



CITY OF BEND

# **Electrification Policy and Incentives Study**

## **Market Assessment and Policy Options**

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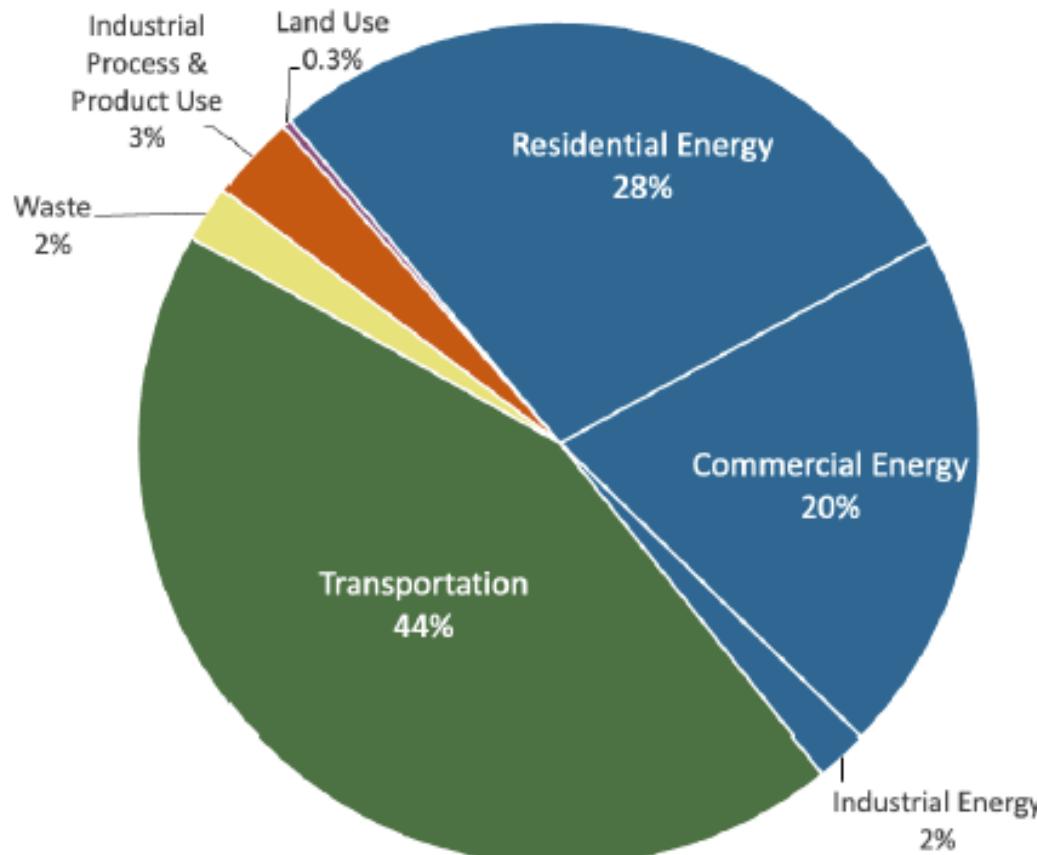
October 22, 2025

# Background and Today's Objectives

# Background & Context

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Bend's Community GHG Emissions (2021)



- Buildings contribute 50% of total GHG emissions
- In conjunction with transitioning to a clean electricity grid, electrification of buildings can dramatically decrease GHG emissions
- Council direction in April 2025 to explore incentives and disincentives that encourage residential electrification, with a focus on a fee to disincentivize natural gas use



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# Meeting Objectives

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- 1 Review and discuss data and analysis results completed so far related to cost and climate benefit of electrification
- 2 Receive guidance from Council members on the policy intent of the potential fee
- 3 Discuss additional key policy questions

# Data Sources

# Data Sources

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Regional  
Technical Forum

Over 75 'measure workbooks' that include:

- Baseline efficiency
- Energy consumption
- Energy savings
- Costs
- Service life



Regional database that includes:

- More than 100 building characteristics
- Over 2,000 homes
- For 4 northwest states



Program data for Bend single family new construction projects from 2021-2023, including

- Equipment type
- Rebates provided
- Estimates of energy usage



- City permit and housing data
- Utility rates
- Contractor surveys (in progress)



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# Continued Research

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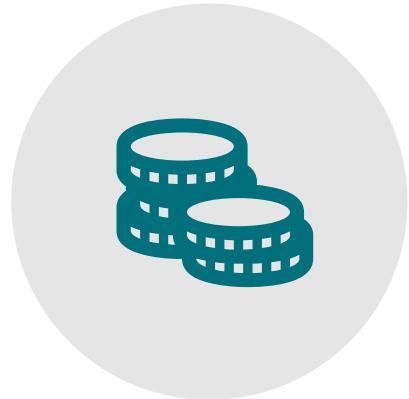
- **Multi-Family**
  - Data is limited in multi-family
  - Initial findings suggest majority of new buildings is electric space and water heating
- **Equipment and Installation Costs**
  - New construction costs can be difficult to collect
  - Ongoing contractor interviews will provide additional local data points
  - Additional analysis on ductless heat pump usage and costs

# **Key Drivers of Results**

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**EQUIPMENT COSTS**



**UTILITY RATES**



**FUEL MIX**



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# Equipment, Costs, and Carbon Assessment

## Single Family Homes

# Equipment

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## Gas Base Case

Gas forced air furnace and CAC

Gas storage water heater

Gas stove

Gas dryer

## Electric Conversion

Electric forced air furnace and CAC

Electric storage water heater

Electric resistance stove

Electric dryer

## Efficient Electric Upgrade

Air-source heat pump

Heat pump water heater

Induction stove

Heat Pump Dryer

# Equipment Costs

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Equipment data was collected through the Regional Technical Forum, supplemented with web research

