

AGENDA UTILITY ADVISORY COMMITTEE November 16, 2023

Hybrid Meeting In-person and via Zoom



To attend the UAC meeting virtually:
<https://us02web.zoom.us/j/83975720251>

AMERICANS WITH DISABILITIES ACT

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**CITY OF ELLENSBURG
UTILITY ADVISORY COMMITTEE AGENDA**

**Council Chambers
501 North Anderson Street
Ellensburg, WA 98926
And remotely via Zoom
Thursday, November 16, 2023
3:30 PM - Regular Meeting**

- 1. Call to Order and Roll Call of Members**
- 2. Approval of Agenda** (No Public Comment)
- 3. Approval of Minutes**
 - 3.A October 19, 2023 regular meeting minutes
- 4. Approval of Consent Agenda**
 - 4.A Bid Award - Bid Call No. 2023-17 - Anderson Road Sewer Project
 - 4.B Iron Horse Brewery Wastewater Discharge Agreement Renewal
- 5. Correspondence and Citizen Comments on Non-Agenda Items**
- 6. Telecommunications Utility Discussion Items**
 - 6.A Telecom Utility Verbal Update
- 7. Electric, Natural Gas, Water, Wastewater, Stormwater Utility Discussion Items**
 - 7.A Sustainability & Energy Plan with Updated Clean Energy Implementation Plan
 - 7.B 2023 Electrical System Plan
- 8. Staff Informational Items**
 - 8.A Public Works and Utilities Updates
- 9. Commission Representative Update**
- 10. Adjournment**



For more information on the Ellensburg Utility Advisory Committee, contact Operations Analyst, Kim Bowie, at 509-962-7124.

The Contents of this agenda have been photocopied on recycled paper.



CITY OF ELLENSBURG

Minutes of Utility Advisory Committee, Regular Meeting

Date of Meeting

October 19, 2023

Time of Meeting

3:30 PM

Place of Meeting

**Council Chambers
501 North Anderson Street
Ellensburg, WA 98926
And remotely via Zoom**

1. Call to Order and Roll Call of Members

Chairperson Goodloe called the meeting to order at 3:30 pm.

Members present: Nancy Goodloe, Chair; Nancy Lillquist, City Council; Jeff Bousson, CWU; Grant Craig, Utility Customer (Zoom); Audrey Huerta, Utility Customer; Bryan Clark, KITTCOM (Zoom).

Also present: Ryan Lyyski, Public Works & Utilities Director; Michael Jenkins, Finance Officer; Darin Yusi, Gas Engineer; Derek Mayo, Engineering Services Manager; Mike Helgeson, Assistant PW&U Director (Zoom); Kim Bowie, Operations Analyst;

Two members of the public present remotely via Zoom.

2. Approval of Agenda

Committee member Lillquist moved to approve the agenda as presented. **Motion approved. 6-0**

3. Approval of Minutes

3.A July 20, 2023 regular meeting minutes

Committee member Lillquist moved to approve the regular meeting minutes.

Motion approved. 6-0

4. Approval of Consent Agenda

No consent items.

5. Correspondence and Citizen Comments on Non-Agenda Items

None.

6. Telecommunications Utility Discussion Items

None.

7. Electric, Natural Gas, Water, Wastewater, Stormwater Utility Discussion Items

Ryan Lyyski handed out a 2024-2030 natural gas rate forecast slide that went to council October 16th for the first reading. He spoke about "legacy customers" - customers with established gas service before July 25, 2021. The structure will not impact senior, disabled or

low income utility customers in terms of compliance with the CCA. The first reading of the ordinance has already been to council. The second reading of the ordinance will be November 6, 2023. No motion was necessary.

8. Staff Informational Items

8.A Natural Gas Division - 2023 Awards

Darin Yusi shared the Gas division awards that were recently received: SOAR silver, safety contest and Excellence in Environmental Stewardship.

8.B Annual Natural Gas Safety Survey Results

Darin Yusi shared the results of the in-house natural gas safety survey and felt the responses and outreach were better than in the past.

8.C Public Works and Utilities Updates

Staff gave updates on current projects and information from the staff report was shared.

9. Commission Representative Update

Jeff Bousson shared CWU is currently working on a sustainability plan projected to be completed by 2024. He also mentioned that the new Geothermal well will save at least 10% of Central's natural gas consumption.

10. Adjournment

Meeting adjourned at 4:40 pm.



Meeting Date: November 16, 2023
City of Ellensburg
Utility Advisory Committee Agenda Report

Agenda Subject: Bid Award - Bid Call No. 2023-17 - Anderson Road Sewer Project

Submitted by:

Department: Public Works & Utilities

Suggested Motion/Action:
Informational Only

Background/Summary:
Bids were opened on Wednesday, October 25, 2023 for the Anderson Road Sewer project. Rodarte Construction Inc., was the low bidder in the amount of \$1,780,816.88. Staff provided an update on the project at the October UAC meeting, and took the award directly to Council's Nov. 6th meeting for award. The project has some permitting requirements for the sewer crossing under Wilson Creek which require this crossing to be completed within a specific time window that ends in mid-February. Saving time and going directly to Council allows the contractor the ability to complete this portion of the work this winter.

Previous Council Action:
None.

Analysis:
The project was advertised, and the bids were received as follows:

• Rodarte Construction, Inc.	\$1,780,816.88
• Alpine Contractors Group LLC	\$1,790,531.69
• Pacific Civil Infrastructure, Inc.	\$1,998,998.98
• Active Construction Inc.	\$2,048,048.00
• Pro Grade Enterprises Inc.	\$2,140,563.96
• Belsaas and Smith Construction	\$2,188,205.76
• JR Construction	\$2,206,097.18
• Interwest Construction, Inc.	\$2,329,445.54
• Strider Construction Co., Inc.	\$2,415,416.50
• NW Cascade	\$2,963,337.03
• Ascent Foundation and More LLC	\$3,206,689.78
• <i>Engineers Estimate</i>	<i>\$2,519,600.82</i>

The bid submitted by Rodarte Construction, Inc., is below the engineer's estimate, and staff have verified their previous work experience meets the minimum requirements outlined in the bid specifications.

Financial Impact:

The bid amount is within the amount budgeted in the 2023 sewer fund for the Anderson Road Sewer Extension project.

Budget Adjustment: No

Attachments:

None



Meeting Date: November 16, 2023

**City of Ellensburg
Utility Advisory Committee Agenda Report**

Agenda Subject: Iron Horse Brewery Wastewater Discharge Agreement
Renewal

Submitted by:
Department: Public Works & Utilities

Suggested Motion/Action:

Staff recommends that the Utility Advisory Committee provide a favorable recommendation to Council to authorize the Public Works and Utilities Director to sign the renewal agreement with Iron Horse Brewery.

Background/Summary:

Iron Horse brewery (IHB) discharges their production wastewater to the City's sanitary sewer system. The IHB is a significant contributor to the City's system and discharges by agreement with the City of Ellensburg as well as the Washington State Department of Ecology.

Iron Horse Brewery (IHB) is discharging wastewater to the City under an agreement that terminates in 2023. Before UAC is a new five year agreement with IHB to continue discharging to the City's Wastewater Treatment Facility (WWTF).

Previous Council Action:

City Council authorized the public works director to sign the previous five-year contract with IHB in December of 2018.

Analysis:

The existing agreement with IHB expires November 30, 2023.. Staff has been working with IHB to develop a new agreement for an additional five years. The new agreement is identical to the previous agreement with the exception that the City has agreed to deduct the amount of water consumed and shipped out as product (as reported to the Department of the Treasury) from the sewer billing, UAC is being requested to give a favorable recommendation to Council to authorize Public Works and Utilities Director to sign the proposed agreement with Iron Horse Brewery.

Financial Impact:

There are no direct costs to the City from this agreement. Wastewater discharge fees will be billed as outlined by City Code and this agreement.

Budget Adjustment: No

Attachments:

1. IHB Discharge Agreement 2023-2028

**INDUSTRIAL WASTEWATER DISCHARGE AGREEMENT BETWEEN
CITY OF ELLENSBURG AND IRON HORSE BREWERY I, INC.**

This Industrial Wastewater Discharge Agreement (“Agreement”) is made this 7th day of November, 2023, by and between the City of Ellensburg, a Washington municipal corporation (“City”) and Iron Horse Brewery I, Inc. (“Iron Horse Brewery”), a Washington for profit corporation, for the purpose of setting forth the rights and responsibilities of the parties with the respect to the discharge of industrial wastewater from the Iron Horse Brewery facility in Ellensburg.

WHEREAS, the City owns and operates a sanitary sewer collection and treatment facilities for the collection, treatment and disposal of residential, commercial and industrial wastewater (“Facilities”); and

WHEREAS, Iron Horse Brewery operates a beer brewing facility (“Brewery”) located at 1621 Vantage Highway, Ellensburg, WA 98926, and is a wastewater generator that produces and discharges wastewater to the City’s Facilities with industrial strengths;

NOW, THEREFORE, the parties agree as follows:

1. Term. This Agreement shall be effective from December 1, 2023 through November 30, 2028 unless terminated according to Section 7 of this Agreement. Iron Horse Brewery and the City of Ellensburg will commence renegotiation of this Agreement by no later than ninety (90) days prior to its expiration.

2. Authorization to Discharge Industrial Wastewater. In accordance with the provisions of city of Ellensburg City Code (“ECC”) section 9.25.370, Iron Horse Brewery is authorized to discharge industrial wastewater from the brewing activities at its Brewery and through the discharge point identified herein in this Agreement. Compliance with this agreement does not relieve Iron Horse Brewery of its obligation to comply with any applicable pretreatment regulations, standards, or requirements under local, state, and federal laws, including any such regulations, standards, or laws, that may become effective during the terms of this agreement.

3. Capacity Limits for Discharge of Brewery Wastewater.

A. Iron Horse Brewery will be allowed to discharge brewery wastewater subject to the following limits:

Maximum Daily Discharge Limitations

Total BOD = 25,000 mg/l
TSS = 8,000 mg/l
Flow = 13,000 gallons/day
pH = ≥ 5.5 and ≤ 9.0

Average Monthly Discharge Limitations

Total BOD = 19,000 mg/l
TSS = 5,000 mg/l
Flow = 8,000 gallons/day
pH = ≥ 5.5 and ≤ 9.0

B. Process discharge will enter into the City of Ellensburg’s collection system only through manhole number 68-172.

C. If at any time Iron Horse Brewery exceeds the discharge limits, it must apply with the City for additional capacity at the City's WWTP if it is available, and is responsible for all costs involved. These charges would be in addition to any strong waste surcharge applied to wastewater with a BOD and/or TSS concentration greater than 200 and 250 mg/L respectively. If additional capacity is not available to be allocated, Iron Horse Brewery must modify its process to accommodate the discharge capacity limits as outlined by this Agreement to Discharge.

Iron Horse Brewery is strongly advised to limit their yeast discharge as this has a detrimental effect on the treatment plant bacteria.

4. Sampling, Testing and Metering.

A. Sampling and testing will be performed by Iron Horse Brewery every two weeks and consist of Total BOD mg/L, TSS mg/L, and pH. Flow and pH measurement will be taken daily. Sampling and testing schedules pertain to when Iron Horse Brewery is discharging to the City sewer.

B. All sample analysis for BOD and TSS will be performed by a Department of Ecology accredited Laboratory. Iron Horse Brewery personnel will perform the analysis for pH, and make any necessary adjustments to pH levels prior to discharge into the City sewer system. .

C. Iron Horse Brewery shall provide City staff the ability to enter the brewery to sample wastewater at the point of discharge. Composite samples will be taken by the City to randomly perform BOD, TSS, and pH analysis in the Ellensburg wastewater laboratory. Random testing will be done at the City's expense. The City may split samples or set a City sampler to compare sampling results. Discharges in excess of the above limitations will be reported to Iron Horse Brewery and the Department of Ecology.

D. Iron Horse Brewery will allow the City of Ellensburg representative to enter and inspect Iron Horse Brewery premises where a regulated facility or activity is located or conducted. The City representative will be allowed to access and copy, at reasonable times, any records that must be kept as a condition of this agreement.

E. All monitoring records will be maintained for a minimum of three (3) years.

5. Industrial Wastewater Rates and Charges.

A. The utility rate schedule will be set per ECC 9.91.300(J) as S-80, Large Customer/Contractual.

B. A reduction of the gallons of water use that is referenced in sewer rate utility schedule S-80 "Large Customer/Contractual" will be made using data from the column labeled "Removed for Consumption or Sale from the Brewers Report of Operations submitted on a monthly basis by Iron Horse Brewery to the United States Department of the Treasury. Iron Horse Brewery will submit a copy of this report to the City of Ellensburg monthly to receive the deduction to the

sewer charges. The City of Ellensburg will be allowed to inspect any records pertaining to this report at any time.

C. The reduction of sewer charges due to metered water usage for sewer rate calculation resulting from the monthly Brewers Report of Operations provided to the City by Iron Horse Brewery shall be credited back to Iron Horse Brewery on the following month's invoice. By way of example, if Iron Horse Brewery submits its monthly report for August to the City in September, the credit will appear on the City's October utility bill to Iron Horse Brewery.

D. Strength fees will be determined from tests performed by Iron Horse Brewery and the City of Ellensburg.

6. Violations.

A. All discharges authorized will be consistent with the terms and conditions of this agreement. The discharge of the listed pollutants at a level in excess of that authorized will constitute a violation if additional capacity is not applied for by Iron Horse Brewery upon notification by the City, and authorized by the City.

B. Non-compliance with any term or condition of this agreement shall constitute a violation of ECC 9.25.370. All terms and definitions are the same as those found in Chapter 9.25 of the Ellensburg City Code. This agreement incorporates by reference all of the applicable provisions of the Ellensburg City Code, including but not limited to Section 9.25.370.

C. The City may seek any or all of the remedies in law or equity, and any penalties provided in the Ellensburg City Code, including recovery costs incurred by the City required as a result to responding to a violation of this agreement by Iron Horse Brewery.

7. Termination. Iron Horse Brewery may terminate this Contract by providing the City with written notice that they no longer intend to continue operation. In that event, this Agreement shall be terminated effective on the date indicated on the notice of discontinuance of operation and shall have no further force or effect. However, Iron Horse Brewery shall remain responsible for payment of any utility charges, penalties or other fees incurred prior to the cessation of its operations.

8. Notices. If notice is required to be provided pursuant to this Agreement, it shall be delivered via hand delivery, US Mail or email to the following addresses:

To City of Ellensburg:
Ryan Lyyski, Public Works & Utilities Director
501 N. Anderson Street
Ellensburg, WA 98926
(509) 962-7238
llyskir@ellensburgwa.gov

To: Iron Horse Brewery
Greg Parker, General Manager
1621 Vantage Highway
Ellensburg, WA 98926
(509) 852-7222
greg@ironhorsebrewery.com

9. Entire Agreement. This Contract constitutes the entire agreement of the parties with respect to the subject matter herein. Any amendment to this agreement must be in writing and approved by mutual agreement of the parties.

By:

CITY OF ELLENSBURG

APPROVED AS TO FORM:

RYAN LYYSKI, PUBLIC WORKS AND
UTILITIES DIRECTOR

TERRY WEINER, CITY ATTORNEY

COMPANY

greg parker
GREG PARKER
TITLE: GENERAL MANAGER



Meeting Date: November 16, 2023

**City of Ellensburg
Utility Advisory Committee Agenda Report**

Agenda Subject: Sustainability & Energy Plan with Updated Clean Energy Implementation Plan

Submitted by:

Department: Public Works & Utilities

Suggested Motion/Action:

The Utility Advisory Committee forwards a favorable recommendation to the City Council approving the Sustainability and Energy Plan along with the Clean Energy Implementation Plan as presented.

Background/Summary:

The City of Ellensburg adopted a Strategic Vision for 2023 – 2028 which is guided by five strategic pillars that include, among others, Energy & Natural Resources and Sustainable Infrastructure. Additionally, Washington state has enacted several laws recently aimed at addressing the climate crisis by reducing carbon emissions by 95% by 2050. Both the City Council's Strategic Vision and the state legislation impacts the city-owned electric and gas utilities, the municipality, and the community at large. Any actions taken by one group to advance the vision, or comply with the legislation, can have a significant impact on the other group, either positively or negatively, making it challenging to make investment and policy decisions.

Washington State's Clean Energy Transformation Act (CETA) and, more recently, the Climate Commitment Act (CCA) create compliance milestones and reporting requirements for the City's natural gas and electric utilities. The Utility Advisory Committee (UAC) has hosted several discussions on compliance options and the need for planning for future decarbonization.

The City desires a cohesive and comprehensive Sustainability and Energy Plan that will become the standard that guides the City when making future decisions to amend or adopt ordinances and policies. The City published a Request for Qualifications, reviewed submittals and interviewed four firms. McKinstry Essention, LLC (McKinstry) was selected as the most qualified firm. City staff began scope and contract negotiations with McKinstry for comprehensive Sustainability and Energy Planning. After signing an agreement, McKinstry started working on the data collection, analysis, interviews, and development of the DRAFT Sustainability and Energy Plan (SEP).

Previous Council Action:

The Council, in 2021, approved the City of Ellensburg's Clean Energy Transformation Act, Clean Energy Implementation Plan. The City later adopted a Strategic Vision for 2023 – 2028 which is guided by five strategic pillars that include, among others, Energy & Natural

Resources and Sustainable Infrastructure. The Council approved funding in the amended 2021-2022 Biennial Budget to facilitate development of a plan to reduce the municipal and community carbon footprint and to outline actions/options to address compliance with federal and state clean energy and transportation regulations and authorized the scope and signing authority to contract with McKinstry for a comprehensive Sustainability and Energy Plan.

