of Non-native Invasive Species**

"Climate change is expected to increase the occurrence of many climate-related natural hazards. ***Confidence that the risk of heat waves will increase is very high*** *(Table 1 – see below) given strong evidence in the peer-reviewed literature, consistency among the projections of different global climate models, and robust theoretical principles underlying increasing temperatures in response to ongoing emissions of greenhouse gases. Confidence that the risk of many other natural hazards will increase as climate changes is high or medium (Table 1), reflecting moderate to strong evidence and consistency among models, yet these risks are influenced by multiple secondary factors in addition to increasing temperatures. Confidence in changes in risks is indicated as low if projections suggest relatively few to no changes or evidence is limited.*

This report presents future climate projections for Lane County relevant to specified natural hazards for the 2020s (2010–2039) and 2050s (2040–2069) relative to the 1971–2000 historical baseline. The projections are presented for a lower greenhouse gas emissions scenario and a higher greenhouse gas emissions scenario and are based on multiple global climate models. All projections in this executive summary refer to the 2050s, relative to the historical baseline, under the higher emissions scenario. Projections for both time periods and emissions scenarios are included in the main report."

Figure 20: Image from Oregon Climate Change Research Institute July 2022 Report, "Future Climate Projections: Lane County, OR" Executive Summary Table 1.

Table 1. Projected direction and level of confidence in changes in the risks of climate-related natural hazards. Very high confidence means that the direction of change is consistent among nearly all global climate models and there is robust evidence in the peer-reviewed literature. High confidence means that the direction of change is consistent among more than half of models and there is moderate to robust evidence in the peer-reviewed literature. Medium confidence means that the direction of change is consistent among more than half of models and there is moderate evidence in the peer-reviewed literature. Low confidence means that the direction of change is small compared to the range of model responses or there is limited evidence in the peer-reviewed literature.

	Low Confidence	Medium Confidence	High Confidence	Very High Confidence
Risk Increasing ↑		Drought Expansion of Non-native Invasive Plants Reduced Air Quality Loss of Wetlands	Heavy Rains Flooding Wildfire Changes in Ocean Temperature and Chemistry Coastal Hazards	Heat Waves
Risk Unchanging =	Windstorms			
Risk Decreasing ↓				Cold Waves

The report provides ranges of impacts from projected hazards in tangible form. For example, related to the very high confidence of the increasing risk of impact from heat waves, the report states, "***In Lane County, the number of days per year with temperatures 90°F or higher is projected to increase by an average of 18 days (range 5–30 days) by the 2050s, relative to the 1971–2000 historical baselines, under the higher emissions scenario.***"

Links and Relevant Resources:

- Oregon Climate Change Research Institute (OCCRI): Future Climate Projections for Lane County, Oregon
- Oregon Climate Change Research Institute (OCCRI): Oregon Climate Assessments

5.3 Natural Hazards Mitigation Plan (NHMP)

EWEB has participated in the metro-area NHMP since 2009 and in 2025, joined as an annex holder to Lane County's NHMP to consolidate regional planning efforts. The benefits of joining the County's process include:

- Continuity of risk assessment process among jurisdictions already incorporated within the county MJNHMP – shared resources for research and analysis of risks/impacts to people and infrastructure.
- Consolidated planning efforts in response to those identified risks specific to mitigation strategies and potential regional grant project alignments and applications.
- Expanded ability to conduct capabilities assessment to a larger service area – more in line with an actual response mutual aid resource request footprint.
- Consolidated public engagement, i.e., reduction of duplicate efforts engaging with the public on same subject matters but initiated in different cycles.
- Provide for a more regional approach to partnerships for annex holders; planning, on-going natural hazard committee meetings would incorporate a larger partnership.

EWEB's 2024-2028 Annex to the Lane County Multi-Jurisdictional Natural Hazard Mitigation Plan is currently being reviewed by FEMA. Once approved, the current metro-area NHMP will be retired.

Natural hazard mitigation is defined as permanently reducing or alleviating the losses of life, property, and injury resulting from natural hazards through long and short-term strategies. In the updated annex, winter storms, wildfire, and earthquake rank as the highest risks to the public and to EWEB utility infrastructure. Moderate risks identified include extreme heat, windstorms, flooding, landslides, and drought. Compared to the prior risk assessment, the risk score for wildfire increased while flooding and landslide risks ranked lower relative to other natural hazards. EWEB has re-evaluated the probability of potential natural disasters occurring and its response capabilities to develop a natural hazard risk rating. While climate change itself is not defined as a natural hazard, it is a contributing factor that elevates the probability and severity of different natural hazards.

The NHMP examines and prioritizes hazards to help focus risk reduction activities to protect critical infrastructure and public safety. Once approved by the Federal Emergency Management Agency, plan holders can qualify for federal and state funds appropriated specifically for NHMP mitigation projects. Since the 2020 NHMP was adopted, EWEB has been awarded over $2.5M in FEMA Hazard Mitigation Advanced Assistance funds; about $1.2 for watershed recovery and restoration work and the remainder for water transmission line feasibility studies at Day Island and Knickerbocker Bridge.

Risk mitigation action items identified in the NHMP include seismic upgrades to existing infrastructure, emergency water distribution equipment, and watershed recovery activities to mitigate future wildfires. These activities are reflected and funded through EWEB's ten-year electric and water capital improvement plans.

Links and Relevant Resources:

- City of Eugene Emergency Plans: Eugene Springfield Multi-Jurisdictional Emergency Operations Plan, Eugene Springfield 2020 Natural Hazards Mitigation Plan, Oregon Resiliency Plan, and Neighborhood Radio Communications Response Guide
- Lane County, Oregon's Office of Emergency Management
- Natural Hazard Mitigation Plan for Lane County, 2023-2028
- Natural Hazard Mitigation Plan for Lane County, 2018-2023
- Natural Hazard Mitigation Plan for Oregon, 2020-2025 - Oregon Department of Land Conservation and Development

5.4 Implementation of Resiliency Policy- SD22

In August 2023, EWEB's Commissioners approved Board Policy SD22 (See Appendix C). The policy directs the organization to incorporate resiliency considerations into Strategic Plans, Long-Term Financial Plans, Capital

Improvement Plans, annual budgets, and organizational goals. Implementing this policy requires risk mitigation, recovery plans for major threats, and completing Triple-Bottom-Line (TBL) assessments that include resiliency criteria when evaluating alternatives. Four focus areas for resiliency efforts are addressed in the policy including:

- Infrastructure and Systems
- Workforce
- Finance
- Community

Infrastructure investments that will provide robust service resiliency in adverse conditions were invested in throughout 2024 and additional capital improvements are planned over the next decade to continue to support service resiliency and redundancy. 2024 projects included:

- Water Storage Tanks: New seismically resilient drinking water storage tanks near East 40th Avenue were completed in March 2024. Replacement of the College Hill Reservoir is underway.
- Emergency Water Station: A sixth emergency water distribution site opened in October 2024 near the YMCA.
- Willamette Water Treatment Plant: Early design for a redundant water source on the Willamette River is underway, with construction expected in 2026 or later.
- Currin Substation: Rebuilt and placed back into service in Q4 2024, enhancing grid reliability.
- Smart Meter Deployment: By Q3 2024, 98% of customers had smart electric meters, and 85% had smart water meters, supporting efficiency and resilience.
- Generation Resource Management: Significant investments in infrastructure, including turbine rebuilding at Carmen Powerhouse and control system upgrades at Trail Bridge, were completed. Natural resource enhancements also advanced.

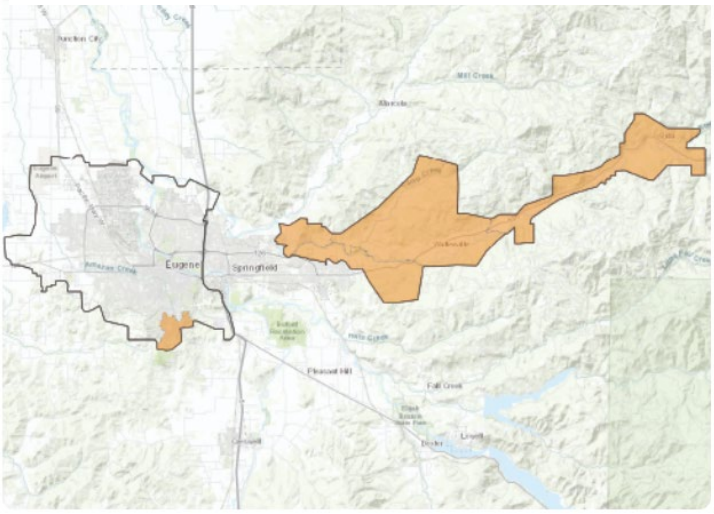
In addition, planning efforts are underway to support a business impact assessment and workforce succession planning to evaluate and plan for exposures in our key service lines in 2025.

5.5 EWEB's Wildfire Mitigation Plan and Associated Policies

All Oregon electric utilities are required to develop a risk-based Wildfire Mitigation Plan (WMP) and submit the approved plan to the Public Utility Commission (PUC). The EWEB Board approved the utility's first WMP in July 2022 and agreed to an annual cadence for plan updates. The second plan, developed with the benefit of fully adopted regulatory requirements, was approved in July 2023.

Understanding areas of high wildfire potential across the electric system is critical to effectively target key locations and mitigation investments. Most of EWEB's electric infrastructure is in urban areas with relatively low risk for wildfire. Areas currently deemed to have heightened risk include the McKenzie River Valley and a portion of southeast Eugene.

Figure 21: EWEB Wildfire Risk Map. Orange sections are intended to show areas in EWEB service territory where electric lines and equipment are sited in terrain with higher potential for wildfire.

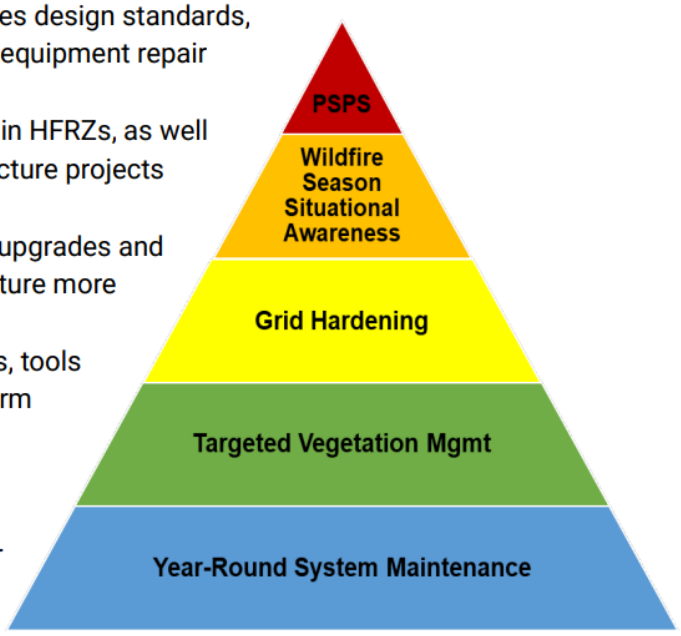


In 2024, EWEB secured third-party fire risk modeling expertise using the most current data to validate and refine our High Fire Risk Zones. The 2024 WMP was delayed while this analysis was underway, and results will be incorporated in the upcoming 2025 plan.

The increasing frequency of extreme weather events, shifting regulatory environment and threat of natural disasters is prompting EWEB to adapt its operational practices while making strategic investments to maintain public safety and improve resiliency. Wildfire is now impacting EWEB assets, operations and customers on a near-annual basis. Addressing this growing threat requires accelerated implementation of multi-hazard risk reduction strategies as well as on-going maturity of our WMP.

EWEB's WMP's comprehensive approach to wildfire risk reduction includes:

- **System Operations and Maintenance**: Includes design standards, inspections and equipment diagnostics, and equipment repair and replacement.
- **Vegetation Management**: Enhanced pruning in HFRZs, as well As fuels reduction and select green infrastructure projects with wildfire risk reduction co-benefits.
- **Grid Hardening:** A broad array of equipment upgrades and capital investments to make utility infrastructure more resilient to wildfires.
- **Situational Awareness:** Operational practices, tools and monitoring of weather conditions to inform field activities and utility response to wildfire threats.
- **PSPS:** Encapsulates changes to system operational settings and Public Safety Power Shutoffs (PSPS) for specific circuits during extreme fire risk conditions.



EWEB has allocated $1 million as a funding floor specific to wildfire mitigation activities, including wildfire cameras, weather stations and forecasting, enhanced inspections, and multi-hazard reliability projects. Grant funding has been sought to accelerate mitigation work, supporting fuels reduction and grid hardening efforts. Community engagement and interagency coordination is an essential component to the planning effort. In 2023, EWEB launched a new program to offer extra support to customers who rely on electricity for medical equipment and mobility devices during a Public Safety Power Shutoff (PSPS) event.

Links and Relevant Resources:

- EWEB website: Wildfire Safety and Prevention
- EWEB Wildfire Mitigation Plan, 2023-2024 (adopted July 11, 2023)
- EWEB Wildfire Mitigation Plan, 2022 (approved July 5,2022)
- Oregon SB 762: Wildfire Preparedness

5.6 Watershed Protection Programs

In the 2019 State of the McKenzie Watershed Report staff indicated, "it is anticipated that climate change impacts in the McKenzie will show up as extreme weather events (including flooding, drought, and loss of

snowpack), resulting in increased wildfires, harmful algal blooms (HABs), and property damage in riparian and floodplain areas." The 2020 Holiday Farm Fire (HFF) was an example of such an extreme event that continues to have a significant impact on the McKenzie Watershed. 2023 brought another round of wildfires to the Upper McKenzie, adding to the already sizeable portion of total acres burned throughout the watershed over the past 7 years. Since the HFF, EWEB has been hard at work mitigate the water quality threats from these fires by working closely with our federal, state, and local partners in a well-coordinated response and restoration effort.

Figure 22: Former EWEB employee Karl Morgenstern inspects damage from the Holiday Farm Fire

Although the McKenzie River has faced some major challenges over the past several years, **overall water quality remains excellent.**

The overarching goal of EWEB's Drinking Water Source Protection (DWSP) program is to maintain our community's exceptional water quality. We do this by maintaining the balance between watershed health and human use over time. To meet this goal, we aim to:

- Plan and implement actions that maintain source water quality in a way that balances risks with benefits in partnership with others;
- Prioritize source protection efforts that provide the greatest benefit to drinking water treatment and electric generation in the McKenzie Watershed; and,
- Promote public awareness and stewardship of a healthy watershed through actions and programs.

Activities included in the Drinking Water Source Protection program include:

Water Quality Monitoring

EWEB's Source Water Protection Program undertakes multiple long-term monitoring efforts year-round to assess water quality conditions throughout the watershed. Water quality conditions are tracked through a combination of extensive continuous monitoring stations and discrete sampling. The results are used by staff to better understand overall watershed health, contaminant sources and emerging drinking water threats. All routine baseline sampling events were completed as scheduled in 2024. Key items of note for 2024 include:

- Overall, water quality remains excellent in the McKenzie River. Water quality conditions tracked throughout the McKenzie Watershed during 2024 were largely unremarkable, apart from significant early January and late December storm events, which resulted in elevated turbidity and high flows throughout the watershed. Even the monitoring sites within the watershed with lowest relative water quality rank would generally still meet most drinking water standards *before* standard treatment.

- A prolonged series of winter storms that extended into early spring kept snowpack levels healthy and supported McKenzie River flows that stayed closer to median values throughout the first half of the season, which can help improve instream temperatures and overall water quality.
- Primary nutrient levels (nitrate, total phosphorus, orthophosphate) across the 6 mainstem McKenzie River monitoring sites stayed at or below 60 ug/L during all quarterly baseline sampling events, with the exception of nitrate levels during the final baseline event in November. For this particular event, nitrate values climbed to 100 ug/L or more for all mainstem baseline sites, which is not typical, but also isolated to one event. A combination of prior precipitation across recently burned areas might be a contributing factor to the elevated nitrate levels. Staff will continue to monitor nitrate levels into 2025.
- Baseline mainstem metal concentrations stayed well below all applicable drinking water MCLs.
- A new permanent water quality monitoring station was installed at Quartz Creek. Quartz Creek was extensively burned during the Holiday Farm Fire and is currently undergoing a largescale floodplain restoration effort. This builds on the continuous water quality monitoring network expansion in 2023 to include Keizer Slough.

Hazardous Materials and Spill Releases

EWEB tracks hazardous spills to respond for mitigation, assess watershed impacts, and notify water treatment operations of potential impacts. There were six reported incidents in the McKenzie Watershed in 2024 that EWEB Source Protection staff tracked for potential water quality contamination in the McKenzie River. However, none of the incidents resulted in observed releases of hydrocarbons (fuel or oil) directly to the McKenzie River, and most involved single vehicles.

EWEB conducts an annual spill drill with a wide array of partners. The 2024 spill drill involved over 40 participants, representing 10 different agencies or organizations, including staff from the cities of Medford and Salem. In addition, in 2024 EWEB staff also assisted City of Medford staff and other Rogue Valley partners as they work to develop similar spill response capabilities to protect their drinking water intake on the Rogue River.

Illegal Camping

EWEB's Source Protection staff continue to partner with Willamalane Parks, City of Springfield, and Lane County to reduce the impacts of illegal camping and dumping in riparian areas along the McKenzie River immediately above EWEB's intake.

Figure 23: Map of Illegal Camps and Dumps along the McKenzie River, 2024

Pure Water Partners Program

The Pure Water Partners (PWP) Program was originally designed to reward McKenzie landowners for protecting high quality forest land along the river and assist landowners in restoring degraded areas to help EWEB protect water quality and avoid increases in future water treatment costs.

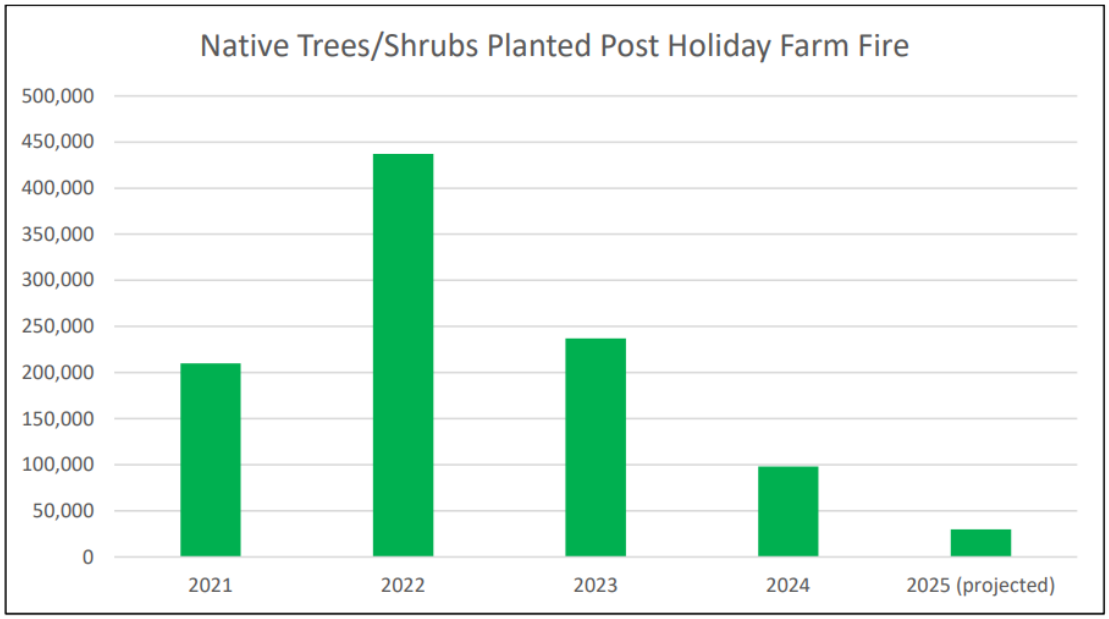
Following the 2020 Holiday Farm Fire (HFF), the Pure Water Partners program shifted its focus to carrying out restoration activities on properties impacted by the fire. This included erosion control, replanting in riparian areas, invasive vegetation removal, fire fuels reduction and nature scaping.

In 2024, PWP planted approximately 98,000 native trees and shrubs on 83 properties in the watershed. In addition, contractors treated invasive species on nearly 100 properties. Nine landowners worked on naturescaping projects this year.

As of the end of 2024, the PWP has planted a total of 982,000 native trees and shrubs on landowner properties affected by the fire. Currently, over 230 landowners have signed 7-year watershed stewardship agreements under the PWP program.

The PWP program completed a 5-year strategic plan in 2024. The program is transitioning out of the post-fire 'response and recovery' mode and will be focusing on engaging landowners with riparian properties upstream of EWEB's drinking water intake (instead of solely focusing on the HFF burn area). All work conducted under the PWP program with landowners is completely voluntary.

Figure 24: Pure Water Partners Program Native Trees/Shrubs Planted in the McKenzie Watershed post-Holiday Farm Fire



Septic System Assistance Program

Since EWEB began its Septic System Assistance Program in 2008, over 1,100 septic systems have been inspected and pumped out and a number of systems were repaired as needed. EWEB offers a rebate program for homeowners within proximity to the McKenzie River with a $300 rebate to have their septic systems inspected and pumped out, if needed. There were 56 homeowners who took advantage of this incentive in 2024. EWEB also offers a zero-interest loan program that allows homeowners who need to make major repairs or replace their septic tank or drain field to apply for a zero-interest loan of up to $20,000 from EWEB. Forty-four zero-interest loans have been issued to McKenzie homeowners since the beginning of the program, with 30 of those loans going to homeowners affected by fire. Three zero-interest loans were issued this year.

Links and Relevant Resources:

- EWEB Website: Fire Recovery and Watershed Restoration
- 2024 EWEB State of the Watershed Report
- 2023 EWEB State of the Watershed Report
- 2022 EWEB State of the Watershed Report

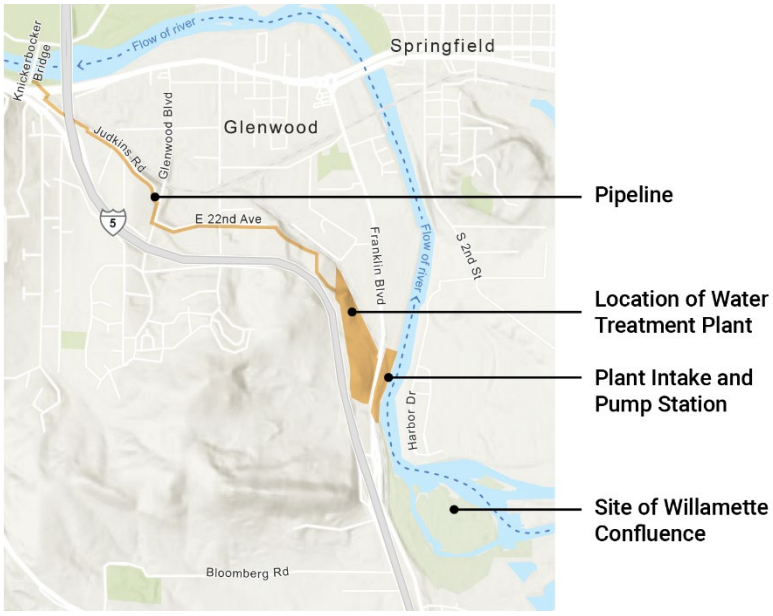
5.7 Second Source of Drinking Water Development

For more than 100 years, the community of Eugene has relied on the McKenzie River as our only source of drinking water. Other cities in the valley get their drinking water from the Willamette River. After years of careful planning for the future, EWEB will join Corvallis, Wilsonville, Hillsboro, Beaverton, and other communities by tapping into this high-quality water source.

Eugene is one of the largest cities in the Pacific Northwest with a single source of drinking water. If something happened—there was a chemical spill, a toxic algae bloom, or other disaster—EWEB would be unable to count on the McKenzie to meet the city's drinking water needs. With no other source to turn to, taps would run dry. While the McKenzie River will continue to be Eugene's primary water source, EWEB is in the early stages of

developing an additional water supply on the Willamette River. The new Willamette Water Treatment Plant will supplement our primary supply and serve as a critical backup in the event of an emergency.

The Willamette treatment plant and intake will be located in Glenwood, on the west bank of the Willamette River, with a pipeline connecting the plant to EWEB's existing system near the Knickerbocker Pedestrian Bridge. Through careful consideration of different siting alternatives, this location was selected based on its seismic, water quality, and constructability benefits, and to ensure that EWEB will continue to have ownership and control of its drinking water assets in perpetuity.



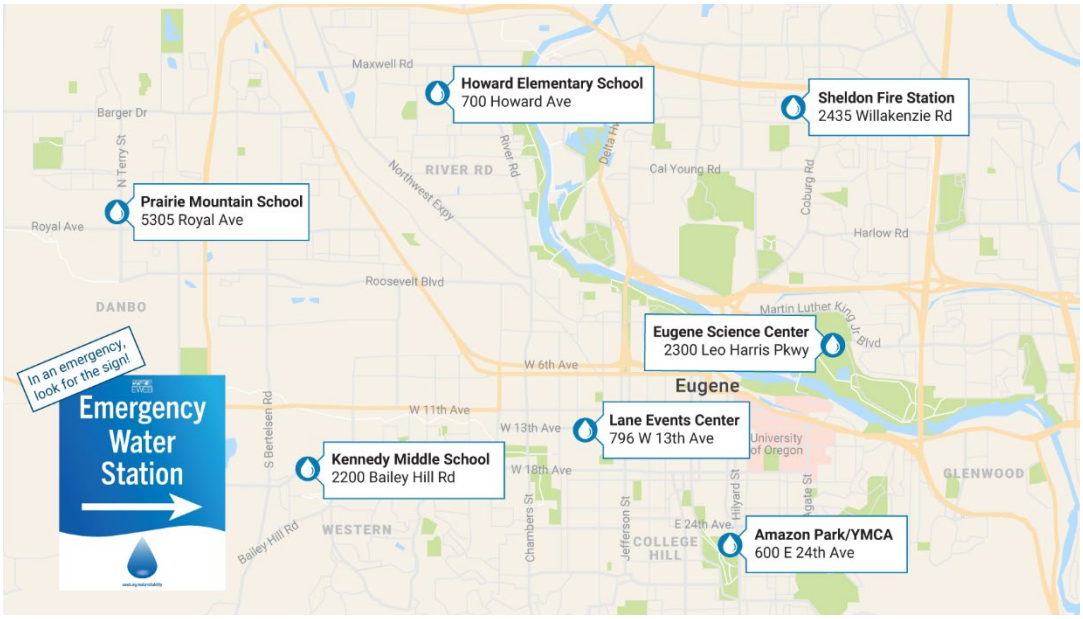
The proposed intake is near the confluence of the Coast and Middle Forks. Immediately upstream of the intake is the 1,300-acre Willamette Confluence Preserve, important floodplain lands, owned by the McKenzie River Trust (MRT). Having the Confluence Preserve upstream of the intake is ideal to maintain high water quality.