Baseline Equipment	Cost	Electric Conversion	Cost	Efficient Upgrade	Cost
Gas Forced Air Furnace	\$4,741	Electric FAF	\$1,877	Air-source heat pump	\$17,393
Central Air Conditioner	\$636	Central Air Conditioner	\$636		
Gas Water Heater	\$3,230	Electric Water Heater	\$590	Heat Pump Water Heater	\$4,588
Gas Stove	\$1,699	Electric Stove	\$660	Induction Stove	\$1,589
Gas Dryer	\$1,114	Electric Dryer	\$822	Heat Pump Dryer	\$1,435
<b>Total</b>	<b>\$11,420</b>	<b>Total</b>	<b>\$4,585</b>	<b>Total</b>	<b>\$25,006</b>

Cost differences:

From gas baseline to electric conversion is **\$-6,835**  
From gas baseline to efficient upgrade is **\$13,586**



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# Carbon Impacts - 2025

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- CO2 estimates calculated from:
  - Current utility source fuel mix
  - Weighted 85% Pacific Power and 15% Central Electric
- Conversion to inefficient electric equipment increases total CO2 with existing fuel mix of local electric utilities
- Upgrades to efficient electric equipment reduces total current CO2 by 27%

Gas Baseline Equipment	Total MTCO2	Electric Conversion	Total Net MTCO2	Efficient Electric Upgrade	Total Net MTCO2
Gas FAF + CAC	51.87	Electric FAF + CAC	+103.18	Air-source heat pump	-12.51
Gas Water Heater	6.71	Electric Water Heater	+7.01	Heat Pump WH	-1.24
Gas Stove	3.65	Electric Stove	-2.75	Induction Stove	-2.77
Gas Dryer	2.22	Electric Dryer	+3.25	Heat Pump Dryer	-0.58
<b>Total</b>	<b>64.5</b>	<b>Total</b>	<b>+110.69</b>	<b>Total</b>	<b>-17.09</b>



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# Projected 2030 Carbon Impacts

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- 2030 projections using PacifiCorp Oregon Clean Energy Plan goals of 80% reduction over baseline emissions by 2030
- Upgrades to efficient electric equipment reduces total current CO2 by 85%

Gas Baseline Equipment	Total MTCO2	Electric Conversion	Total Net MTCO2	<i>Efficient</i> Electric Upgrade	Total Net MTCO2
Gas FAF + CAC	51.87	Electric FAF + CAC	-20.75	Air-source heat pump	-43.91
Gas Water Heater	6.71	Electric Water Heater	-3.94	Heat Pump WH	-5.61
Gas Stove	3.65	Electric Stove	-3.47	Induction Stove	-3.47
Gas Dryer	2.22	Electric Dryer	-1.12	Heat Pump Dryer	-1.89
<b>Total</b>	<b>64.5</b>	<b>Total</b>	<b>-29.27</b>	<b>Total</b>	<b>-54.88</b>



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# Energy Cost Impacts

# Potential Annual Energy Cost Impacts

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- Cost impacts shown across range of equipment:
  - Inefficient electric conversion
  - All efficient upgrades
- Rates collected from Pacific Power, Central Electric Cooperative and Cascade Natural Gas
- Values are only the costs of kWh, does not represent the full bill (e.g. service charges, public purpose charges)

Utility	2025 Annual Energy Costs	Annual Energy Cost Difference
Gas Energy Usage Charge	\$791	\$0
<b>Pacific Power</b>		
Inefficient Electric Energy Usage Charge	\$3,333	+\$2,541
Efficient Electric Energy Usage Charge	\$943	+\$151
<b>Central Electric Cooperative</b>		
Inefficient Electric Energy Usage Charge	\$1,972	+\$1,180
Efficient Electric Energy Usage Charge	\$558	-\$234

# 10 Year Cost Impacts – Pacific Power

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Home	Scenario	Equipment Cost	Energy Costs (10-year total)	Total Cost
	Efficient Gas Equipment	\$11,420	\$7,910	<b>\$19,330</b>
Home A	Converts to all electric, but not efficient electric	\$4,585	\$36,494	<b>\$41,079</b>
Home B	Upgrades to efficient electric	\$25,006	\$10,321	<b>\$35,327</b>



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# 10 Year Cost Impacts – Central Electric

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Home	Scenario	Equipment Cost	Energy Costs (10-year total)	Total Cost
	Efficient Gas Equipment	\$11,420	\$7,910	<b>\$19,330</b>
Home B	Converts to all electric, but not efficient electric	\$4,585	\$21,589	<b>\$26,174</b>
Home C	Upgrades to efficient electric	\$25,006	\$6,106	<b>\$31,112</b>



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# Policy Options

# Decisions Along a Spectrum

We can consider these questions along a spectrum

For example:

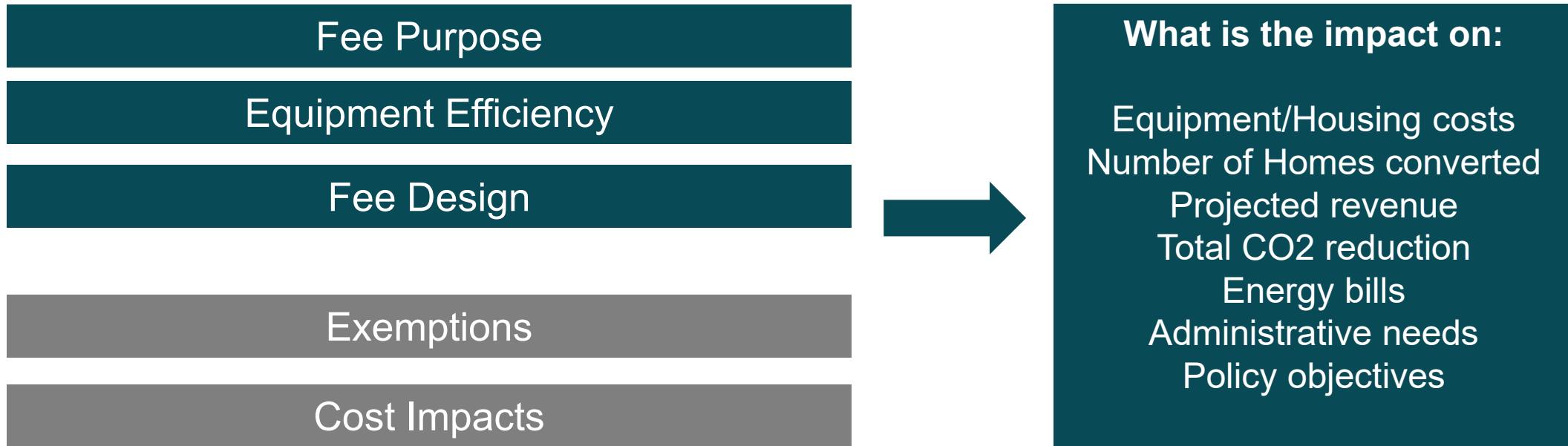
If a primary role is to send a signal, the fee would be less selective, but potentially less impactful