Analysis:

From the Sustainability and Energy Plan's Executive Summary:

To address the local impacts of climate change and to align with federal and state goals and regulations, the City of Ellensburg presents its first-ever Sustainability and Energy Plan (SEP). The plan is a strategic framework through which the City will continue its leadership in procuring clean, renewable-sourced electricity and taking further strides to decarbonize both municipal assets and operations as well as community-wide infrastructure and activities.

Ellensburg's SEP aligns the City's activities with goals and mandates set by state legislation. The SEP ensures that Ellensburg will comply with Washington State's 2019 Clean Energy Transformation Act (CETA) to achieve a zero-emission electricity supply. CETA requires all electric utilities to be greenhouse-gas-neutral by 2030 and 100% clean by 2045. This SEP also includes additional actions to reduce emissions commensurate with the lowering cap on emissions in Washington State's Climate Commitment Act (CCA), which is designed to achieve a 95% reduction in statewide greenhouse gas (GHG) emissions by 2050.

This SEP was developed through a six-phase process over the course of approximately one year:

- *Phase 1: Current State Assessment: Current state assessment of city-wide sustainability and climate action initiatives, including a thorough review of its existing plans and policies as well as several interviews with municipal departments and staff.*
- *Phase 2: GHG Emissions Inventory: Prepared a baseline GHG emissions inventory and data-driven forecast of both municipal and community-wide GHG emissions through 2050 to inform GHG reduction measures.*
- *Phase 3: Stakeholder Engagement: Interviews with internal and external stakeholders and a public survey to understand community-wide priorities with respect to sustainability and climate action.*
- *Phase 4: Goal-setting and Implementation Planning: Developed emissions reduction and regulatory compliance strategies and actions.*
- *Phase 5: SEP Development: Prepared a first draft of the SEP and completed an internal review process to collect internal and external feedback on the SEP and the measures therein.*
- *Phase 6: Finalize and Publicize SEP: Finalized and adopted its first-ever Sustainability and Energy Plan in late 2023.*

Stakeholder and Community Engagement

The City engaged both internal stakeholders and community members throughout the planning process. Engagement efforts included a series of interviews with key City staff and

executives across all departments to identify successes and gaps with respect to sustainability and climate action, as well as to understand potential opportunities and challenges the City is likely to face when implementing the Plan. Staff was also engaged in the latter half of the planning process to provide feedback on emissions reduction and compliance measures.

The City also disseminated an online community-wide survey, collecting responses through July and August 2023 to questions on the top concerns of Ellensburg residents, approaches for the City to reduce community-wide GHG emissions and existing sustainable practices and behaviors. The results indicated community-wide support for the SEP, interest in renewable energy and concerns about increasing utility bill costs and regulations. Respondents expressed a desire for improvements to building energy efficiency, transit infrastructure and alternative transportation.

Sustainability and Energy Roadmap and Implementation Plan

To reduce GHG emissions and meet statewide energy goals, the City of Ellensburg has identified 13 overarching strategies supported by 69 specific actions across five sustainability categories: Energy, Green Buildings, Transportation, Water, and Land Use. As part of the planning process, Ellensburg conducted supporting analyses on energy demand, power supply, and regulatory compliance. The findings showed that removing natural gas consumption alone, while significant, would not be enough to meet the emissions reduction goals of the CCA. As such, several supplemental emissions reduction strategies are identified under the Energy category and across other categories to help ensure regulatory compliance and effective emissions reduction over time.

To execute the decarbonization and sustainability strategies in this roadmap, the City will leverage its internal staff and resources where possible to begin prioritizing which actions will be taken first, based on a broad set of criteria that will be further refined and applied after the SEP is adopted. As priority actions are identified, the City will take advantage of external funding from federal and state grants to cost-effectively implement the SEP.

Ellensburg intends to develop and deploy the infrastructure needed to monitor, evaluate, and report on its progress toward implementing this SEP. This includes deploying the City's Environmental Commission and/or other boards and commissions to advise on and oversee the prioritization of strategies, community engagement, monitoring, evaluation and reporting. Ellensburg will begin the implementation process with a strategy prioritization exercise that considers the following:

Cost-benefit impacts and funding availability

With appropriate oversight, Ellensburg will evaluate each action's implementation cost and benefits and prioritize those that come at the lowest cost to the City and Ellensburg residents. Actions that can be implemented using external funding sources will also be prioritized.

Funding and staff resources

The City will look to external stakeholders at the city, state and federal level to advance initiatives and take advantage of external funding to implement the SEP. Ellensburg will also

consider each action in the context of staff or department(s) that will be tasked with implementing it and determine if execution is feasible. To implement the plan, Ellensburg will activate staffing, program development, grant procurement and policy support resources (as approved through the City's budget process).

Emissions impact, equity and co-benefits

Ellensburg will also evaluate actions for implementation with specific consideration for emissions reduction, community equity and potential co-benefits (e.g., improved air pollution, reduced resource use, climate resilience).

Drawing from these criteria, the City will develop and refine a prioritization matrix that will measure the costs and savings tied to each action against their anticipated impacts. Once the SEP is formally adopted, Ellensburg will designate an oversight group that will be responsible for overseeing implementation and providing timely and routine guidance on the prioritization, evaluation and execution of strategies and actions. Finally, the City will produce GHG emissions inventories on a biennial basis to track progress on its decarbonization efforts, and report on its progress through public, accessible reports.

The Updated Clean Energy Implementation Plan changes:

Tab	Notes/Updates
Cover Page	No changes
Background	No changes
Utility Name and Contact	No changes
Targets and Actions	Updated based on clean energy projections, Conservation Potential Assessment (CPA), Demand Response Potential Assessment (DRPA), public input, and subsequent discussions. Updated the overall share of clean energy for the 4-year period.
Identify HIC	Updated to reflect that Ellensburg has no Highly Impacted Communities as defined by CETA.
Public Participation	Updated with a description of the public engagement process conducted through the consultant's work.
Identify VP	Updated based on the recent public process, subsequent discussions, and subsequent data gathering/analysis.
VP Supporting Data	This is a new tab that shows where/how these numbers were developed.
Forecast of impacts	Updated based on the public process outcomes
Risk	Updated based on the public process outcomes
Long-term plans	Updated, using industry standard language.

Alternative Compliance Options

No changes (no use of alternative compliance options in this compliance period).

Resource Adequacy Standard
Incremental Cost

Updated with language provided by BPA.
No changes (added text box to say that the City does not intend to use the 2% incremental cost approach during this compliance period).

Financial Impact:

Financial impacts will be evaluated based on each action's implementation cost and benefits and prioritization given to those that come at the lowest cost to the City and Ellensburg residents. Actions that can be implemented using external funding sources will also be prioritized, considering grant procurement and policy support resources (as approved through the City's budget process).

Budget Adjustment: No

Attachments:

1. DRAFT Ellensburg Sustainability and Energy Plan (Issued 11-8-2023)
2. City of Ellensburg Updated 2022-25 CEIP

DRAFT MATERIAL

For internal distribution only.

Issued November 8, 2023.

SUSTAINABILITY AND ENERGY PLAN



2023

**Sustainability and Energy Plan
prepared by:**

McKinstry

Cumming Management Group

Lighthouse Energy Consulting

Critical Data Strategies, LLC

CONTENTS

EXECUTIVE SUMMARY	iv
1 INTRODUCTION.....	1
1.1 About Ellensburg.....	2
1.2 About this Sustainability and Energy Plan	5
2 GREENHOUSE GAS EMISSIONS.....	10
2.1 Background.....	11
2.2 Inventory Scopes, Boundary and Methodology	11
2.3 Baseline GHG Emissions.....	12
2.4 Projected GHG Emissions.....	15
3 SUSTAINABILITY AND ENERGY ROADMAP.....	18
3.1 Roadmap Overview.....	17
3.2 Energy.....	19
3.3 Green Buildings.....	24
3.4 Transportation.....	27
3.5 Water.....	30
3.6 Land Use.....	31
3.7 Implementing the Sustainability and Energy Plan	32
4 CONCLUSION	34
Appendix A: Glossary of Terms and Acronyms	37
Appendix B: Emissions Inventory and Forecasting Methodology	40
Appendix C: Lists of Tables and Figures	49
Appendix D: Conservation Potential Assessment Results.....	51
Appendix E: Demand Response Potential Assessment	58
Appendix F: Climate Commitment Act Compliance Analysis	66

EXECUTIVE SUMMARY



E.1 About this Sustainability and Energy Plan

To address the local impacts of climate change and to align with federal and state goals and regulations, the City of Ellensburg presents its first-ever **Sustainability and Energy Plan (SEP)**. The plan is a strategic framework through which the City will continue its leadership in procuring clean, renewable-sourced electricity and taking further strides to decarbonize both municipal assets and operations as well as community-wide infrastructure and activities.

Regulatory Drivers

Ellensburg's *SEP* aligns the City's activities with goals and mandates set by state legislation. The *SEP* ensures that Ellensburg will comply with Washington State's 2019 Clean Energy Transformation Act (CETA) to achieve a zero-emission electricity supply.¹ CETA requires all electric utilities to be greenhouse-gas-neutral by 2030 and 100% clean by 2045. This *SEP* also includes additional actions to reduce emissions commensurate with the lowering cap on emissions in Washington State's Climate Commitment Act (CCA), which is designed to achieve a 95% reduction in statewide greenhouse gas (GHG) emissions by 2050.²

Planning Process and Timeline

This *SEP* was developed through a six-phase process over the course of approximately one year:

Phase 1: Current State Assessment

Current state assessment of city-wide sustainability and climate action initiatives, including a thorough review of its existing plans and policies as well as several interviews with municipal departments and staff.

Phase 2: GHG Emissions Inventory

Prepared a baseline GHG emissions inventory and data-driven forecast of both municipal and community-wide GHG emissions through 2050 to inform GHG reduction measures.

Phase 3: Stakeholder Engagement

Interviews with internal and external stakeholders and a public survey to understand community-wide priorities with respect to sustainability and climate action.

Phase 4: Goal-setting and Implementation Planning

Developed emissions reduction and regulatory compliance strategies and actions.

¹ Washington State Department of Commerce. "Clean Energy Transformation Act." n.d. <<https://www.commerce.wa.gov/growing-the-economy/energy/ceta/>>

² Washington State Department of Ecology. "Climate Commitment Act." n.d. <<https://ecology.wa.gov/air-climate/climate-commitment-act>>.

Phase 5: SEP Development

Prepared a first draft of the *SEP* and completed an internal review process to collect internal and external feedback on the *SEP* and the measures therein.

Phase 6: Finalize and Publicize SEP

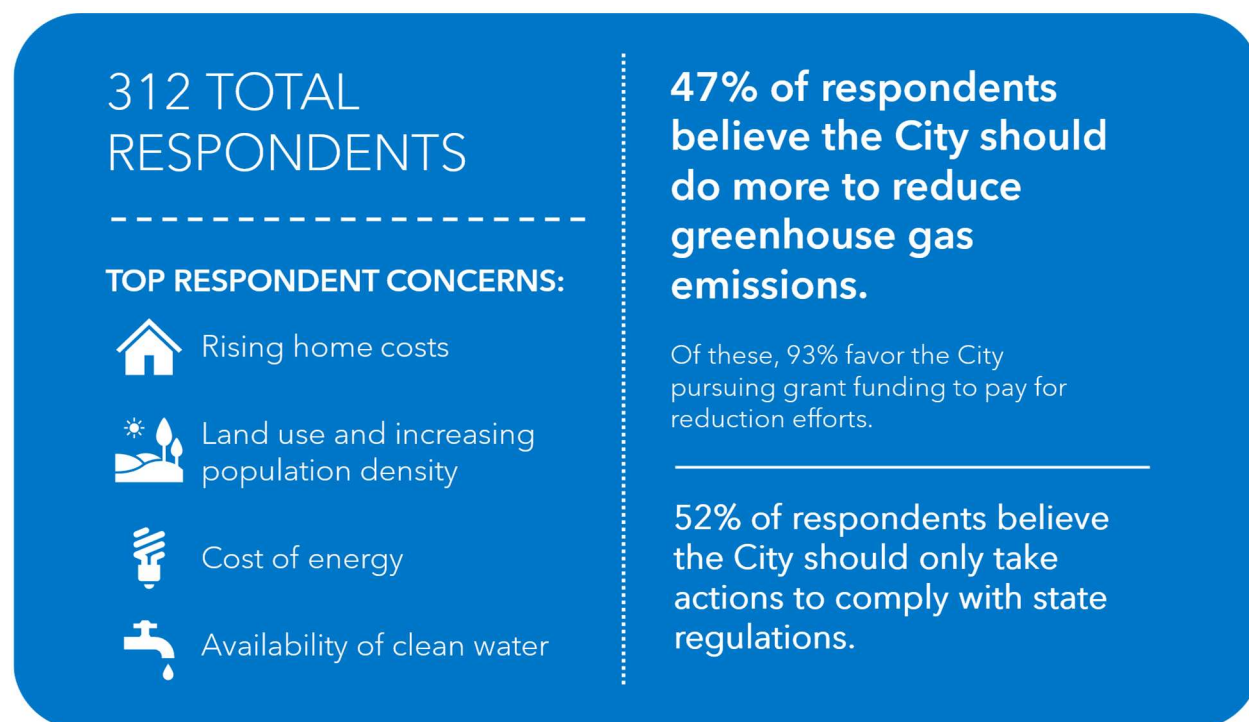
Finalized and adopted its first-ever *Sustainability and Energy Plan* in late 2023.

Stakeholder and Community Engagement

The City engaged both internal stakeholders and community members throughout the planning process. Engagement efforts included a series of interviews with key City staff and executives across all departments to identify successes and gaps with respect to sustainability and climate action, as well as to understand potential opportunities and challenges the City is likely to face when implementing the Plan. Staff was also engaged in the latter half of the planning process to provide feedback on emissions reduction and compliance measures.

The City also disseminated an online community-wide survey, collecting responses through July and August 2023 to questions on the top concerns of Ellensburg residents, approaches for the City to reduce community-wide GHG emissions and existing sustainable practices and behaviors. The results indicated community-wide support for the *SEP*, interest in renewable energy and concerns about increasing utility bill costs and regulations. Respondents expressed a desire for improvements to building energy efficiency, transit infrastructure and alternative transportation.

Figure E-1. Sustainability and Energy Plan Community Survey Highlights



E.2 Greenhouse Gas Emissions

The City of Ellensburg prepared baseline inventories of municipal greenhouse gas (GHG) emissions and community-wide GHG emissions. The municipal inventory comprises emissions generated from municipal assets, operations and activities, whereas community-wide inventory comprises emissions from residential, commercial and industrial buildings and activities. Ellensburg then produced emissions forecasts for both municipal and community-wide emissions through 2050. The inventories and accompanying forecasts were used to identify the strategies and actions in this *SEP*.

Baseline Emissions

Baseline municipal emissions totaled 2,181 metric tons of carbon dioxide equivalent (MTCO₂e), which are broken down by source in Figure E-2. Emissions from stationary combustion, mobile combustion, and wastewater treatment (or Scope 1 emissions) make up 93% of the City of Ellensburg's operational GHG emissions, whereas emissions from electricity use (or Scope 2 emissions) make up the remaining 7%.

Baseline community-wide emissions totaled 142,947 MTCO₂e. They are broken down by source in Figure E-3. Scope 1 emissions (stationary combustion and mobile combustion) make up 97% of community-wide emissions, mostly coming from private and commercial vehicles and natural gas use in residential, commercial and industrial buildings. Scope 2 emissions (electricity consumption) make up the remaining 3%. The residential sector is responsible for two-thirds of all community-wide emissions, whereas the remaining third is almost entirely made up of emissions from the commercial/institutional sector.