EWEB submitted a Joint Permit Application in September of 2024 to the U.S. Army Corps of Engineers and Oregon Department of State Lands to address environmental permitting for the project. As the permitting process continues, EWEB will move forward with the detailed design of the new plant, associated pipeline, and water intake structure. Construction is not anticipated to start until at least 2026. Water from the new plant is projected to be introduced to the system around 2029.

5.8 Emergency Water Stations

In 2017, Commissioners directed staff to focus on developing Emergency Water Stations using well water as a source of supply. Since then, EWEB has worked with community partners to construct seven geographically distributed emergency water distribution sites throughout the community, see the map for locations. Together, the stations are capable of supplying two gallons of water per person per day to everyone in Eugene during an emergency. A demonstration event for the final station at Kennedy Middle School is tentatively planned for the fall of 2025.

Figure 25: Map of EWEB Emergency Water Stations



Links and Relevant Resources:

- EWEB Website: Willamette Water Treatment Plant

EWEB's emergency water distribution sites

6 EWEB Internal Operations GHG Reductions

6.1 EWEB Internal Operations Introduction and Policy Language from SD15

EWEB seeks to lead by example. By developing and implementing strategies for reducing internal emissions, EWEB can share lessons learned with customers that seek to decarbonize, take advantage of federal or state incentive programs, and/or add resiliency measures and best practices to internal operations.

EWEB has been measuring and reducing its internal GHG emissions since 2009. Included here are the results of EWEB's internal GHG inventory from calendar year 2024.

Content currently included in v3.0:

- Greenhouse gas emissions inventory for operational emissions only for calendar year 2024.

Content planned for future Guidebook Versions:

- Comprehensive Greenhouse Gas Inventory following The Climate Registry's Electric Power Sector Protocol (EPSP) and showing power delivery carbon intensity, water delivery carbon intensity, and operational emissions from shared services between the two utilities for 2024 and back to 2010.
- Updated language and goals outlined in SD15 that incorporates other sustainability objectives from SD2 EWEB's Environmental Policy.

EWEB Climate Change Policy SD15: Internal Operations Section

The Board further authorizes, delegates, and directs the General Manager to continue efforts to minimize and/or mitigate GHG emissions from EWEB's operations that contribute to climate change. As initially established in 2010, EWEB adopted a goal to reduce the Scope 1 and 2 (direct GHG emissions and energy) greenhouse gas emissions associated with its operations and facility management activities.

Accordingly, and as formally established by this directive, EWEB plans to reduce our net Scope 1 and 2 GHG emissions from operations relative to 2010 levels by:

- ***25% by 2020,***
- ***50% by 2030,***
- ***Achieve carbon neutrality from our operations by 2050.***

6.2 EWEB's Internal Greenhouse Gas Inventory, 2024

EWEB has been tracking our internal greenhouse gas emissions annually since 2009, in accordance with industry standards. EWEB's Climate Change Policy (SD15) set specific GHG reduction goals for EWEB's internal operations (see box). EWEB's goals are in alignment with goals set by the State of Oregon and the City of Eugene (see Chapter 2) and in line with the science-based targets to keep warming below 1.5 degrees C as outlined as part of the Paris Accord and recommendations from climate scientists. EWEB seeks to be an active partner in these efforts to decarbonize our operations and our community.

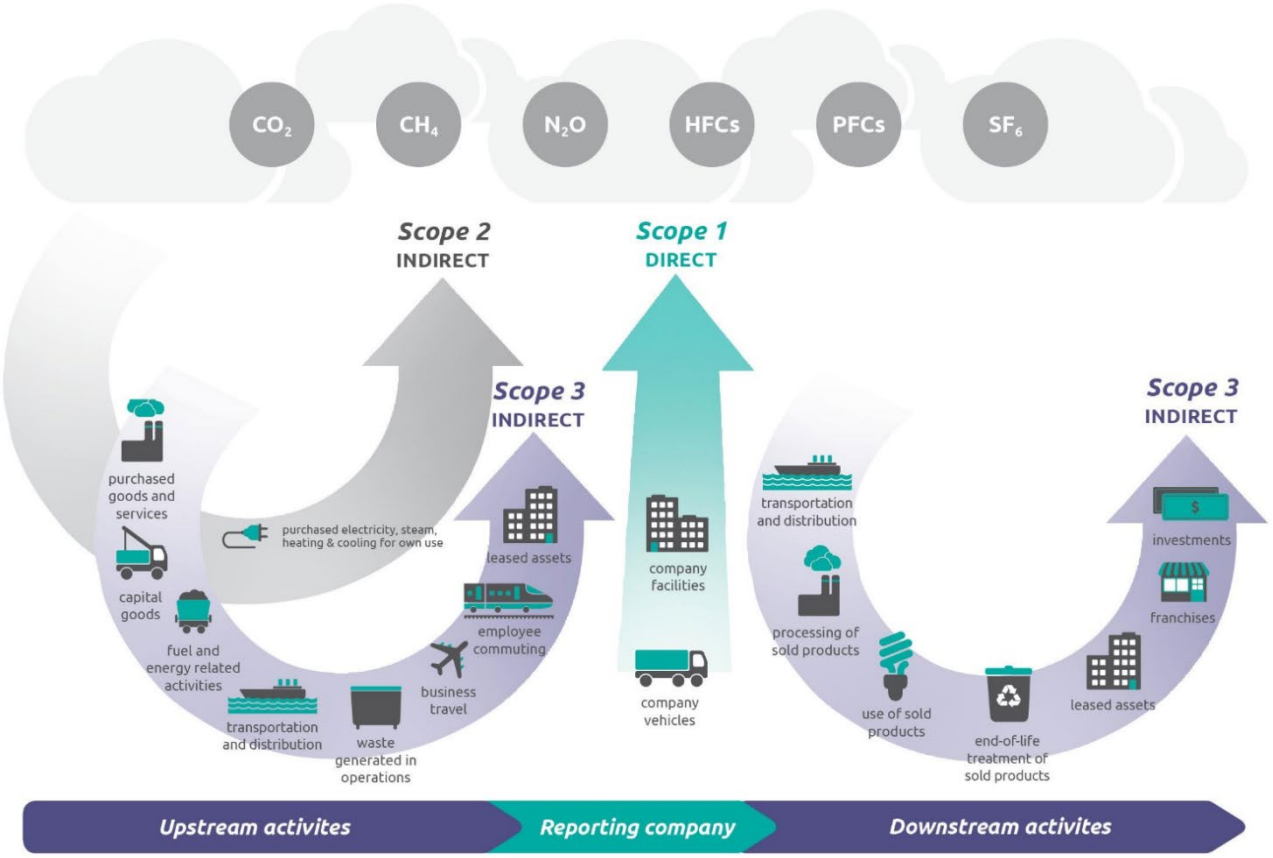
6.2.1 Inventory Protocols, Boundaries, and Scopes

In conducting our annual internal GHG inventory, EWEB follows the guidance outlined in the World Resources Institute's GHG Protocol as well as The Climate Registry's General Reporting Protocol. Emissions factors come from The Climate Registry's 2024 Default Emissions Factors, EPA eGRID emissions factors for the Northwest Power Pool (currently available through 2023 data year), and Oregon Department of Environmental Quality's GHG Reporting Program's utility-specific emissions factors (also currently available through 2023 data year).

EWEB uses a financial control approach, meaning that we report emissions for assets that we financially own. These protocols define 3 scopes of emissions coming from different types of business activities as follows:

- **Scope 1 emissions**: Direct emissions from organizationally-owned assets. Scope 1 emissions included in EWEB's inventory include fuels used in owned fleet vehicles, natural gas used for building heat in owned facilities, and industrial gases including HFCs in owned facility HVAC systems and owned vehicles, as well as SF6 used in owned electrical substation equipment.
- **Scope 2 emissions**: Indirect emissions from electricity purchased from a utility provider and consumed in owned equipment. Scope 2 emissions in this inventory include emissions from purchased electricity (and formerly steam) used in EWEB owned facilities, equipment, and vehicles. Scope 2 also addresses owned electricity generation from the 74.62 kW solar photovoltaic system operating at EWEB's Roosevelt Operations Center and from EWEB's purchase and retirement of renewable energy certificates via EWEB's participation as a customer in the GreenPower program.
- **Scope 3 emissions**: All other indirect emissions from sources or equipment that an organization does not own or manage, but where it has some shared responsibility. Examples of Scope 3 emissions can include: business travel in rental vehicles, or other non-owned vehicles such as trains, buses, or airplanes; emissions associated with commute travel in employee-owned vehicle; organizationally generated solid waste disposed of at landfills owned and operated by other entities; or purchased goods and services manufactured at vendor locations around the world.

Figure 26: Overview of Scores and Emissions throughout an Organization's Operations. Source: World Resources Institute and World Business Council on Sustainable Development GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard.



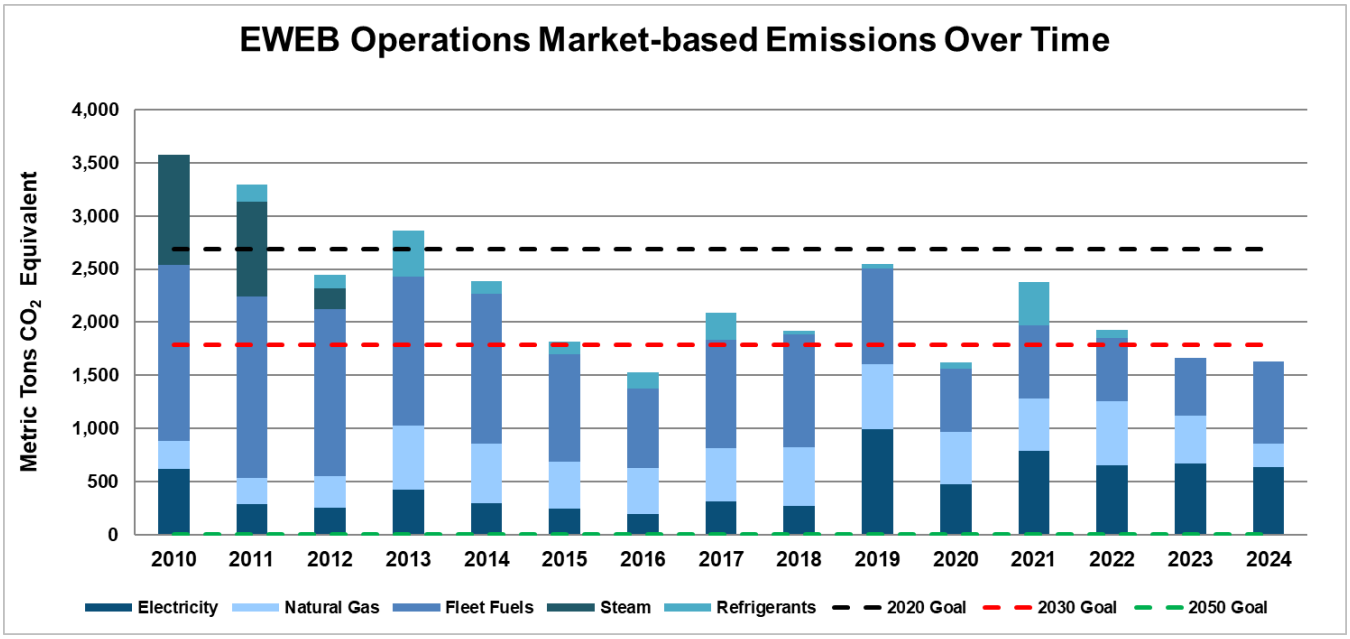
While EWEB has calculated Scope 3 emissions in the past, the focus of this report is on emissions sources included under EWEB's voluntary GHG reduction goals outlined in SD15. The focus of that policy is on Scope 1 and 2 emissions only as those are the sources that EWEB has the most direct control over.

Emissions exclusions: This GHG inventory does not include Scope 1 emissions from owned electricity generation sources, as those emissions are reported annually to the Oregon Department of Environmental Quality under their Greenhouse Gas Reporting Program and turned into an annual utility-specific emissions factor for EWEB customers to use in their GHG inventories for emissions from purchased electricity. As explained in Chapter 3, EWEB seeks to meet the SD15 goal for getting to 95% carbon-free resources on a planning basis by 2030. Emissions from Scope 1 owned electricity generation equipment will be managed under the 95% carbon-free goal under SD15 and so are reported separately. See Appendix E about EWEB's Carbon Intensity Guidance. **Later in 2025, EWEB will update its GHG inventory methodology to being reporting according to The Climate Registry's Electric Power Sector Protocol to bring comprehensive Scope 1 and 2 reporting to this section of the Guidebook.**

6.2.2 EWEB's Progress towards SD15 GHG Reduction Goals

SD15 outlines emissions reduction targets for EWEB's Scope 1 (owned) and Scope 2 (shared from electricity and steam consumption) emissions. This year, EWEB is again pleased to report our emissions once again fell below the 2030 50% emissions reduction goal compared to the 2010 baseline. **In 2024, EWEB is reporting aggregate emissions reductions of 55% compared to 2010 baseline performance**. There was 2% decrease in emissions between 2023 and 2024, despite a 43% increase in fleet emissions, due to lack of availability of renewable fuels. There was a 51% decrease in natural gas emissions and a 6% decrease in electricity consumption emissions mostly due to the sale of the headquarters building in June 2023. There were no recorded refrigerant or industrial gas recharge in 2024.

Figure 27: EWEB Greenhouse Gas Emissions from Internal Operations and progress towards climate goals (MT CO2e), 2010-2024



While there has been annual variation in emissions over time due to several factors, EWEB has met its 2020 goal of 25% reduction over 2010 baseline emissions consistently since 2014. In 2020, emissions dipped below the 2030 goal of 50% reduction compared to our 2010 baseline, but some of those reductions were temporary due to the COVID-19 pandemic and work-from-home orders.

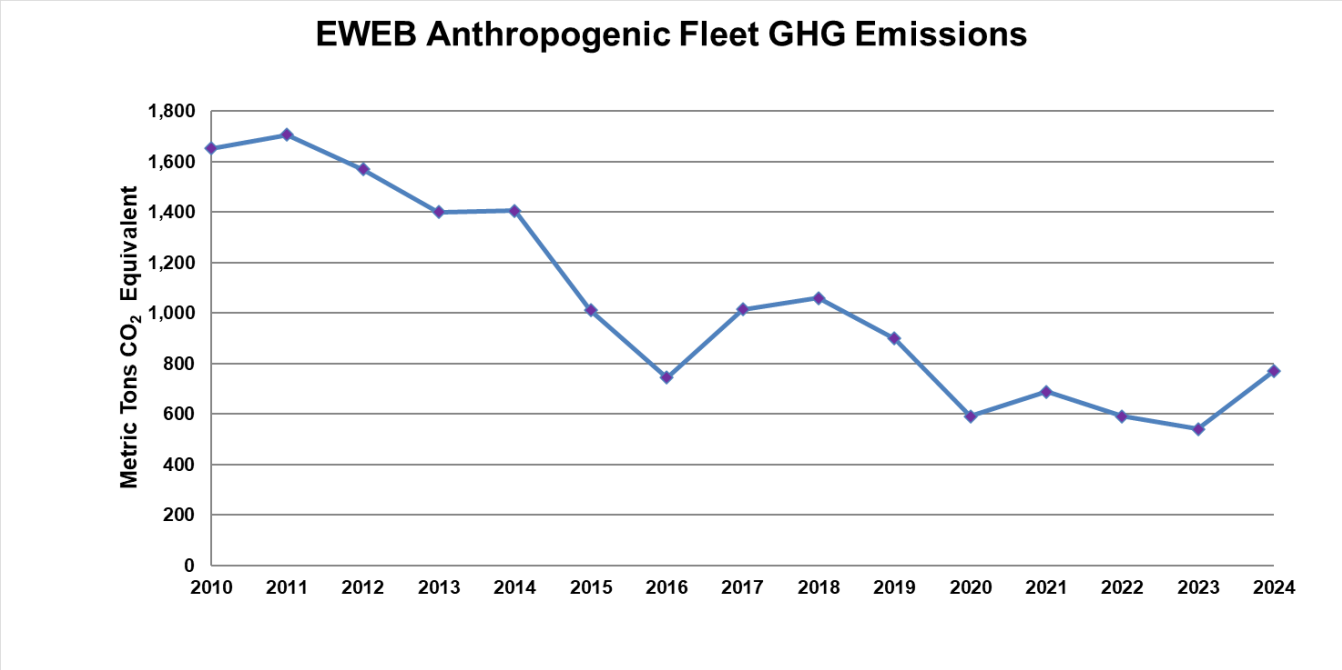
Progress towards EWEB's internal GHG goals is calculated using a market-based approach to electricity emissions that uses the EWEB-specific emissions factor for purchased electricity as calculated by Oregon DEQ's GHG reporting program.

6.2.3 EWEB's Scope 1 Emissions: Fleet fuels, Natural Gas, and Refrigerants and SF6

Fleet

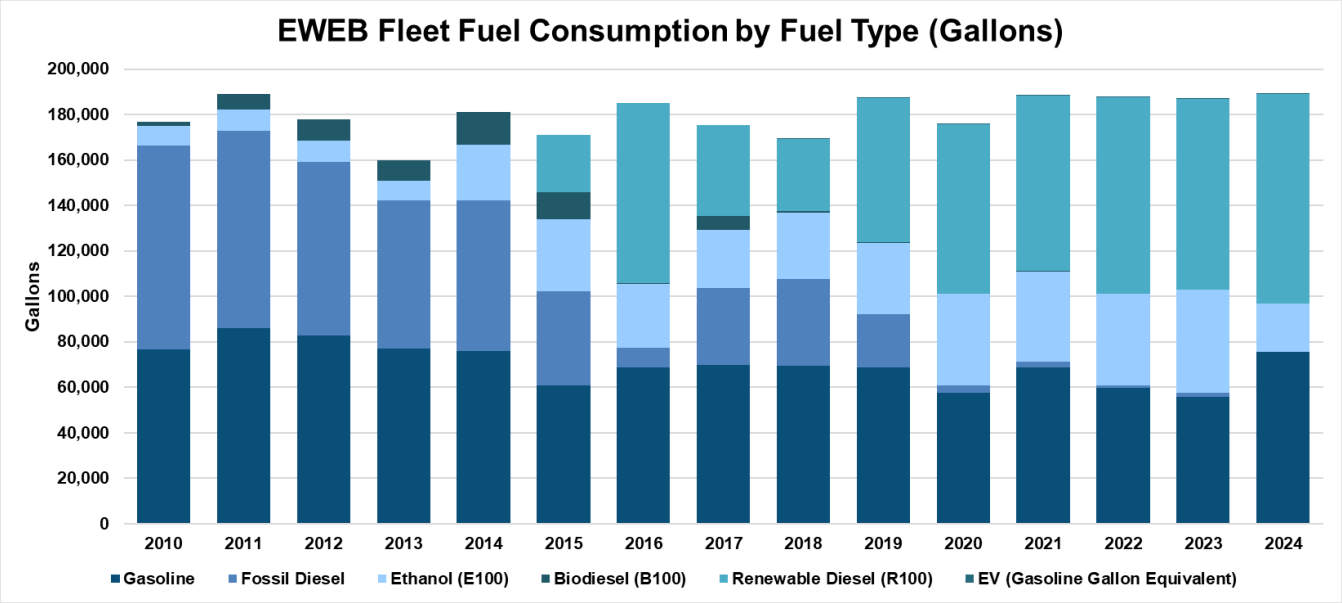
Much of EWEB's overall operational GHG reduction success since 2010 has been due to emissions reductions from our owned fleet vehicles. **Emissions from EWEB's fleet vehicles have dropped 53% since 2010**. Unfortunately, between 2023 and 2024, EWEB's emissions from fleet have increased by 43% instead of continuing to decline, due primarily to supply challenges related to renewable fuels availability in 2024, especially, E85 ethanol.

Figure 28: EWEB GHG Emissions from Fuel Consumed in EWEB-owned Vehicles, 2010-2024



EWEB's fleet is comprised of 418 active (in-service) units, including 234 vehicles, 68 units of power-operated equipment, and 116 trailers. The size of EWEB's fleet has grown 9% since 2020. Total gallons of fuel consumed has grown by 12% since our 2010 emissions baseline.

Figure 29: EWEB Fleet Fuel Consumption by Fuel Type (Gallons), 2010-2024



What has changed significantly over time are the types of fuel consumed. Since 2010, and especially since 2016, EWEB has invested heavily in new renewable fuels including Ethanol, Biodiesel, Renewable Diesel, and more recently Electric Vehicles (EVs). These biomass-based fuels reduce the carbon intensity of the fuel being consumed. In 2024, the uptick in EWEB's emissions was caused by a decrease in the consumption of Ethanol, and the corresponding increase in the amount of fossil gasoline consumed by EWEB's fleet due to lack of E85 availability and fuel quality issues. EWEB expects these fuel supply issues to continue and expand to other types of fuels, like renewable diesel in 2025. On December 31, 2024, the federal 'Blenders tax credit' expired, which had offered a credit worth $1 per gallon for fuels like biodiesel, renewable diesel and certain sustainable aviation fuels. It was replaced with the Clean Fuel Production Credit (45Z) on January 1, 2025, which prioritizes certain fuels produced in the United States and doesn't carry through to blenders of clean transportation fuels such as biodiesel or renewable diesel. Additionally, there has been an increase in demand for renewable diesel as Washington has started its own Clean Fuels Standard and the Federal Aviation Administration is using renewable diesel in the production of Sustainable Aviation Fuel (SAF). This change in credit and increased demand is both increasing costs and making supply availability more difficult.

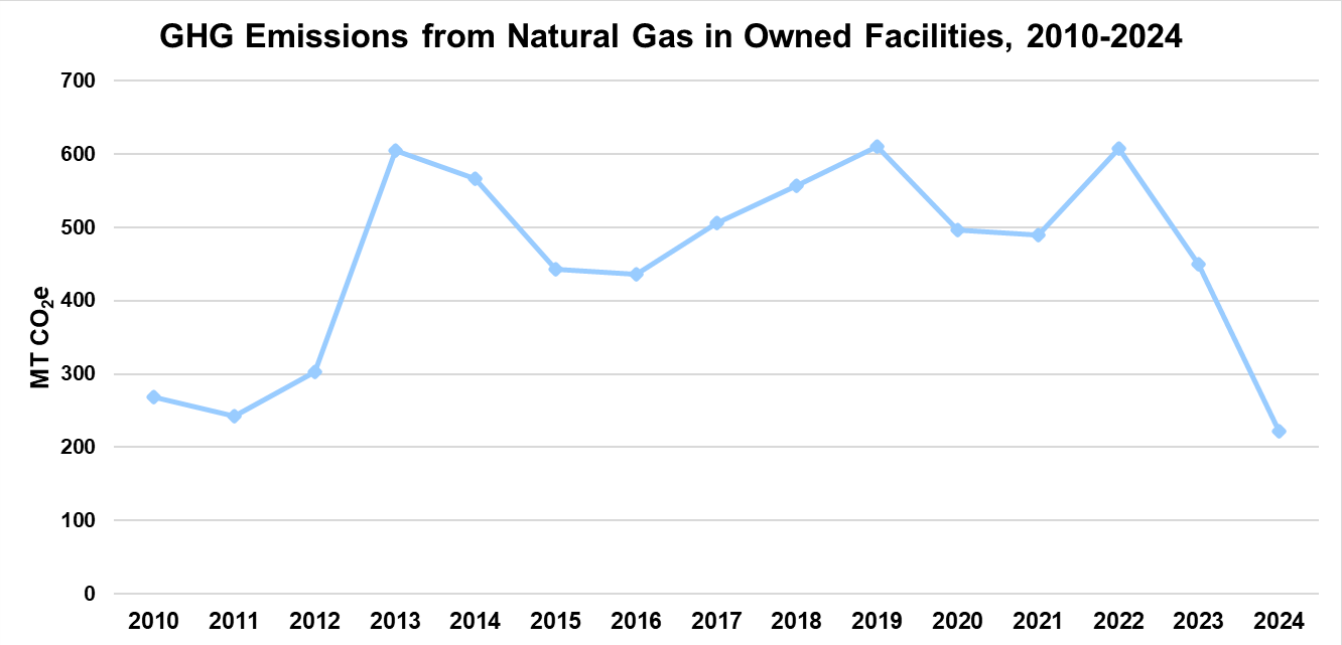
In late 2023, EWEB was excited to receive two all-electric Ford Lightning pick-up trucks to complement its small fleet of passenger plug-in hybrid EVs. Due to supply chain challenges, these two trucks took over 26 months to receive from the date of order. Moving forward, EWEB will need to augment the electric vehicle charging infrastructure at EWEB's ROC facility in order to continue to grow our EV fleet. Due to the small size of EWEB's passenger fleet, pick-up trucks are the next most likely sector of our fleet to electrify.