# Policy Discussion Topics

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- Staff identified three key policy topics that can be used to assess impacts across a range of scenarios



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# Policy Outcome

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Recover costs and use proceeds to support electrification programs but likely not change installation practices



Set sufficiently high to change decision making of installed equipment

# Electric or Efficient Electric?

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Any electric equipment can be installed regardless of efficiency



Only efficient electric equipment can be installed

# Fee Design

Single or average  
values across  
homes  
characteristics  
and equipment





Specific home attributes are inputs in fee calculation that could include:

- ▶ Home size
- ▶ Expected energy usage
- ▶ Baseline equipment
- ▶ Installed equipment efficiencies

# Stakeholder Engagement

# Stakeholder Engagement

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## Joint Committee

- Vetting and providing input into potential calculation factors and exemptions
- Input into the incentive programs

## Public Roundtables

- Informing the joint committee on exemptions and other inputs to the calculation as needed
- Information the joint committee on incentive programs

## Informal Interviews

- Vetting data and comparing it to real-world experiences in Bend
- Anecdotal insights from development community about challenges related to electrification locally

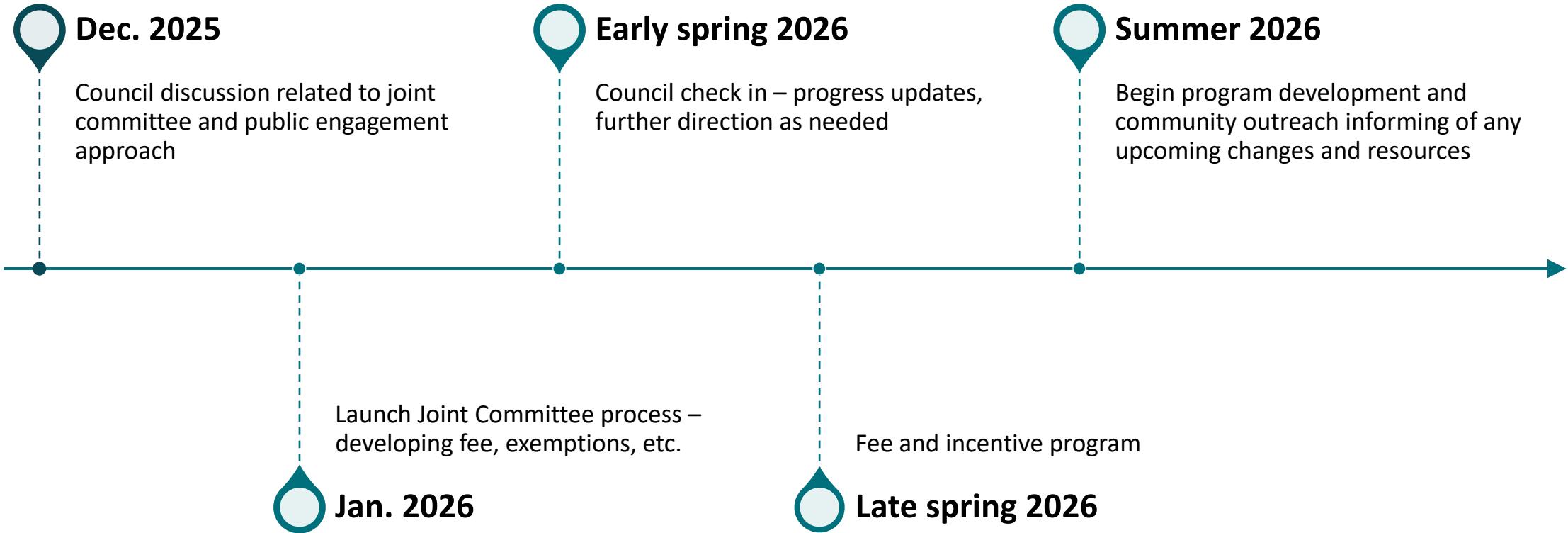


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# Next Steps

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# Other Questions or Discussion

# Back Up Slides

# City of Ashland Fee

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B. *Calculation of Fee.* The carbon pollution impact fee is calculated as follows:

$$\text{Fee} = (\text{SCGHG}) \times (\text{MTCO2e}) \times (\text{Service Life})$$

Where:

1. SCGHG is \$208.00 per metric ton (adjusted annually).
2. MTCO2e is 2.49 metric tons for an average residential natural gas home in Ashland, adjusted for specific appliance usage.
3. Service Life is the expected operational lifespan of the appliance, as detailed below:

Appliance	CO2e (MT/year)	Service Life (Years)	Fee Example
Furnace	1.32	15	$\$208 \times 1.32 \times 15 = \$4,118.40$
Water Heater	0.62	10	$\$208 \times 0.62 \times 10 = \$1,289.60$
Range	0.12	10	$\$208 \times 0.12 \times 15 = \$374.40$
Gas Fireplace	0.35	10	$\$208 \times 0.35 \times 10 = \$728.00$
Clothes Dryer	0.07	10	$\$208 \times 0.07 \times 10 = \$145.60$