Figure E-2. Baseline Municipal GHG Emissions by Source

Baseline Municipal GHG Emissions (MTCO₂e)

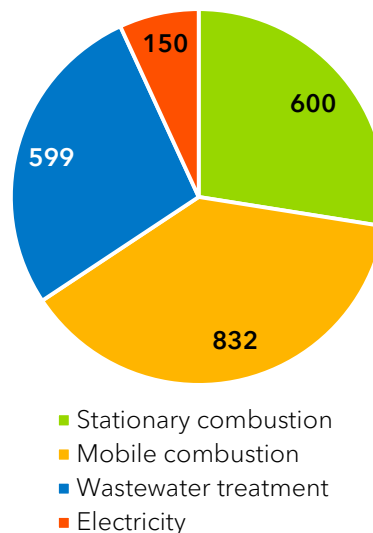
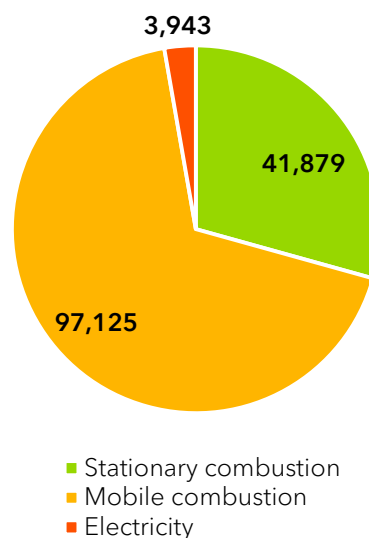


Figure E-3. Baseline Community-wide GHG Emissions by Source

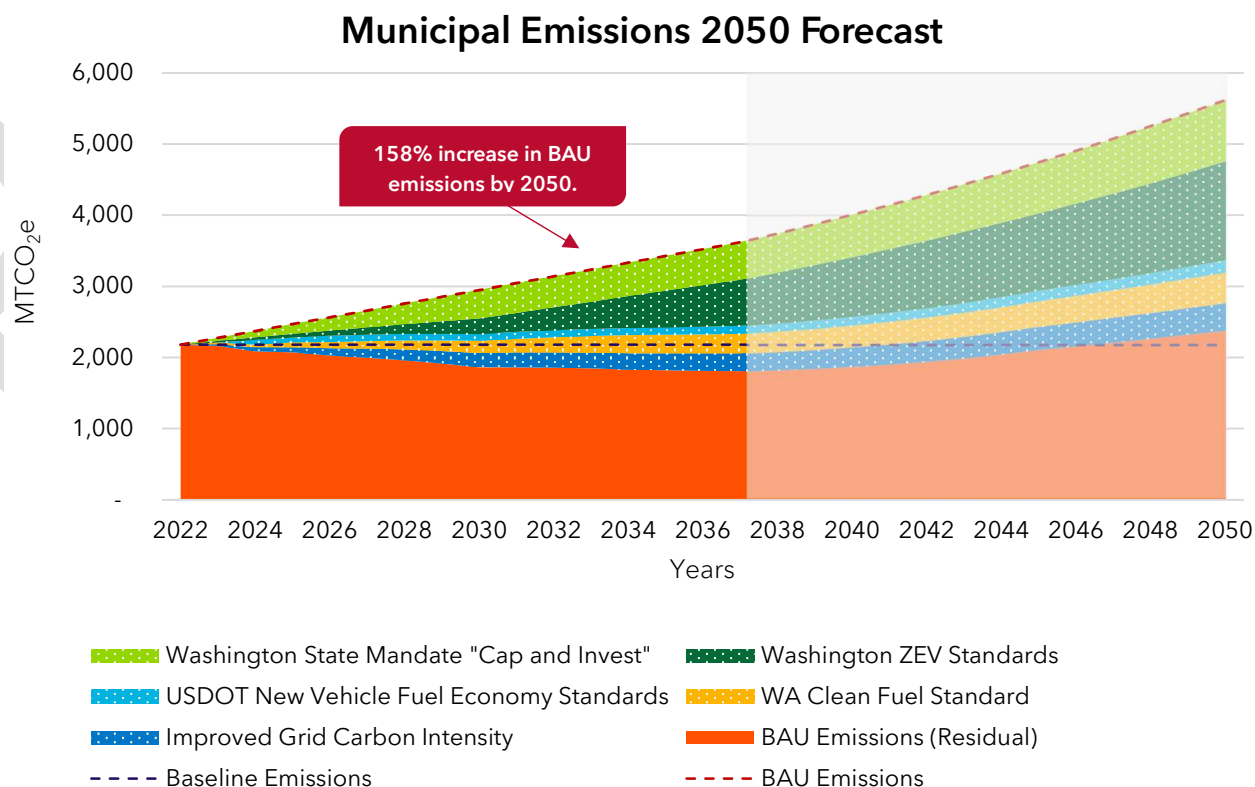
Baseline Community-wide GHG Emissions (MTCO₂e)



Projected Emissions

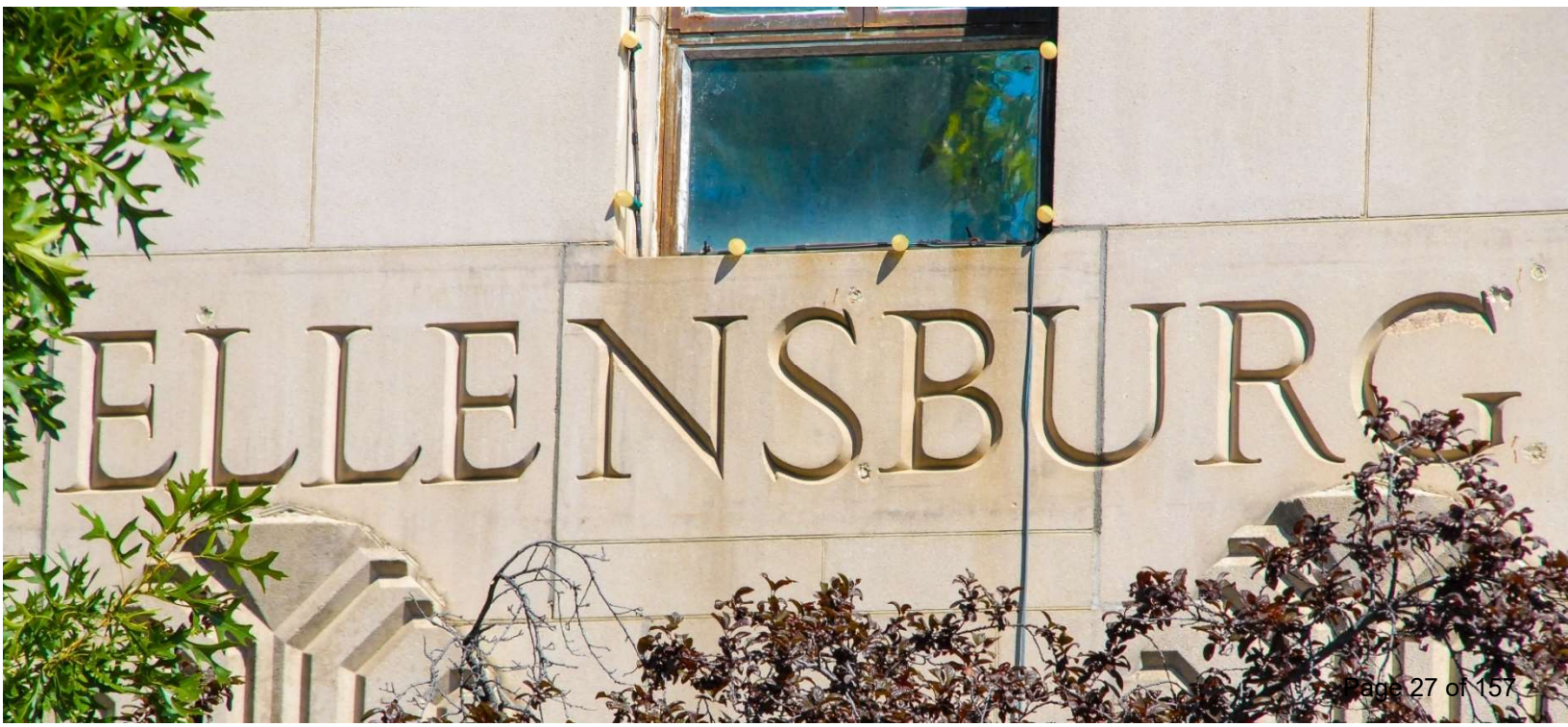
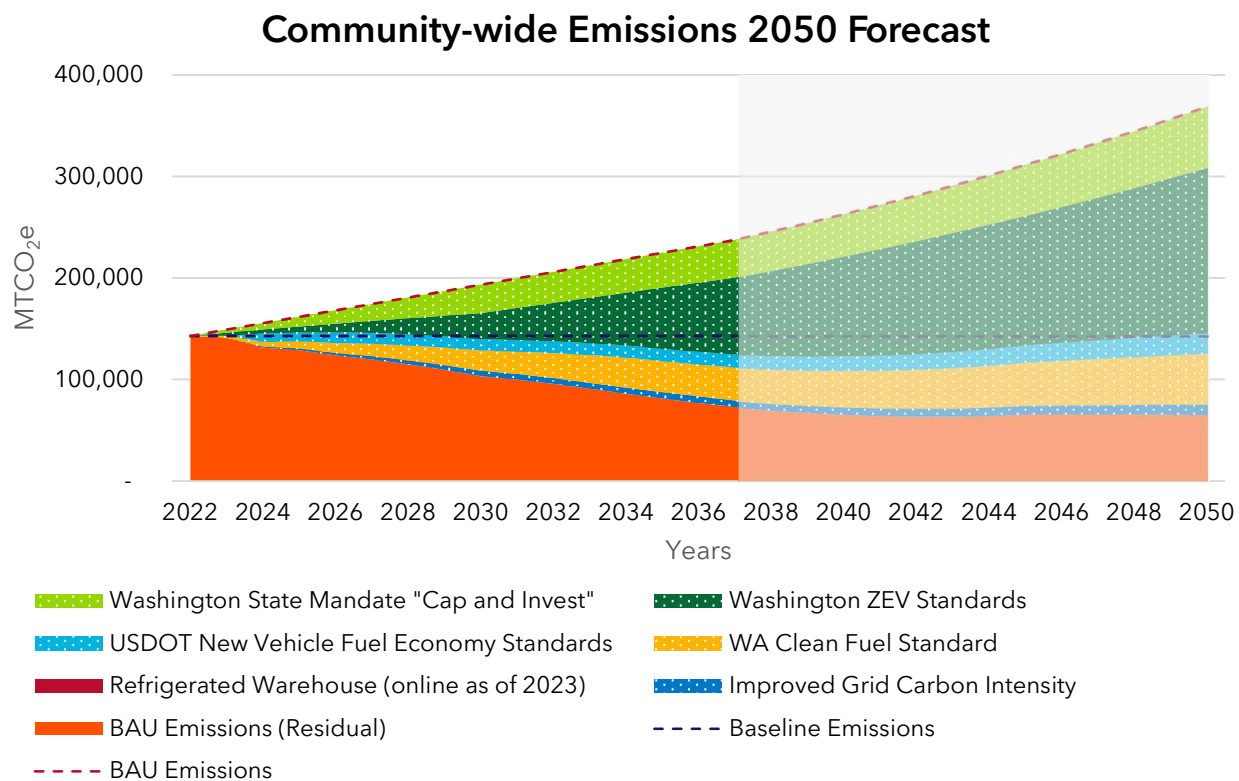
Figures E-4 and E-5 show the projected cumulative municipal and community-wide emissions (respectively) through 2050, under a business-as-usual (BAU) scenario. The primary driver of emissions under a BAU scenario is population growth. These forecasts use the City's 2037 population growth projections from the *Comprehensive Plan* and assume similar levels of annual growth from 2038-2050.

Figure E-4. Municipal Emissions 2050 Forecast



Without additional City action and excluding regulatory mandates, population growth is projected to increase municipal emissions by nearly 158% by 2050 from the baseline. However, compliance with regulatory mandates such as the Washington Cap and Invest program and new zero emission vehicle standards will significantly reduce municipal emissions compared to the BAU scenario and limit the increase in emissions to only ~9% from the baseline by 2050 (represented above as 'BAU Emissions (Residual)').

Similarly, community-wide emissions are also projected to increase by nearly 158% by 2050 from the baseline as a result of population growth. However, compliance with various regulatory mandates will significantly reduce community emissions compared to the BAU scenario and will cut emissions at 2050 by nearly ~54% from the baseline, in large part due to the significant reduction that will be felt in the transportation sector.

Figure E-5. Community-wide Emissions 2050 Forecast

E.3 Sustainability Roadmap and Implementation Plan

To reduce GHG emissions and meet statewide energy goals, the City of Ellensburg has identified 13 overarching **strategies** supported by 69 specific **actions** across five sustainability **categories**: Energy, Green Buildings, Transportation, Water, and Land Use.

As part of the planning process, Ellensburg conducted supporting analyses on energy demand, power supply, and regulatory compliance. The findings showed that removing natural gas consumption alone, while significant, would not be enough to meet the emissions reduction goals of the CCA. As such, several supplemental emissions reduction strategies are identified under the Energy category and across other categories to help ensure regulatory compliance and effective emissions reduction over time.

Table E-1. Sustainability and Energy Plan Strategies

Category	Strategy No.	Strategy
Energy	E-1	Decarbonize Ellensburg's electric power supply to comply with CETA targets
	E-2	Explore all possible energy transition pathways to mitigate emissions in compliance with the Climate Commitment Act
	E-3	Improve energy (grid) and climate resilience across Ellensburg
Green Buildings	G-1	Improve energy efficiency across all existing municipal and community wide buildings
	G-2	Set energy efficiency and electrification standards or requirements for all new municipal and community-wide buildings
	G-3	Promote and enable the use of distributed energy resources (DERs) to decarbonize municipal and community-wide buildings
Transportation	T-1	Decarbonize municipal and Central Transit vehicle fleets
	T-2	Improve Central Transit system and programs to encourage community wide use of public transit, with a focus on urban growth areas and communities with disadvantaged or vulnerable individuals
	T-3	Reduce vehicle miles traveled and transportation emissions across Ellensburg through active transportation, electric vehicles (EVs) and land use initiatives
	T-4	Leverage partnerships with local, regional and national institutions to promote mode shift and active transportation
Water	W-1	Implement water conservation and recycling strategies to reduce consumption at municipal facilities
	W-2	Implement water conservation and recycling strategies to reduce consumption community-wide
Land Use	L-1	Deploy zoning and land use tools that promote infill and transit-oriented development (TOD)

Implementation Plan

To execute the decarbonization and sustainability strategies in this roadmap, the City will leverage its internal staff and resources where possible to begin prioritizing which actions will be taken first, based on a broad set of criteria that will be further refined and applied after the *SEP* is adopted. As priority actions are identified, the City will take advantage of external funding from federal and state grants to cost-effectively implement the *SEP*.

Ellensburg intends to develop and deploy the infrastructure needed to monitor, evaluate, and report on its progress toward implementing this *SEP*. This includes deploying the City's Environmental Commission and/or other boards and commissions to advise on and oversee the prioritization of strategies, community engagement, monitoring, evaluation and reporting. Ellensburg will begin the implementation process with a strategy prioritization exercise that considers the following:

Cost-benefit impacts and funding availability

With appropriate oversight, Ellensburg will evaluate each action's implementation cost and benefits and prioritize those that come at the lowest cost to the City and Ellensburg residents. Actions that can be implemented using external funding sources will also be prioritized.

Funding and staff resources

The City will look to external stakeholders at the city, state and federal level to advance initiatives and take advantage of external funding to implement the *SEP*. Ellensburg will also consider each action in the context of staff or department(s) that will be tasked with implementing it and determine if execution is feasible. To implement the plan, Ellensburg will activate staffing, program development, grant procurement and policy support resources (as approved through the City's budget process).

Emissions impact, equity and co-benefits

Ellensburg will also evaluate actions for implementation with specific consideration for emissions reduction, community equity and potential co-benefits (e.g., improved air pollution, reduced resource use, climate resilience).

Drawing from these criteria, the City will develop and refine a prioritization matrix that will measure the costs and savings tied to each action against their anticipated impacts.

Once the *SEP* is formally adopted, Ellensburg will designate an oversight group that will be responsible for overseeing implementation and providing timely and routine guidance on the prioritization, evaluation and execution of strategies and actions.

Finally, the City will produce GHG emissions inventories on a biennial basis to track progress on its decarbonization efforts, and report on its progress through public, accessible reports.

1 INTRODUCTION



1.1 About Ellensburg

The City of Ellensburg encompasses 7.6 square miles in the heart of Washington. Bordered by the Yakima River and east of the Cascade mountain range, Ellensburg is home to unique stream corridors, wetlands and tree canopy that provide rich amenities for residents and wildlife alike. The seat of Kittitas County, Ellensburg is home to Central Washington University and supports a population of approximately 20,000 people.

The University of Washington Climate Impact Group and the United Nations' International Panel on Climate Change (IPCC) have confirmed that Washington state's climate is changing in rapid and far-reaching ways.³ These changes may entail warmer, wetter winters that precipitate extreme weather events and local hazards, as well as declines in snowpack that increase stream temperatures and produce water shortages.

While Ellensburg has long maintained progressive environmental policies by embracing varied transportation modes, clean industries, low-impact development strategies and natural resource conservation, the City recognizes the vital need to identify strategies that reduce greenhouse gas (GHG) emissions in the face of climate change. These efforts will become increasingly important and impactful as the city grows, particularly as the population is projected to increase by 2% annually through 2037.

The City is committed to further strengthening its environmental commitments and mitigating the impacts of climate change. By investing in robust mitigation strategies and implementing coordinated programs and policies, the City will not just protect environmental resources and ecosystems, but it will improve residential quality of life and regional economic development in the decades to come.



Sustainability Efforts to Date

The City of Ellensburg is committed to reducing GHG emissions in full adherence to applicable local commitments and regulatory mandates. The strategic actions in this **Sustainability and Energy Plan (SEP)** are rooted in and aligned with other city plans,

³ City of Ellensburg. "Ellensburg Comprehensive Plan: Chapter 7 Environment." April 9, 2022.
<<https://ci.ellensburg.wa.us/DocumentCenter/View/15108/CURRENT-COMPREHENSIVE-PLAN>>

policies and frameworks designed to advance sustainability and climate action (Figure 1-1). Importantly, this *SEP* aligns with core sustainability goals, policies and programs in the City's *2021 Comprehensive Plan*.

Figure 1-1. Ellensburg Strategic Plans



While this is the City's first formal *Sustainability and Energy Plan*, Ellensburg has integrated sustainability into its municipal planning and community activities over the course of many years. Sustainability initiatives to date include:

Fully sourcing Ellensburg's electricity from zero-emission energy

Through this plan and its revised *Clean Energy Implementation Plan*, Ellensburg's electric utility is moving toward 100% zero-emission electricity in line with state mandates.

Becoming the first community in Washington state to receive Tree City USA designation

Ellensburg has maintained its Tree City USA designation since 1983 and proudly hosts over 5,600 street trees.