Natural Gas

Historically, natural gas has been used for space heating in three EWEB-owned facilities: EWEB's headquarters building in downtown Eugene (sold to the City of Eugene in mid-2023 for use as the new City Hall), EWEB's Roosevelt Operations Center (ROC) in west Eugene, and a facility EWEB owned for just two years in 2013 and 2014 on W 3rd Ave in Eugene. The increase in emissions from natural gas in 2013 and 2014 can be attributed to both EWEB's headquarters transitioning off steam heat to use natural gas instead and added consumption from the W. 3rd facility for those two years. Once the W. 3rd facility was sold in 2015, consumption dropped, but continued to climb again until the COVID-19 pandemic dramatically changed EWEB's occupancy levels at the headquarters facility in 2020. In June 2023, EWEB vacated and sold its headquarters facility. Due to guidance

from GHG Inventory Protocols and EWEB's financial control approach to our inventory boundaries, natural gas consumption from this facility was only included for 2023 through the date of our facility sale. In 2024, the only EWEB-owned facility to consume natural gas is the ROC. **This represents a 67% decrease from our peak consumption in 2019, a 51% decrease year-over-year since 2023 and a 17% decrease from our 2010 baseline.**

Figure 30: EWEB GHG Emissions from Natural Gas, 2010-2024

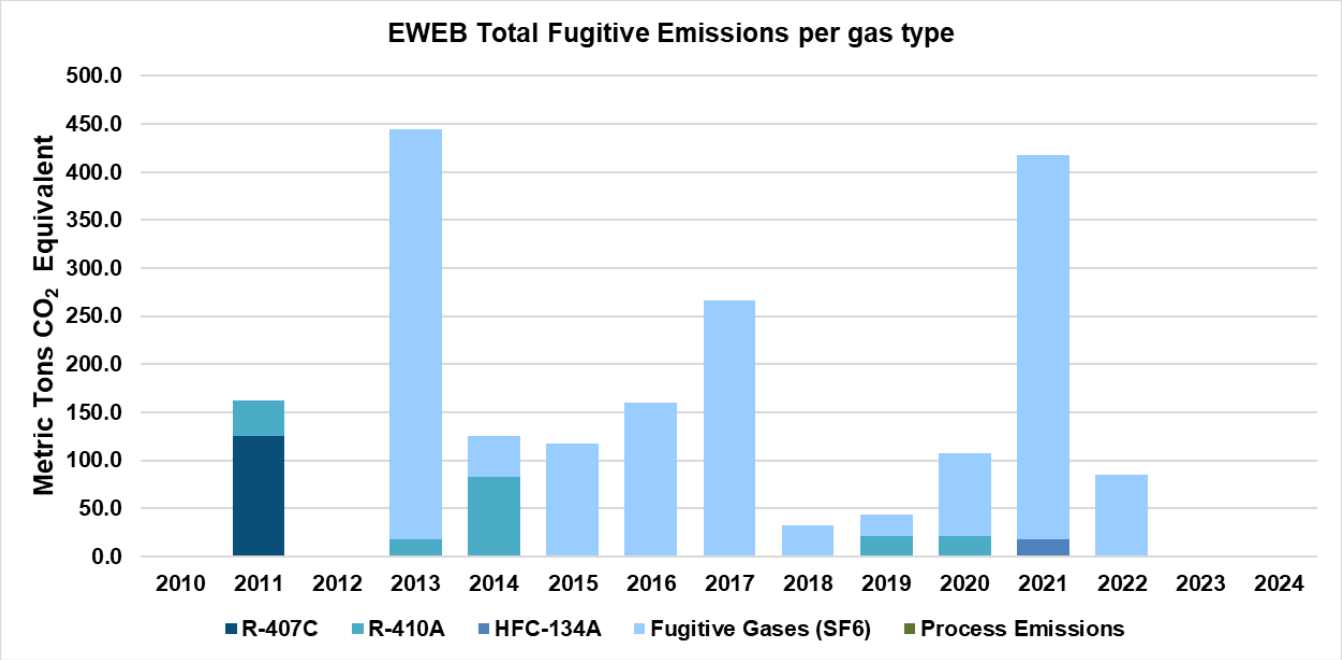


Refrigerants and Industrial gases

The final category of Scope 1 emissions includes industrial gases used in various equipment that can leak into the atmosphere and have an impact on the climate. EWEB tracks four types of industrial gases and refrigerants that are used in fleet vehicles and building HVAC equipment (for air conditioning) as well as sulfur hexafluoride (SF6) which is used as an insulator in electrical switchgear at substations.

Leaks of these gases can happen slowly over time yet are captured in our inventory during the year in which the equipment was recharged. **Similar to 2010, there were no industrial gas recharges for EWEB in 2024.**

Figure 31: EWEB Refrigerant and Industrial Gas Emissions by Gas Type (MT CO2e), 2010-2024



6.2.4 EWEB's Scope 2 Emissions: Electricity and Steam

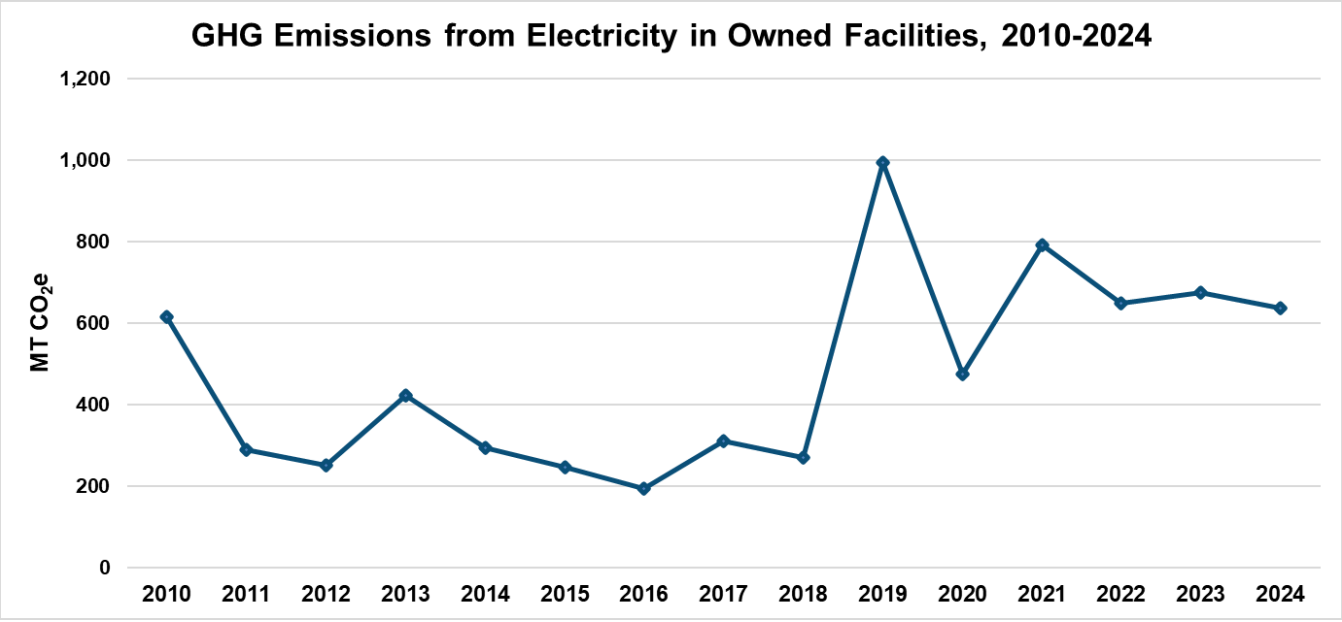
Steam

In 2010-2013, EWEB consumed steam for heating at its headquarters building before the steam plant was decommissioned and the building transitioned to natural gas for space heating instead.

Electricity

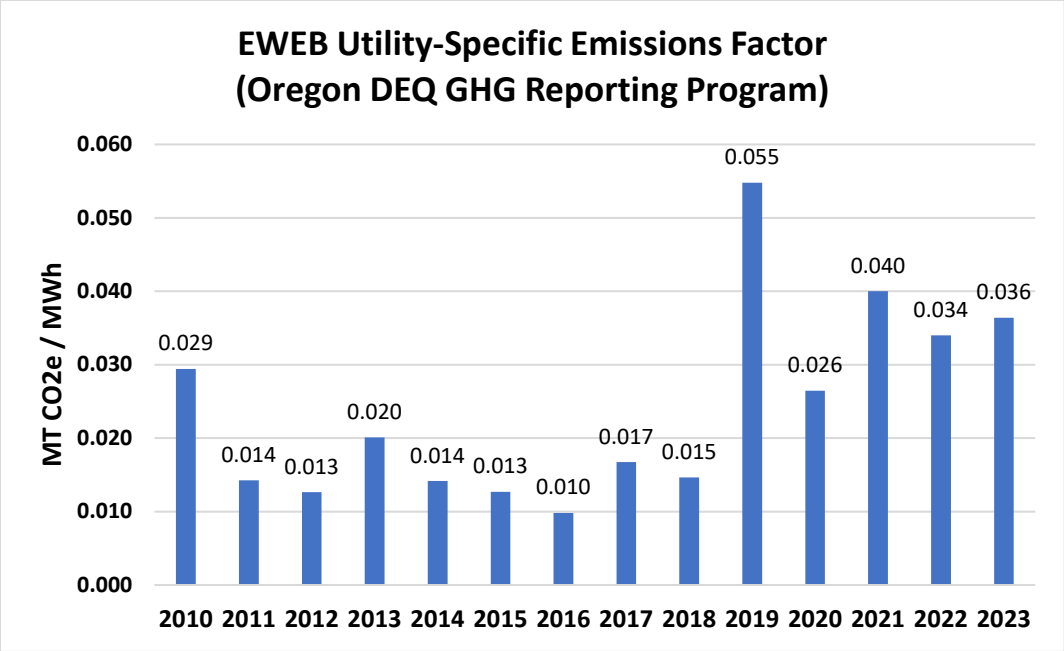
Emissions from electricity consumption have two components – how much electricity an organization is consuming, and the carbon intensity of the electricity being consumed. The carbon intensity of EWEB's electricity varies from year to year depending on real customer demand (driven by local weather patterns and customer behavior) and EWEB's changing need to rely on market purchases to balance customer demand and resources continuously. EWEB's 2024 GHG emissions from electricity are being calculated using the same emissions factor as 2023 as it is the most up to date factor available from Oregon DEQ. **EWEB's total GHGs from electricity consumption have increased by 3% since our 2010 baseline, but decreased by 6% since 2023.**

Figure 32: EWEB Emissions from Electricity Consumption (MT CO2e), 2010-2024



The high emissions factor in 2019 was reflected throughout the west due to decreased water availability in the western hydropower system.

Figure 33: EWEB Utility-Specific Emissions Factor, Oregon DEQ GHG Reporting Program, 2010-2023



Please note: EWEB utility-specific emissions factors are calculated by Oregon DEQ and there is a lag in data reporting so 2023 is the latest emissions factor available. It was used to calculate EWEB's 2024 emissions in this inventory. When the 2024 emissions factor becomes available, these calculations will be updated accordingly.

EWEB's electricity consumption in MWh has declined by 20% between 2010 and 2024. There was a 10% decline between 2023 and 2024, mostly due to the sale of the headquarters building in June 2023, but also due to other factors including the Waterville Project being offline for most of the year.

Figure 34: EWEB Electricity Consumption for All Facilities (MWh), 2010-2024

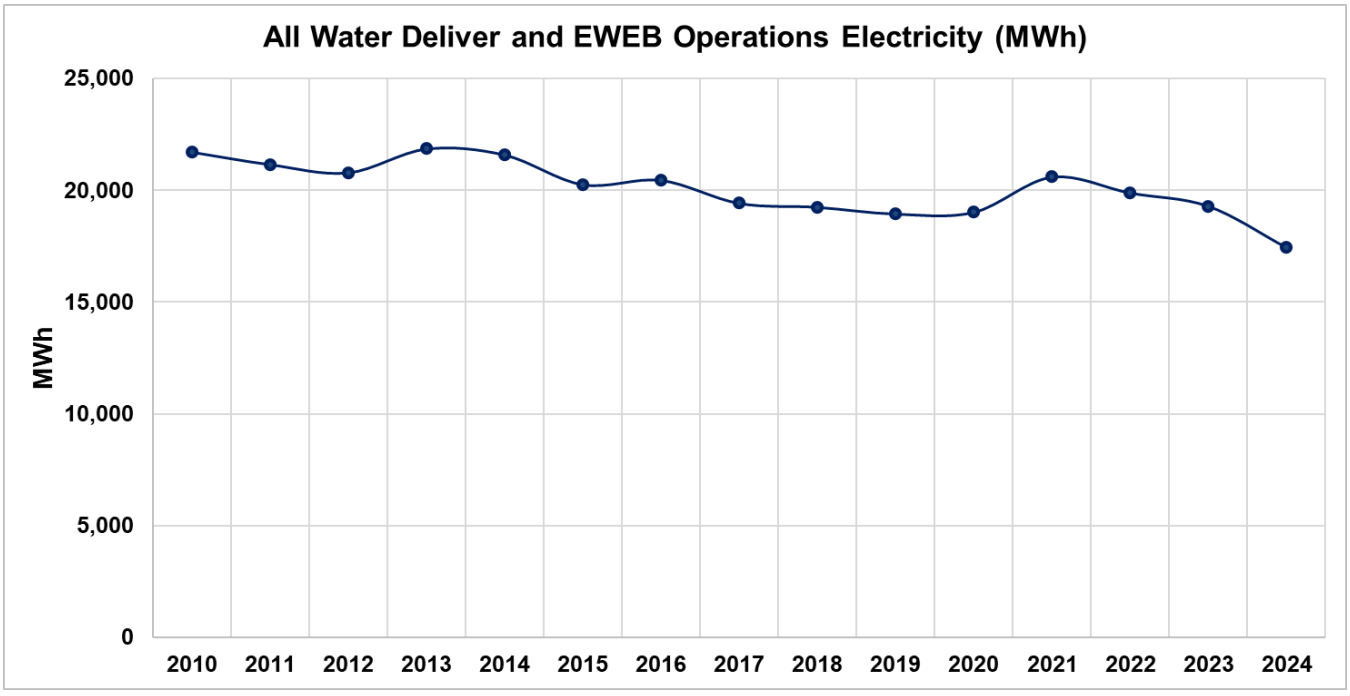
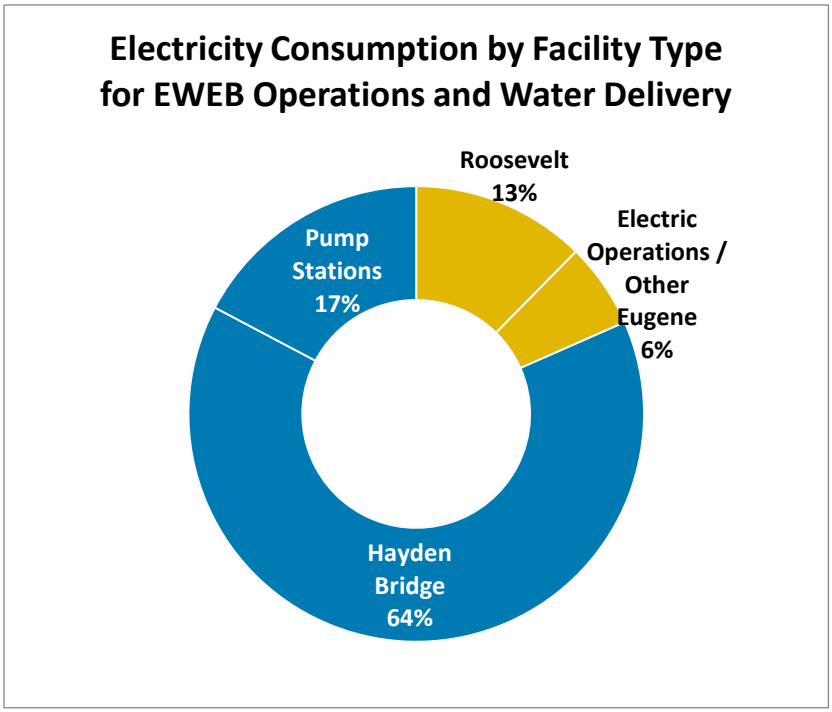


Figure 35: EWEB Electricity Consumption by Facility Type, 2024



EWEB's annual electricity consumption is dominated by the Hayden Bridge water treatment facility that produces finished drinking water for a community of more than 200,000 residents. Water operations facilities, shown in blue, include EWEB's Hayden Bridge drinking water filtration facility in Springfield and the electricity used for water pumping and reservoir storage within the water distribution system. Operations facilities are shown in yellow. EWEB sold its headquarters building to City of Eugene in June 2023, so EWEB was not responsible for electric consumption there in 2024. EWEB staff now operate out of the Roosevelt Operations Center (ROC) in west Eugene. The Other Facilities category includes support facilities at Carmen Smith and Leaburg hydroelectric dams along the McKenzie River, and other smaller facilities in Eugene.

6.2.5 Next Steps for EWEB's Carbon Emissions Reporting

In 2025, EWEB plans to begin reporting a comprehensive set of its emissions according to The Climate Registry's Electric Power Sector Protocol. This would allow us to report all emissions from both owned electricity generating resources that are currently reported to Oregon DEQ and the water delivery and operational emissions reported here in one comprehensive and centralized report. It will show emissions associated with power delivery, water delivery, and operational emissions from shared services between the two utilities for 2024 and back to 2010.

Links and Relevant Resources:

- EWEB's website: Our Commitment to the Environment
- 2023 GHG Emissions reporting: April 2, 2024 Regular Board Meeting: Climate Guidebook (PDF) (Includes Annual Greenhouse Gas Inventory / Report for Prior Year [Board Policy SD15])
- 2022 GHG Emissions reporting: March 7, 2023 Regular Board Meeting: Climate Guidebook Part 2: GHG Inventory and CAP2.0

APPENDIX A: GLOSSARY

aMW	Average megawatt is calculated by totaling the annual power consumed in a year (in this case megawatts or MW) and dividing that total annual consumption by the number of hours in given year (typically 8,760 during non-leap years). In Electricity Supply Planning, the average megawatt can provide useful context for understanding the average energy required to meet demand on an annualized basis.
Advanced Metering Infrastructure (AMI)	Advanced metering infrastructure (AMI) is an integrated system of meters, communications networks, and data management systems that enables two-way communications between utilities and customer meters.
Balancing	Balancing or matching load with resources to meet demand. Commonly referred to as load/resource balance.
Annualized Fuel Utilization Efficiency (AFUE)	Annualized Fuel Utilization Efficiency (AFUE) Furnaces are rated by the Annual Fuel Utilization Efficiency (AFUE) ratio, which is the percent of heat produced for every dollar of fuel consumed. Any furnace with an efficiency of 90% or higher is considered high efficiency.
Benefit/Cost Ratio (BCR)	A ratio used to summarize a benefit-cost analysis to determine if a proposed project's benefits outweigh the costs. If the BCR is greater than one, the net present value of acting is expected to be positive. If the BCR is less than one, the costs outweigh the benefits.
BTU and BTUH	British Thermal Unit (BTU) is a measure of heat energy. BTUH is British Thermal Unit per hour. One BTU is the amount of energy needed to raise 1 pound of water by one degree Fahrenheit.
Capacity Utilization	Capacity utilization measures the maximum rate of potential output used over a set period.
Carbon	Short for carbon dioxide, a greenhouse gas produced by burning fossil-based fuels and other sources.
Carbon Intensity	The amount of carbon emitted per unit of energy consumed.
Capacity	The maximum output or electrical rating, commonly expressed in megawatts (MW).
Capacity Factor	The ratio of the net electricity generated, for the time considered, to the energy that could have been generated at continuous full-power operation during the same period.[13]
Climate Change	The rise in average surface temperatures on Earth due primarily to the human use of fossil-based fuels, which releases carbon dioxide and other greenhouse gases into the air.
CEJST	The Climate and Economic Justice Screening Tool (CEJST) is a geospatial mapping tool to identify disadvantaged communities and is used to support the Federal Government's Justice40 Initiative. .
Coefficient of Performance (COP)	An efficiency ratio that measures useful heating or cooling provided relative to the work required. In electric heat pumps, this is the relationship between the energy that is delivered from the heat pump as cooling or heat (BTUh is converted to equivalent power kW), and the power (kW) that is supplied to the compressor.
Coincident Demand	The sum of two or more demands that occur in the same time interval[14].

[13] Capacity Factor (net) | NRC.gov
[14] https://www.eia.gov/tools/glossary

Cold Climate Heat Technology	The most efficient type of air source heat pump designed for cold climates using variable speed drive compressor technology.
Commodity	An economic good that can be bought and sold and interchangeable with other goods of the same type.
Controlled Charging	Controlled or managed EV charging enables the utility and customer to align charging behavior that will potentially mitigate higher costs and carbon impacts during peak demand hours.
Cost-parity	Same price for product that is equivalent in value.
Critical Peak Pricing	Critical peak pricing is a price-responsive mechanism designed to incentivize customers to reduce or shift electricity usage during a critical event.
Demand	The rate at which energy is being used by the customer.
Demand Response (DR)	Demand response is a measure to reduce or shift electricity usage during peak periods or as a response to supply constraints.
Demand Side Management (DSM)	An action to effectively reduce or modify the demand for energy. DSM is often used to reduce load during peak demand and/or in times of supply constraint.
Direct Air Capture	A technology to capture CO2 from the atmosphere.
Direct Load Control (DLC)	The consumer load that can be interrupted at the time of peak load by direct control of the utility[15].
Discounted Cash Flow	A method to estimate the present value of an investment based on the expected future cash flows.
Discount Rate	The interest rate used to determine the present value of future cash flows.
Dispatchable	The operating control of an integrated electric system involving operations such as the assignment of load to specific generating stations and other sources of supply to affect the most economical supply as the total or the significant area loads rise or fall[16].
Distributed Generation (DG)	Distributed generation (sometimes call Distributed Energy Resources – DER) refers to systems that generate electricity at or near the load it is intended to serve (thereby reducing transmission needs/costs) and connected to the distribution system.
Distribution Assets	The portion of the electric system's poles, transformers, and other equipment dedicated to delivering electricity at the required voltage for the end-user.
Distribution Capacity	The installed capacity and capable load of individual circuits within the distribution asset system.
Diurnal	Diurnal variation refers to daily fluctuations.
Disadvantaged Communities (DAC)	By the Justice 40 Federal definition, disadvantaged communities are those that are marginalized, underserved, and overburdened by pollution.
Duct System	A system of tubes and pipes used for heating, ventilation, and air conditioning
Electric Panel	The electric service panel or circuit breaker box connects the main power line and distributes electrical currents to circuits within a home or building.
Electric Vehicle (EV)	A vehicle that derives all or part of its power from electricity supplied by the electric grid. Primary EV options include battery, plug-in hybrid, or fuel cell. • Battery Electric Vehicles (BEV) typically do not have an internal combustible engine (ICE) or fuel tank and rely solely on its battery charged by electricity to operate the vehicle. Typical driving ranges are less ICE vehicle options but newer models with advanced battery technology support higher ranges. • Plug-in Hybrid Electric Vehicles (PHEV) are powered by an on-board battery and gasoline with the ability to operate solely on its battery, ICE, or a combination of

[15] https://www.eia.gov/tools/glossary
[16] https://www.eia.gov/tools/glossary

	both. When the battery is fully charged and gasoline tank full, the PHEV driving range is comparable to a conventional ICE vehicle. • Fuel Cell Electric Vehicles (FCEV) run on compressed liquid hydrogen. Combining hydrogen with oxygen generates the electrical energy that either flows to the motor or to the battery to store until it's needed. FCEVs have a driving range comparable to a conventional ICE vehicle.
Electric Vehicle (EV) Charging Stations	EV charging stations typically fall under three primary categories: Level 1, Level 2, and Level 3 also referred to as DC Fast Chargers[17]. • Level 1: Provides charging through a 120 V AC plug and does not require installation of additional charging equipment. Can deliver 2 to 5 miles of range per hour of charging. Most often used in homes, but sometimes used at workplaces. • Level 2: Provides charging through a 240 V (for residential) or 208 V (for commercial) plug and requires installation of additional charging equipment. Can deliver 10 to 20 miles of range per hour of charging. Used in homes, workplaces, and for public charging. • DC Fast Charge: Provides charging through 480 V AC input and requires highly specialized, high-powered equipment as well as special equipment in the vehicle itself. (Plug-in hybrid electric vehicles typically do not have fast charging capabilities.) Can deliver 60 to 80 miles of range in 20 minutes of charging. Used most often in public charging stations, especially along heavy traffic corridors.
End Use	The use of energy for a specific purpose where electricity is converted into useful work. Examples include transportation, heating, or cooling.
Energy Efficiency (EE)	Refers to programs that are aimed at reducing the amount energy used in homes and other buildings. Examples include high-efficiency appliances, lighting, and heating systems.
Energy Efficiency Ratio (EER)	The Energy Efficiency Ratio (EER) of an HVAC cooling device is the ratio of output cooling energy (in BTU) to input electrical energy (in watts) at a given operating point.
Energy Factor (EF)	The energy factor (EF) indicates a water heater's overall energy efficiency based on the amount of hot water produced per unit of fuel consumed over a typical day.
Fossil Fuel	An energy source formed in the Earth's crust from decayed organic material. The common fossil fuels are petroleum, coal, and natural gas[18].
Generation	The process of producing electricity from water, wind, solar, fossil-based fuels, and other sources.
Generation Capacity	The maximum output, commonly expressed in megawatts (MW), that generating equipment can supply to system load[19]
Green	Green or clean electricity produced with little-to-no environmental impact or contributes to global warming caused by greenhouse gas emissions.
Greenhouse Gas (GHG) Emissions	GHG emissions are gases, such as carbon dioxide, that trap heat in the atmosphere. The largest source of GHG emissions from human activities in the U.S. is from burning fossil-based fuels for electricity, heat, and transportation[20].
Grid	The electricity grid, or grid, refers to the system that moves electricity from its source through transformers, transmission lines, and distribution lines to deliver the product to its end-user, the consumer.
Heat Pump	Heating and/or cooling equipment that, during the heating season, draws heat into a building from outside and, during the cooling season, ejects heat from the building to

[17] https://www.energy.gov/eere/electricvehicles/charging-home
[18] https://www.eia.gov/tools/glossary
[19] https://www.eia.gov/tools/glossary
[20] https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions

	the outside. Heat pumps are vapor-compression refrigeration systems whose indoor/outdoor coils are used reversibly as condensers or evaporators, depending on the need for heating or cooling[21].
Heating seasonal performance factor (HSPF)	Heating seasonal performance factor (HSPF) is a term used in the heating and cooling industry. HSPF is specifically used to measure the efficiency of air source heat pumps. HSPF is defined as the ratio of heat output (measured in BTUs) over the heating season to electricity used (measured in watt-hours).
HVAC	HVAC is an acronym for heating, ventilation, and air conditioning.
Incremental Cost	See Marginal Cost
Inflation	The growth rate of a price index. Inflation occurs when the purchasing power of your dollars decreases due to rising prices.
Integrated Resource Plan (IRP)	An IRP is a plan that outlines how a utility will meet its future electricity needs over a long-term planning horizon.
Interval Metering	Interval metering data is a series of measurements of energy consumption, taken at pre-defined intervals, typically sub-hourly. In end-use studies, energy consumption is measured in 15-minute or 1-minute granularity.
Intra-day Net Load Ramping	Net load ramping occurs within the day when renewable generation decreases at the same time load rises.
Justice 40 Initiative	The goal set by the Federal Government under the Biden Administration that 40% of the overall benefits of certain Federal investments (IIJA, IRA, etc.) flow to disadvantaged communities that are marginalized, underserved, and overburdened by pollution. These communities are mapped in the US using the Climate and Economic Justice Screening Tool (CEJST).
Light-duty Vehicles	Light duty refers to gross vehicle weight rating and includes passenger cars, SUVs, trucks, and vans that weigh up to 10,000 pounds.
Line-loss	The amount of electricity lost during the transmission and distribution phases as it travels across the grid.
Load	The amount of electricity on the grid at any given time, as it makes its journey from the power source to all the homes, businesses.
Load Shape	A method of describing peak load demand and the relationship of power supplied to the time of occurrence[22]. Interval metering of end-uses is one method used to develop a load shape.
Marginal Cost	The change in cost associated with a unit change in quantity supplied or produced[23].
Marginalized Communities	Communities that experience discrimination and exclusion from social, economic, and/or cultural life.
Market-based pricing	Prices of electric power or other forms of energy determined in an open market system of supply and demand under which prices are set solely by agreement as to what buyers will pay and sellers will accept. Such prices could recover less or more than full costs, depending upon what the buyers and sellers see as their relevant opportunities and risks[24].
Market Liquidity	Market liquidity refers to the extent a market, such as the wholesale electricity market or real estate market, allows assets to be bought and sold with price transparency.
Megawatt (MW)	The standard term of measurement for bulk electricity. One megawatt is 1 million watts. One million watts delivered continuously 24 hours a day for a year (8,760 hours) is called an average megawatt.