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# Social Cost of Carbon

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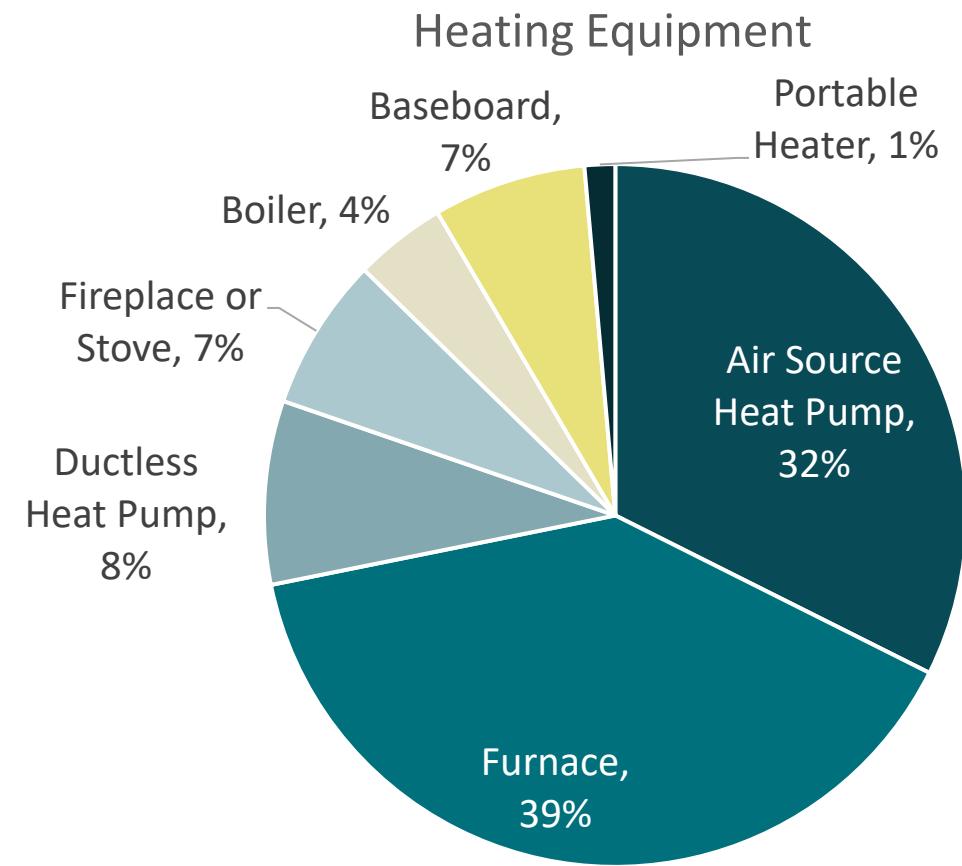
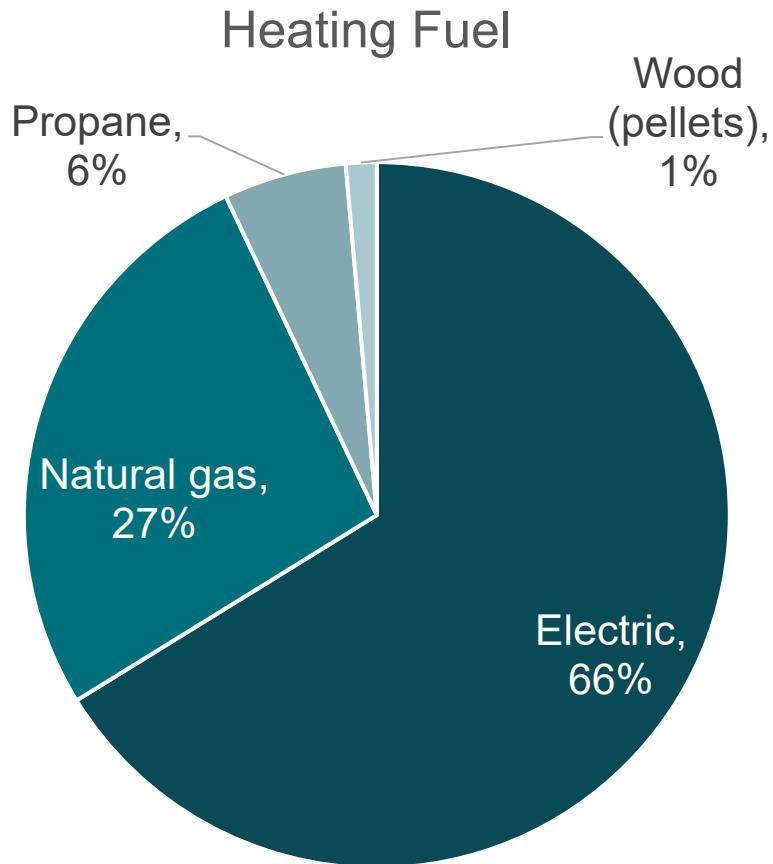
Emissions Year	EPA 1.5%	EPA 2.0%	EPA 2.5%	IWG 3.0% (mean)	IWG 3.0% (95th-pct)
2020	\$ 340	\$ 190	\$ 120	\$ 51	\$ 152
2025	\$ 360	\$ 210	\$ 130	\$ 56	\$ 169
2030	\$ 380	\$ 230	\$ 140	\$ 62	\$ 187
2035	—	—	—	\$ 67	\$ 206
2040	\$ 430	\$ 270	\$ 170	\$ 73	\$ 225
2045	—	—	—	\$ 79	\$ 242
2050	\$ 480	\$ 310	\$ 200	\$ 85	\$ 260
2060	\$ 530	\$ 350	\$ 230	—	—
2070	\$ 570	\$ 380	\$ 260	—	—
2080	\$ 600	\$ 410	\$ 280	—	—



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# Heating Systems In New Construction – Deschutes County