Promoting solar energy

The City has supported solar energy projects since 2000. In 2006, Ellensburg installed a 36-kilowatt (kW) community solar system—the first of its kind in the United States.

Maintaining a Silver-Level Bicycle Friendly Community designation by the League of American Bicyclists (LAB)

Ellensburg's Silver-Level designation reflects how 47% of arterial streets in the city have bike lanes. The city set a goal of becoming a Gold-Level Bicycle Friendly Community through bicycling infrastructure and programs like community events, improved wayfinding systems and proactive street-level hazard mitigation.

Offering density bonus incentives that promote green building policies and practices

The City of Ellensburg provides density bonuses for energy efficient construction that achieves LEED,⁴ Built Green⁵ or other similar environmental certifications.

Transitioning to a zero-emission transit fleet and infrastructure

To meet state and federal requirements, as well as advance the City's environmental goals, Central Transit recently adopted its *Zero Emission Transition Plan*, through which it laid out its plan to electrify its bus fleet by 2032.

⁴ LEED (Leadership in Energy and Environmental Design) is a globally recognized green building rating system that provides a framework for healthy, efficient, and cost-saving green buildings. <<https://support.usgbc.org/hc/en-us/articles/4404406912403-What-is-LEED-certification-#LEED>>

⁵ Built Green is the green home certification program of the Master Builders Association of King and Snohomish Counties. It certifies green homes, remodels, apartments, and communities. <<https://www.builtgreen.net/>>

1.2 About this Sustainability and Energy Plan

To address the ongoing impacts of climate change in Ellensburg and to align with federal and state goals and regulations, the City of Ellensburg presents its first-ever **Sustainability and Energy Plan**. The *SEP* is a strategic framework through which the City will continue its leadership in procuring clean, renewable-sourced electricity and taking further strides to decarbonize both municipal assets and operations, as well as community-wide infrastructure and activities.

Plan Vision

The City of Ellensburg is committed to reducing greenhouse gas (GHG) emissions and promoting sustainability through strategic actions in alignment with state and federal climate regulations.

This *SEP* is organized into five sustainability categories: **Energy, Green Buildings, Transportation, Water** and **Land Use**. Across these categories, the *SEP* lays out 13 strategies addressing a blend of municipal and community initiatives, through which to achieve emissions reductions and other sustainability goals.

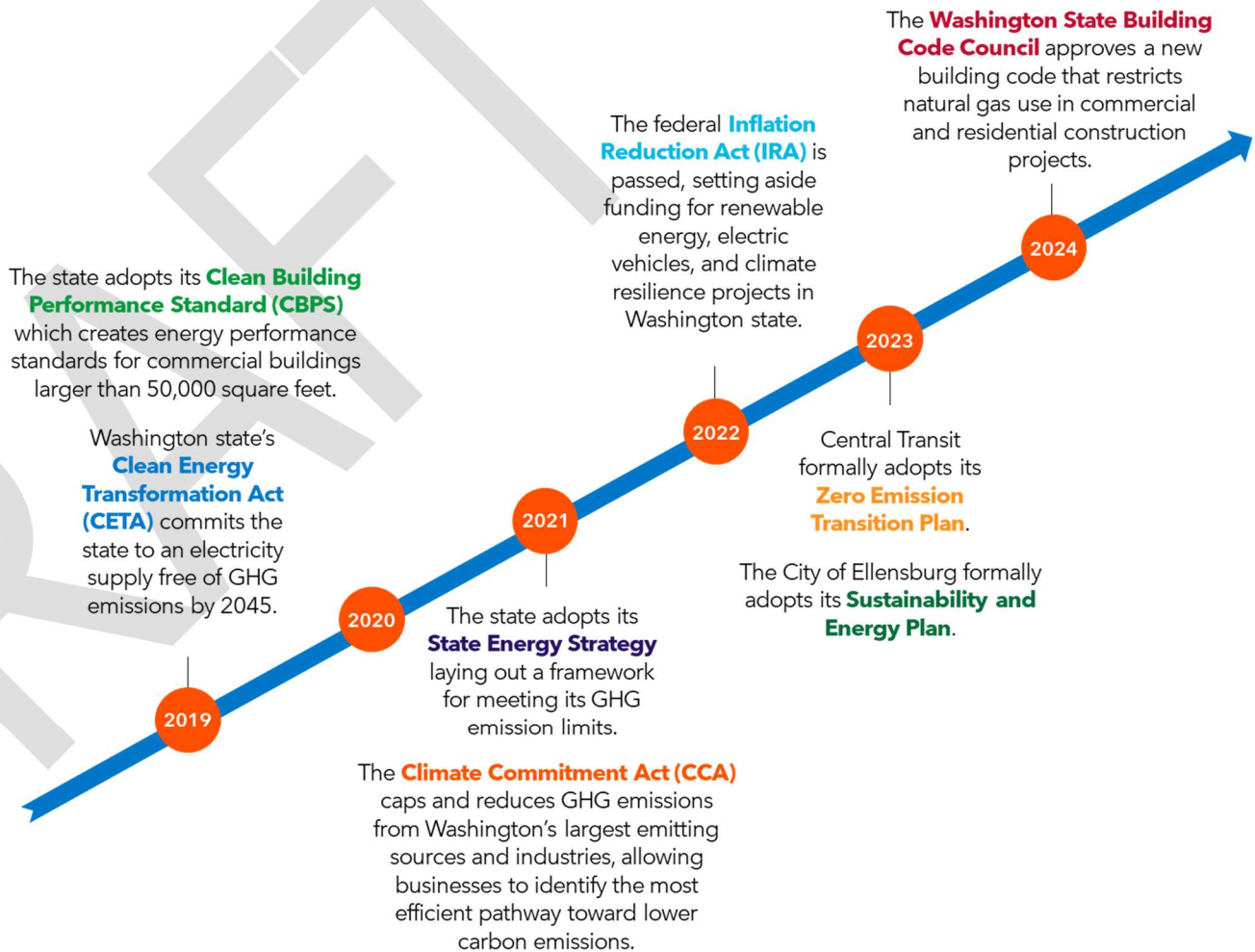
Regulatory Drivers

Ellensburg's *SEP* is intended, first and foremost, to establish a roadmap for the City to align with and achieve the goals and mandates set by state legislation. In particular, this Plan will ensure that Ellensburg complies with Washington State's 2019 Clean Energy Transformation Act (CETA), which requires all electric utilities, including Ellensburg's utility operations, to be GHG-neutral by 2030 and 100% clean by 2045.⁶ This *SEP* also includes additional actions to reduce emissions commensurate with the lowering cap on emissions in Washington State's Climate Commitment Act (CCA), which is designed to achieve a 95% reduction in statewide GHG emissions by 2050.⁷ Consequently, the Plan aligns with federal targets established by the Biden-Harris administration to achieve a 50-52% reduction in net GHG emissions compared to 2005 levels by 2030.⁸ Additional state and federal legislation and regulatory drivers for the Plan are shown in Figure 1-2.

⁶ Washington State Department of Commerce. "Clean Energy Transformation Act." n.d. <<https://www.commerce.wa.gov/growing-the-economy/energy/ceta/>>

⁷ Washington State Department of Ecology. "Climate Commitment Act." n.d. <<https://ecology.wa.gov/air-climate/climate-commitment-act>>.

⁸ The United States Department of State and the United States Executive Office of the President. "The Long-Term Strategy of the United States: Pathways to Net-Zero Greenhouse Gas Emissions by 2050." October 2021. <<https://www.whitehouse.gov/wp-content/uploads/2021/10/US-Long-Term-Strategy.pdf>>

Figure 1-2. Sustainability and Energy Plan Regulatory Drivers and Timeline

Planning Process and Timeline

This *Sustainability and Energy Plan* was developed through a six-phase process over the course of approximately one year (see Figure 1-3):

Phase 1: Current State Assessment

The City completed a current state assessment of city-wide sustainability and climate action initiatives, including a thorough review of its existing plans and policies as well as several interviews with municipal departments and staff.

Phase 2: GHG Emissions Inventory

Ellensburg collected municipal and community-wide data and prepared a baseline GHG emissions inventory, as well as a data-driven forecast of both municipal and community-wide GHG emissions through 2050, to inform the selection of GHG reduction measures.

Phase 3: Stakeholder Engagement

The City conducted several interviews with internal and external stakeholders, as well as a

public survey, to gain a better understanding of community-wide priorities with respect to sustainability and climate action across Ellensburg.

Phase 4: Goal-setting and Implementation Planning

Ellensburg drew from its current state assessment, emissions analyses and stakeholder engagement process to develop emissions reduction and regulatory compliance measures for the *SEP*.

Phase 5: *SEP* Development

The City prepared a first draft of the *SEP* and completed an internal review process to collect internal and external feedback on the *SEP* and the measures therein.

Phase 6: Finalize and Publicize *SEP*

Ellensburg finalized and adopted its first-ever *Sustainability and Energy Plan* in late 2023.

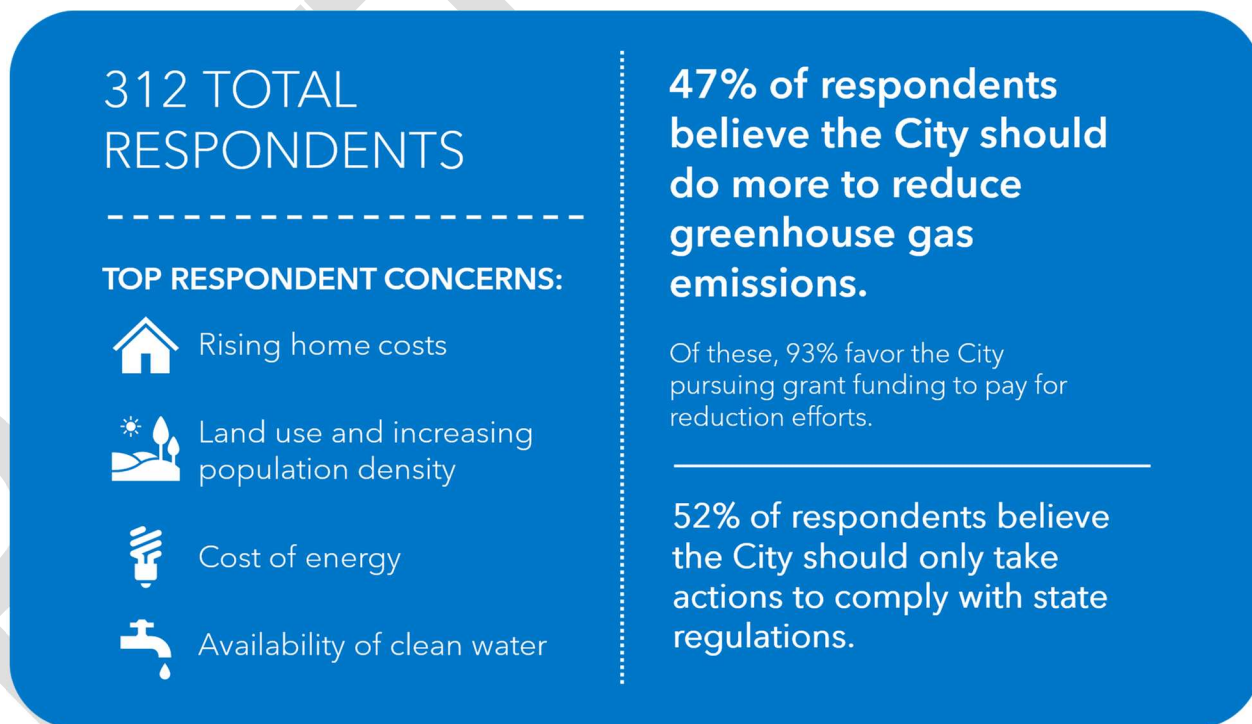
Figure 1-3. *Sustainability and Energy Plan Development Process*



Stakeholder and Community Engagement

Climate action requires collaboration and coordination among and between diverse municipal and community entities. The City engaged both internal stakeholders and community members throughout the planning process for this *SEP*. Engagement efforts included a series of interviews with key City staff and executives across all departments to identify successes and gaps with respect to sustainability and climate action, as well as to understand potential opportunities and challenges the City is likely to face when implementing the Plan. Staff were also engaged in the latter half of the planning process to provide iterative feedback on emissions reduction and compliance measures.

In addition, the City surveyed the Ellensburg community at large through an online community-wide survey that was disseminated through public utility bills. The City collected responses from July - August 2023 for questions regarding the top concerns of Ellensburg residents, recommended approaches for the City to reduce community-wide GHG emissions and existing sustainable practices and behaviors across Ellensburg. The survey indicated community-wide support for the *SEP* and highlighted both specific interest in exploring renewable energy sources as well as concerns about increasing utility bill costs and regulations. Respondents also expressed a desire for improved energy efficiency and use in buildings, improvements to transit infrastructure and enhanced alternative transportation solutions. These community survey results directly informed the strategies in this *SEP*.

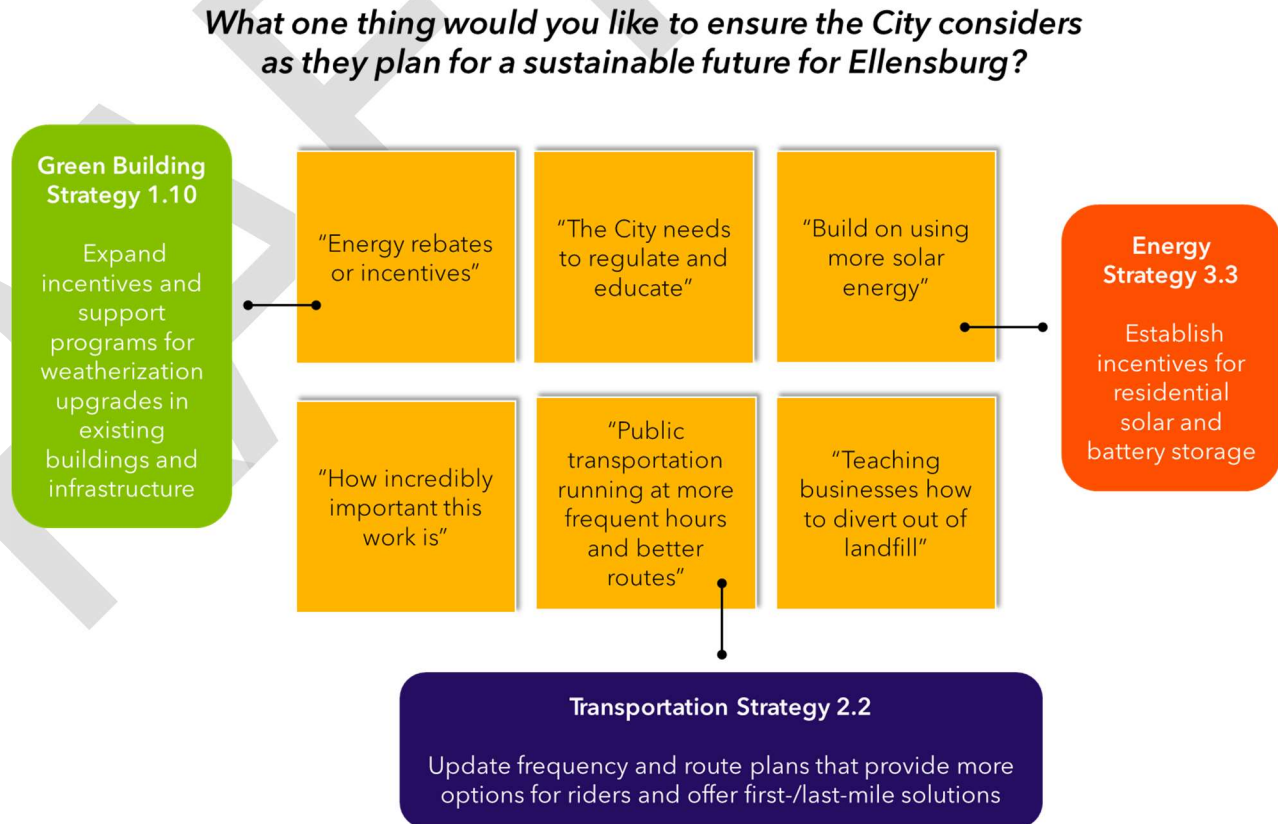
Figure 1-4. Sustainability and Energy Plan Community Survey Highlights

Detailed survey results are included in the appendices to this Plan. Highlights are shown in Figure 1-4, and direct quotes from respondents are featured in Figure 1-5.

Figure 1-5. Sustainability and Energy Plan Community Survey Respondent Quotes

The City drew upon survey feedback to inform the emissions reduction and compliance measures included in this *Sustainability and Energy Plan* (see Figure 1-6).

Figure 1-6. Community feedback and derived SEP measures



2 GREENHOUSE GAS EMISSIONS



2.1 Background

As the foundation for the *Sustainability and Energy Plan*, the City of Ellensburg prepared baseline greenhouse gas (GHG) emissions inventories for both its municipal operations emissions and community-wide GHG emissions. The municipal inventory comprises emissions generated from municipal assets, operations and activities, whereas the community-wide inventory comprises emissions from residential, commercial and industrial buildings and activities. Ellensburg then produced emissions forecasts for both municipal and community-wide emissions through 2037, in alignment with the population growth forecasts in the *Comprehensive Plan*. The baseline GHG inventories and accompanying emissions forecasts were used to identify sustainability and energy strategies and actions.

2.2 Inventory Scopes, Boundary and Methodology

Municipal Emissions

The municipal emissions inventory covers a 12-month period between December 2021 through November 2022, accounting for the following sources of emissions from City operations and assets:

Scope 1 Emissions

Direct GHG emissions occurring from sources owned by the City of Ellensburg. These include emissions from stationary sources like City-owned facilities (natural gas use); mobile sources such as City and Central Transit fleet and service vehicles (fuel use); and wastewater treatment.