[21] https://www.eia.gov/tools/glossary
[22] https://www.eia.gov/tools/glossary
[23] https://www.eia.gov/tools/glossary
[24] https://www.eia.gov/tools/glossary

Mini-Split Ductless System	A ductless heating and cooling system for use in smaller spaces or individual rooms. Mini-split systems have two main components: an outdoor compressor/condenser and an indoor air-handling unit(s).
MPGe	Miles per gallon of gasoline equivalent. Think of this as being like MPG, but instead of presenting miles per gallon of the vehicle's fuel type, it represents the number of miles the vehicle can go using a quantity of fuel with the same energy content as a gallon of gasoline. This allows a reasonable comparison between vehicles using different fuels[25].
MSRP	MSRP is the acronym for manufacturer's suggested retail price.
MTCO2e	Metric tons of carbon dioxide equivalent are a unit of measurement. The unit "CO2e" represents an amount of a GHG whose atmospheric impact has been standardized to that of one unit mass of carbon dioxide (CO2), based on the global warming potential (GWP) based on the global warming potential (GWP) of the gas.
NESC	National Electric Safety Code
Nominal Dollar	Nominal or current dollars have not been adjusted for inflation.
Noncoincident Demand	Sum of two or more demands on individual systems that do not occur in the same demand interval[26].
1-in-2 or 1-in-10	A statistical measure used for risk analysis. The probability or chance of something occurring one year such as a one-hour peak in year 2, 1-in-2 year, is 1 / 2 or 50%. A 1-in-10 year has 1/10 or 10% chance of occurring in any one year.
Peak Demand	The largest instance of power usage in a given time frame.
Peak Diversity Factor	Peak Diversity Factor is the ratio of coincident peak demand to the non-coincident peak demand over a given period. This ratio illustrates the relationship between the peak electricity use of a population relative to the sum of all individual peak electricity use within the population. A high peak diversity factor (100%) indicates that the individual units within the population peak simultaneously, whereas a low peak diversity factor illustrates that individual units within the population peak at different times.
Peak Time Rebate	A pricing mechanism designed to incentivize reducing energy during peak time events by offering a rebate.
Peaker Plant	Peaker plant, also known as a peaking power plant or simply peaker, is a power plant that generally runs during times when demand for electricity is high or at its peak time. Peaker plants are typically gas turbines that burn natural gas.
Photovoltaic (PV)	PV is the process of converting sunlight into electrical energy using semiconducting materials.
Power	The rate of producing, transferring, or using energy, most associated with electricity. Power is measured in watts and often expressed in kilowatts (kW) or megawatts (MW)[27].
PUC	Public Utility Commission
Quad	Quadrillion Btu 10^{15} Btu. The quantity 1,000,000,000,000,000(10 to the 15th power).[28]
Qualitative	Qualitative data is descriptive, conceptual, and is non-numerical.
Quantitative	Quantitative data is anything that can be counted, measured, or quantified using a numerical value.
Real-time	Actual time of occurrence.
Real-time Pricing	Real-time Pricing is designed to charge each kWh delivered based on fluctuating wholesale prices or production costs.
Renewable Natural Gas (RNG)	RNG is derived from the decomposition of organic waste and has lower carbon emissions than conventional natural gas.

[25] https://www.epa.gov/fueleconomy/text-version-electric-vehicle-label
[26] https://www.eia.gov/tools/glossary
[27] https://www.eia.gov/tools/glossary
[28] https://www.eia.gov/tools/glossary

Residential Building Stock Assessment (RBSA)	An assessment developed to capture the residential building sector that considers building practices, fuel choices, and diversity of climate across the region.
Resource Adequacy	Ensuring there are sufficient generating resources when and where they are needed to serve the demands of electrical load in "real time" (i.e., instantaneously). An adequate physical generating capacity dedicated to serving all load requirements to meet peak demand and planning and operating reserves, at or deliverable to locations and at all times.
Resource Portfolio	All the sources of electricity provided by the utility.
Scenario	A projection or forecast that provides a framework to explore plausible outcomes. Scenario analysis is the process of analyzing plausible outcomes and typically includes base-case, expected-case, and worst-case scenario analysis.
Sector	Group of major energy consumers developed to analyze energy use. Commonly referred to as residential, commercial, industrial, and transportation sectors.
Segment	Customer segmentation or segment means separating the diverse population of end-use customers in groups based on similarities in customer needs and preferences.
Sensitivity	Sensitivity analysis is a method to determine how changes in methods, models, values of variable or assumptions may lead to different interpretations or conclusions by assessing the impact, effect or influence of key assumptions or variable.
Social Cost of Carbon	The estimated economic damage in dollars from emitting one ton of carbon dioxide.
Therms	A measurement of heat energy in natural gas. One unit of heat is equal to 100,000 British thermal units (BTU).
Time of Use (TOU) Rate	Time of use rates are rate structures which incent a customer to change their electric usage patterns, because they typically charge higher prices for consumption during peak periods.
Total Lifecycle	Lifecycle of a targeted measure refers to the expected life from the time the product is introduced in the market until it's removed.
Transformer	An electrical device for changing the voltage of alternating current[29].
Transmission	An interconnected group of lines and associated equipment for the movement or transfer of bulk energy products from where they are generated to distribution lines that carry the electricity to consumers.
Transmission Capacity	The maximum line and associated equipment available to move or transfer bulk energy across a transmission system.
Uncontrolled Charging	Uncontrolled charging allows for charging at any time of time without restraints including differences in price to charge. Also known as unmanaged charging.
Uniform Energy Factor (UEF)	A water heater's UEF rating is a measure of its energy efficiency, with higher numbers denoting more efficient units. The UEF calculation is based off how much energy the water heater uses and how much energy is used to power the water heater itself.
Upstream Emissions	Upstream typically refers to accounting for the all the emissions associated with extracting and processing resources used to create energy.
Variable Generation	Variable generation is produced using renewable resources (e.g., solar, wind, or run-of-river hydro) that is intermittently available.
Voltage	The difference in electrical potential between any two conductors or between a conductor and ground. It is a measure of the electric energy per electron that electrons can acquire and/or give up as they move between the two conductors.[30].
Wholesale Market	The market for buying and selling of electricity before it is sold to the end-user.

[29] https://www.eia.gov/tools/glossary
[30] https://www.eia.gov/tools/glossary

APPENDIX B: EWEB'S CLIMATE CHANGE POLICY (SD15)

Strategic Direction Policies (SD Policies)

SD15 **Climate Change Policy**

Effective Date **January 3, 2023**

The Board recognizes that climate change presents ongoing environmental, economic, and social risk to EWEB, our customers, community, and the world. Greenhouse gas (GHG) emissions from human activity are known to be the primary cause of climate change, with the energy, industrial, construction, agricultural and transportation sectors generally identified as the primary sources of greenhouse gas emissions in the United States.

The primary direct impacts to EWEB operations from climate change include changes in streamflow –quantity and timing– affecting hydroelectric generation, impacts to water quality and watershed health, increased risk of wildfires, changes in consumption patterns, and increasing threats from extreme weather events. The Board also recognizes that EWEB, as a water and electric utility, impacts our climate through electric generation resource choices, business practices, and the operation and maintenance of our assets, lands, buildings, and transportation fleet.

Consistent with EWEB's Vision, Mission, and Values (SD1), the Board supports EWEB taking an active role in combating and mitigating the impacts of climate change, within the context of and while executing our strategy and ongoing operations.

Accordingly, the following primary directives are adopted,

- POWER GENERATION: The Board is committed to supporting a low-carbon electric power portfolio that maintains, on a planning basis, over 90% of annual energy from carbon-free resources and targets over 95% of annual energy from carbon-free resources by 2030 to the extent possible and practical without distinct adverse impacts to customer-owners. Using the Integrated Resource Plan (IRP) process including final adoption by resolution (GP7), the Board will work with the General Manager to establish the long-term (20-year) principles, priorities, approaches, definitions (including carbon-free, carbon intensity), measurements, and goals for the electric generation portfolio, demand response, conservation and energy efficiency, and customer impact limitations (including but not limited to reliability, cost, and equity) supporting this directive.

- CLIMATE POLICY: The Board authorizes, delegates, and directs the General Manager to participate in local, state, and regional efforts to encourage, develop and enact measures to minimize and/or mitigate GHG emissions that contribute to climate change. Consistent with Board Policy (GP13), prior to legislative sessions the Board develops and guides EWEB's positions relative to legislation, including those related to climate and environmental policy supporting this directive.

- EWEB OPERATIONS: The Board further authorizes, delegates, and directs the General Manager to continue efforts to minimize and/or mitigate GHG emissions from EWEB's operations that contribute to climate change. As initially established in 2010, EWEB adopted a goal to reduce the Scope 1 and 2 (direct GHG emissions and energy) greenhouse gas emissions associated with its operations and facility management activities. Accordingly, and as formally established by this directive, EWEB plans to reduce our net Scope 1 and 2 GHG emissions from operations relative to 2010 levels by 25% by 2020, 50% by 2030, and achieve carbon neutrality from our operations by 2050.

- CUSTOMER DECARBONIZATION: The Board further authorizes, delegates, and directs the General Manager to assist customers with achieving their GHG emission reduction goals through partnerships, technical assistance, resources, and programs that support, but are not limited to, energy efficiency, alternative fuels, electric and water conservation, electrification, and carbon offsets and sequestration. Long-term conservation, energy efficiency, and demand-response goals are established as part of the IRP process. Additional program objectives, incentives and budgets will be established annually, as applicable, and/or through revisions to the strategic plan.

- IMPACTS ON EWEB: Consistent with resiliency initiatives included in EWEB's approved strategic plan, the Board directs the General Manager to evaluate and enact measures, as necessary and appropriate, to prepare for and minimize the effects of climate change that could impact EWEB's water and electric supply and infrastructure, damaging EWEB's resiliency and reliability.

IMPLEMENTATION:

In support of the primary directives identified above, major decisions and actions, including those related to this policy, will be evaluated based on a triple-bottom-line methodology, including assessments of consistency with the organization's values, including safety, reliability, affordability, environmental stewardship, transparency, and equity.

The Board and General Manager will work together to develop annual goals, consistent with Board Policy BL4 and BL5, related to the primary directives, as applicable, including milestones and measurements, and reporting frequency.

So that EWEB's actions are visible to our community, at least annually EWEB will compile and report GHG emission reduction and/or mitigation activity, including a greenhouse gas inventory (Scope 1 and 2, along with Scope 3 where impactful, applicable, and practical), and will calculate and publish the carbon intensity of our energy portfolio. Definitions, GHG emission reduction and/or mitigation details (e.g., fuel mix, use of offsets, etc.) and carbon accounting methods will be published, consistent with industry standards and/or official reporting requirements where applicable.

Source: Steve Newcomb, Environmental Manager, Approved 09/18/07; Revised 07/10/18, Resolution No. 1820; Revised 01/04/22, Resolution No. 2204; Revised 01/03/23, Resolution No. 2303.

Links and Relevant Resources

- EWEB Board Policies
- December 6, 2022 Regular Board Meeting: Annual Board Policy Review (including SD15)
- December 7, 2021 Regular Board Meeting: Board Policy – SD15 Climate Change Policy
- July 10, 2018 Regular Board meeting: Consent Calendar – See page 35 of 42 in Consent Calendar PDF
- June 5, 2018 Regular Board Meeting: Draft Revisions to Board Policy SD15, Climate Change

APPENDIX C: EWEB'S RESILIENCY POLICY (SD22)

Strategic Direction Policies (SD Policies)

SD22 **Resiliency Policy**

Effective Date **August 1, 2023**

EWEB is committed to providing essential services that protect and enhance our community's vitality and strives to maintain these services without disruption. With the goal of sustaining safe, reliable, affordable, and environmentally responsible drinking water and electricity services, EWEB faces the challenge of effectively planning and operating in an environment of a changing climate, new technology, developing markets, political and regulatory flux, natural and human-caused threats, and evolving community expectations.

Meeting our ongoing obligation to provide essential services requires an organizational culture that fosters sustainability and resiliency of our infrastructure, finances, workforce, information, and decisions. In addition, EWEB acknowledges its role in furthering community resiliency so that our customer-owners can self-sustain through periods of disruption, recognizing the broad and unique needs of members of the community.

EWEB defines resiliency as follows.

> **Resiliency:** ***The ability to reduce the likelihood, magnitude, and duration of sudden or gradual disruptive events through risk mitigation, emergency preparedness and response, and recovery strategies.***

Consistent with EWEB's Vision, Mission, and Values (SD1) and other Strategic Direction (SD) policies, along with other policies guiding Governance Process (GP), Board-Staff Linkage (BL) and Executive Limitations (EL), the Board supports a comprehensive approach to organizational and community resiliency, as defined above, using the following primary guidance.

1. **Infrastructure and Systems** (including service delivery, financial, and information systems)

   The Board authorizes, delegates, and directs the General Manager to ensure that infrastructure design and construction, communication and information systems, and operational and maintenance processes use risk-assessment methodologies to identify and achieve resilient outcomes under both normal operating conditions and disruptive events.

2. **Workforce**

   The Board further authorizes, delegates, and directs the General Manager to build workforce resiliency through transfer of knowledge and skills across the organization, creating redundancy, flexibility, and depth in mission-critical functions. The organization shall facilitate employee and family emergency preparedness, improving EWEB's response to and recovery from disruptive events.

3. **Finance**

   The Board further authorizes, delegates, and directs the General Manager to ensure that the organization considers resiliency in the development of budgets and financial plans under a range of potential future conditions, including but not limited to, the variability of economic and market forecasts, and the impacts of regulatory changes.

4. **Community**

   The Board further authorizes, delegates, and directs the General Manager to cultivate partnerships that enhance community resiliency, leveraging unique capabilities with the potential to plan, mitigate adverse impacts of, or respond and recover from a variety of operating conditions or disruptive events. EWEB shall educate and encourage the community at-large, including vulnerable and/or historically marginalized customer-owner segments, to plan and prepare to self-sustain through periods of disruption, as well as other options for response and recovery.

Implementation

The guidance outlined in this policy are acknowledged as results or conditions that are acceptable to the Board in the process of establishing policy and approval of Strategic Plans, Long-Term Financial Plans, Capital Improvement Plans, annual budgets, and goals, as established in Board Policy BL4 "Delegation to the General Manager". According to this policy, the aforementioned plans will include resiliency considerations by incorporating content showing the sensitivities of recommendations, actions, and/or outcomes to variables impacted by relevant changing future conditions.

Implementing the guidance provided in the policy will include the development and maintenance of risk mitigation and recovery plans for major potential threats (e.g., wildfires, chemical spills, etc.), and others in partnership with local agencies (e.g. Natural Hazard Mitigation Plan).

Triple-Bottom-Line (TBL) assessments of plans, designs, and processes will include resiliency criteria to highlight each alternative's performance and/or outcome under both normal and disruptive event conditions. The resiliency of major decisions will be evaluated by assessing the sensitivity of outcomes under a variety of different future conditions.

So that EWEB's actions related to this policy are visible to the Board and our community, at least annually EWEB will compile and report on the status of strategic initiatives and annual goals associated with the implementation of this policy, as applicable.

Source: Lawson, Board Approved 08/01/23, Resolution No. 2313

Links and Relevant Resources

- EWEB Board Policies
- August 1, 2023 Regular Board Meeting agenda item: SD22 Resiliency Policy Approval; Resolution No. 2313
- June 6, 2023 Regular Board Meeting agenda item: Draft Resiliency Board Policy

APPENDIX D: EWEB'S DIVERSITY, EQUITY, AND INCLUSION POLICY (SD23)

Strategic Direction Policies (SD Policies)

SD23 **Diversity, Equity, and Inclusion Policy**[1]

Effective Date **October 3, 2023**

1. **Background**

EWEB acknowledges that the principles of Diversity, Equity and Inclusion are foundational to the consistent application of our values in the pursuit of our vision and fulfillment of our mission. EWEB recognizes and strives to celebrate our human differences and will ensure representation across a wide spectrum of characteristics and experiences, combat bias and discrimination that negatively impacts members of our community, and foster an inclusive culture that welcomes people and leads to a sense of belonging and shared commitment.

Why Diversity – Embracing and respecting our individual uniqueness and collective Diversity fosters broad perspectives, creative solutions, and an improved understanding of our workforce and Community.

Why Equity – As a public entity, providing our entire workforce and Community with Equitable Access to Products and Services, public participation, governance, employment opportunities, and business partnerships is fundamental to enhancing the vitality, health, and welfare of the community and meeting our obligation to serve.

Why Inclusion – An environment based on Inclusion creates the collaboration, motivation, and commitment necessary to galvanize our board and workforce, and inspire our customers to use our Products and Services and actively participate in our governance and public processes, essential to sustaining and continually improving our organization.

2. **Definitions - as applied to this policy:**

Diversity: *in addition to legally protected classes, the presence and recognition of all aspects of human differences within a group.*

Equity (Equitable): *the fair, unbiased, impartial opportunity to achieve a just outcome.*

Inclusion (Inclusive): *continually creating a welcoming environment where people with different identities and diverse experiences feel respected, have a sense of belonging, and can participate and achieve to their potential.*

Community: *includes the people with whom we serve, conduct business with, collaborate, influence, or impact in the fulfillment of our mission.*

Products and Services: *includes the delivery of drinking water, electricity, information, support, and supplemental programs related to the fulfillment of our mission.*

Access: *the physical and/or virtual means of obtaining, examining, or consuming Products and Services.*

[1] Non-Grammatical capitalized terms in this policy refer to the definitions as described in Section 2

3. Primary Directives

Consistent with EWEB's Vision, Mission, and Values (SD1) and other Strategic Direction (SD) policies, along with other policies guiding Governance Process (GP), Board-Staff Linkage (BL) and Executive Limitations (EL), the Board supports an intentional and comprehensive approach to reducing and/or eliminating discrimination, and continually improving Diversity, Equity, and Inclusion, as defined above, by focusing on the following strategic areas:

a. **Access to Products and Services**: The Board authorizes, delegates, and directs the General Manager to ensure that the Community we serve has Equitable Access to Products and Services.

b. **Workforce:** EWEB will rely on workforce, business, and operations management policies and practices to guide and govern conduct and decision-making. Furthermore, the Board authorizes, delegates, and directs the General Manager to ensure these policies exist, are routinely reviewed, and are enforced with the goal to create and nurture a working environment that facilitates productive, Inclusive, and respectful workforce engagement through Equitable actions, including but not limited to recruiting and hiring, compensation, promotion and retention, training and skill building, discipline and separation policies, procedures, and practices.

c. **Engagement**: Furthermore, the Board authorizes, delegates, and directs the General Manager to facilitate productive, Inclusive, and respectful Community engagement through open, accessible, and transparent communications, facilities, and Equitable opportunity to participate in our procurement, contracting, governance, and/or public processes.

d. **Board of Commissioners:** Commissioners shall adhere to board policies specifically addressing but not limited to their governing style[31], job duties[32], rules of conduct[33], external communications[34], and public input[35] in a manner that fosters the organizational and Community benefits of Diversity, Equity, and Inclusion outlined in this policy.

4. Implementation

According to Board Policy[36], the General Manager *"is responsible for implementing policies and direction established by the Board"*. To implement this policy, the Board and General Manager will work together to develop annual goals, consistent with Board Policy[37], related to the primary directives included herein, as applicable, including milestones and measurements, and reporting frequency.

So that the organization's actions related to this policy are visible to the Board and our Community, at least annually EWEB will review and report on the status of relevant customer and workforce demographics and data, tactical activities, strategic initiatives, and annual goals associated with the implementation of this policy.

[31] Board Policy GP1 Governing Style
[32] Board Policy GP2 Board Job Description
[33] Board Policy GP6 Rules of Conduct
[34] Board Policy GP9 External Communications
[35] Board Policy GP10 Public Input
[36] Board Policy BL1 Global Board – General Manager Linkage
[37] BL4 Delegation to the General Manager; BL5 Evaluating the General Manager's Performance

5. **Reference Policies**

The following are referenced in this policy:

- Board Policy GP1 Governing Style
- Board Policy GP2 Board Job Description
- Board Policy GP6 Rules of Conduct
- Board Policy GP9 External Communications
- Board Policy GP10 Public Input
- Board Policy BL1 Global Board – General Manager Linkage
- BL4 Delegation to the General Manager; BL5 Evaluating the General Manager's Performance

Source: Initial Board Approval 10/03/23, Resolution No. 2318.

Links and Relevant Resources

- EWEB Board Policies
- August 15,2023 Board Work Session: SD23 Draft Diversity, Equity, and Inclusion (DEI) Policy Review and Discussion
- June 14, 2023 - Board Work Session: Introduction to DEI Training
- April 18, 2023 - Board Work Session: 2023 Organizational Goal #2 – Diversity, Equity, & Inclusion (DEI)
- April 4, 2023 - Regular Board Meeting: Correspondence item – Diversity, Equity, and Inclusion (DEI) Board Policy – April Work Session Overview – See Page 14-16 of PDF packet
- March 7, 2023 - Regular Board Meeting: Correspondence item – EWEB Participation in Equity Community Consortium – See Page 1-2 of PDF packet
- July 5, 2022 - Regular Board Meeting: Correspondence Item – DEI Board Policy Development Background Information – See Pages 13-17 of PDF packet
- February 15, 2022 - Board Work Session: Goal #2(e): New Board Policy – Diversity, Equity, and Inclusion

APPENDIX E: EWEB'S CARBON INTENSITY GUIDANCE

THE CHALLENGES OF THE EXISTING POLICY CONTEXT FOR GHG REPORTING

Over the last twenty years, the practice of carbon accounting has emerged as an important component of fighting climate change. The question has been, **"How many emissions is an entity responsible for and what can be done to reduce those emissions?"**. In that statement, an "entity" could be an individual, a household, a business, a school, a government, a non-profit, a utility, a city, a state, a nation, a world, or more. The practice of quantifying the emissions an entity is responsible for has led to questions of boundaries, levels of direct responsibility vs. influence, methods, and standards.

Within the world of *financial* accounting, there is a set of Generally Accepted Accounting Principles (GAAP) that represent a common set of accounting rules, standards, and procedures that are set by the Financial Accounting Standards Board (FASB) and that public companies in the US must follow when reporting their financial statements. It is recognized that something similar is needed for carbon accounting.

There is a set of existing protocols and methods that make up the backbone of carbon accounting standards today that has been developed by several international non-governmental organizations (NGOs), such as the World Resources Institute among others. Within this Appendix there are links to this guidance as well as call out boxes explaining how this relates to EWEB. These standards often provide a tiered hierarchy of methods and emissions factors to use in an entity's carbon accounting practice, depending on the given circumstances and available data for the context in which it is being used. Because these international NGOs are trying to provide guidance that can be fit to a wide variety of entities, situations, contexts, and geographic locations, it is difficult to make a one-size fits all set of standards and guidance. As a result, many entities (including EWEB) have GHG accounting protocols that are informed by multiple international NGO's.

The United States lacks a comprehensive system specifically designed for GHG emissions accounting and data tracking. Throughout its history, electricity has been traded as a commodity without differentiating one MWH from another based on any characteristics. As carbon accounting has grown and developed, consumers increasingly want to differentiate a MWH with a high emissions profile from another MWH that was generated by zero-carbon resources. In the absence of comprehensive national climate accounting standards or legislation, individual states have been left to build their own laws, policies, reporting requirements, and accounting methods, or to do nothing. This has led to a patchwork of practices across the Western Electricity Coordinating Council (WECC) that makes up the western electricity grid. Across the US WECC today there are:

- **State-specific programs dedicated to market development of new renewable energy**, including Renewable Portfolio Standards and clean energy targets. These programs are often focused on incentivizing the development of new renewable resources, which has led to tracking *some* qualifying low/zero-carbon electricity production, but not all. For example, legacy hydro power is often excluded as a RPS qualifying resource, but Oregon RPS does provide an exemption which reduces RPS targets based on energy received from legacy hydro from BPA[38].
- **State-specific programs dedicated to electricity fuel-mix disclosure**. Only some of these programs require that emissions rates be included.
- **Mandatory GHG Emissions Reporting Programs that apply to entities in the West**. Some of these are federal while others are state-specific. Some of them require reporting of only direct emissions sources

[38] https://www.oregon.gov/energy/energy-oregon/Documents/EWEB-RPS-compliance-report-2020.pdf

while other require reporting of both direct and indirect emissions. Some are specifically focused on the electricity sector and others are economy-wide. Some have mandatory reduction targets, and some include a cap-and-trade program.

- **Voluntary utility and electricity consumer GHG reporting and commitments**. Many utilities, like EWEB, have made voluntary commitments and voluntarily disclose GHG emissions inventories annually based on existing reporting frameworks and protocols.