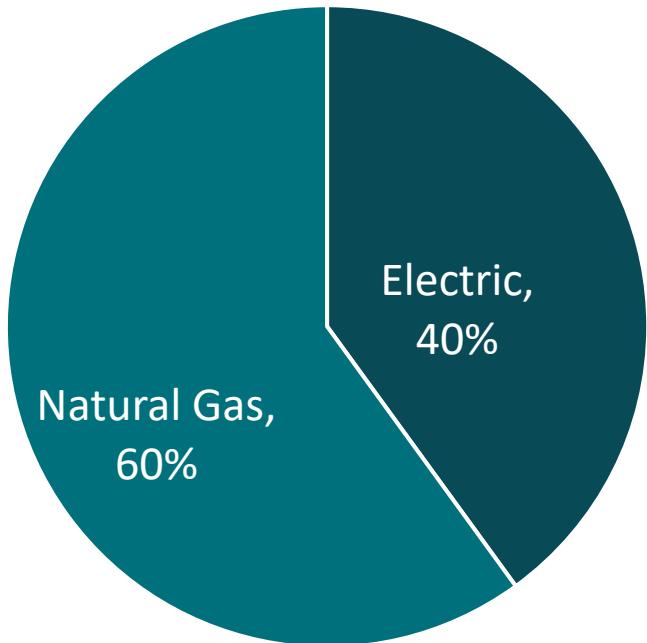
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# Heating Systems In New Construction – City of Bend - RBSA

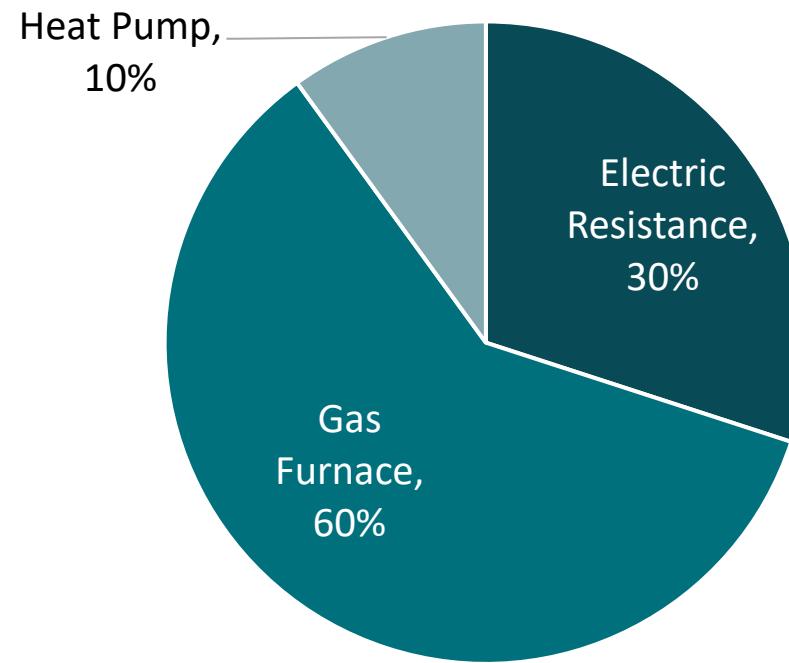
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Heating Fuel



\*When access to gas, 100% of homes have gas heating system

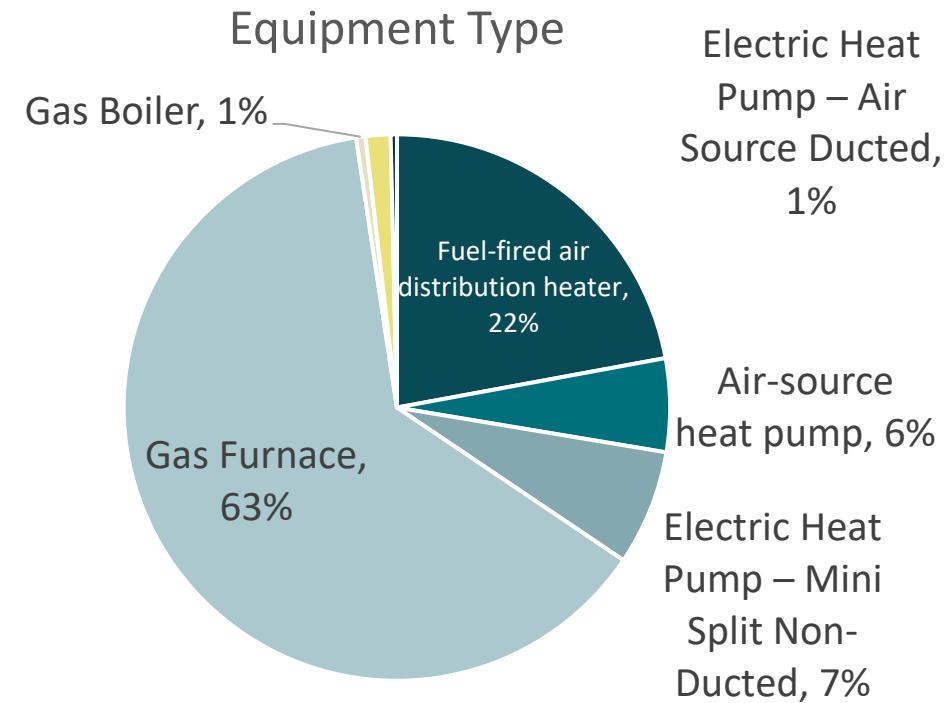
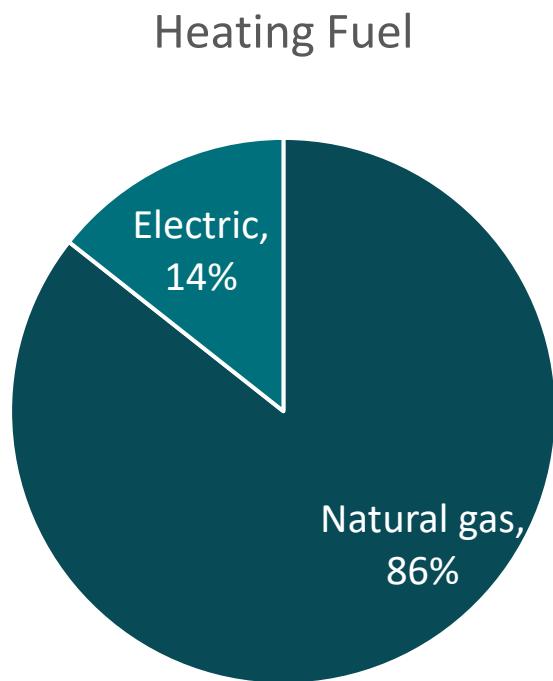
Heating Equipment Type