Scope 2 Emissions

Indirect emissions from procured electricity, namely from the City's municipal utility.

Scope 3 emissions were not included, as these fall outside the City's operational control boundary. The Government Operations Module within the U.S. Environmental Protection Agency's (EPA) Local Greenhouse Gas Inventory Tool was used to calculate all municipal emissions. Utility consumption and fleet fuel data were the primary elements of the municipal emissions inventory. Additional details on the methodology are included in Appendix B.

Community-wide Emissions

The community-wide emissions inventory covers the same 12-month period (December 2021 through November 2022). It accounts for the following sources of emissions across Ellensburg (excluding municipal operations and assets):

Scope 1 Emissions

Direct GHG emissions from stationary sources (natural gas used in residential, commercial/institutional, and industrial buildings and infrastructure) and mobile sources (fuel used for private vehicles and commercial fleets).

Scope 2 Emissions

As with municipal emissions, these include indirect emissions from procured electricity, primarily from the City's municipal utility.

Scope 3 emissions were not included, as these fall outside the Community's operational control boundary. The Community Module within the EPA's Local Greenhouse Gas Inventory Tool was used to calculate community-wide emissions. In addition to aggregated utility data, community-wide transportation emissions were calculated by using a customized estimate for annual vehicle miles traveled (VMT) and using data from Kittitas County from the Washington State Department of Transportation (DOT) to determine the percentage splits for different travel modes. Additional details on the methodology are included in Appendix B.

2.3 Baseline GHG Emissions

Municipal Emissions

Baseline municipal emissions totaled **2,181 metric tons of carbon dioxide equivalent (MTCO₂e)**. Figure 2-1 and Table 2-1 show visual and tabular breakdowns of emissions by source.

Figure 2-1. Baseline Municipal GHG Emissions by Scope

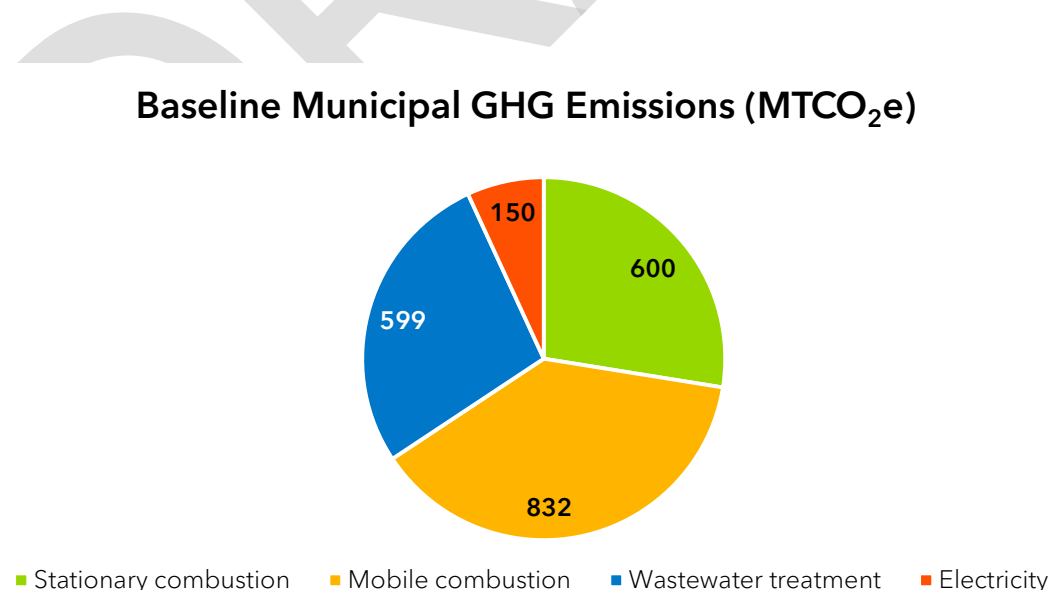


Table 2-1. Baseline Municipal GHG Emissions by Scope and Source

Emissions Source	Emissions (MTCO ₂ e)	Percent of Total Emissions
Scope 1 Emissions	2,031.54	93%
Stationary combustion	600.26	28%
Mobile combustion	832.37	38%
Wastewater treatment	598.91	27%
Scope 2 Emissions	149.62	7%
Electricity	149.62	7%
Total Emissions	2,181.16	100%

Emissions from stationary combustion, mobile combustion, and wastewater treatment (or Scope 1 emissions) make up 93% of the City of Ellensburg's operational GHG emissions, whereas emissions from electricity use (or Scope 2 emissions) make up the remaining 7%. Most municipal Scope 1 emissions can be attributed to mobile combustion sources, which include City and Central Transit fleet and service vehicles. Natural gas consumption in buildings and wastewater treatment contribute similar shares of emissions at 28% and 27%, respectively. Due to the low carbon intensity of the electric grid, Scope 2 emissions (electricity) make up only 7% of all municipal emissions.

Community-wide Emissions

Baseline community-wide emissions totaled **142,947 MTCO₂e**. Figure 2-2 and Table 2-2 break out emissions detail by source, and Table 2-3 shows emissions by sector.

Figure 2-2. Baseline Community-wide GHG Emissions by Scope

Baseline Community-wide GHG Emissions (MTCO₂e)

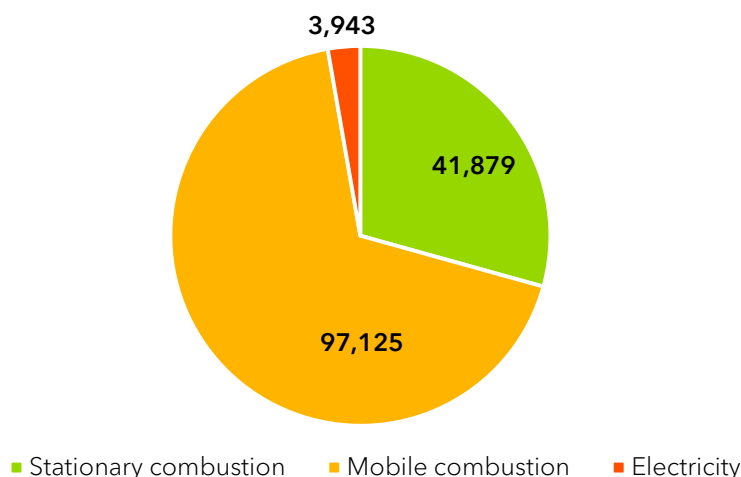


Table 2-2. Baseline Community-wide GHG Emissions by Scope and Source

Emissions Source	Emissions (MTCO ₂ e)	Percent of Total Emissions
Scope 1 Emissions	139,004.12	97%
Stationary combustion	41,878.66	29%
Mobile combustion	97,125.46	68%
Scope 2 Emissions	3,942.99	3%
Electricity	3,942.99	3%
Total Emissions	142,947.11	100%

Over two-thirds of community-wide emissions are attributable to mobile combustion from private and commercial vehicles. The remaining 29% of Scope 1 emissions can be attributed to natural gas use in residential, commercial and industrial buildings. As with municipal emissions, only a very small segment of total emissions can be attributed to electricity consumption.

When broken down by sector, the residential sector is responsible for two-thirds of all community-wide emissions, whereas the remaining third is almost entirely made up of emissions from the commercial/institutional sector.

Table 2-3. Baseline Community-wide GHG Emissions by Sector

Emissions Sector	Emissions (MTCO ₂ e)	Percent of Total Emissions
Residential	94,006.91	66%
Commercial/Institutional	47,860.47	33%
Industrial	1,079.73	1%
Total Emissions	142,947.11	100%

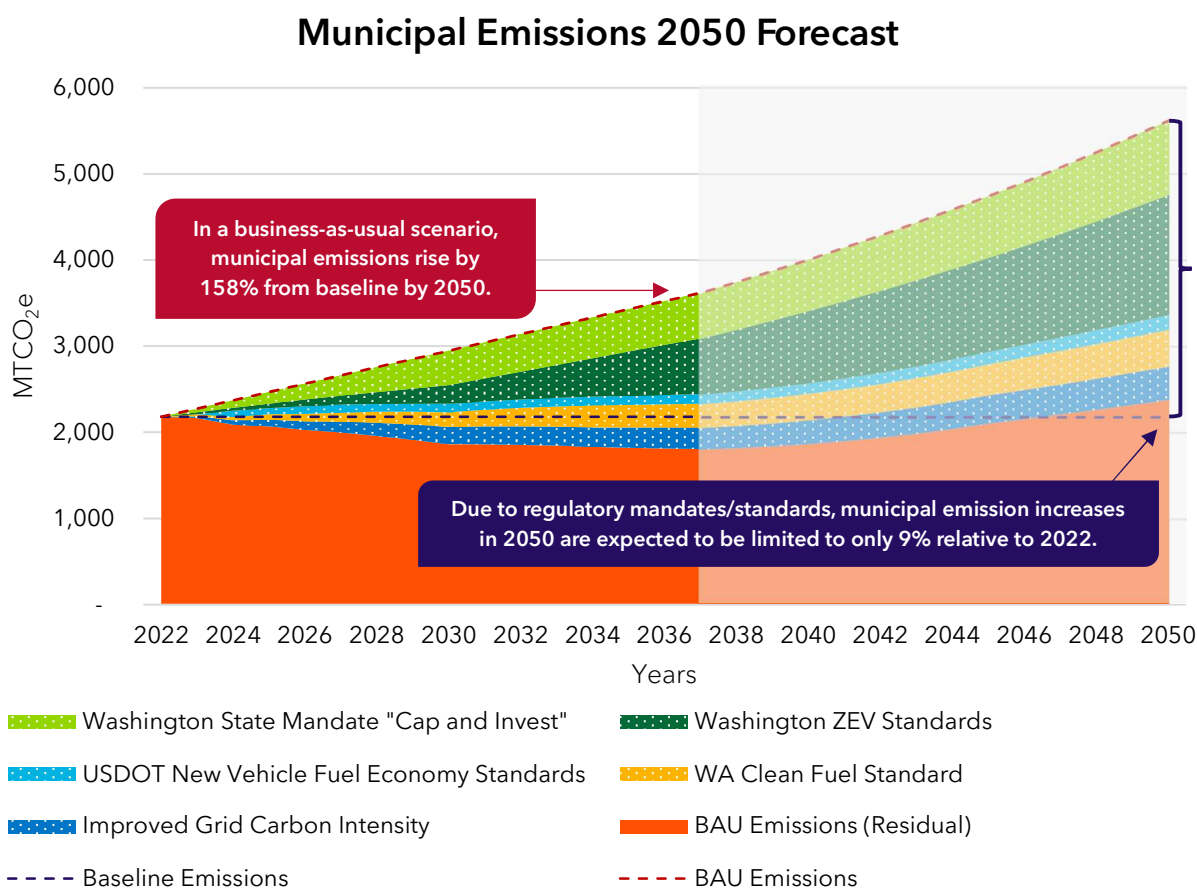
2.4 Projected GHG Emissions

Municipal Emissions

Figure 2-3 shows projected municipal emissions through 2050, showing cumulative emissions in a business-as-usual (BAU) scenario based on population growth, which is expected to increase by 2% annually on average through 2037. Forecasted emissions beyond 2037 have not been formally modeled to align with forecasts in the City's *Comprehensive Plan* but are instead extrapolated and are shown with a slight fade in each graph. The blue dotted line represents emissions at baseline, and the red dotted line represents BAU emissions without any intervention. Each wedge below the red dotted line represents anticipated emissions reductions from federal and state regulatory mandates, including improved grid carbon intensity.

If no additional action is taken by the City to reduce emissions, and without regulatory mandates, municipal emissions are projected to increase by nearly 158% by 2050 from the baseline. Compliance with mandates will significantly reduce emission growth, reducing the increase by 2050 to only ~9% from the baseline.

Figure 2-3. Municipal Emissions Forecast through 2050

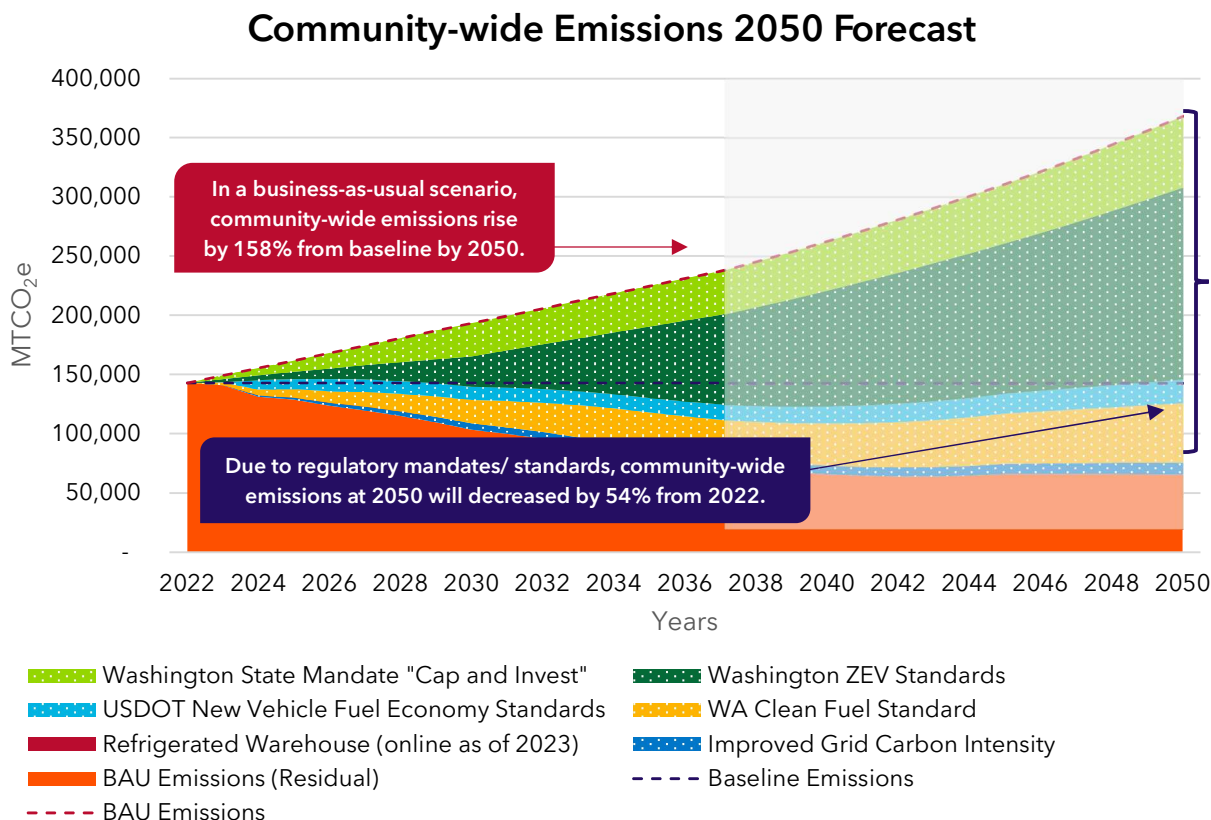


Community-wide Emissions

Figure 2-4 shows projected community-wide emissions through 2050, showing cumulative emissions in a BAU scenario based on population growth which is expected to increase by 2% annually on average through 2037. As with municipal emissions, forecasted community-wide emissions beyond 2037 have not been formally modeled to align with forecasts in the City's *Comprehensive Plan*, but are instead extrapolated and are shown with a slight fade in each graph. The blue dotted line represents emissions at baseline, and the red dotted line represents BAU emissions without any intervention. Each wedge below the red dotted line represents anticipated emissions reductions from federal and state regulatory mandates, including improved grid carbon intensity.

If no additional action is taken to reduce emissions, and without regulatory mandates, emissions are projected to increase by nearly 158% by 2037 from the baseline (given the similar scopes of impact of different regulations). Compliance with mandates will reduce community-wide emissions from the baseline over time, cutting emissions at 2050 by nearly ~54% from the baseline. Because the share of transportation-related emissions is greater community-wide, and because many of the mandates and standards are targeted toward reducing emissions from vehicles, a greater share of community-wide emissions will be eliminated over time. This will result in an actual reduction in emissions over time at 2037 and 2050, compared to the baseline.

Figure 2-4. Community-wide Emissions Forecast through 2050



While both municipal and community-wide emissions projections show that statewide mandates and standards will at least neutralize the projected emissions growth through 2037 and out to 2050, emissions will not be completely neutralized or eliminated by 2050 without additional action. In both cases, the City will need to implement additional strategies that target emissions from buildings and from transportation to achieve carbon neutrality by 2050 per statewide targets.



3 SUSTAINABILITY AND ENERGY ROADMAP



3.1 Roadmap Overview

To reduce GHG emissions and meet statewide energy goals, the City of Ellensburg has identified 13 overarching **strategies** supported by 69 specific **actions** across five sustainability **categories**: Energy, Green Buildings, Transportation, Water, and Land Use.

Each action is accompanied by **target area**, either municipal or community-wide, which indicates the anticipated scope of impact for that action. These are included to guide the City and its stakeholders when prioritizing actions for implementation.

Figure 3-1 provides definitions for each element of the Roadmap, and Table 3-1 offers a summary of all categories and strategies included in this *Sustainability and Energy Plan*.