The contractual path of electricity tracking doesn't always match the physical flow of energy. In addition to the patchwork of federal and state, as well as mandatory and voluntary programs mentioned above, there is the added challenge that electricity has been managed by both a contractual path that tracks the ownership of a MWH of electricity by contract or financial ownership, and the physical flow of electricity on the transmission system. The contractual and the physical pathways sometimes diverge in ways that contribute to difficulty in calculating which generation source produced the electricity that flows into EWEB's service territory and who gets to claim the environmental attributes or "low-carbon-ness" of renewable electricity generation owned by the utility.

Links and Relevant Resources

- The Brattle Group Greenhouse Gas and Clean Energy Accounting Methodology Catalogue (June 2023)

Grand Coulee Dam in the winter. Courtesy of the Bureau of Reclamation.

Common Protocols and Resources for GHG Reporting

Since the late 90s/early 2000's, several protocols, tools, resources, and guidance documents have been developed to support carbon accounting at different levels and for different industries or contexts. Many are complementary and build off one another.

The most common resources utilized in the United States are linked here. The links included in this section are not comprehensive but are provided to give EWEB customers and community members an easy way to find resources that could fit their reporting and disclosure needs.

Resources included:

- World Resources Institute
  - The GHG Protocol Corporate Accounting and Reporting Standard
  - The Scope 2 Guidance
  - The Corporate Value Chain (Scope 3) Accounting and Reporting Standard
  - The GHG Project Protocol
- The Climate Registry
  - The Climate Registry's General Reporting Protocol
  - The Climate Registry's Local Government Operations Protocol
  - The Climate Registry's Electric Power Sector Protocol
  - The Climate Registry's Default Emissions Factors (updated annually)
- CDP - formerly called the Carbon Disclosure Project, is an environmental disclosure system that was created on behalf of investors to document environmental risks, opportunities, and leadership that could impact an organization's financial performance.
- The Task Force on Climate Related Financial Disclosures

How does this relate to EWEB?

EWEB reports its internal operations emissions in accordance with The Climate Registry's General Reporting Protocol. In mid-2025, EWEB plans to transition to a more comprehensive approach to emissions reporting where EWEB will begin reporting its emissions associated with power and water delivery, using The Climate Registry's Electric Power Sector Protocol. In 2023, EWEB submitted our first response to CDP's Supply Chain Climate Disclosure.

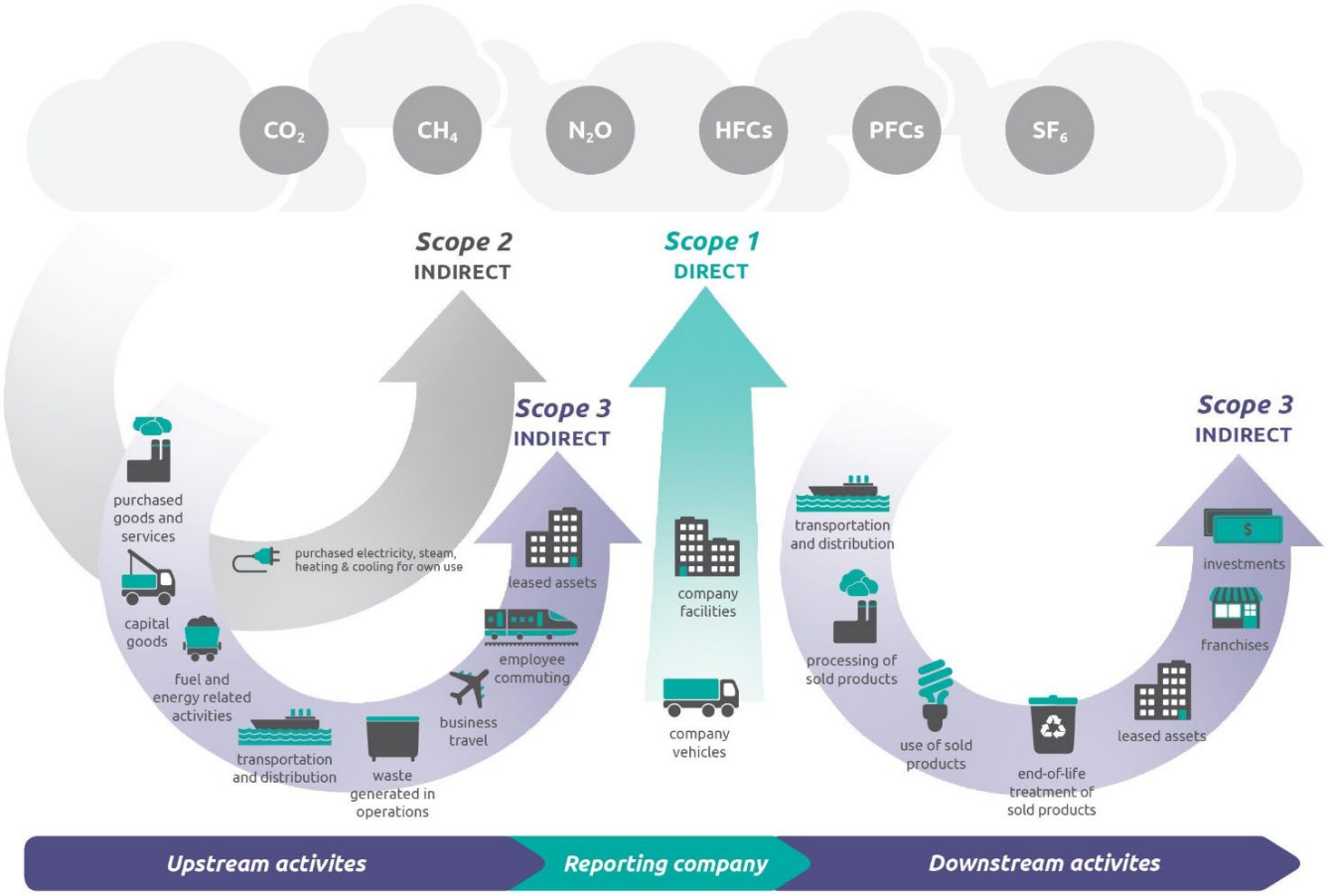
2024 Emissions Factors EWEB uses in various GHG emissions calculations internally:

Reporting Purpose	Emissions Factor	Units	Source Year	Source
Conservation/ Energy Efficient Programs	0.736	MT CO2e /MWh	2023	EPA eGRID NWPP Non-Baseload Output Emissions Rate
Demand Response	0.736	MT CO2e /MWh	2023	EPA eGRID NWPP Non-Baseload Output Emissions Rate
Electrification	0.288	MT CO2e /MWh	2023	EPA eGRID NWPP Total Output Emissions Rate
Solar	0.00	MT CO2e /MWh	2024	Solar generation emissions assumed to be 0.0. Does not include upstream emissions.
EWEB owned-facility electricity consumption	0.0364	MT CO2e /MWh	2023	Oregon GHG Reporting Program Utility Specific Emissions Factor for EWEB

World Resources Institute (WRI) GHG Protocol

The World Resource Institute Greenhouse Gas Protocol is the de-facto international leader in GHG accounting and standard setting. It defined the types of gases that must be reported, and the Scopes of emissions that come from different types of business activities that have also become standard in GHG accounting nationally and internationally. See figure below.

Figure 36: Overview of Scores and Emissions throughout an Organization's Operations. Source: World Resources Institute and World Business Council on Sustainable Development GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard.



Links and Relevant Resources

- World Resources Institute GHG Protocol website
- The GHG Protocol Corporate Accounting and Reporting Standard provides requirements and guidance for companies and other organizations preparing a corporate-level GHG emissions inventory.
- The Scope 2 Guidance standardizes how corporations measure emissions from purchased or acquired electricity, steam, heat and cooling (called "scope 2 emissions").
- The Corporate Value Chain (Scope 3) Accounting and Reporting Standard allows companies to assess their entire value chain emissions impact and identify where to focus reduction activities.
- The Project Protocol provides specific principles, concepts, and methods for quantifying and reporting GHG reductions—i.e., the decreases in GHG emissions, or increases in removals and/or storage—from climate change mitigation projects (GHG projects).

The Climate Registry

With protocols and guidance based on WRI's GHG Protocol, The Climate Registry (TCR) provides North American entities a way to report and verify their emissions and therefore demonstrate their commitment to fighting climate change. TCR was created prior to many of the state regulations that required government and business GHG reporting and still allows for voluntary, standard-based, rigorous, and verified emissions reporting for all types of organizations whether they are located in a state with GHG reporting requirements or not.

Figure 37: Excerpt from The Climate Registry's Electric Power Sector Protocol – Emissions categories for Electric Power Sector (EPS) Entities

5.1 TABLE 5.1
Expected Emissions Categories for Various EPS Organizations

EPS Report Entity Type

	Fossil Generator[1]	Other Generator[2]	Transmission Company, Balancing Authority, ISO[3]	Local Distribution Company[4]	Marketer/ Intermediary/ Retail Provider[5]
Direct Emissions (Scope 1)					
Stationary Combustion	√	√			
Process Emissions	√	√			
Fugitive Emissions	√	√			
Direct Emissions (Biogenic)					
Stationary Combustion		√			
Process		√			
Indirect Emissions (Scope 2)					
Bulk Power Transmission Losses			√		
Wheeled Power			√		
Local T&D Losses				√	√
Purchased and Consumed Electricity	√	√	√	√	√
Other Indirect Emmisions (Scope 3)[6]					
Specified Purchases			√	√	√
Other Purchases			√	√	√
Direct Access			√	√	
Power Exchanges			√	√	
Wheeled Power			√		

Notes:

1. Fossil Generator is an entity that owns, controls or shares ownership in a facility that uses fossil fuels for power generation, including coal, oil, waste oil fuel or waste tires. These entities will report emissions and power output for these facilities.

2. Other Generator is any entity that generates power at facilities using fuels and technologies that are not fossil fuels. Relevant facilities include nuclear, hydro, geothermal, biomass, biogas, and other renewable power generation. These entities will report anthropogenic and biogenic emissions, if applicable, and power output by facility.

3. Transmission companies, Balancing Authorities and Independent System Operators are required to report indirect emissions if they control the bulk power transmission systems they oversee.

4. Local Distribution Companies are required to report indirect emissions if they control a local transmission and distribution system.

5. Power Marketers, intermediaries and retail service providers that do not own or control physical assets (such as generation facilities or transmission or distribution systems) are not responsible for reporting Scope 1 emissions. The only Scope 2 emissions these entities are expected to have are those associated with purchased and consumed electricity. These entities may opt to report emissions associated with the power they purchase for resale (Scope 3). This is a necessary step for marketers, intermediaries or retail service providers that choose to report power deliveries metrics and do not already report their purchases as part of a T&D loss calculation.

The Figure above, pulled from The Climate Registry's Electric Power Sector Protocol, provides additional guidance, beyond the 3 Scope definitions provided by the World Resources Institute GHG Protocol that is specific for Electric Utilities.

How does this relate to EWEB?

EWEB will begin reporting its internal emissions in alignment with The Climate Registry's Electric Power Sector Protocol in mid-2025. Based on the Electric Power Sector Protocol's Table 5.1 excerpted above, EWEB is considered a "Fossil Generator" for a small amount of natural gas combusted at an owned biomass facility, an "Other Generator", a "Transmission Company", a "Local Distribution Company" and a "Retail Provider".

Links and Relevant Resources

- The Climate Registry's Website
- The Climate Registry's Protocol Documents page. Includes links to:
    - The Climate Registry's General Reporting Protocol
    - The Climate Registry's Local Government Operations Protocol
    - The Climate Registry's Electric Power Sector Protocol
    - The Climate Registry's Default Emissions Factors (updated annually)

CDP, formerly called the Carbon Disclosure Project, is an environmental disclosure system that was created on behalf of investors to document environmental risks, opportunities, and leadership that could impact an organization's financial performance. It has expanded to government entities and now includes disclosures on climate, water, and forestry. CDP's Climate questionnaire asks reporting entities to disclose its GHG emissions and asks which reporting protocol is being used for the disclosure process. Both WRI's GHG Protocol and The Climate Registry's General Reporting Protocols, among others, are accepted for this disclosure. Reporting entities receive scores on their disclosures, thus incentivizing action and driving change.

Links and Relevant Resources

- CDP
- Task Force on Climate-related Financial Disclosures. The Financial Stability Board created the Task Force on Climate-related Financial Disclosures (TCFD) to improve and increase reporting of climate-related financial information.

How does this relate to EWEB?

In 2023, EWEB completed CDP's Supply Chain Climate Questionnaire. This was EWEB's first CDP disclosure.

Relevant Emissions Factors

EWEB recognizes that entities within our service area may have questions about which emissions factors they should use in their own GHG calculations when they buy electricity from EWEB. In this section of the Guidebook, EWEB seeks to provide access to information and emissions factors available for this work.

Please Note: This section is intended for GHG accounting professionals engaged in technical analysis on behalf of their organizations. The resources provided are not exhaustive. EWEB recognizes that other resources may be appropriate to use in different contexts. EWEB is not responsible for misuse of this information, nor is EWEB responsible for updating emissions factors at the source locations included in this section. EWEB provides the links/references here only as a service to our customers to support their decarbonization efforts.

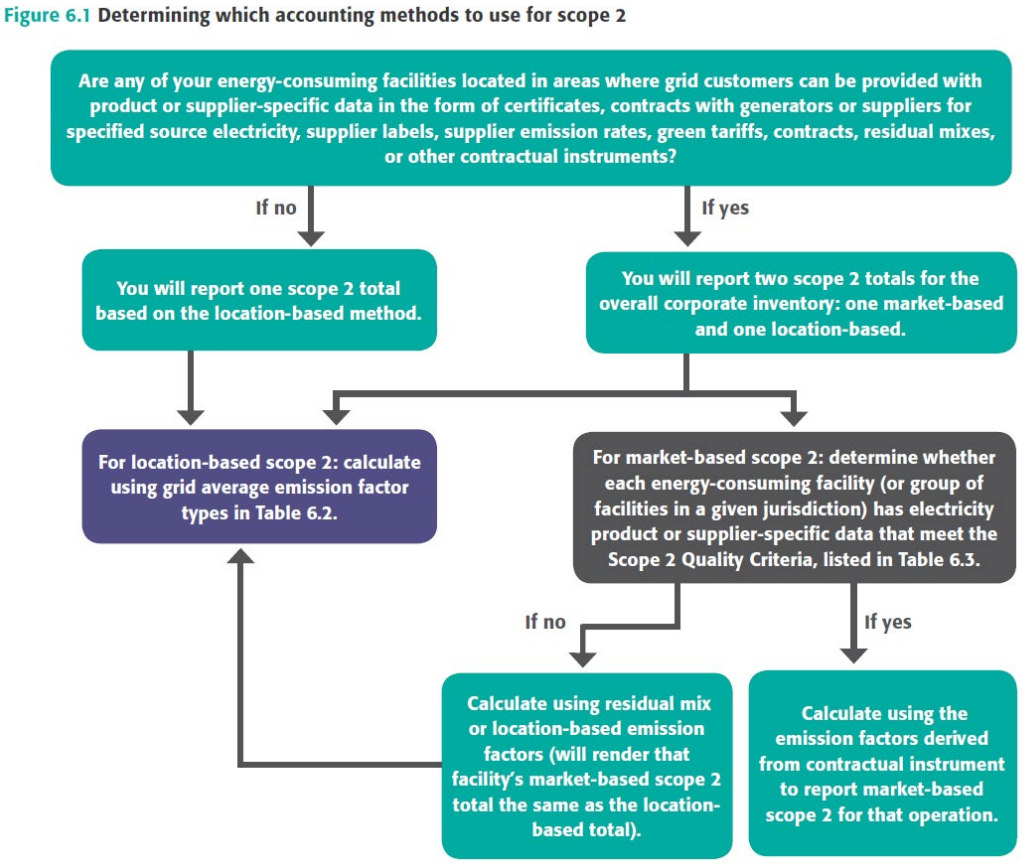
Several potential use-cases are included in this section of the report, including guidance and resources for:

- Entities seeking emissions factors for calculating Scope 2 emissions from purchased EWEB electricity.
- Entities seeking to estimate emission reduction benefits from energy efficiency & clean energy projects.
- Entities seeking to estimate the GHG impact of transportation electrification projects and potential credit generation under the Oregon Clean Fuels program.

Resources for Entities Seeking Emissions Factors for Scope 2 GHG Calculations from Purchased EWEB Electricity

Often, the first step in determining the appropriate emissions factor to use in calculating Scope 2 emissions from purchased electricity is to follow the guidance offered in **Chapter 6 of the World Resources Institute Scope 2 Guidance Document (see link below)** to determine if your organization will be reporting using the location-based method or the market-based method.

Figure 38: WRI Scope 2 Guidance, Chapter 6, Figure 6.1 Decision Tree to Determine which Accounting Method to Use for Scope 2



How does this Decision-Tree relate to EWEB?

As can be seen in the excerpted decision tree from Chapter 6 of WRI's Scope 2 Guidance document, the answer to the first question is **yes** for EWEB's customers. Oregon DEQ calculates supplier emissions rates by utility provider. Therefore, for most EWEB customers, **the guidance recommends reporting Scope 2 emissions using both the location-based and the market-based methods**.

Continuing in the decision tree under the market-based scope 2, it asks if the supplier-specific data meets the Scope 2 quality criteria listed in Table 6.3. For EWEB's DEQ utility-specific emissions factor, the answer to this question is also **yes**.

In EWEB's internal GHG inventory, we report our emissions using both the Location-Based Method and the Market-Based Method. Progress towards EWEB's internal emissions reduction goals is usually tracked using the Market-Based Method.

Continuing in **Chapter 6 of the World Resources Institute Scope 2 Guidance Document (see link below),** the guidance provides a hierarchy of data sources that can be used to calculate both the Location-Based and the Market-Based methods. Excerpted below is the location-based method emissions factor hierarchy. As can be seen, the eGRID regional total output emissions rate is considered more precise than using a national emissions factor. This resource is linked below.

Figure 39: WRI Scope 2 Guidance, Chapter 6 Table 6.2 Location-Based Method Emissions Factor Hierarchy

Table 6.2 Location-based method emission factor hierarchy

Data forms listed here should convey combustion-only (direct) GHG emission rates, expressed in metric tons per MWh or kWh.

Emission factors	Indicative examples
Regional or subnational emission factors *Average emission factors representing all electricity production occurring in a defined grid distribution region that approximates a geographically precise energy distribution and use area. Emission factors **should** reflect net physical energy imports/exports across the grid boundary.*	eGRID total output emission rates (U.S.)[a] Defra annual grid average emission factor (U.K.)[b]
National production emission factors *Average emission factors representing all electricity production information from geographic boundaries that are not necessarily related to dispatch region, such as state or national borders. No adjustment for physical energy imports or exports, not representative of energy consumption area.*	IEA national electricity emission factors[c]

Notes:

a Although eGRID output rates represent a production boundary, in many regions this approximates a consumption or delivery boundary, as eGRID regions are drawn to minimize energy imports/exports. See: http://www.epa.gov/cleanenergy/energy-resources/egrid/index.html.

b See Defra: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/224437/pb13988-emission-factor-methodology-130719.pdf.

c IEA emisison factors do not adjust for imports/exports of energy across national boundaries. See: http://data.iea.org/ieastore/product.asp?dept_id=101&pf_id=304.

For the Market-based method emissions factor hierarchy from Chapter 6 (Table 6.3), Oregon DEQ's EWEB-specific GHG Reporting Program emissions factor would be considered a Supplier/Utility Emissions Rate. This resource is also linked below.

Figure 40: WRI Scope 2 Guidance, Chapter 6, Table 6.2 Market-Based Method Emissions Factor Hierarchy

Table 6.3 Market-based scope 2 data hierarchy examples

Data forms listed here should convey combustion-only (direct) GHG emission rates, expressed in metric tons per MWh or kWh. Reporting entities should ensure that market-based method data sources meet Scope 2 Quality Criteria. Instruments listed here are not guaranteed to meet Scope 2 Quality Criteria, but are indicative of instrument type.

Emission factors	Indicative examples	Precision
Energy attribute certificates or equivalent instruments (unbundled, bundled with electricity, conveyed in a contract for electricity, or delivered by a utility)	• Renewable Energy Certificates (U.S., Canada, Australia and others) • Generator Declarations (U.K.) for fuel mix disclosure • Guarantees of Origin (EU) • Electricity contracts (e.g. PPAs) that also convey RECs or GOs • Any other certificate instruments meeting the Scope 2 Quality Criteria	Higher
Contracts for electricity, such as power purchase agreements (PPAs)[a] and contracts from specified sources, where electricity attribute certificates do not exist or are not required for a usage claim	• In the U.S., contracts for electricity from specified nonrenewable sources like coal in regions other than NEPOOL and PJM • Contracts that convey attributes to the entity consuming the power where certificates do not exist • Contracts for power that are silent on attributes, but where attributes are not otherwise tracked or claimed	
Supplier/Utility emission rates, such as standard product offer or a different product (e.g. a renewable energy product or tariff), and that are disclosed (preferably publicly) according to best available information	• Emission rate allocated and disclosed to retail electricity users, representing the entire delivered energy product (not only the supplier's owned assets) • Green energy tariffs • Voluntary renewable electricity program or product	
Residual mix (subnational or national) that uses energy production data and factors out voluntary purchases	• Calculated by EU country under RE-DISS project [b, c]	
Other grid-average emission factors (subnational or national) – see location-based data	• eGRID total output emission rates (U.S.).[d] In many regions this approximates a consumption-boundary, as eGRID regions are drawn to minimize imports/exports • Defra annual grid average emission factor (UK) • IEA national electricity emission factors[e]	Lower

Notes:

a Because PPAs are the primary example of this type of instrument used in the markets consulted in this TWG process, this class of instrument may be referred to in shorthand as "PPAs" with the recognition that other types of contracts that fulfill a similar function may go by different names.

b See: http://www.reliable-disclosure.org/static/media/docs/RE-DISS_2012_Residual_Mix_Results_v1_0.pdf.

c The Norwegian authority also publishes a residual mix emission factor that can be found here: http://www.nve.no/en/Electricity-market/Electricity-disclosure-2011/.

d See: http://www.epa.gov/cleanenergy/energy-resources/egrid/index.html.

e See: http://www.epa.gov/cleanenergy/energy-resources/egrid/index.html.

Figure 41: Oregon Department of Environmental Quality EWEB Utility-Specific Emissions factors, 2010-2023

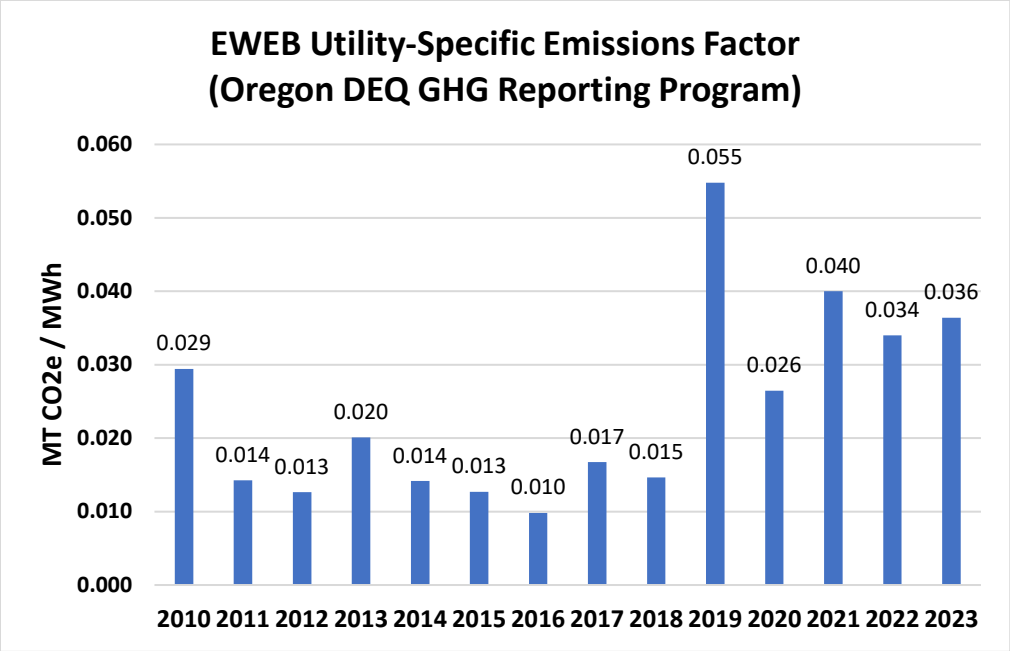


Figure 42: US EPA's eGRID Regional Total Output Emissions Rate for NWPP, 2010-2023. Note: data for years 2010-2018 was only calculated every other year. Annual reporting began in 2018.