Average installed efficiency of gas furnace is 97.5% (code is 94%)

# Heating Systems In New Construction – City of Bend – Energy Trust of Oregon (2021-2023)

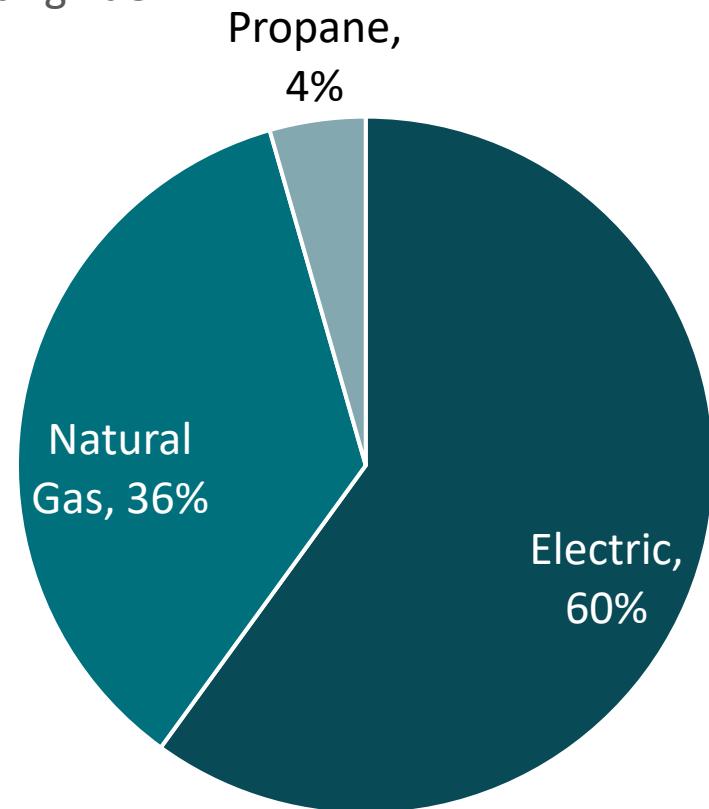
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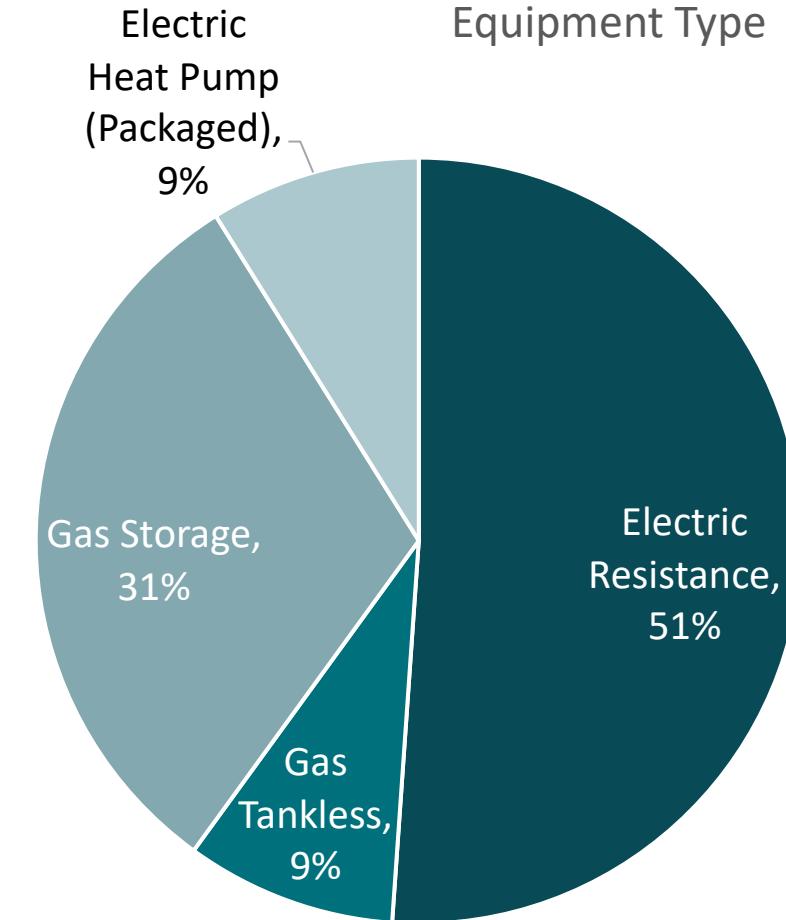
# Water Heating in New Construction – Deschutes County