Figure 3-1. How to Read this Roadmap

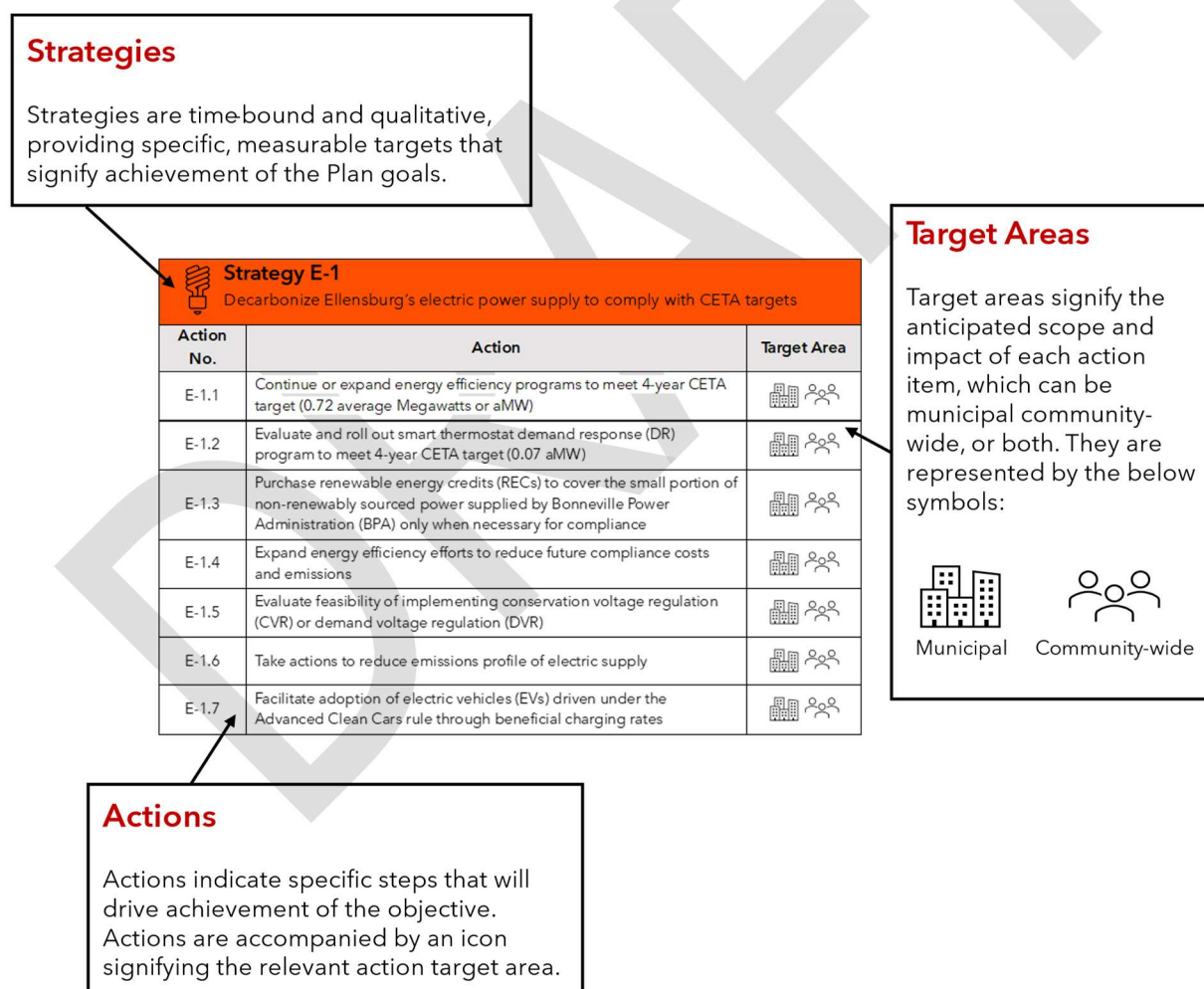


Table 3-1. Sustainability and Energy Roadmap Categories and Strategies

Category	Strategy No.	Strategy
Energy	E-1	Decarbonize Ellensburg's electric power supply to comply with CETA targets
	E-2	Explore all possible energy transition pathways to mitigate emissions in compliance with the Climate Commitment Act
	E-3	Improve energy (grid) and climate resilience across Ellensburg
Green Buildings	G-1	Improve energy efficiency across all existing municipal and community wide buildings
	G-2	Set energy efficiency and electrification standards or requirements for all new municipal and community-wide buildings
	G-3	Promote and enable the use of distributed energy resources (DERs) to decarbonize municipal and community-wide buildings
Transportation	T-1	Decarbonize municipal and Central Transit vehicle fleets
	T-2	Improve Central Transit system and programs to encourage community wide use of public transit, with a focus on urban growth areas and communities with disadvantaged or vulnerable individuals
	T-3	Reduce vehicle miles traveled and transportation emissions across Ellensburg through active transportation, electric vehicles (EVs) and land use initiatives
	T-4	Leverage partnerships with local, regional and national institutions to promote mode shift and active transportation
Water	W-1	Implement water conservation and recycling strategies to reduce consumption at municipal facilities
	W-2	Implement water conservation and recycling strategies to reduce consumption community-wide
Land Use	L-1	Deploy zoning and land use tools that promote infill and transit-oriented development (TOD)

3.2 Energy

Outside of transportation, emissions from energy consumption offers the greatest opportunity for emissions reduction. Emissions from stationary energy use (e.g., electricity, natural gas) makes up over a third of both municipal and community-wide GHG emissions. While the Ellensburg grid is very clean—over 95% of city-wide electricity currently comes from zero-emission sources—there are still steps Ellensburg can and must take to reduce the carbon intensity of the City's energy supply to comply with CETA and achieve statewide emissions goals. Furthermore, eliminating natural gas demand and consumption alone will not be enough to meet the emissions reduction targets established via the CCA. Consequently, additional strategies and actions were developed to move the City closer to hitting those goals and to align with the City's updated *Clean Energy Implementation Plan*.

Informed by supporting analyses on energy efficiency, demand response and CCA compliance, Ellensburg will pursue three strategies to address emissions from energy consumption:

- **E-1:** Decarbonize Ellensburg's electric power supply in compliance with CETA targets
- **E-2:** Explore all possible energy transition pathways to mitigate emissions in compliance with the Climate Commitment Act
- **E-3:** Improve energy (grid) and climate resilience across Ellensburg

Table 3-2. Strategy E-1 Actions and Target Areas

 Strategy E-1 Decarbonize Ellensburg's electric power supply to comply with CETA targets		
Action No.	Action	Target Area
E-1.1	Continue or expand energy efficiency programs to meet 4-year CETA target (0.72 average Megawatts or aMW)	 
E-1.2	Evaluate and roll out smart thermostat demand response (DR) program to meet 4-year CETA target (0.07 aMW)	 
E-1.3	Purchase renewable energy credits (RECs) to cover the small portion of non-renewably sourced power supplied by Bonneville Power Administration (BPA) only when necessary for compliance	 
E-1.4	Expand energy efficiency efforts to reduce future compliance costs and emissions	 
E-1.5	Evaluate feasibility of implementing conservation voltage regulation (CVR) or demand voltage regulation (DVR)	 

 Strategy E-1 (Continued) Decarbonize Ellensburg's electric power supply to comply with CETA targets		
Action No.	Action	Target Area
E-1.6	Take actions to reduce emissions profile of electric supply	 
E-1.7	Facilitate adoption of electric vehicles (EVs) driven under the Advanced Clean Cars rule through beneficial charging rates	 

Table 3-3. Strategy E-2 Actions and Target Areas

 Strategy E-2 Explore all possible energy transition pathways to mitigate emissions in compliance with the Climate Commitment Act		
Action No.	Action	Target Area
E-2.1	Revise natural gas line extension allowance/policy to comply with the Climate Commitment Act	 
E-2.2	Consider incentives and programs for fuel switching across all sectors based on expected future compliance costs, combined with electric energy efficiency incentives & Inflation Reduction Act (IRA) tax credits	 
E-2.3	Focus natural gas energy efficiency efforts on fuel-neutral measures like weatherization	 
E-2.4	Evaluate market-based approaches or incentive programs that could be implemented by the City to guide the transition to alternative fuels	 
E-2.5	Implement RNG capture project with wastewater system if approved by EPA or identify other ways to capture/reduce emissions	
E-2.6	Consider policy changes that move away from natural gas system expansion	 
E-2.7	Consider a plan to decarbonize the utility taking into consideration the rising cost of maintaining the gas distribution infrastructure as the number of rate payers decrease, causing possible hardship to vulnerable community members who are unable to switch to electricity	 

Table 3-4. Strategy E-3 Actions and Target Areas

 Strategy E-3 Improve energy (grid) and climate resilience across Ellensburg		
Action No.	Action	Target Area
E-3.1	Install battery storage for solar array to support EV charging along the Interstate 90	
E-3.2	Install battery storage at community cooling and warming centers to provide resilient shelters for Ellensburg residents	
E-3.3	Establish incentives for residential solar and battery storage	
E-3.4	Continue undergrounding new and existing utility lines where physically and financially feasible	
E-3.5	Explore opportunities for advanced metering infrastructure and emerging systems technology city-wide that use demand response to reduce grid strain	
E-3.6	Market community cooling and warming centers and other critical community sites to inform Ellensburg residents of community-wide emergency services	
E-3.7	Educate consumers and HVAC installers on energy options	
E-3.8	Explore renewable and non-emitting power generation alternatives	

3.3 Green Buildings

While Ellensburg's energy strategies will focus on supply-side energy emissions, the City will also explore green building strategies to reduce energy demand from stationary assets. Internal stakeholders at the City indicated a priority for strategies that not only address emissions reductions, but also facilitate building improvements at aging facilities, with a priority for buildings with deferred maintenance. External stakeholders also expressed a desire for strategies that would increase access to building efficiency improvements for residents.

Ellensburg will pursue three strategies to decarbonize buildings:

- **G-1:** Improve energy efficiency across all existing municipal and community-wide buildings
- **G-2:** Set energy efficiency and electrification standards or requirements for all new municipal and community-wide buildings
- **G-3:** Promote and enable the use of distributed energy resources (DERs) to decarbonize municipal and community-wide buildings

Table 3-5. Strategy G-1 Actions and Target Areas

 Strategy G-1 Improve energy efficiency across all existing municipal and community-wide buildings		
Action No.	Action	Target Area
G-1.1	Replace aging interior and exterior lighting and appliances for all municipal facilities with energy-efficient alternatives, prioritizing areas with deferred maintenance	
G-1.2	Install sensors and energy controls on lighting and equipment to schedule time of use and manage demand	
G-1.3	Comply with code requirements for replacing end-of-life natural-gas-powered HVAC systems with all-electric heat pumps, and explore technical and cost feasibility of exceeding code requirements to accelerate this transition	
G-1.4	Monitor wastewater treatment facility energy to track reductions associated with the 2022 General Sewer Plan improvements	
G-1.5	Deploy weatherization measures at recreational facilities with high energy use intensity to reduce natural gas demand	

 Strategy G-1 (Continued) Improve energy efficiency across all existing municipal and community-wide buildings		
Action No.	Action	Target Area
G-1.6	Establish a building maintenance fund/energy-tracking software that can be used to track energy savings from building improvements	
G-1.7	Utilize BPA incentive funds and work with local businesses to provide energy audits for residential and commercial utility customers	
G-1.8	Explore feasibility of adopting city-level energy use intensity targets for buildings over 10,000 square feet, exceeding Clean Buildings Performance Standards (CBPS) and state requirements	
G-1.9	Provide rebates for residential and commercial customers to support upgrades to energy-efficient and all-electric appliances and lighting, in support of achieving CBPS targets	
G-1.10	Expand incentives and support programs for weatherization upgrades in existing buildings and infrastructure	

Table 3-6. Strategy G-2 Actions and Target Areas

 Strategy G-2 Set energy efficiency and electrification standards or requirements for all new municipal and community-wide buildings		
Action No.	Action	Target Area
G-2.1	Set minimum green building certification requirements for all new municipal buildings	 
G-2.2	Require lifecycle design evaluations for all new municipal buildings and create guidelines for such evaluations for commercial and industrial buildings	 

Table 3-7. Strategy G-3 Actions and Target Areas

 Strategy G-3 Promote and enable the use of distributed energy resources (DERs) to decarbonize municipal and community-wide buildings		
Action No.	Action	Target Area
G-3.1	Install additional on-site renewable generation and distributed energy resources	
G-3.2	Create specifications or equipment replacement plans to electrify or use alternative fuels for building, construction, and maintenance equipment	
G-3.3	Bolster and deploy additional incentive and rebate programs for residential and commercial solar installations	
G-3.4	Renew community solar array contract and increase allowable solar generation	

3.4 Transportation

Transportation provides the greatest opportunity to reduce city-wide emissions. Emissions from City transportation and fleet vehicles make up approximately 27% of municipal emissions and nearly two-thirds of community-wide emissions come from residential and commercial vehicles. However, nearly two-thirds of public survey respondents residing within City limits expressed that they currently use or plan to increase their use of alternative transportation (i.e., modes of mobility that are not single-occupancy vehicles), indicating that this could be an effective strategy to reduce emissions in the long term. The remaining third of respondents within the city of Ellensburg expressed that they do not currently use alternative transportation.

Ellensburg will pursue four strategies to decarbonize the transportation sector:

- **T-1:** Decarbonize municipal and Central Transit vehicle fleets
- **T-2:** Improve Central Transit system and programs to encourage community-wide use of public transit, with a focus on urban growth areas and communities with disadvantaged or vulnerable individuals
- **T-3:** Reduce vehicle miles traveled and transportation emissions across Ellensburg through active transportation, electric vehicles (EVs) and land use initiatives
- **T-4:** Leverage partnerships with local, regional and national institutions to promote mode shift and active transportation

Table 3-8. Strategy T-1 Actions and Target Areas

 Strategy T-1 Decarbonize municipal and Central Transit vehicle fleets		
Action No.	Action	Target Area
T-1.1	Implement Central Transit's <i>Zero Emission Transition Plan</i>	
T-1.2	Install zero-emission vehicle charging and fueling infrastructure across municipal and Central Transit facilities to support the zero-emission vehicle transition	
T-1.3	Explore and implement interim fueling solutions to reduce vehicular emissions from existing municipal fleet vehicles (e.g., renewable compressed natural gas, R-100 renewable diesel)	

Table 3-9. Strategy T-2 Actions and Target Areas

Strategy T-2  Improve Central Transit system and programs to encourage community-wide use of public transit, with a focus on urban growth areas and communities with disadvantaged or vulnerable individuals		
Action No.	Action	Target Area
T-2.1	Update <i>Citywide Transit Master Plan</i> to identify opportunities for Central Transit to better connect residents to citywide destinations	 
T-2.2	Update existing frequency and route plans that provide more options for riders and offer first-/last-mile solutions	 
T-2.3	Improve ADA accessibility, rider protection, shading, and other safety and comfort features at all transit stops	 
T-2.4	Add sensors at traffic signals that enable traffic priority for transit	 
T-2.5	Review level of service standard and revise to fit City and community needs	 
T-2.6	Pursue federal and state grant funding to support Central Transit and community-wide traffic improvements	 
T-2.7	Complete safe streets study and develop a system-wide Transit Safety Plan	 
T-2.8	Enhance accessible community education resources (e.g., digital, physical, multilingual) to inform current and prospective riders on the benefits of public transit and Central Transit service offerings	 

Table 3-10. Strategy T-3 Actions and Target Areas

Strategy T-3  Reduce vehicle miles traveled and transportation emissions across Ellensburg through active transportation, electric vehicles (EVs) and land use initiatives		
Action No.	Action	Target Area
T-3.1	Develop a rolling 3-year roadmap for implementing the City's <i>Active Transportation Plan</i>	 
T-3.2	Identify additional opportunities across the City of Ellensburg to discourage single-passenger driving and reduce maintenance needs	 

 Strategy T-3 (Continued) Reduce vehicle miles traveled and transportation emissions across Ellensburg through active transportation, electric vehicles (EVs) and land use initiatives		
Action No.	Action	Target Area
T-3.3	Establish additional access routes outside of the existing street system for bicycle and pedestrian traffic with connections to parks, trails, and other recreational amenities	
T-3.4	Survey municipal and community-wide facilities to identify locations to deploy public EV charging infrastructure	
T-3.5	Review and update building codes as need to ensure there are requirements for existing and new buildings to add and install sufficient EV charging infrastructure	
T-3.6	Create new or revise existing traffic engineering standards for new roadway development and design with a focused on reduced VMT	
T-3.7	Reduce or eliminate any existing parking minimums for new lot developments and other institutional uses	
T-3.8	Institute traffic signal safety improvements in medium- and high-density areas in residential and commercial zones	

Table 3-11. Strategy T-4 Actions and Target Areas

 Strategy T-4 Leverage partnerships with local, regional and national institutions to promote mode shift and active transportation		
Action No.	Action	Target Area
T-4.1	Partner with businesses to set up bikeshare and carshare programs community-wide	
T-4.2	Partner with Central Washington University to develop programs that encourage alternative modes of transportation for students, faculty, and staff	
T-4.3	Work with the League of American Bicyclists and other organizations to identify improvements community-wide to promote cycling and other alternative modes of transportation	
T-4.4	Partner with Ellensburg's six K-12 schools and private school to set up or improve existing K-12 walk-/bike-to-school programs	

3.5 Water

While emissions from water use were not measured as a part of the *SEP* process, the City of Ellensburg remains committed to sustainability managing its water resources. The City has identified two Water-oriented strategies:

- **W-1:** Implement water conservation and recycling strategies to reduce consumption at municipal facilities
- W-2:** Implement water conservation and recycling strategies to reduce consumption community-wide

Table 3-12. Strategy W-1 Actions and Target Areas

 Strategy W-1 Implement water conservation and recycling strategies to reduce consumption at municipal facilities		
Action No.	Action	Target Area
W-1.1	Identify opportunities for new green infrastructure installations (e.g., permeable pavement, bioswales, xeriscaping) to support groundwater retention and water recycling	
W-1.2	Introduce water conservation interventions at the building level (e.g., low-flow appliances) to reduce demand-side water consumption	

Table 3-13. Strategy W-2 Actions and Target Areas

 Strategy W-2 Implement water conservation and recycling strategies to reduce consumption community-wide		
Action No.	Action	Target Area
W-2.1	Develop a low-income green infrastructure program to provide financial support to residents interested in installing green infrastructure	
W-2.2	Identify opportunities for watershed restoration	
W-2.3	Introduce rebate, incentive, and appliances hand-out programs that encourage community-wide use of low-flow appliances and xeriscaping	

3.6 Land Use

Land use and urban planning tools are critical to reducing community-wide emissions. The ways in which land is used and zoned, as well as different development types and permitting practices, have varying but significant bearing on the way a population will move about space and use resources. To reduce emissions at the community scale, Ellensburg will further explore two types of development: **infill development**, which repurposes existing unused or underutilized land for new construction; and **transit-oriented development**, which focuses on developing buildings and spaces near alternative modes of transportation (i.e., walking, cycling, public transit) that better connect residents to resources and destinations.