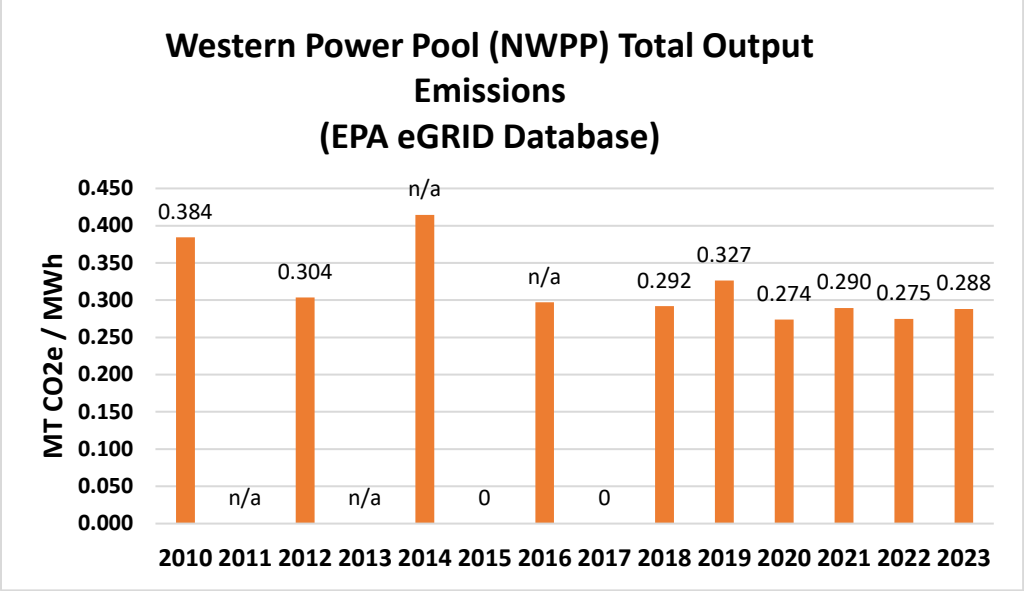
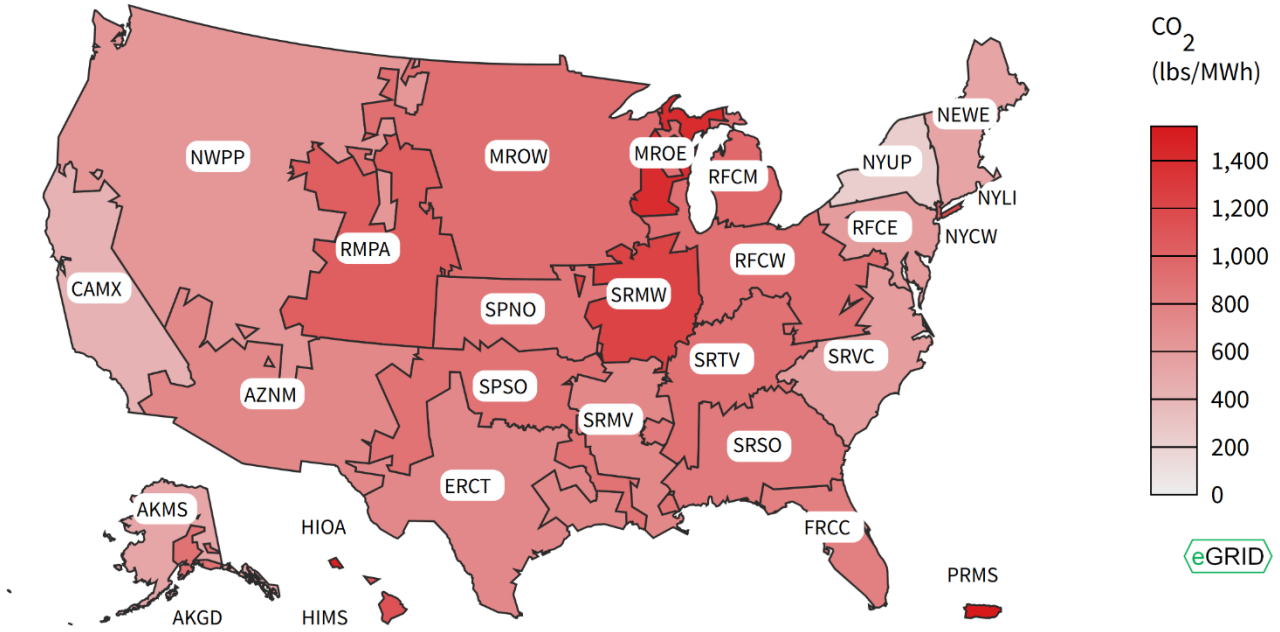


Figure 43: US EPA's eGRID Subregion Map showing Carbon dioxide in Pounds / MWh as of January 22, 2025. Source: Power Profiler | US EPA

This map provides eGRID subregion average emission rates in pounds per MWh.



Links and Relevant Resources:

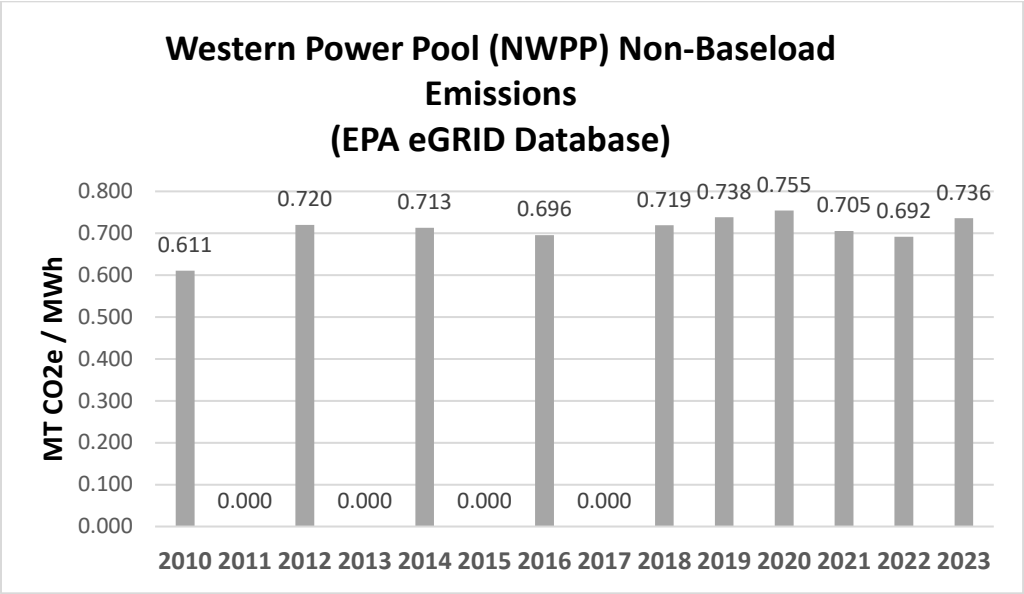
- WRI GHG Protocol Scope 2 Guidance for Market-Based vs. Location-Based Scope 2 accounting methods.
- US EPA Emissions & Generation Resource Integrated Database (eGRID) Home
- EPA eGRID's regional Total Output Emissions Rate for the Northwest Power Pool (NWPP)
- Oregon DEQ's Greenhouse Gas Reporting Program
- Oregon DEQ's 2010-2023 Greenhouse Gas Emissions from Electricity Use
- US EPA Green Power Partnership: Offsets and RECs – What's the Difference?

Resources for Entities Seeking to Estimate Emissions Reduction Benefits from Energy Efficiency or Clean Energy Projects

Entities engaged in estimating the emissions reduction benefits from energy efficiency or clean energy projects may seek to understand the marginal or peak carbon reductions associated with their efforts. EPA eGRID database provides a different set of emissions factors for this use-case, called the **Non-Baseload Emissions Rate**. These Non-Baseload Emissions Rates are different from the EPA eGRID Total Output Emissions Rates that were referenced in the previous section.

US EPA recommends using non-baseload emissions factors when you estimate the carbon impacts of projects that reduce electricity emissions, like conservation or energy efficiency. However, the non-baseload emissions factors should NOT be used when calculating annual greenhouse gas inventories or carbon footprints. As described in the previous section, for calculating annual greenhouse gas inventories or carbon footprints, the EPA eGRID Total Output Emissions Rates are more appropriate.

Figure 44: US EPA eGRID Non-Baseload Emissions Rate for NWPP, 2010-2023



Links and Relevant Resources:

- EPA eGRID's regional Non-Baseload Output Emissions Rate for the Northwest Power Pool

Additional Notes and References:

This set of emissions factors is defined by EPA as follows:

*"**Non-baseload output emission rates** were developed to provide an improvement over the fossil fuel output emission rates as an estimate of emission reduction benefits from energy efficiency and clean energy projects. Demand for electricity changes diurnally and seasonally. The term "baseload" refers to those plants that supply electricity to the grid when demand for electricity is low. Baseloaded plants are usually called upon to provide electricity to the grid no matter what the demand for electricity is during any given period of time, and generally operate continually except when undergoing routine or unscheduled maintenance.*

Non-baseload emission rates are a slice of the system total mix, with a greater weight given to plants that operate coincident with peak demand for electricity. In eGRID, the capacity factor of each plant is used as a surrogate for determining whether a plant is baseloaded and how much of each plant's generation is considered

to be non-baseloaded. Non-baseload emission rates are the output emission rates for plants that combust fuel and have capacity factors less than 0.8, weighted by generation and a percent of generation determined by capacity factor. The non-baseload emissions and generation include only emissions and generation from combustion sources and exclude emissions and generation from plants that have high capacity factors. The remaining emissions and generation are weighted by a factor which is a function of capacity factor. These data values are derived from plant level data and factor out baseload generation, which is generally unaffected by measures that affect marginal generation. This rate is the sum of the non-baseload emissions divided by the sum of non-baseload net generation, divided by a unit conversion factor.

In eGRID, these values are displayed beginning at the state aggregation level. eGRID subregion CO2 non-baseload output emission rates are the underlying data in EPA's Greenhouse Gas Equivalencies Calculator since the results of the calculation is the potential amount of avoided CO2 emissions. These rates are also the underlying data for EPA's Green Power Equivalency Calculator, which helps to translate a green power kWh purchase into more understandable everyday terms such as equivalencies to coal plant CO2 emissions or greenhouse gas emissions from passenger vehicles or CO2 emissions from electricity use in American homes, for example.[39]

While non-baseload emissions rates can be used to estimate the emissions reductions associated with projects that displace electricity generation, such as energy efficiency and/or renewable energy, these rates should not be used for assigning an emission value for electricity use in carbon-footprinting exercises or GHG emissions inventory efforts. Rather, eGRID subregion-level total output emission rates are recommended for estimating emissions associated with electricity use (scope 2 emissions).[40] *"*

[39] *https://www3.epa.gov/ttnchie1/conference/ei18/session5/rothschild.pdf*

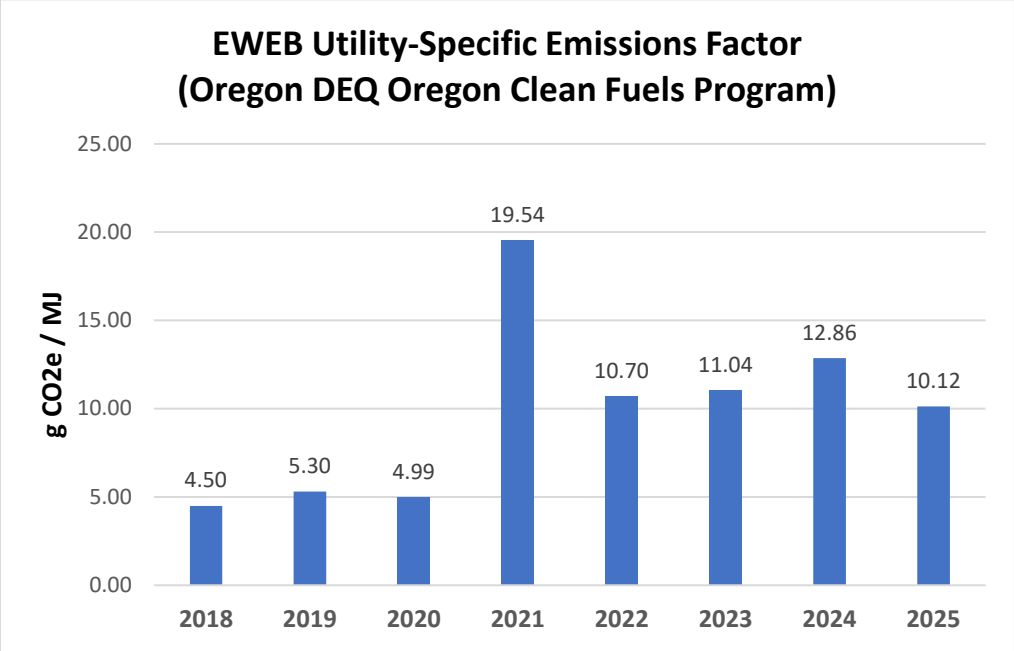
[40] eGRID Technical Guide: https://www.epa.gov/system/files/documents/2022-01/egrid2020_technical_guide.pdf

Resources for Entities Seeking to Estimate the GHG Impact of Transportation Electrification Projects and Potential Credit Generation Under the Oregon Clean Fuels Program

Entities engaged in transportation electrification or other types of transportation related fuel-switching to lower carbon fuels may be interested in estimating the carbon impact of their project or the potential for credit generation under the Oregon Clean Fuels Program.

In this case, Oregon DEQ calculates a *lifecycle* utility-specific emissions factor for utility providers in the state that is based on the total output emissions rate calculated under the Oregon DEQ GHG Reporting Program but includes upstream emissions from fuel feedstocks procurement, fuel manufacturing and transportation of finished product to the point of consumption. This is sometimes known as a well-to-wheels lifecycle analysis.

Figure 45: EWEB Utility-Specific Emissions Factors from Oregon DEQ Oregon Clean Fuels Program 2018-2025 (grams CO2e per MJ)



Note: Please note that even though the Oregon Clean Fuels emissions factors are based on the emissions factors calculated as part of the DEQ GHG Reporting Program (discussed above), the years of emissions factors don't match between the two programs. There is a 2-year lag in calculations. For example, the 2025 Clean Fuels Program emissions factor is calculated based on the 2023 GHG Reporting Program Emissions Factors.

Regulated entities include transportation fuel producers and importers of fossil gasoline, fossil diesel, ethanol, biodiesel, and renewable diesel. They are required to meet the declining carbon intensity cap for the fuels they sell. One way to meet the program requirements is to purchase credits from entities that generate credits by developing low-carbon transportation fuels. Credits are measured in metric tons of GHGs. Credits can be sold to regulated entities, which in turn produces revenue to pay for projects that lower GHGs.

For credit generators, the credits flow to the following entities[41]:

- For compressed natural gas (CNG), liquified natural gas (LNG), and liquified petroleum gas (LPG), the credits flow to the owner of the dispenser.
- For renewable natural gas (RNG), propane, and jet fuel, the credits flow to the producer or importer.

[41] Oregon Clean Fuels Program Overview: Department of Environmental Quality: Clean Fuels Program Overview : Oregon Clean Fuels Program : State of Oregon

- For electricity:
    - For fixed light rail, streetcars, aerial trams, buses, credits flow to the transit agency.
    - For forklifts, the credit flows to the forklift owner.
    - For residential EV charging, the credits flow to the electric utility.
    - For non-residential EV charging, credits flow to the charger owner or the operator if the owner does not register.
    - For transportation refrigeration units, credits flow to the owner of the refrigeration unit.
    - For cargo handling equipment, credits flow to the owner of the charging equipment.
    - For ocean-going vessels, credits flow to the owner of the equipment that provides electrical power from the shore.
    - For ground-support equipment, credits flow to the owner of the charging equipment.
- For hydrogen, credits flow to the owner of the fuel.
- For alternative or sustainable jet fuel (SAF), credits flow to the fuel producer or importer.

Links and Relevant Resources:

- OR Clean Fuels Program Electricity Guidance Documents
- OR DEQ Clean Fuels Program Electricity Carbon Intensity Values for 2023.
- OR Clean Fuels Program Fuel Pathways – Carbon Intensity Values
- OR Clean Fuels Program - Current List of Carbon Intensity Values
- Guidance on Utility-Specific Electricity Carbon Intensity Calculations in GREET
- OR Clean Fuels Credit Estimator. Excel spreadsheet to estimate expected credits.

APPENDIX F: EWEB'S ROLE IN CITY OF EUGENE'S CAP2.0

HISTORY AND IMPLEMENTATION OF EUGENE'S CLIMATE ACTION PLAN (CAP) 2.0

Eugene has a long history of climate action within both city government operations and the community. The city conducted its first Community Climate and Energy Action Plan in 2010. In 2014, City Council passed the first version of its Climate Recovery Ordinance (CRO), which was updated to its current form in 2016. The CRO includes 4 bold goals – two focused on the community including residents and businesses and two focused on city operations (see box).

In 2017-2018, Eugene updated its climate action plan for city operations and kicked off the process to engage the broader community to develop an update to their 2010 Climate and Energy Action Plan 1.0.

In summer of 2020, Eugene published CAP2.0. This was the culmination of a two-year process to engage with a broad coalition of stakeholders to identify and quantify opportunities and commitments to move towards reduced fossil fuel use, carbon neutrality, and climate change adaptation.

Eugene's Climate Recovery Ordinance

Community goals:

- Reduce community fossil fuel use by 50% of 2010 levels by 2030.
- Reduce total community greenhouse gas emissions to an amount that is no more than the city of Eugene's average share of a global atmospheric greenhouse gas level of 350 ppm by 2100, which was estimated in 2016 to require an annual average emission reduction level of 7.6%.

City Operation goals:

- All City of Eugene owned facilities and operations shall be carbon neutral by 2020, meaning no net release of greenhouse gas emissions.
- Reduce the City of Eugene's use of fossil fuels by 50% compared to 2010 usage.

Source: City of Eugene, Climate Recovery Ordinance

EUGENE CLIMATE COLLABORATIVE (ECC), LARGE-LEVER SHAREHOLDERS

As part of the CAP2.0 coalition building process, the City of Eugene explains on its website, "the project team focused its engagement on systems-level actors across the community, creating the Eugene Climate Collaborative Partners (ECC). ECC Partners were deliberately defined as organizations who have significant oversight and impact on community-wide fossil fuel use and emissions or can affect or alter systems that will enable the community to adapt and prepare for climate change."[42]

ECC partners include City of Eugene, Lane County, Bethel School District, Eugene 4J School District, Lane Community College (LCC), University of Oregon, Lane Transit District (LTD), **Eugene Water & Electric Board (EWEB)**, Metropolitan Wastewater Management Commission (MWMC), NW Natural, PeaceHealth, Eugene Area Chamber of Commerce.

[42] Eugene CAP2.0, page 15, Eugene Climate Collaborative Partners. Downloaded from https://www.eugene-or.gov/4284/Climate-Action-Plan-20.

Figure 46: City of Eugene CAP2.0 List of Eugene Climate Collaborative Large-Lever Shareholders

EWEB's Commitments in CAP2.0

One of the guiding principles of the CAP2.0 is to "start with a foundation of commitments". The plan records a set of voluntary commitments from participating ECC members. By documenting and quantifying the impact of these action items and commitments, our community can identify leaders and create accountability for follow-through.

EWEB submitted a series of commitments in CAP2.0 throughout the categories of Transportation, Building Energy, and Resiliency. These are summarized below with their CAP2.0 assigned action item numbering (example T38 is the 38th action item within the Transportation section). The text in italics is directly from the CAP2.0 document. In the time since publication in summer of 2020, some items have changed and notes to that effect are listed for each section.

Transportation

The table below provides a summary of EWEB's Transportation commitments in CAP2.0. Text in italics is directly from the CAP2.0 document.

Transportation Action Items		
Action Item #	**Topic**	**Description Details from CAP2.0**
T24	EV marketing & awareness	*COE and EWEB to increase the number of EV-centered ride and drive consumer education events. This action is scheduled to be completed between 2023 and 2025.*
T36	EV market transformation	*EWEB will focus on an evolution of targeted market transformation programs and efforts to increase EVs in the community, including dealership engagements and incentives, education campaigns, and ride and drive events. Funding for this action primarily comes from the Clean Fuels Program (CFP).*
T37	EV infrastructure incentives	*EWEB to incentivize commercial and residential charging infrastructure and to support regional efforts to expand available charging network, including EWEB-owned stations at its properties. Funding for this action primarily comes from the Oregon Clean Fuels Program (CFP).*
T38	EV support to underserved communities	*EWEB to explore ways to increase EV use in underserved populations through efforts and programs including partnerships with key agencies, grants, culturally appropriate outreach and education, and non-ownership models like multi-family car sharing. Funding for this action primarily comes from the Clean Fuels Program (CFP).*
T40	EWEB owned fleet GHG reduction goals	*LCC, Lane County, and EWEB continue to invest in fuel efficient motor pools. Public agencies are focused on purchasing electric vehicles when practical and high efficiency hybrids or diesels when necessary. These vehicles require less maintenance and have lower operating costs than the vehicles they are replacing.*

Each of these commitments are discussed in detail in the coming sections.

T24 and T36: EV Market Support Initiatives

Under the Oregon Clean Fuels Program, credits associated with residential vehicle electrification are calculated by the Oregon Department of Environmental Quality (DEQ). For EWEB, credit calculations are based on:

- Number of EVs registered in EWEB's service area, using vehicle registration data from the Department of Motor Vehicle (DMV).
- An estimate of electricity used per EV, from direct & non-direct metered data.
- The carbon-intensity of EWEB's utility-specific average from Oregon DEQ (see Appendix E).

T24: EV Marketing & Awareness

COE and EWEB to increase the number of EV-centered ride and drive consumer education events. This action is scheduled to be completed between 2023 and 2025.

T36: EV Market Transformation

EWEB will focus on an evolution of targeted market transformation programs and efforts to increase EVs in the community, including dealership engagements and incentives, education campaigns, and ride and drive events. Funding for this action primarily comes from the Clean Fuels Program (CFP).

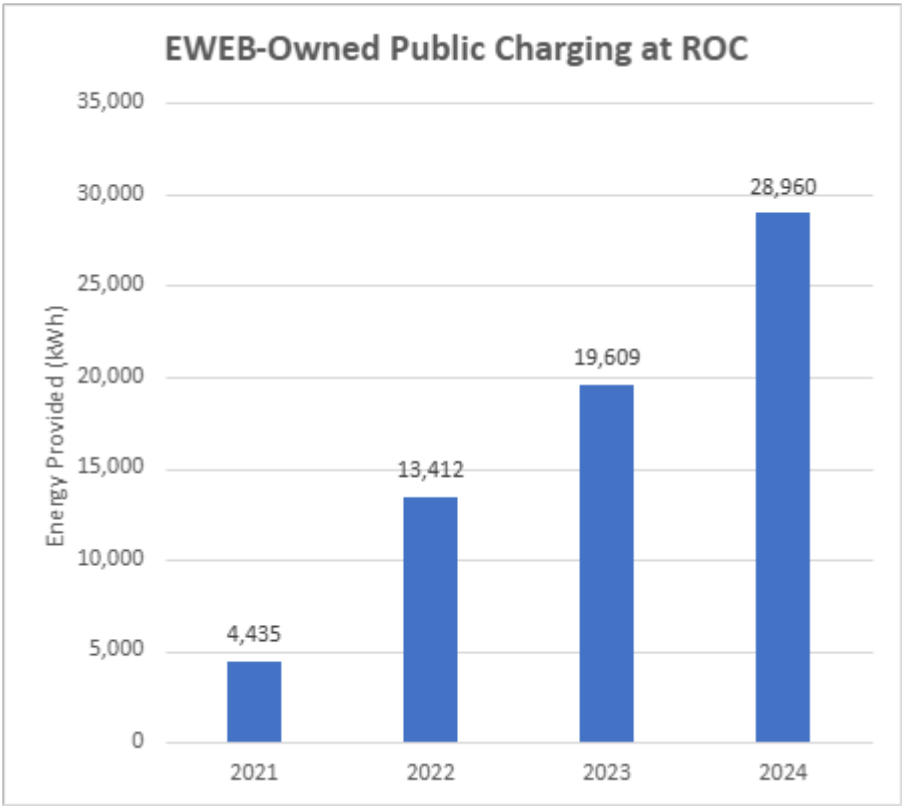
The Oregon Clean Fuels Program has provided EWEB with a source of funding separate from ratepayer funds to support and advance electric mobility within our service territory through our Move Green transportation electrification (TE) programs. However, in 2024, Oregon saw a drop of over 70% of the trading value of Clean Fuels Program credits. This change did not affect 2024 TE efforts but will impact programs in 2025.

Per the Oregon Department of Energy's Electric Vehicle Dashboard, as of October 2024, EWEB has 5,375 registered electric vehicles within its service territory. Of these vehicles, 5,129 fall under the categories of cars, light trucks, SUV, and vans[43].

EWEB supports electric mobility education and market transformation in several ways (T24/32, T37, and T38 below). Key 2024 EV market support initiatives included:

- **EV education and awareness events**: EWEB and our community partners, such as the Emerald Valley Electric Vehicle Association, support, host, and participate at events that provide customers the opportunity to learn and experience electric transportation firsthand.
- **Free charging stations**: EWEB has installed free public level 2 electric vehicle charging stations at its Roosevelt Operations Center (ROC) in West Eugene. They are available for community and

Figure 47: kWh of Public Electric Vehicle Charging at Roosevelt Operations Center (ROC) 2021-2024



[43] https://www.oregon.gov/energy/Data-and-Reports/Pages/Oregon-Electric-Vehicle-Dashboard.aspx

employee use. Charging at these stations has continued to grow each year since 2021. In 2024, EWEB provided enough energy through their stations to drive over 92,000 electric miles. EWEB will be installing additional level 2 stations at ROC in 2025.

- In 2024, EWEB invested $835,000 in programs related to transportation electrification using Clean Fuels Program funding. See T38 below for programs related to increasing electric mobility access for underserved populations.

Links and Relevant Resources:

- EWEB Oregon Clean Fuels 2021 Clean Fuels Credits Revenue Spending Report (April, 2022)
- Oregon Clean Fuels Program: Electric Utilities and the Clean Fuels Program
- Oregon Clean Fuels Program: Electricity Guidance Documents
- Oregon Department of Energy Electric Vehicle Dashboard

T37: EV Infrastructure Incentives

Replacing a fossil fuel-burning car with an all-electric model powered by EWEB's clean electricity is a great way to lower a household's carbon footprint. But to achieve the greatest environmental benefit, it is important to charge your EV at the right time. Charging an EV right after work, when power consumption is highest, increases use of fossil fuel-burning generators in the region required to meet peak demands, and leads to higher power prices and infrastructure costs. EWEB uses Clean Fuels Program funding to support EV charging programs.

T37: EV Infrastructure Incentives

EWEB to incentivize commercial and residential charging infrastructure and to support regional efforts to expand available charging network, including EWEB-owned stations at its properties. Funding for this action primarily comes from the Oregon Clean Fuels Program (CFP).

For the cleanest power, charge your car between 10 p.m. and 6 a.m. Charging during off-peak times, such as late evening, helps avoid or delay costly infrastructure investments and reduce market purchases at peak energy use times. Off-peak hours also coincide with the time when some renewable power sources are at their strongest—at night when the wind blows hardest and during mid-day when the sun shines brightest.

Most electric cars and Level 2 home chargers allow users to program the charge time, making it easy to fuel up with the cleanest possible power. It is for these reasons that EWEB offers incentives on electric vehicle charging infrastructure that allows users to program their charge times.