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Heating Fuel



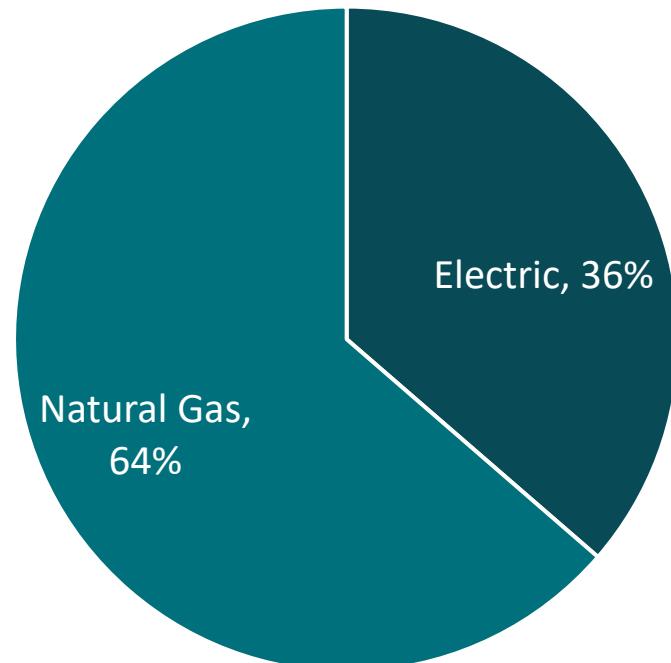
Electric  
Heat Pump  
(Packaged),  
9%



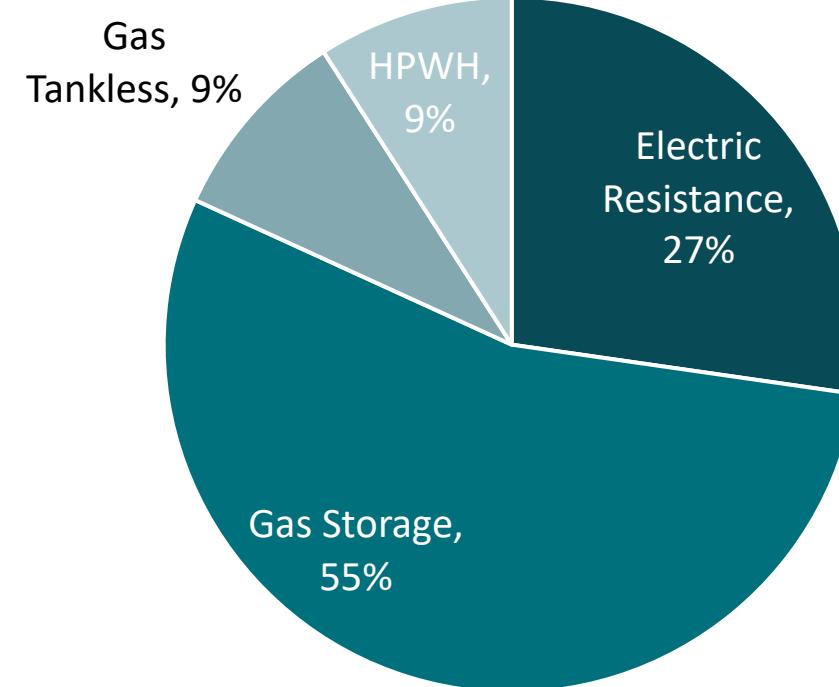
# Water Heating in New Construction – City of Bend

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Heating Fuel



Equipment Type



\*When access to gas, 100% of homes have gas water heating

# Engagement Slides

# Engagement updates

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## Digital Presence

- Revamped Environment & Climate webpages, including a dedicated CCAP page and focus area pages (Energy, Transportation, Waste & Materials)
- Launched quarterly Environment & Climate newsletter featuring electrification updates
- Introduced COB climate and environment social media series highlighting CCAP actions

## Outreach & Engagement

- Rolled out Year 1 of the Climate Action Partner Grant Program with strong media and community attention
- Developed educational materials: CCAP and Electrification one-pagers, factsheets, and a “What You Can Do” guide

## In-Person Events

- Participated in key community events:
  - Earth Day Celebration
  - Action Nights (The Environmental Center)
  - Ecochella (Deschutes Youth Climate Coalition)
  - Green Drinks (High Desert Food and Farm Alliance)
  - Sun Day Solar Fest & Go Clean Energy Conference (350 Deschutes) – both focused on electrification



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# Electrifying Bend's Future

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## Building a Clean Energy Path for our Community



### What's Happening?

The City of Bend is developing a new policy to address the use of natural gas in residential buildings. This approach may:

- Discourage new natural gas infrastructure in residential buildings
- Account for the environmental and social costs of carbon
- Support incentives that encourage switching to electricity

The goal is to help Bend transition toward clean, renewable energy—especially as Oregon law requires our electricity

### Project Background

Bend's Community Climate Action Plan (CCAP), adopted in 2019 and updated in 2025, is the City's roadmap for reducing greenhouse gas emissions and building climate resilience. It outlines strategies across transportation, energy, buildings, and waste to help Bend meet its climate goals.

- The CCAP identifies building electrification as a key strategy, since residential and commercial buildings account for 48% of local emissions.
- By shifting to electricity—especially as our grid becomes cleaner—we can significantly reduce Bend's carbon footprint and improve air quality.



Achieve a 40% reduction in community-wide greenhouse gas emissions by 2030

Achieve a 70% reduction in community-wide greenhouse gas emissions by 2050

### What's Next

- Aug - Oct 2025 (current phase): Procure consultant support, analyze and scope policy options, present to Council for direction (Oct. 22).
- Nov 2025: Begin public meetings and stakeholder engagement.
- March 2026: Present proposed policy to Council.
- May 2026: Present proposed incentive program to Council.



### How You Can Get Involved

- Attend the October 22 Council Meeting – Staff will present electrification policy options to Council
- Email your City Councilors – Share your thoughts
- Contact the Environment and Climate Team – [climateaction@bendoregon.gov](mailto:climateaction@bendoregon.gov)
- Subscribe to our Environment and Climate Newsletter – Stay up to date on progress and opportunities:



Language Assistance Services & Accommodation Information for People with Disabilities  
You can obtain this information in alternate formats such as Braille, electronic formats, etc. Free language assistance services are also available. Please contact Megan Lee at [mlee@bendoregon.gov](mailto:mlee@bendoregon.gov) or (541) 693-2161. Relay Users Dial 7-1-1.

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**Did you know?**  
**95% of new single-family homes in Bend have a gas hookup.**

# A Community Guide to Reducing Emissions

## We're All Part of the Plan

The Bend Community Climate Action Plan is a community solution that brings us together to address climate change. Achieving the fossil fuel reduction goals laid out in the Community Climate Action Plan means having neighbors, businesses, and community leaders work together. We all have a part to play, including you.

### Where to Start

Taking climate action doesn't have to be expensive or time-consuming. Use this Climate Action Guide to support the Bend community as we work together to preserve our natural environment, promote economic opportunity and develop resilience for current and future generations.

**Increase energy efficiency and renewable energy at home**  
Purchase renewable energy through your utility (if available), buy energy-efficient heating and cooling systems, water heaters and appliances, consider installing solar water heating or solar electric and purchase LED lightbulbs. These actions can save both money and energy.