Table 3-14. Strategy L-1 Actions and Target Areas

 Strategy L-1 Deploy zoning and land use tools that promote infill- and transit-oriented development (TOD)		
Action No.	Action	Target Area
L-1.1	Implement zoning that promotes greater density	
L-1.2	Implement housing programs or building codes to support low- and middle-income households, including mixed use development in proximity to essential services and transit	
L-1.3	Encourage development along transit corridors and site new community facilities near major transit routes and pedestrians and bike paths	
L-1.4	Explore overlays or voluntary zones that encourage renewable energy development, low-/zero-emission vehicles, and other low-emission developments	
L-1.5	Identify spaces for dedicated green space and tree canopy cover to promote climate resilience and carbon sequestration	
L-1.6	Encourage development in unused downtown buildings for residential and office units	
L-1.7	Foster development of services near population centers across Ellensburg	

3.7 Implementing the Sustainability and Energy Plan

Ellensburg recognizes that ownership, accountability, coordination, and stakeholder collaboration are critical to the successful implementation of this *Sustainability and Energy Plan*. To execute the decarbonization and sustainability strategies in this roadmap, the City will leverage its internal staff and resources where possible to begin prioritizing which actions will be



taken first, based on a broad set of criteria that will be further refined and applied after the *SEP* is adopted. As priority actions are identified, the City will take advantage of external funding from federal and state grants to cost-effectively implement the *SEP*.

New systems, processes, partnerships will be needed to implement the *SEP*. Ellensburg intends to develop and deploy the infrastructure needed to monitor, evaluate, and report on its progress toward implementing this *SEP*. This includes deploying the City's Environmental Commission and/or other boards and commissions to advise on and oversee the prioritization of strategies, community engagement, monitoring, evaluation and reporting.

Strategy Prioritization

Since all strategies listed can neither be implemented immediately nor simultaneously, Ellensburg will begin the implementation process with a strategy prioritization exercise that considers the following:

Cost-benefit impacts and funding availability

With appropriate oversight, Ellensburg will evaluate each action's implementation cost and benefits and prioritize those that come at the lowest cost to the City and Ellensburg residents. Actions that can be implemented using external funding sources will also be prioritized.

Funding and staff resources

The City will look to external stakeholders at the city, state and federal level to advance initiatives and take advantage of external funding to implement the *SEP*. Ellensburg will also consider each action in the context of staff or department(s) that will be tasked with implementing it and determine if execution is feasible. To implement the

plan, Ellensburg will activate staffing, program development, grant procurement and policy support resources (as approved through the City's budget process).

Emissions impact, equity and co-benefits

Ellensburg will also evaluate actions for implementation with specific consideration for emissions reduction, community equity and potential co-benefits (e.g., improved air pollution, reduced resource use, climate resilience).

Drawing from these criteria, the City will develop and refine a prioritization matrix that will measure the costs and savings tied to each action against their anticipated impacts. The matrix will be used to prioritize actions and adjust them as needed to maximize impact and minimize costs.

Oversight and Advisory

Once the *SEP* is formally adopted, Ellensburg will work with its Environmental Commission and other city boards to either assign oversight of *SEP* implementation to a specific commission or establish a separate group for the same purpose. The designated group will not only be responsible for overseeing implementation, but providing timely and routine guidance on the prioritization, evaluation and execution of strategies and actions.

Monitoring, Evaluation and Reporting

Finally, to ensure that the goals and strategies laid out in this *SEP* are achieved, the City of Ellensburg will produce GHG emissions inventories on a biennial basis to track progress on its decarbonization efforts, and report on its progress through public, accessible reports.

4 CONCLUSION



The City of Ellensburg's mission is to provide Ellensburg citizens with services in the most efficient and effective manner possible, and one of the City's core values is stewardship of the environment and quality of life in Ellensburg. This *Sustainability and Energy Plan* is the City's latest step to meet that mission and stay true to its values. Tackling climate change through emissions reduction and grid decarbonization, using transportation and land use tools to expand and improve the means through which Ellensburg residents interact with and move about the city and ongoing conservation of water and other natural resources are all essential to improving the quality of life of Ellensburg residents and keeping them connected to essential services.

Climate change is an existential threat, and the City recognizes and affirms that the state of Washington has put critical regulations in place to decarbonize buildings, transportation and other infrastructure. This *SEP* serves as a strategic framework, in supplement to other existing and forthcoming planning efforts, to comply with those regulations and meet the climate and sustainability targets set at the state level. And it is the City's intent to execute this Plan in collaboration with internal and external stakeholders, as well as community members, to ensure that it is implemented in a cost-effective, efficient and equitable manner.

Finally, this *SEP* is an appeal to City employees, Ellensburg businesses and institutions, residents and visitors to continue doing their part to reduce their carbon and resource footprints. It is the City's earnest belief that, even in the face of climate change, a better future for Ellensburg residents is achievable – especially when pursued together, with diligence and compassion.

5 APPENDICES



APPENDIX A: GLOSSARY OF TERMS AND ACRONYMS

A.1 Glossary of Terms

- **Adaptation:** Adjustment or preparation of natural or human systems to a new or changing environment which moderates harm or exploits beneficial opportunities.⁹
- **Anthropogenic GHG emissions:** Made by people or resulting from human activities. Usually used in the context of emissions that are produced as a result of human activities.⁹
- **Business-as-usual scenario:** A projection of future environmental and social conditions based on the assumption that current trends and practices will continue without significant change.
- **Carbon dioxide equivalent:** A metric measure used to compare the emissions from various greenhouse gases based upon their global warming potential. Carbon dioxide equivalents are commonly expressed as “million metric tons of carbon dioxide equivalents (MMTCO₂Eq).” The carbon dioxide equivalent for a gas is derived by multiplying the tons of the gas by the associated global warming potential. $MMTCO_2Eq = (\text{million metric tons of a gas}) * (\text{global warming potential of the gas})$.⁹
- **Carbon neutrality:** The state in which an organization has a net-zero carbon footprint, meaning that their overall greenhouse gas emissions are balanced by removing an equivalent amount of carbon dioxide from the atmosphere, or by offsetting emissions through investments in renewable energy or other carbon-reducing projects.
- **Climate change:** Climate change refers to any significant change in the measures of climate lasting for an extended period of time. In other words, climate change includes major changes in temperature, precipitation, or wind patterns, among others, that occur over several decades or longer.⁹
- **Climate hazards:** Risks posed to human societies, ecosystems, and economies by extreme weather events and other environmental changes resulting from global climate change.

⁹ United States Environmental Protection Agency. 2013.

<https://sor.epa.gov/sor_internet/registry/termreg/searchandretrieve/glossariesandkeywordlists/search.do>.

- **Greenhouse gas (GHG):** Any gas that absorbs infrared radiation in the atmosphere. Greenhouse gases include, carbon dioxide, methane, nitrous oxide, ozone, chlorofluorocarbons, hydrochlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride.⁹
- **Mode shift:** A change in the way people travel between different modes of transportation, such as from driving a car to using public transit, biking, or walking. It typically involves a shift from single-occupancy vehicles, which are associated with traffic congestion, air pollution, and greenhouse gas emissions, towards more sustainable and efficient modes of transportation.
- **Scope 1 emissions:** Direct greenhouse gas emissions that occur from sources that are controlled or owned by an organization (e.g., emissions associated with fuel combustion in boilers, furnaces, vehicles, etc.).

Scope 2 emissions: Indirect greenhouse gas emissions associated with the purchase of electricity, steam, heat, or cooling. Although Scope 2 emissions physically occur at the facility where they are generated, they are accounted for in an organization's GHG inventory because they are the result of the organization's energy use.

- **Scope 3 emissions:** Indirect emissions from activities or assets not owned or controlled by the reporting organization, but that the organization indirectly affects in its value chain. Scope 3 emissions include all sources not within an organization's scope 1 and 2 boundary. The scope 3 emissions for one organization are the scope 1 and 2 emissions of another organization.
- **Vehicle miles traveled:** A measure of the total distance traveled by all vehicles within a given geographic area or period of time.⁹

A.2 Acronyms

- **ADA**: Americans with Disabilities Act
- **BAP**: Business as Planned
- **BAU**: Business as Usual
- **BPA**: Bonneville Power Administration
- **CBPS**: Clean Building Performance Standard
- **CBR**: Conservation Voltage Regulation
- **CCA**: Climate Commitment Act
- **CETA**: Clean Energy Transformation Act
- **CH₄**: Methane
- **CNG**: Compressed Natural Gas
- **CO₂**: Carbon Dioxide
- **DER**: Distributed Energy Resources
- **DVR**: Demand Voltage Regulation
- **EPA**: Environmental Protection Agency
- **EV**: Electric Vehicle
- **GHG**: Greenhouse Gas
- **HVAC**: Heating, Ventilation, and Air Conditioning
- **IPCC**: Intergovernmental Panel on Climate Change
- **IRA**: Inflation Reduction Act
- **kW**: Kilowatt
- **LAB**: League of American Bicyclists
- **LEED**: Leadership in Energy and Environmental Design
- **MTCO_{2e}**: Metric Tons of Carbon Dioxide Equivalent
- **MW**: Megawatt
- **N₂O**: Nitrous Oxide
- **REC**: Renewable Energy Credit
- **RNG**: Renewable Compressed Natural Gas
- **TOD**: Transit-Oriented Development
- **VMT**: Vehicle Miles Traveled
- **ZEV**: Zero-Emission Vehicle

APPENDIX B: EMISSIONS INVENTORY AND FORECASTING METHODOLOGY

B.1 Background

This Appendix section documents the baseline Greenhouse Gas (GHG) emission inventory and future forecasting data source, methodologies, key assumptions, selected calculation tools, emission factors, and improvement opportunities for the City of Ellensburg.

The City's GHG emissions were tracked and quantified in two separate inventories:

1) Municipal (city operations) GHG inventory

2) Community level GHG inventory

According to the United States Environmental Protection Agency (EPA) and GHG Protocol, GHG emissions are typically categorized into 3 scopes.

Scope 1 emissions are direct greenhouse (GHG) emissions that occur from sources that are controlled or owned by an organization (e.g., emissions associated with fuel combustion in boilers, furnaces, vehicles).

Scope 2 emissions are indirect GHG emissions associated with the purchase of electricity, steam, heat, or cooling. Although scope 2 emissions physically occur at the facility where they are generated, they are accounted for in an organization's GHG inventory because they are a result of the organization's energy use.¹⁰

Scope 3 emissions are the result of activities from assets not owned or controlled by the reporting organization, but that the organization indirectly affects in its value chain. Scope 3 emissions include all sources not within an organization's scope 1 and 2 boundary. The scope 3 emissions for one organization are the scope 1 and 2 emissions of another organization¹¹.

The baseline GHG inventory for the City of Ellensburg covers Scope 1 and Scope 2 emissions only. The selected baseline timeframe is the 12 months from November 2021 – December 2022.

B.2 GHG Calculation Tool

The U.S. EPA's Local Greenhouse Gas Inventory Tool was used to calculate the City of Ellensburg's baseline GHG emissions. This free, open-source tool was developed to help communities across the United States evaluate the greenhouse gas emissions from their entire

¹⁰ US EPA, [Scope 1 and Scope 2 Inventory Guidance](#)

¹¹ US EPA, [Scope 3 Inventory Guidance](#)

community and for local government operations in particular. There are two modules available in this tool: **1). Government Operations Module** and **2). Community Module**. Each module provides a customizable excel based workbook covering all typical emission sources. The Government Operations Module was used for the City of Ellensburg's municipal operation emission calculation. The Community Module was used for the community emission calculation.

B.3 GHG Inventory Data Sources

This section provides detail on the data sources utilized to develop the City's baseline GHG inventory, including any assumptions and estimations.

Municipal GHG Inventory

Primary Data

1) Stationary Energy and Purchased Electricity Consumption:

- a. Utility consumption data for both electricity and natural gas consumption at the City department level.

2) Mobile Fuel Consumption:

- a. Vehicle level fuel consumption data from Central Transit vehicles.
- b. Vehicle level fuel consumption data from municipal/city owned vehicles.

3) Wastewater treatment data:

- a. System Biochemical Oxygen Demand (BOD₅) input (kg BOD₅/day).
- b. Percentage of BOD₅ removed in primary treatment.
- c. Average Total Nitrogen Discharged (kg N/day).
- d. Percentage of CH₄ in biogas - using EPA default value of 35%.
- e. Digester Biogas Produced Daily (ft³/day).

Estimated Data

The annual vehicle miles traveled (VMT) for Central Transit and municipal owned vehicles were estimated using the actual fuel consumption per vehicle and the average mile per gallon fuel economy estimate for each vehicle class, as provided by EPA in the "**Mobile-Entry**" tab in the **Government Operations Module** workbook. Annual VMT is a necessary data point for calculating the CH₄ and N₂O emissions associated with vehicle fuel consumption.

Community GHG Inventory

Primary Data

1) Stationary Energy Consumption:

- a. Utility consumption data for both electricity and natural gas consumption at the sector level – residential, commercial, industrial.

Estimated Data

- 1) **Community Vehicle Miles Traveled (VMT) Data:** Community daily VMT data was provided by Fehr & Peers. Cumming obtained the VMT mode split % data for Kittitas County from [Washington State DOT](#) and then calculated the annual VMT for each travel/vehicle mode by breaking down the total VMT data by multiplying the mode split % from [Washington State DOT](#). Please see the detailed VMT Estimation Methodology under Estimation Methodologies section.

B.4 GHG Inventory Assumptions

Municipal GHG Inventory

- Emissions from municipal employee commuting is being excluded for now due to the data availability and scope boundaries.
- Please see additional assumptions made by the EPA in the calculation process for wastewater in the wastewater section in the **Government Operations Module**.

B.5 Emission Factors

- Emission factors from EPA were applied for the stationary energy related emission calculation.
- The location-based emission factor from EPA eGRID (2020) for NWPP eGRID subregion was applied in the location-based electricity emission calculation.
- The City of Ellensburg utility supplier specific emission factor was applied in the market-based electricity emission calculation.
- **Supplier Specific Emission Factor:**
- No **CO₂, CH₄, and N₂O emission factors were separately** available; in order to fill out the EPA Calculation tool, Cumming estimated the emission factors based on the CO₂e factor in [Fuel Mix Disclosure page from Washington State Department of Commerce](#) and the EPA eGRID factors for CO₂, CH₄, N₂O for NWPP eGRID subregion.

B.6 Data Aggregation and Quality Assurance

To ensure the data quality and accuracy, a data quality assurance/quality control (QA/QC) and aggregation process was performed before the data was uploaded to the EPA GHG calculation tools for both the municipal and community GHG inventories. The data quality assurance criteria include, but are not limited to a year-by-year data comparison, unit of measure check, data boundary check, reporting data timeframe check, etc.

Cumming's data consolidation process includes the following steps:

- 1) Extract data from source files to Excel format if the raw data is not in Excel format.
- 2) Validate correct understanding of data units, source, boundaries, use, completeness, etc.
- 3) Aggregate monthly/daily data in Excel to produce an annual total aligning with the selected baseline period.
- 4) QA/QC of aggregated data values to confirm accuracy and completeness.

Following completion of the aggregated raw data totals, Cumming customized the EPA tools to match the scope of the City's inventory and completed the following steps to produce the City's draft inventory:

- 5) Customize the EPA tools by populating set-up tabs in accordance with the raw data and inventory scope, and to incorporate custom emission factors.
- 6) Populate the EPA tool with all raw data and produce draft inventory totals.
- 7) Conduct independent QA/QC of results to confirm accuracy of data inputs, categorization, calculations, etc.

B.7 GHG Inventory Improvement Opportunities

Cumming identified the following opportunities to improve the data quality, availability, and/or methodologies used to develop the City's GHG inventory. These opportunities should be considered during future reporting cycles.

Municipal GHG Inventory

- Track the annual VMT of municipal fleet vehicles.
- Track the fuel consumptions from other fuel types, like diesel, propane, etc. consumed by the municipal government owned facilities, generators, and equipment.
- Collect employee commuting data (commuting distance, method, etc.) and start tracking the emissions from the employee commuting process.