In 2024, EWEB offered electric vehicle supply equipment (EVSE) incentives for residential and commercial applications. Incentives offered and the 2024 incentive adoption rates include:

- $500 Residential EVSE Rebates (Level 2): 249 installations completed in 2024
- $1,500 Commercial EVSE Rebates (Level 2): 22 installations completed in 2024
- $2,000 Commercial EVSE Rebates (Level 2) - Affordable Housing: 0 installations completed in 2024
- $10,000 Commercial EVSE Rebates (Direct Current Fast Charging) - Single Port: 0 installations in 2024
- $15,000 Commercial EVSE Rebates (Direct Current Fast Charging) - Multi Port: 0 installations in 2024

Figure 48: 2024 Residential EVSE Incentive Adoption by Month

2024 Residential EVSE Incentive Adoption by Month													
Month	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**Totals**
# Rebates	18	11	22	20	26	19	27	18	19	35	9	25	249

Figure 49: Residential EV Incentive Adoption by Year 2020-2024

2020-2024 Residential EVSE Projects	
Year	**Projects**
2020	92
2021	175
2022	228
2023	262
2024	249

For the Cleanest Power:

Charge your car between 10 p.m. and 6 a.m.

Links and Relevant Resources:

- Oregon Electric Vehicle Dashboard
- EWEB Website: EV Incentives
- US Department of Energy: Alternative Fuels Data Center Information about Federal and State Incentives

T38: EV Support to Underserved Communities

EWEB recognizes that not everyone has equal opportunity to purchase a new or used electric vehicle, either due to upfront cost of the vehicle or due to charging challenges, among other barriers. EWEB seeks to offer electric mobility and transportation programs that help bring equitable access to the technology.

T38: EV Support to Underserved Communities

EWEB to explore ways to increase EV use in underserved populations through efforts and programs including partnerships with key agencies, grants, culturally appropriate outreach and education, and non-ownership models like multi-family car sharing. Funding for this action primarily comes from the Clean Fuels Program (CFP).

These programs are supported via funding from the Oregon Clean Fuels Program and are not supported using ratepayer dollars. Current equity-focused initiatives include:

- **Electric Vehicle Car Sharing**: In 2024, EWEB continued to partner with Forth, a non-profit organization supporting vehicle electrification to implement an electric car sharing program called GoForth CarShare in Eugene. Forth offers similar programs throughout Oregon. The goal of the GoForth CarShare program is to provide access to affordable all-electric cars to test drive and use for errands, shopping, or appointments. Working in connection with St. Vincent de Paul, Lane Transit District, and the City of Eugene, EWEB and Forth provided three car share vehicles, including one at an affordable housing site to offer low-cost electric mobility and charging. The first 4-hour ride with GoForth CarShare is free. Recurring rentals are $5/hour.
- **Electric Mobility Community Grants:** Grants can be up to $30,000 and can be awarded to tax-exempt, academic, or public institutions in the Eugene community. In 2024, five grants were awarded – see table below for selected entities. Special consideration was given to projects that advanced electric mobility in underserved communities or with a defined equity component to their program, including areas without ample access to public charging.
- **Electric Bicycle Rebates**: EWEB offers a $300 e-bike incentive to increase access to more affordable, zero-emission electric bikes and support our community's commitment to transportation electrification, and active transportation options. In 2024, EWEB

Figure 50: Eugene GoForth CarShare Utilization Data, 2024 (due to renewal of contract, vehicles were not active during most of the year)

2024 GoForth CarShare Utilization Data			
Location	**Miles Driven**	**Hours**	**Users**
Saint Vincent de Paul Affordable Housing: Iris Place	277	179	7
Lane Transit District: Santa Clara LTD Station	85	23	3
City of Eugene: Broadway South Parking	4,291	1,165	24

Figure 51: EWEB Transportation Electrification Community Grant Recipients, 2024

2024 Transportation Electrification Community Grant Winners	
Community Entity	**Project**
Cascadia Mobility	Electric Van for Bike Share Operations
Lane Community College	Motor Pool Electric Vehicle
Looking Glass Community Services	New Roads Program EV
Pacific Refugee Support Group	Electric Vehicle for Operations
Shift Community Cycles	Advancing Access, Equity Inclusion Through E-Bikes

Figure 52: EWEB e-Bike Rebate Program Participation by Month, 2024

2024 EWEB E-Bike Program Adoption by Month													Totals
Month	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	
Incentives	43	40	58	64	130	138	126	135	119	101	58	65	1,077

Links and Relevant Resources:

- Forth Website: GoForth Car Share Information
- EWEB Electric Mobility Grants
- EWEB E-Bike Rebates

T40: EWEB Owned Fleet GHG Reduction Goals

Much of EWEB's overall operational GHG reduction success since 2010 has been due to emissions reductions from our owned fleet vehicles. **Emissions from EWEB's fleet vehicles have dropped 53% since 2010**. Unfortunately, between 2023 and 2024, EWEB's emissions from fleet have increased by 43% instead of continuing to decline, due primarily to supply challenges related to renewable fuels availability in 2024, especially, E85 ethanol.

T40: EWEB-Owned Fleet GHG Reduction Goals

LCC, Lane County, and EWEB continue to invest in fuel efficient motor pools. Public agencies are focused on purchasing electric vehicles when practical and high efficiency hybrids or diesels when necessary. These vehicles require less maintenance and have lower operating costs than the vehicles they are replacing.

In 2024, EWEB had a fleet of 418 active pieces of equipment. Of that, 234 were vehicles (including pick-up trucks, dump trucks, bucket trucks, etc.), there were 68 units of power operated equipment, and 116 trailers. The fleet size decreased by one vehicle since 2023 but has increased more than 9% since 2020. Total gallons of fuel consumed has grown by 12% since our 2010 emissions baseline.

EWEB's decrease in fleet GHG emissions since 2010 have been driven by a switch from fossil to renewable biofuels. The biggest impact has come from switching from fossil diesel to renewable diesel (R99) since 2015. Other gains in recent years have come from increased use of E85 ethanol vehicles. While EWEB has invested in electric passenger vehicles, the COVID-19 pandemic depressed EWEB's use-case for passenger vehicles. In late 2023, EWEB purchased its first two Ford Lightning all-electric pick-up trucks. Pick-up trucks are the next most likely sector of our fleet to electrify. Electric technology is not as mature for the other heavy-duty vehicle applications that make up the remainder of EWEB's fleet.

Figure 53: EWEB GHG Emissions from Fleet Vehicles, 2010-2024

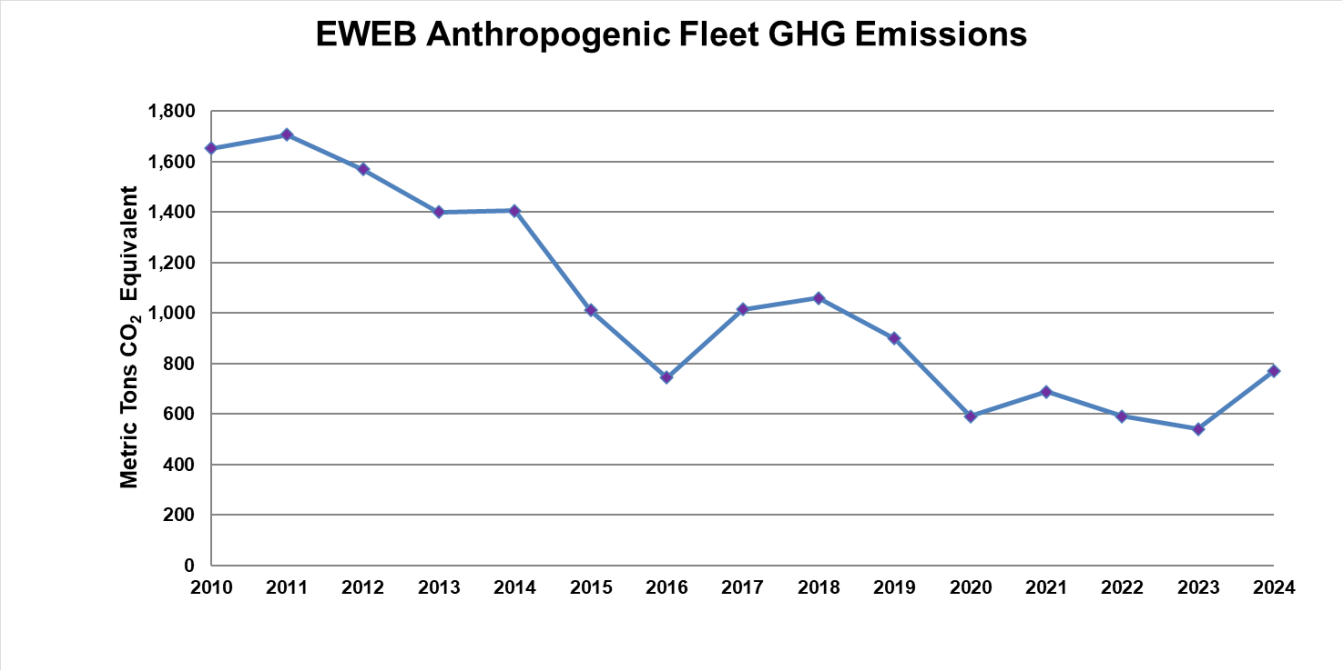


Figure 54: EWEB Fleet Fuel Consumption by Fuel Type, 2010-2024 (Gallons)

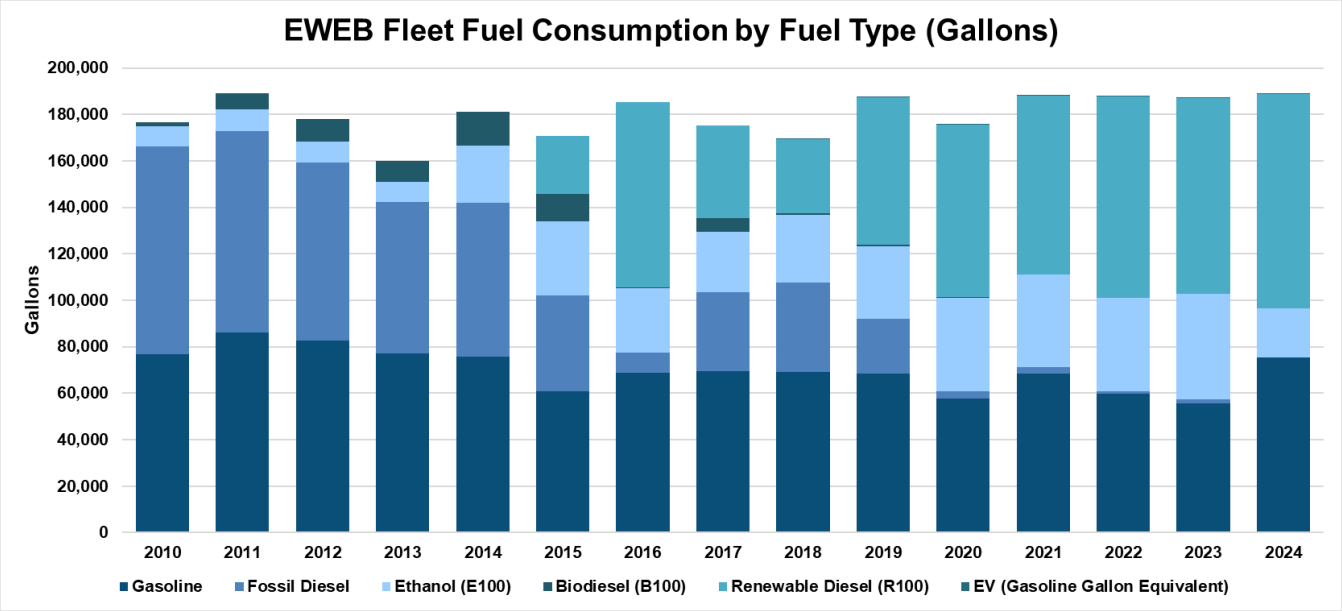


Figure 55: EWEB Fleet Fuel Consumption 2010-2024 (Gallons)

Gallons							
Year	**Fossil Gasoline**	**Fossil Diesel**	**Ethanol (E100)**	**Biodiesel (B100)**	**Renewable Diesel (R100)**	**EV (Gasoline Equivalent)**	**Total**
2010	76,670	89,684	8,518	1,830	0	0	176,702
2011	86,149	86,565	9,573	6,835	0	0	189,122
2012	82,760	76,435	9,196	9,580	0	0	177,971
2013	77,127	65,201	8,569	9,002	0	0	159,899
2014	75,897	66,159	24,596	14,331	0	0	180,983
2015	60,740	41,374	31,741	12,026	25,024	0	170,905
2016	68,883	8,462	27,974	403	79,492	0	185,214
2017	69,651	33,837	25,842	6,136	39,917	0	175,383
2018	69,311	38,394	29,184	496	32,023	25	169,433
2019	68,617	23,468	31,284	587	63,353	25	187,334
2020	57,718	3,164	40,218	127	74,529	15	175,770
2021	68,556	2,660	39,789	99	77,132	48	188,284
2022	59,782	1,136	40,128	51	86,480	103	187,680
2023	55,722	1,683	45,378	44	84,205	108	187,140
2024	75,410	7,832	21,236	254	92,282	158	197,173
% Change 2010-2024	**-2%**	**-91%**	**149%**	**-86%**	**n/a**	**n/a**	**12%**

Building Energy

The table below provides a summary of EWEB's Building Energy commitments in CAP2.0.

Building Energy		
Action Item #	**High Level Description**	**Details from CAP2.0**
Guiding Policy	EWEB's Integrated Resource Plan (IRP)	*EWEB's IRP helps EWEB understand the resources, technology, and infrastructure that will be needed to meet customers' future electricity needs. EWEB's ongoing electricity supply planning effort is aimed at optimizing power resources, assets, infrastructure, and customer products and services so that EWEB can continue to serve the community with clean, affordable, and reliable power, consistent with the values of EWEB's customer-owners.*
B8	EWEB owned facility GHG reduction goal*	*EWEB is implementing adopted GHG reduction goals, which call for EWEB to reduce our net Scope 1 and 2 GHG emissions from operations relative to 2010 levels by:* • *25% by 2020* • *50% by 2030* • *Achieve carbon neutrality from our operations by 2050*
B9	Electrification Study	*EWEB to complete an Electrification Impact Study in 2020-2021. The study will explore the impacts of widespread electrification on our community. In this study, EWEB will hypothesize various electrification scenarios and assess potential impacts to power supply, demand, local infrastructure, and community greenhouse gas (GHG) emissions.*
B10	Energy Efficiency	*EWEB working with community partners to support building upgrades with incentives for smart electrification and energy efficiency.*
B11	Limited Income Programs	*EWEB and NWN limited income assistance programs and energy conservation education programs, which provide eligible customers with rebates and incentives to lower and pay their bills.*
B12	Load Growth via Conservation	*EWEB's commitment to conservation includes meeting all new base load growth through acquiring conservation rather than new energy resources. Each year, the utility targets between 1.4 and 1.6 MW for acquisition, dedicating appropriate budget and human resources to those targets.*
B13	Advanced Metering Infrastructure	*Once fully deployed, EWEB's advanced metering program will facilitate demand side management programs with customers to reduce energy use during peak periods. EWEB has begun consumer education on the value of reducing energy use during peak periods and plans to develop programs to help consumers shift energy use off-peak through a combination of technology and pricing signals.*

*Text for B8 has been updated since CAP2.0 was published to reflect EWEB's current goals for GHG reduction from internal operations per EWEB's Board-approved Climate Change Policy, SD15.

Guiding Policy: EWEB's Integrated Resource Plan

EWEB updated its IRP in July 2023. An Integrated Resource Plan is a long-term planning process to identify EWEB's energy needs and the best resource options to meet those needs. **There are two main components to a standard IRP:** an Energy Resource Study that relies on modeling and analysis and public input to provide a 20-year look at future portfolio options and a nearer-term (2-5 year) Action Plan. Best resource options will be identified in accordance with EWEB's organizational values.

> ### Guiding Policy: EWEB's Integrated Resource Plan
>
> *EWEB's IRP helps EWEB understand the resources, technology, and infrastructure that will be needed to meet customers' future electricity needs. EWEB's ongoing electricity supply planning effort is aimed at optimizing power resources, assets, infrastructure, and customer products and services so that EWEB can continue to serve the community with clean, affordable, and reliable power, consistent with the values of EWEB's customer-owners.*

For more information about EWEB's 2023 IRP base-case results and additional analysis, please see Chapter 3 in the Climate Guidebook above or see the links below. EWEB's 2025 Energy Resource Study will be published mid-year.

Links and Relevant Resources:

- EWEB Website: Integrated Resource Plan
- IRP Fact Sheets:
  - Is Solar a Good Fit for Our Community's Energy Needs?
  - How can EWEB's IRP Incorporate Diversity, Equity, and Inclusion?
  - What are Considerations Around Utility-Scale Storage in EWEB's Future Portfolio?
  - IRP Next Steps: How and When Will EWEB Acquire New Resources?
  - Planning for Long-term Carbon Reduction Goals in the IRP

B8: EWEB-owned facility GHG Reduction Goal

EWEB has been tracking our internal greenhouse gas emissions annually since 2009, in accordance with industry best standards and the World Resources Institute Greenhouse Gas Protocol. EWEB's Climate Change Policy (SD15) set specific GHG reduction goals for EWEB's internal operations (see box).

B8: EWEB-Owned Facility GHG Reduction Goal

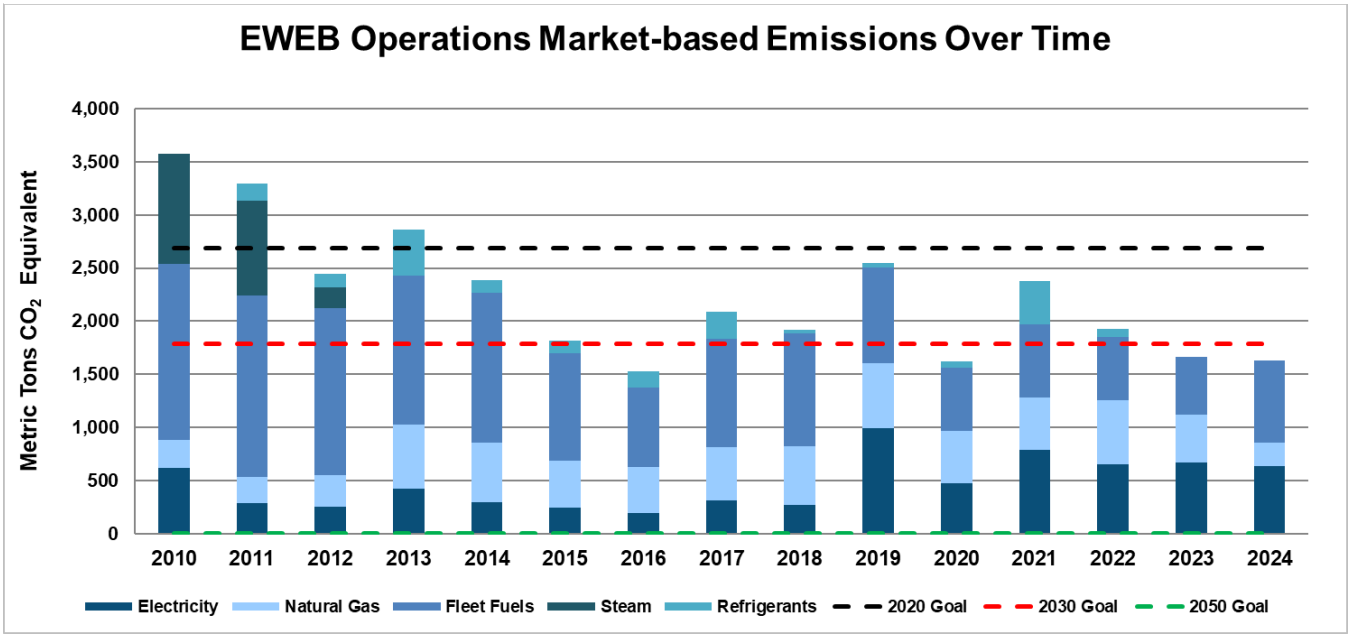
EWEB is implementing adopted GHG reduction goals, which call for a reduction of Scope 1 and 2 GHG emissions from operations relative to 2010 levels by:

- *25% by 2020*
- *50% by 2030*
- *Achieve carbon neutrality from our operations by 2050*

While there has been annual variation in emissions over time due to several factors, EWEB has met its 2020 goal of 25% reduction over 2010 baseline emissions consistently since 2014. In 2020, emissions dipped below the 2030 goal of 50% reduction compared to our 2010 baseline, but some of those reductions were temporary due to the COVID-19 pandemic and work-from-home orders. In 2024, EWEB is pleased to report our emissions once again fell below the 2030 50% emissions reduction goal. **In 2024, EWEB is reporting aggregate emissions reductions of 55% compared to 2010 baseline performance**. This drop is primarily due to a lower electricity emissions factor, as calculated by Oregon DEQ for EWEB in 2023, lower fleet emissions, lower natural gas emissions due to the sale of the headquarters building in June 2023, and no recorded refrigerant or industrial gas recharge in 2024.

For more information about EWEB's internal GHG inventory results, please see Chapter 6 above.

Figure 56: EWEB Operational GHG Emissions 2010-2024 compared to SD15 Reduction Targets



Links and Relevant Resources:

- EWEB's website: Our Commitment to the Environment
- March 7, 2023 Regular Board Meeting: Climate Guidebook Part 2: GHG Inventory and CAP2.0

B9: EWEB Electrification Study

In early 2020, EWEB's management and Commissioners agreed to develop a better understanding of the impacts of electrification on EWEB's future planning efforts. EWEB's first electrification study (November 2020), focused on the potential impacts of electrification without analyzing the costs to customers choosing to electrify. The Phase 2 report published in 2021, built on that initial analysis by considering the economics of electrification from multiple perspectives.

B9: EWEB Electrification Study

EWEB to complete an Electrification Impact Study in 2020-2021. The study will explore the impacts of widespread electrification on our community. In this study, EWEB will hypothesize various electrification scenarios and assess potential impacts to power supply, demand, local infrastructure, and community greenhouse gas (GHG) emissions.

For more information about EWEB's Phase 1 and Phase 2 Electrification Studies, please see Chapter 3 in the Climate Guidebook above or see the links below.

Links and Relevant Resources:

- EWEB Website: EWEB is Exploring the Impacts of Widespread Electrification in our Community
- EWEB Electrification Study – Phase 1 Report (Oct 2020)
- EWEB Electrification Study – Phase 2 Report (Nov 2021)

B10: EWEB Energy Efficiency Initiatives

B10: EWEB Energy Efficiency Initiatives

EWEB working with community partners to support building upgrades with incentives for smart electrification and energy efficiency.

One way to reduce greenhouse gas emissions from energy use is to improve energy efficiency within buildings. This is especially true for energy that uses fossil fuels. EWEB works with customers to complete over 1,000 energy efficiency projects per year. The highest number of projects are in the residential sector, due to the proportionally higher number of customers, yet the largest energy savings per project is in the commercial and manufacturing sectors.

Figure 57: EWEB Energy Efficiency Projects by Customer Type, 2019-2024

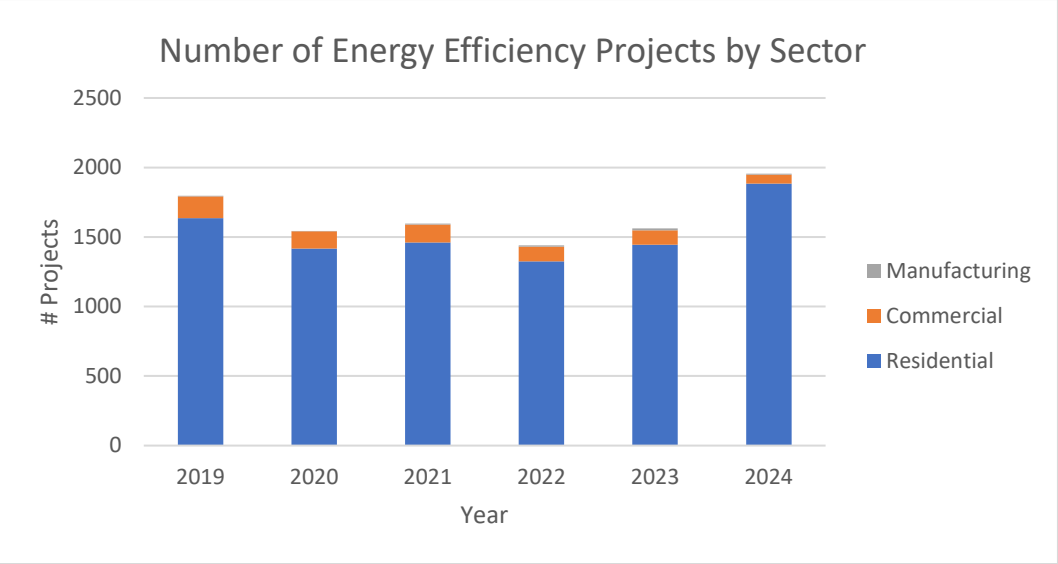
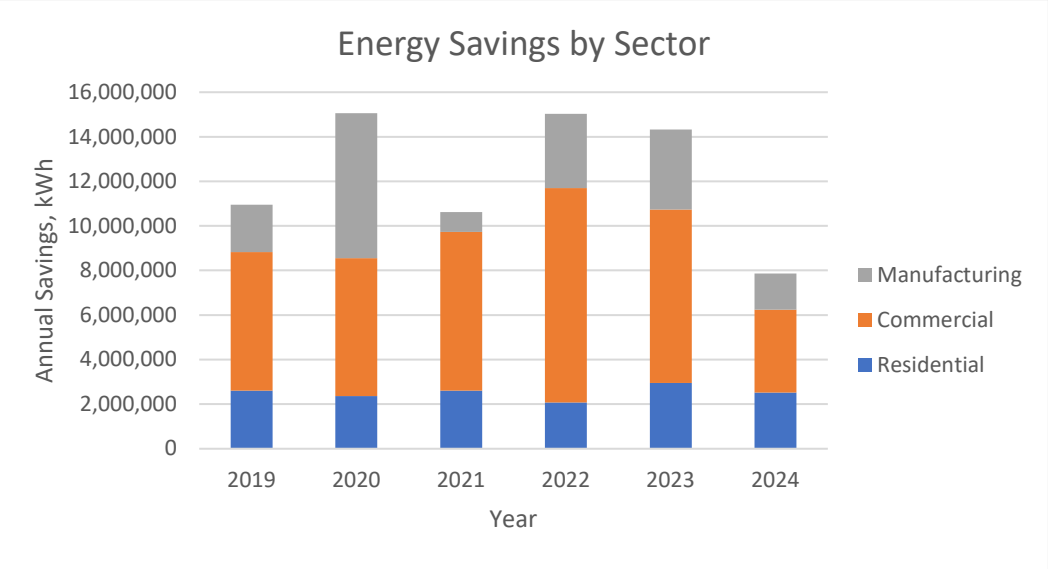


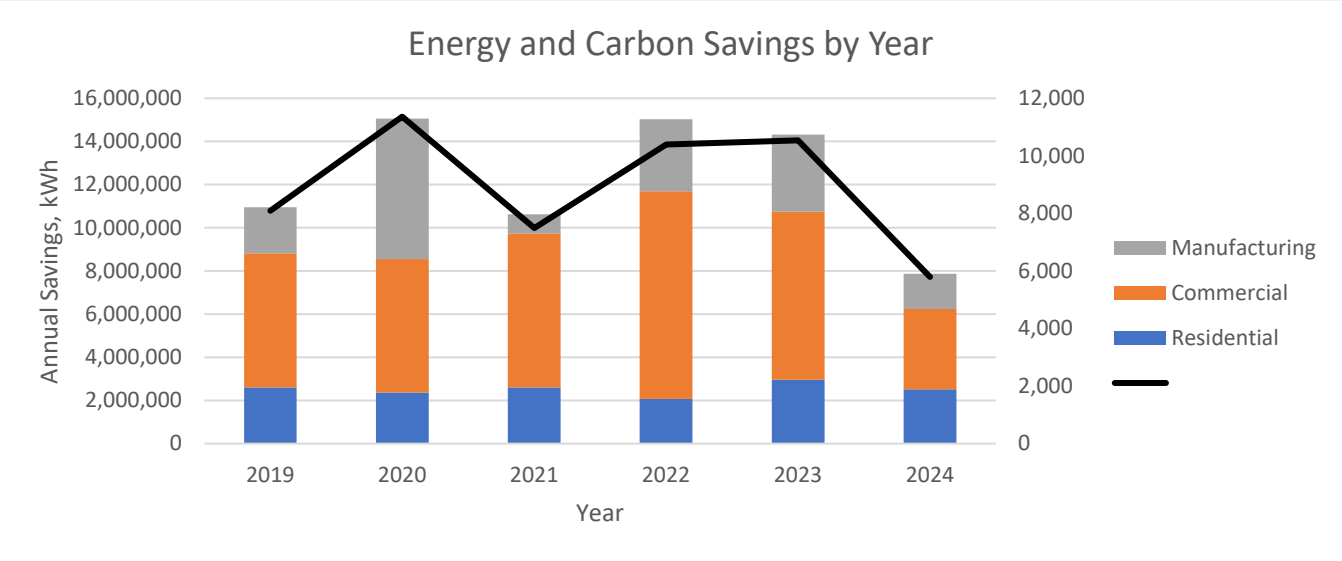
Figure 58: Energy Savings from Efficiency Projects by Sector (kWH)



The impact of energy savings from projects in the commercial and manufacturing sectors is typically higher than that the residential sector, due to the proportionally higher energy usage. These projects are much larger and involve much more intense energy use than residential projects. This is true for both electricity and natural gas.