**Promote smaller homes and denser housing**  
Choose a smaller home with efficient features that requires less fuel and less energy to keep comfortable.

**Other transportation actions**  
Minimize air travel and buy offsets when you fly.

**Reduce wasted food and improve recovery of food waste**  
Plan meals to avoid food waste and compost spoiled or inedible food.

**Increase alternative transportation, like walking, biking, carpooling and transit**  
Walk, bike, ride transit or car/vanpool instead of driving alone.

**Reduce consumption**  
Reduce what you buy, donate or sell used goods and minimize air freight delivery by choosing "no rush" delivery options for online purchases.

**Increase electric vehicle use**  
Consider buying a new or used electric vehicle for your commute or in-town trips.



Visit the Plan's website to stay up to date on the project: [bendoregon.gov/ccap](http://bendoregon.gov/ccap)  
Reach out to our team with questions: [climateaction@bendoregon.gov](mailto:climateaction@bendoregon.gov)

# Bend's Sustainability Checklist



### Energy Actions

- Enroll in renewable energy programs through your utility
- Explore incentives for energy efficiency upgrades
- Consider solar hot water or solar electric systems
- Use Energy Star appliances and electronics
- Upgrade to electric heat pumps and efficient water heaters
- Renters: access energy-saving tips tailored to your needs
- Reduce food waste with smart storage and meal planning
- Choose reusable products over single-use items
- Borrow, rent, or share tools and goods through local programs



### Materials & Waste Actions

- Compost food scraps at home
- Shop at thrift and consignment stores
- Attend repair cafes and clothing swaps
- Use reusable dishware and containers
- Plan purchases carefully—buy only what you need
- Reduce food waste with smart storage and meal planning
- Choose reusable products over single-use items
- Borrow, rent, or share tools and goods through local programs

### Transportation Actions

- Consider purchasing a new or used electric vehicle
- Check for EV rebates and incentives
- Walk, bike, take transit, or carpool whenever possible
- Use local bike share and trip planning tools
- Offset emissions from air travel

### Household Actions

- Calculate your household carbon footprint
- Purchase carbon offsets to reduce your impact

### Get Involved and Learn More!

- Learn more about what you can do and peruse our webpages:



- Sign up for the City's Environment and Climate newsletter at the bottom of this page:



Visit the Plan's website to stay up to date on the project: [bendoregon.gov/ccap](http://bendoregon.gov/ccap)  
Reach out to our team with questions: [climateaction@bendoregon.gov](mailto:climateaction@bendoregon.gov)

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## Community Climate Action Plan (CCAP)

### What is the CCAP?

The Community Climate Action Plan (CCAP) is Bend's roadmap to cutting down our greenhouse gas emissions making the City more resilient. Originally adopted in December 2019, it details strategies and actions to move toward a cleaner, more sustainable future in response to the community's push for local climate action.



Achieve a 40% reduction in community-wide greenhouse gas emissions by 2030

Achieve a 70% reduction in community-wide greenhouse gas emissions by 2050

### Energy Supply

Source of energy used for transportation, buildings, waste and materials.  
Provide 100% renewable electricity, reduce fossil fuel emissions, encourage renewable energy on buildings, pursue local projects, and decarbonize City facilities.

### Energy in Buildings

Energy used in residential, commercial and industrial buildings.  
Support policies reducing building emissions, encourage energy-efficient upgrades, implement benchmarking and performance standards, and promote smaller, denser housing options.

### Transportation

Emissions from vehicles.  
Encourage electric vehicle adoption, bike and pedestrian travel, transit ridership, carpooling, fleet electrification, and reduce vehicle miles travelled.

### Materials and Waste

Emissions from the production and disposal of materials.  
Prevent waste, improve composting and recycling, use low carbon concrete, recover food and construction waste, and promote low carbon food choices.

## City of Bend Climate Action Partner Grant Program

Empowering Local Climate Solutions | Apply by September 21, 2025

**\$150,000**

Funding Available!

### What is it?

The Climate Action Partner Grant Program offers funding to nonprofits and government entities for projects that help reduce greenhouse gas emissions and build climate resilience in Bend.

This is the first year of the program, and it's part of the City's commitment to a healthier, more sustainable future through community collaboration.

### Why does it matter?

The Climate Action Partner Grant Program is a key tool in advancing Bend's Community Climate Action Plan (CCAP)—a roadmap to reduce greenhouse gas emissions by 40% by 2030 and 70% by 2050. The City recognizes that achieving these ambitious goals requires broad community participation.

### This program was created to:

- Support local leadership in climate action
- Fund projects that reduce emissions and build resilience
- Empower our community to implement solutions identified in the CCAP

By investing in community-driven efforts—like clean energy education, Electric Vehicle infrastructure, waste reduction, and green workforce training—the City is helping to build a stronger, healthier, and more climate-resilient Bend.

The City can't do it alone. This program uplifts the incredible work already happening in our community and helps bring it to scale.

### Who can apply?

- Local nonprofit organizations
- Government entities (City, County, School Districts, Colleges, etc.)

Projects must take place in Bend or serve Bend residents.

### What projects are eligible?

Projects must directly support CCAP actions that list "community partners" as implementation partners or lead. A list of these actions can be found on our Grant Program webpage; scan the QR code below for more information.



Energy Supply



Energy in Buildings



Transportation



Materials & Waste

### What types of projects are funded?

Outreach & Education  
Raise awareness of CCAP sectors through events, workshops, campaigns, and media—prioritize giving to community-accessible programs.



Workforce Development  
Build skills in green trades like clean energy, sustainable transportation, and waste reduction through trainings, classes, and curriculum development.



General Programs or Technical Assistance Programs  
Provide direct support to help individuals, businesses, or organizations reduce emissions or improve resilience (e.g., energy audits, reuse events, tool libraries).



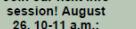
Program Scoping Planning  
Fund early-stage work like feasibility studies, planning, or design—ideal for smaller funding requests.

### Ready to Apply?

Visit program website:



Join our next info session! August 26, 10-11 a.m.:



Submit your application by September 21:



### Questions?

Environment and Climate Team



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