GHG emissions are measured in Metric Tons (MT CO_2e). The line graph shows CO_2 savings from electric energy efficiency projects completed between 2019-2024. The overlaid bar graph comparatively demonstrates savings in kWh from efficiency projects in each sector. Note that carbon savings is proportional to energy savings but also varies due to the estimated emissions factor per MWh of energy savings, which varies from year to year. EWEB used the 2023 EPA eGRID Non-Baseload Emissions Rate for the Northwest Power Pool (NWPP) in these calculations as this is the most recently available emissions factor.

Figure 59: Energy and Carbon Savings from EWEB Efficiency Projects, 2019-2024



B11: EWEB Limited Income Programs

EWEB and NWN limited income assistance programs and energy conservation education programs, which provide eligible customers with rebates and incentives to lower and pay their bills.

Affordability is one of EWEB's stated values. We understand the financial challenges customers are facing, and we want to find solutions to help customers pay their bills.

Any customers struggling to pay their bills should call EWEB at 541-685-7000 from 8:30 a.m. to 5 p.m. Monday - Friday.

EWEB offers the following programs for customer financial support:

- EWEB Customer Care Program
- Community Partner Care Program
- Income-based Efficiency Rebates and Loans

Additionally, EWEB works with government partners to administer additional, federal support through the Limited Income Home Energy Assistance Program (LIHEAP).

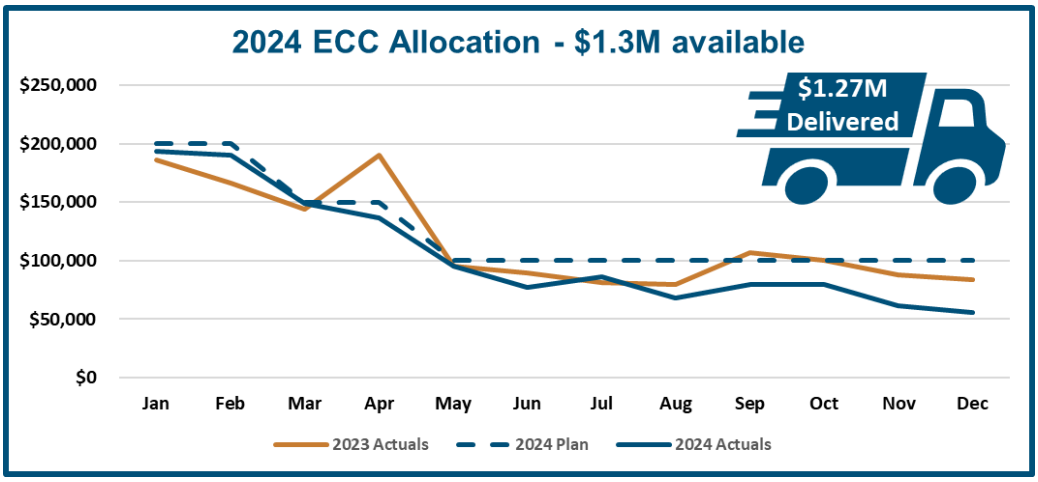
EWEB Customer Care Program

Income-eligible customers can apply for bill assistance once per calendar year. Those who qualify will receive a $280 bill credit. Social security numbers are not required on the application, as legal status is not an eligibility criterion. Applications for Customer Care open on the first business day of each month and funds are available on a first-come, first-served basis until fully committed for the month.

Figure 60: EWEB Customer Care Program Results, 2023-2024

EWEB Customer Care (ECC) Program Results					
	Q1	Q2	Q3	Q4	YTD
2024 Assistance	$533,205	$308,959	$233,800	$197,087	$1,273,051
2024 Recipients	1,904	1,103	835	704	4,547
2023 Assistance	$496,720	$375,319	$267,780	$272,160	$1,411,979
2023 Recipients	1,908	1,072	898	892	4,770

Figure 61: EWEB Customer Care Funds Allocated in 2024



EWEB Customer Care (ECC) finished the year relatively on target delivering $1.27M in assistance credits from a working budget of $1.3M for 2024.

The pacing of Customer Care activity was relatively consistent with higher numbers of customers applying in the first quarter as the program year renews. Consistent with previous years, EWEB was able to maintain continuous access to bill assistance through the end of the year.

In addition to the Customer Care Program, EWEB collects community donations via the Energy Share program for funds to provide crisis assistance. In 2024, community members, including the City of Eugene, donated $209,000 and supported 1,160 customers with crisis assistance. These customers do not have the same eligibility requirements as the Customer Care Program.

Community Partner Care Program

Electricity is an essential service that enables local organizations to provide safe housing for those experiencing homelessness or extended outages. In addition to existing housing disparities, climate change is impacting our community beyond severe cold weather events. Extended fire seasons, hotter days, and air quality events impact the unhoused community disproportionally and will demand a larger community support system that targets resources outside of Warming Centers.

This is an opportunity for EWEB to proactively assist organizations that are on the front lines of providing services during a crisis or year-round. Eligible organizations can apply for EWEB bill credits to cover 10% of annual EWEB utility charges with a grant cap based on duration of operations.

Qualifications

- Organizations must have 501(c)(3) status and be able to provide proof upon request.
- The facility's primary focus must be assisting the unhoused population.
- The facility must have at least one year of energy consumption data.
- Part-time facilities are defined as those who operate as a crisis or emergency housing shelter for less than 120 days per calendar year.
- Full-time facilities are defined as those who operate a crisis or emergency housing shelter more than 120 days per calendar year.

Assistance is in the form of a bill credit, issued no more than one time per account per calendar year. Awards will be determined by 10% of the previous year's total utility charges, with caps based on duration of operations.

In 2024, EWEB issued over $12,000 to Community Partners providing services to unhoused community members, or those at risk of becoming so.

Income-based Efficiency Rebates and Loans

The best way to reduce your overall utility bill is to use less energy and water. Efficient appliances and weatherization upgrades can help. EWEB's rebate and loan programs support efficiency investments. Income-qualifying customers may be eligible for expanded rebates or loans to upgrade home systems (HVAC, water heating, windows, and insulation). Qualifications are as follows:

- Qualification is based on household income and size. View the income guidelines. Total household income includes gross income for all adults over the age of 18, including roommates.
- Documented qualifying income level for the previous month is required.
- For owner-occupied homes, only the qualifying account holder's primary residence may qualify. For rentals, the tenant must be income qualified and be the current EWEB account holder.

- Maximum aggregated income-based rebates are $10,000 per customer (recipient) and $8,000 per premises (residence) over a 10-year period. Each individual product may have a limit as well.
- Applications may be denied for closed accounts, abusive behavior toward EWEB, tampering with any EWEB property, or any evidence of fraud.
- Income-based efficiency rebates & loans are for homes with existing electric heating and water heating.

Rebates and Loans are available for the following energy efficiency products:

PRODUCT	REBATE	ZERO INTEREST LOAN
Ductless Heat Pump	Owner Occupied: $4,500 Rental $1,000	Up to $6,000, plus $2,000 for each additional head installed (maximum 5 total heads)
Insulation	100 percent of eligible program costs	NA
Windows	Owner Occupied: $20/sq ft of windows Rental $10 sq ft of window	Up to $6,000
Heat Pump Water Heater	Owner Occupied: $1,700 Rental: $1,000	Up to $2,500
Water Leak Repair	100 percent of eligible costs	NA

Low-Income Home Energy Assistance Program & Low-Income Home Water Assistance Program

In addition to EWEB's Customer Care Program, customers may also qualify for the federal LIHEAP program. Under LIHEAP, EWEB distributes federal money to limited income households for home heating and energy bills and payments can be applied to electricity, gas, wood, pellets, and propane. **The LIHEAP program year begins the first working day of November.** Funds are distributed on a monthly cycle until depleted.

In 2024, EWEB distributed $1.5 million of federal money to over 3,594 customers.

Links and Relevant Resources:

- EWEB Income-Based Assistance Programs
- EWEB Income Assistance Income Eligibility
- March 7, 2023 Regular Board Meeting: State of the Utility Address & Prior Year-End Operational & Strategic Goals Report – See page 16 of 119 of PDF
- EWEB Community Partner Care Application

B12: Load Growth via Conservation

Over the last 14 years, EWEB's load has remained fairly constant, with a peak in 2017 at 2.454 million MWh and a low in 2020 of 2.261 million MWh, presumably due to consequences of the COVID-19 pandemic. Compared to the 2010 baseline, 2024 total load has gone down 5.2%. Commercial/industrial load had gone down 7.8% and residential load has gone down 1.2%.

B12: Load Growth via Conservation

EWEB's commitment to conservation includes meeting all new base load growth through acquiring conservation rather than new energy resources. Each year, the utility targets between 1.1 and 1.6 aMW for acquisition, dedicating appropriate budget and human resources to those targets.

The Commercial and Industrial category includes all three sizes of General Service customers, contract customers, street, and private lighting accounts, and EWEB's internal electricity consumption as a customer of the electric utility.

Figure 62: Chart - EWEB Annual Retail Electric Sales (MWh) by Customer Category, 2010-2024

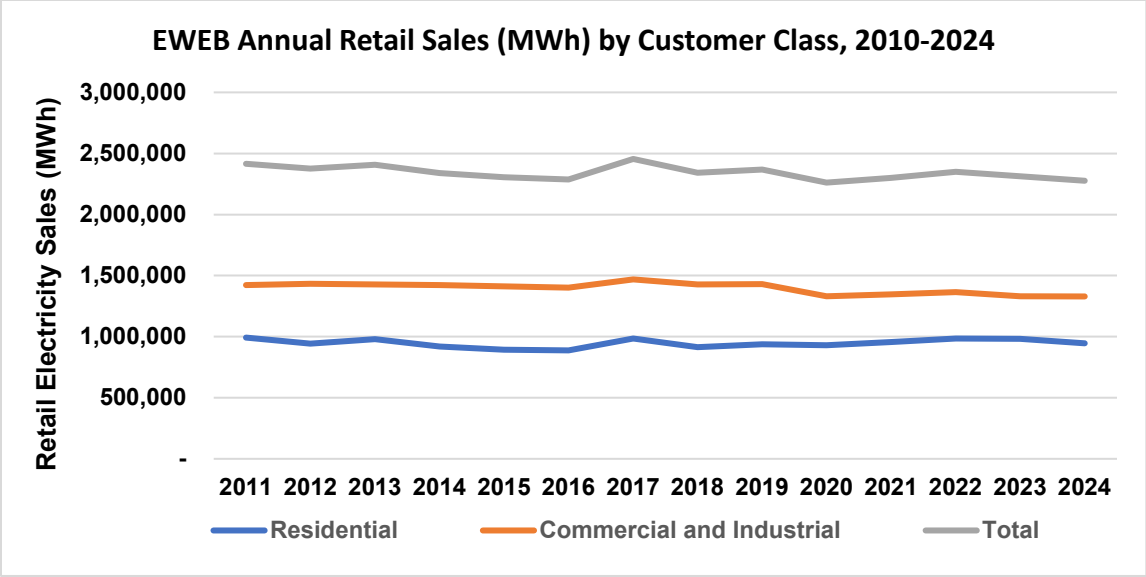


Figure 63: Table - EWEB Annual Retail Electric Sales (MWh) by Customer Category, 2010-2024

		2024	2023	2022	2021	2020	2019	2018
Residential	Residential	946,592	983,522	984,715	955,353	929,317	938,625	914,754
Commercial & Industrial	GS Small	169,700	174,349	180,869	172,150	158,630	166,770	174,198
	GS Medium	473,468	470,984	489,778	484,653	458,948	494,513	490,980
	GS Large	200,247	207,576	205,957	203,099	211,172	215,024	218,900
	Contract	473,605	464,806	476,155	472,941	490,079	540,316	530,237
	Street Lighting	8,427	9,173	8,587	8,861	8,891	8,257	9,141
	Private Lighting	863	1,078	974	878	906	887	781
	Electric Utility	2,956	1,919	3,307	3,295	3,352	3,275	3,645
	Commercial & Industrial Subtotal							
Total	**Total Retail Sales (MWh)**	**2,275,859**	**2,313,407**	**2,350,341**	**2,301,228**	**2,261,295**	**2,367,667**	**2,342,636**

		2024	2023	2022	2021	2020	2019	2018
Residential	Residential	946,592	983,522	984,715	955,353	929,317	938,625	914,754
Commercial & Industrial	GS Small	169,700	174,349	180,869	172,150	158,630	166,770	174,198
	GS Medium	473,468	470,984	489,778	484,653	458,948	494,513	490,980
	GS Large	200,247	207,576	205,957	203,099	211,172	215,024	218,900
	Contract	473,605	464,806	476,155	472,941	490,079	540,316	530,237
	Street Lighting	8,427	9,173	8,587	8,861	8,891	8,257	9,141
	Private Lighting	863	1,078	974	878	906	887	781
	Electric Utility	2,956	1,919	3,307	3,295	3,352	3,275	3,645
	Commercial & Industrial Subtotal							
Total	**Total Retail Sales (MWh)**	**2,275,859**	**2,313,407**	**2,350,341**	**2,301,228**	**2,261,295**	**2,367,667**	**2,342,636**

		2017	2016	2015	2014	2013	2012	2011
Residential	Residential	986,093	887,738	893,001	919,175	980,515	941,922	992,547
Commercial & Industrial	GS Small	180,823	171,944	167,836	166,663	163,554	157,391	151,896
	GS Medium	496,949	490,114	486,307	492,310	494,981	493,357	491,413
	GS Large	221,787	212,457	202,285	204,684	205,474	218,392	203,521
	Contract	555,286	513,293	542,581	544,791	550,904	550,270	561,034
	Street Lighting	9,118	7,927	8,519	7,884	8,260	8,982	8,991
	Private Lighting	786	666	724	788	835	641	699
	Electric Utility	4,059	3,916	3,767	4,030	3,872	4,115	4,376
	Commercial & Industrial Subtotal							
Total	**Total Retail Sales (MWh)**	**2,454,901**	**2,288,055**	**2,305,020**	**2,340,325**	**2,408,395**	**2,375,070**	**2,414,476**

		2017	2016	2015	2014	2013	2012	2011
Residential	Residential	986,093	887,738	893,001	919,175	980,515	941,922	992,547
Commercial & Industrial	GS Small	180,823	171,944	167,836	166,663	163,554	157,391	151,896
	GS Medium	496,949	490,114	486,307	492,310	494,981	493,357	491,413
	GS Large	221,787	212,457	202,285	204,684	205,474	218,392	203,521
	Contract	555,286	513,293	542,581	544,791	550,904	550,270	561,034
	Street Lighting	9,118	7,927	8,519	7,884	8,260	8,982	8,991
	Private Lighting	786	666	724	788	835	641	699
	Electric Utility	4,059	3,916	3,767	4,030	3,872	4,115	4,376
	Commercial & Industrial Subtotal							
Total	**Total Retail Sales (MWh)**	**2,454,901**	**2,288,055**	**2,305,020**	**2,340,325**	**2,408,395**	**2,375,070**	**2,414,476**

		2010			2010
Residential	Residential	957,844	Residential	Residential	957,844
	GS Small	150,842		GS Small	150,842
	GS Medium	490,357		GS Medium	490,357
	GS Large	212,233		GS Large	212,233
Commercial	Contract	573,671	Commercial	Contract	573,671
& Industrial	Street Lighting	9,083	& Industrial	Street Lighting	9,083
	Private Lighting	723		Private Lighting	723
	Electric Utility	5,048		Electric Utility	5,048
	Commercial & Industrial Subtotal			Commercial & Industrial Subtotal	
Total	**Total Retail Sales (MWh)**	**2,399,801**	**Total**	**Total Retail Sales (MWh)**	**2,399,801**

B13: Advanced Metering Infrastructure

EWEB seeks to provide customers with better service, build a more resilient community, and create a cleaner energy future. Achieving these goals requires modernizing our community's power grid and water distribution network. As a part of this effort, we are upgrading our electric and water meters to smart meters (also known as advanced metering infrastructure or AMI).

AMI can deliver better service to EWEB customers through the delivery of four core benefits:

B13: Advanced Metering Infrastructure

Once fully deployed, EWEB's advanced metering program will facilitate demand side management programs with customers to reduce energy use during peak periods. EWEB has begun consumer education on the value of reducing energy use during peak periods and plans to develop programs to help consumers shift energy use off-peak through a combination of technology and pricing signals.

1. Smart meters help protect property by **detecting water leaks**. EWEB can notify customers about a potential water leak long before they would otherwise become aware.
2. Smart meters help EWEB **respond faster to restore power** during an outage and can help prevent future outages by giving the utility better insight into system performance and health.
3. With smart meters, customers don't need to wait for an EWEB representative to come to their home or business to **start, stop or transfer service**. Many of these services can be done remotely.
4. Customers with smart meters no longer need to provide a **meter reader access** to their property each month. Smart meters greatly reduce the need for billing estimates that are occasionally needed when a meter reader cannot manually read a meter due to weather or other unforeseen events.

As of Nov 26, 2024, 95,887 electric meters (98.5%) and 53,711 water meters (84.7%) have been installed in the Eugene metro area.

Resiliency

The table below provides a summary of EWEB's Resiliency commitments in CAP2.0.

Resiliency Action Items		
Action Item #	**High Level Description**	**Details from CAP2.0**
Guiding Policy	Natural Hazards Mitigation Plan	*The Eugene-Springfield Natural Hazard Mitigation Plan (NHMP) in partnership with the City of Springfield, Oregon, EWEB, Rainbow Water District, and the Springfield Utility Board (SUB). An update to the NHMP is expected to be completed in 2020 and is scheduled to be updated again in 2025. Actions R1-R8 provide link back to the NHMP. This is not an exhaustive list of items in the NHMP that will help Eugene achieve its climate goals, but rather a sample of the types of actions that will be needed to help the community adapt to the impacts of climate change.*
R20	Emergency Water Stations	*EWEB is installing emergency water stations at schools and public spaces around the region, with a goal to have at least five stations around the community. There are three stations that are operational and two more that are now under development with completion slated for the end of 2020. A new site on City property in south Eugene is now under exploration as a potential sixth emergency water station.*
R21	Pure Water Partners Program	*MWMC partnership with EWEB in Pure Water Partners program, a new initiative designed to reward landowners who protect high quality land along the McKenzie River. The program assists EWEB in protecting water quality and helps avoid future water treatment costs.*

Guiding Policy: Natural Hazards Mitigation Plan

For more information about EWEB's Natural Hazard Mitigation Plan, please see Chapter 5 in the Climate Guidebook above or see the links below.

Links and Relevant Resources:

- City of Eugene Emergency Plans: Eugene Springfield Multi-Jurisdictional Emergency Operations Plan, Eugene Springfield 2020 Natural Hazards Mitigation Plan, Oregon Resiliency Plan, and Neighborhood Radio Communications Response Guide
- Lane County, Oregon's Office of Emergency Management
- Natural Hazard Mitigation Plan for Lane County, 2018-2023
- Natural Hazard Mitigation Plan for Oregon, 2020-2025 - Oregon Department of Land Conservation and Development

Guiding Policy: Natural Hazards Mitigation Plan

The Eugene-Springfield Natural Hazard Mitigation Plan (NHMP) in partnership with the City of Springfield, Oregon, EWEB, Rainbow Water District, and the Springfield Utility Board (SUB). An update to the NHMP is expected to be completed in 2020 and is scheduled to be updated again in 2025. Actions R1-R8 provide link back to the NHMP. This is not an exhaustive list of items in the NHMP that will help Eugene achieve its climate goals, but rather a sample of the types of actions that will be needed to help the community adapt to the impacts of climate change.

R20: Emergency Water Stations

EWEB is making investments to prepare, replace and maintain our community's water system.

We are working with community partners to develop an emergency water supply program that includes several permanent distribution sites located throughout the community using groundwater wells, as well as mobile water trailers. As of early 2025, seven sites are operational:

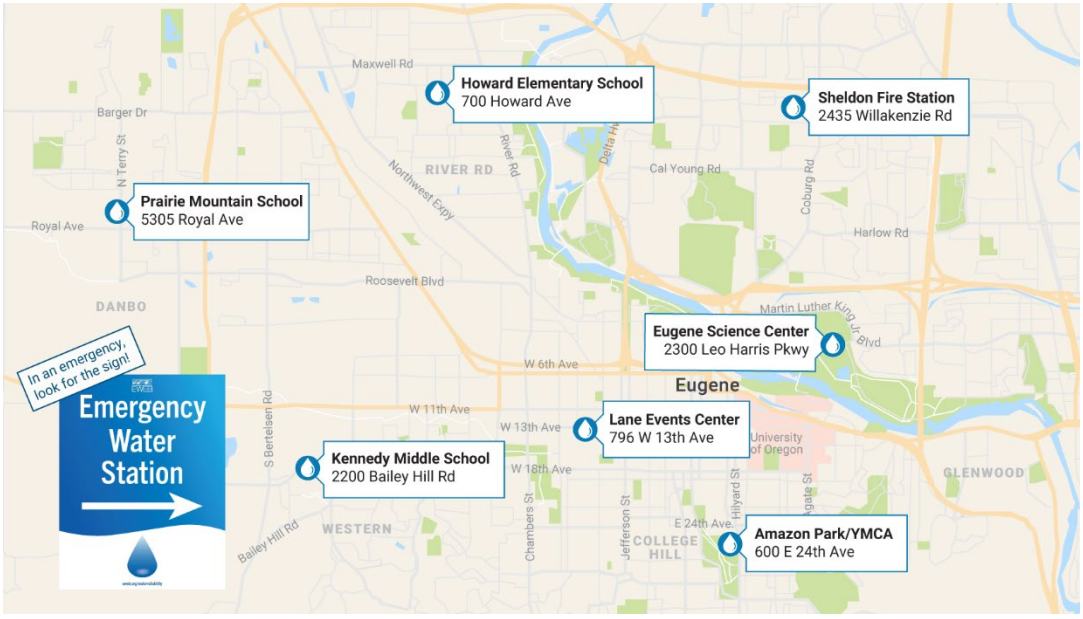
R20: Emergency Water Stations

EWEB is installing emergency water stations at schools and public spaces around the region, with a goal to have at least five stations around the community. There are three stations that are operational and two more that are now under development with completion slated for the end of 2020. A new site on City property in south Eugene is now under exploration as a potential sixth emergency water station.

- Prairie Mountain School - 5305 Royal Ave.
- Howard Elementary School - 700 Howard Ave.
- Sheldon Fire Station - 2435 Willakenzie Rd.
- Eugene Science Center - 2300 Leo Harris Parkway.
- Lane Events Center/Fairgrounds - 796 W 13th Ave.
- Amazon Park / Eugene Family YMCA – 600 E 24th Ave.
- Kennedy Middle School – 2200 Bailey Hill Rd.

Together, the stations are capable of supplying two gallons of water per person per day to everyone in Eugene during an emergency. A demonstration event for the final station at Kennedy Middle School is tentatively planned for the fall of 2025.

Figure 64: EWEB Emergency Water Station Map



Links and Relevant Resources:

- EWEB Emergency Water Stations

R21: Pure Water Partners Program

For more information about EWEB's Pure Water Partners Program, please see Chapter 5 in the Climate Guidebook above or see the links below.

Links and Relevant Resources:

- EWEB Pure Water Partners Program
- EWEB Website: Fire Recovery and Watershed Restoration
- 2023 EWEB State of the Watershed Report
- 2022 EWEB State of the Watershed Report

R21: Pure Water Partners Program

MWMC partnership with EWEB in Pure Water Partners program, a new initiative designed to reward landowners who protect high quality land along the McKenzie River. The program assists EWEB in protecting water quality and helps avoid future water treatment costs.