Community GHG Inventory

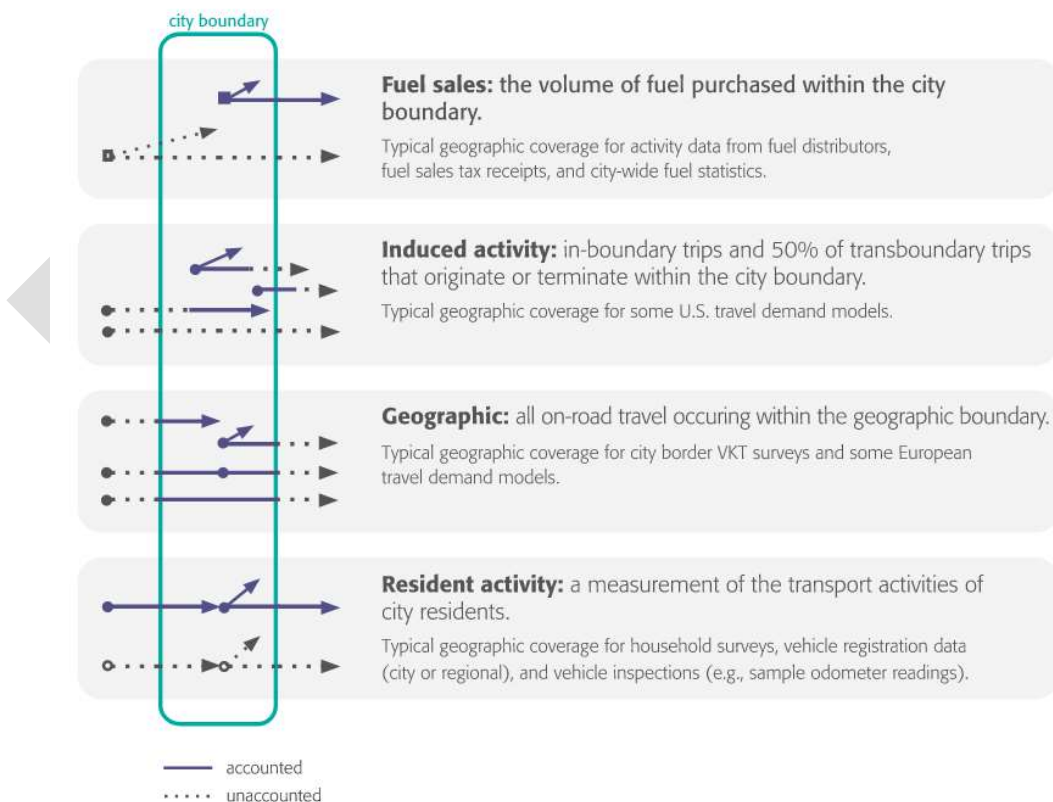
- Conduct a city-based VMT and road count study to confirm and fine tune annual community VMT.
- Develop a methodology for estimating the fuel consumption for other fuel types, like diesel, propane, etc. consumed in the community.
- Evaluate and identify any other sources of scope 1 and 2 emissions within the community.

B.8 VMT Accounting Methodologies

GHG Protocol methodology was applied in the GHG accounting process. Specifically, for the transportation related emission in community GHG inventory, geographic based method was referenced to account for the daily VMT data. Please see below the graph from GHG Protocol - Global Protocol for Community-Scale Greenhouse Gas Inventories¹².

Figure B-1. An Accounting and Reporting Standard for Cities, Version 1.1

Figure 7.3 Methodology system boundaries



¹² [GHG Protocol - Global Protocol for Community-Scale Greenhouse Gas Inventories.](#)

B.9 GHG Inventory Estimation Methodologies

VMT Estimation Methodologies

Cumming used the share of different vehicle types on the road to estimate VMT by mode. To simplify the estimation, Cumming assumed that each mode travels an equally relative proportion of miles. The estimation process is as follows:

- 1) Fehr & Peers provided an estimated daily VMT value for City of Ellensburg: 633,000
- 2) Cumming calculated the annual VMT data: $633,000 * 365 = 231,045,000$
- 3) Cumming obtained the daily VMT mode split % data for Kittitas County from [Washington State DOT](#)

Table B-1. 2021 Travel Activity by Vehicle Type and Functional Class

2021 TRAVEL ACTIVITY BY VEHICLE TYPE AND FUNCTIONAL CLASS							
for Washington State as reported in the FHWA Highway Performance Monitoring System							
PERCENT OF TRAVEL							
FUNCTIONAL CLASS	PERCENT MOTORCYCLES	PERCENT CARS	PERCENT PICK UP TRUCKS	PERCENT BUSES	PERCENT SINGLE UNIT TRUCKS	PERCENT COMBINATION TRUCKS	PERCENT TOTAL VEHICLES
Rural Interstate	0.15	51.56	28.82	0.31	3.90	15.26	100
Rural Other Arterial	0.25	50.28	35.89	0.27	5.49	7.82	100
Other Rural	0.27	51.74	37.05	0.30	5.70	4.94	100
Urban Interstate	0.14	62.07	28.73	0.25	3.07	5.74	100
Urban Other Arterial	0.21	61.34	31.96	0.21	3.56	2.72	100
Other Urban	0.24	57.57	34.44	0.26	4.53	2.96	100
Statewide	0.19	57.89	31.26	0.25	3.85	6.56	100
	0.19%	57.89%	31.26%	0.25%	3.85%	6.56%	100.00%

Source: [Washington State DOT](#)

Table B-2. Vehicle Miles Traveled Mode Split Percentage

Vehicle or vehicle group description	VMT % Split
Residential Vehicles-MOTORCYCLES	0.19%
Residential Vehicles-PASSENGER CARS	57.89%
Residential Vehicles-PICK UP TRUCKS	31.26%
Commercial/Institutional Vehicles-Buses	0.25%
Commercial/Institutional Vehicles-SINGLE UNIT TRUCKS	3.85%
Commercial/Institutional Vehicles-COMBINATION TRUCKS	6.56%

- 4) Cumming broke down the VMT data based on the percentage share information from Washington DOT as described in bullet #3 above and excluded 6% of EV related VMT provided by Lighthouse Energy Consulting.

Table B-3. VMT by Mode and Sector

Vehicle or vehicle group description	VMT (Minus EV VMT of 6%)
Residential Vehicles-MOTORCYCLES	412,646
Residential Vehicles-PASSENGER CARS	125,726,833
Residential Vehicles-PICK UP TRUCKS	67,891,187
Commercial/Institutional Vehicles-Buses	542,956
Commercial/Institutional Vehicles-SINGLE UNIT TRUCKS	8,361,519
Commercial/Institutional Vehicles-COMBINATION TRUCKS	14,247,159

Other Estimation Methodologies

Other default estimation methodologies applied in the EPA GHG tools can be found in the "**Introduction**" and "**Read Me**" tabs in the calculation files.

B.10 GHG Emission Forecasting Methodology

Ellensburg's emission forecasting model for both municipal GHG and community GHG inventory was created using an excel based emission scenario and forecasting tool.

Forecast Scenarios

Both business as usual (BAU) and business as planned (BAP) scenarios were modeled. Relevant assumptions were made and documented for each scenario based on best available public sources.

Definitions:

Business as Usual (BAU): The normal execution of currently existing functional operations within the organization. GHG emissions under the BAU scenario will be impacted by external factors outside Ellensburg's control, such as California grid cleaning impact due to state level carbon neutrality target by 2045, population growth, etc.

Business as Planned (BAP): The execution of planned activities, including future functional operations, within the organization. GHG emissions under the BAP scenario will be impacted

by the Ellensburg's own projects, such as ZEV transition plan, Washington state level energy and low carbon vehicle policy, and facility retrofitting, etc.

Source Data

The emission forecasting model for both municipal GHG inventory and community GHG inventory is based on the Scope 1, 2, 3 emissions' data for baseline year (2022) calculated in the Ellensburg Municipal GHG Emission Baseline Inventory tool and Community GHG Emission Baseline Inventory tool respectively as introduced in the GHG Calculation Tool section.

Assumptions

Municipal GHG Inventory Forecasting

Assumption for BAU Scenario:

1. Local electricity grid cleaning impact: Carbon-neutral electricity supply by 2030; entirely eliminate fossil fuels from electricity generation by 2045.¹³
2. Population Growth Forecast for Ellensburg: Ellensburg Comprehensive Plan forecasts Ellensburg population to be 32,540 by 2037.¹⁴ Calculated the population data for each year from 2022 to 2037 by assuming it's linear growth.

Assumption for BAP Scenario:

1. The Clean Fuel Standard law requires fuel suppliers to gradually reduce the carbon intensity of transportation fuels to 20% below 2017 levels by 2034.¹⁵
2. USDOT Announces New Vehicle Fuel Economy Standards for Model Year 2024-2026: The new standards will increase fuel efficiency 8% annually for model years 2024-2025 and 10% annually for model year 2026. They will also increase the estimated fleetwide average by nearly 10 miles per gallon for model year 2026, relative to model year 2021. Increasing vehicle efficiency and reducing fuel use will save American families and consumers money at the pump. Americans purchasing new vehicles in 2026 will get 33% more miles per gallon as compared to 2021 vehicles. This means new car drivers in 2026 will only have to fill up their tanks three times as compared to every four times that new car drivers today do for the same trips.¹⁶
3. State of Washington Plan for transition to zero-emission vehicles: Washington Department of Ecology updated its Clean Vehicles Program to require that all new, light-duty vehicles sold in Washington meet zero-emission vehicle (ZEV) standards by 2035.¹⁷

¹³ [Washington Clean Energy Transformation Act standards](#)

¹⁴ [Ellensburg Comprehensive Plan](#)

¹⁵ [WA Clean Fuel Standard](#)

¹⁶ [USDOT Announces New Vehicle Fuel Economy Standards for Model Year 2024-2026](#)

¹⁷ State of Washington, [Washington adopts plan for transition to zero-emission vehicles](#)

4. List of WA State Mandated Actions for stationary emissions: The emissions cap is set at 93% of 2015-2019 emissions, and then reduces by 7% each year through 2030, with smaller reductions from 2031-2049.
5. Assume 10% Gas Cars/Internal combustion engines (ICE) remaining in 2050;
6. Assume EV use phase emission would become zero starting from 2030 due to the zero-emission intensity from the grid.
7. Ignore the potential surge of electricity emissions between 2022 and 2030 due to EV transition and non-zero grid emission intensity due to the extreme low grid electricity emission factor in Ellensburg and relatively low EV penetration rate during this period.
8. EV penetration forecast data provided by Ted (2021-2045).

Community GHG Inventory Forecasting

The same assumptions from Municipal GHG inventory also apply to community GHG inventory. In addition, a refrigerated warehouse is planned to come online in 2023, consuming 33,000 MWh of electricity per year. This was modeled under the BAP scenario for community GHG inventory.

APPENDIX C: LISTS OF TABLES AND FIGURES

C.1 List of Tables

Table 2-1. Baseline Municipal GHG Emissions by Scope and Source

Table 2-2. Baseline Community-wide GHG Emissions by Scope and Source

Table 2-3. Baseline Community-wide GHG Emissions by Sector

Table 3-1. Sustainability and Energy Roadmap Categories and Strategies

Table 3-2. Strategy E-1 Actions and Target Areas

Table 3-3. Strategy E-2 Actions and Target Areas

Table 3-4. Strategy E-3 Actions and Target Areas

Table 3-5. Strategy G-1 Actions and Target Areas

Table 3-6. Strategy G-2 Actions and Target Areas

Table 3-7. Strategy G-3 Actions and Target Areas

Table 3-8. Strategy T-1 Actions and Target Areas

Table 3-9. Strategy T-2 Actions and Target Areas

Table 3-10. Strategy T-3 Actions and Target Areas

Table 3-11. Strategy T-4 Actions and Target Areas

Table 3-12. Strategy W-1 Actions and Target Areas

Table 3-13. Strategy W-2 Actions and Target Areas

Table 3-14. Strategy L-1 Actions and Target Areas

Table B-2. Vehicle Miles Traveled Mode Split Percentage

Table B-3. VMT by Mode and Sector

C.2 List of Figures

Figure E-1. *Sustainability and Energy Plan* Community Survey Highlights

Figure E-2. Baseline Municipal GHG Emissions by Source

Figure E-3. Baseline Community-wide GHG Emissions by Source

Figure E-4. Municipal Emissions 2050 Forecast

Figure E-5. Community-wide Emissions 2050 Forecast

Figure 1-1. Ellensburg Strategic Plans

Figure 1-2. *Sustainability and Energy Plan* Regulatory Drivers and Timeline

Figure 1-3. *Sustainability and Energy Plan* Development Process

Figure 1-4. *Sustainability and Energy Plan* Community Survey Highlights

Figure 1-5. *Sustainability and Energy Plan* Community Survey Respondent Quotes

Figure 1-6. Community feedback and derived Plan measures

Figure 2-1. Baseline Municipal GHG Emissions by Scope

Figure 2-2. Baseline Community-wide GHG Emissions by Scope

Figure 2-3. Municipal Emissions Forecast through 2050

Figure 2-4. Community-wide Emissions Forecast through 2050

Figure 3-1. How to Read this Roadmap

Figure B-1: An Accounting and Reporting Standard for Cities, Version 1.1

APPENDIX D: CONSERVATION POTENTIAL ASSESSMENT RESULTS



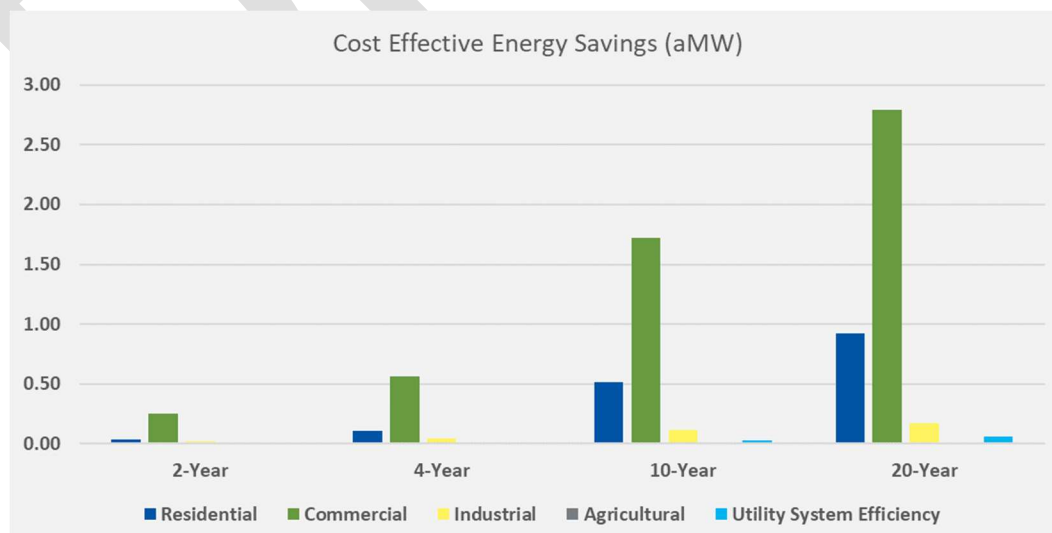
TO: Buddy Stanavich, City of Ellensburg
 FROM: Ted Light, Lighthouse Energy Consulting
 SUBJECT: Utility Potential Calculator Results
 DATE: March 8, 2023

This memo documents the inputs and results of the Conservation Potential Assessment performed by Lighthouse Energy Consulting (Lighthouse) for the City of Ellensburg (City) using the Utility Potential Calculator developed by the Bonneville Power Administration. This assessment can be used as part of the City's updated Clean Energy Implementation Plan (CEIP) required by Washington's Clean Energy Transformation Act (CETA).

The memo discussed the high-level results and then discusses the inputs and results of each sector subsequently. The breakdown of savings potential by sector and timespan are detailed in the table below.

Overall Results

The analysis identified 0.72 aMW of cost-effective energy efficiency potential over the four-year period covering 2022-2025. Consistent with the City's loads, most of the savings potential was in the commercial sector.



Cost Effective Energy Savings by Sector (aMW)				
Sector	2-Year	4-Year	10-Year	20-Year
Residential	0.04	0.11	0.51	0.92
Commercial	0.25	0.56	1.72	2.79
Industrial	0.02	0.04	0.11	0.17
Agricultural	0.00	0.00	0.00	0.00
Utility System Efficiency	0.00	0.00	0.03	0.06
Total	0.31	0.72	2.37	3.95

The calculator was set to use the measures identified as cost effective by the Northwest Power and Conservation Council's 2021 Power Plan. While reducing the number of measures that are cost effective, this setting ensures compliance with the CETA requirement to use values for the social cost of carbon, as the Council used those values in the 2021 Power Plan.

The 4-year potential amount identified in this assessment is a slight increase above the 0.69 aMW identified in the City's initial CEIP. To achieve this new amount, the City would need to achieve an average of 0.18 aMW per year over the 2022-2025 timeframe. According to the Regional Technical Forum's Regional Conservation Progress Report, over the 2018-2021 timer period, the City achieved an average of 0.10 aMW. In addition to these savings, the City can also count the results of market transformation from the Northwest Energy Efficiency Alliance (NEEA). In 2021, NEEA's work contributed approximately 0.09 aMW of savings in the City's service territory. Based on the forecast for NEEA in BPA's draft Energy Efficiency Action Plan, the City might expect a similar amount of savings from NEEA that could be counted toward their CEIP over the 2022-2025 time period.

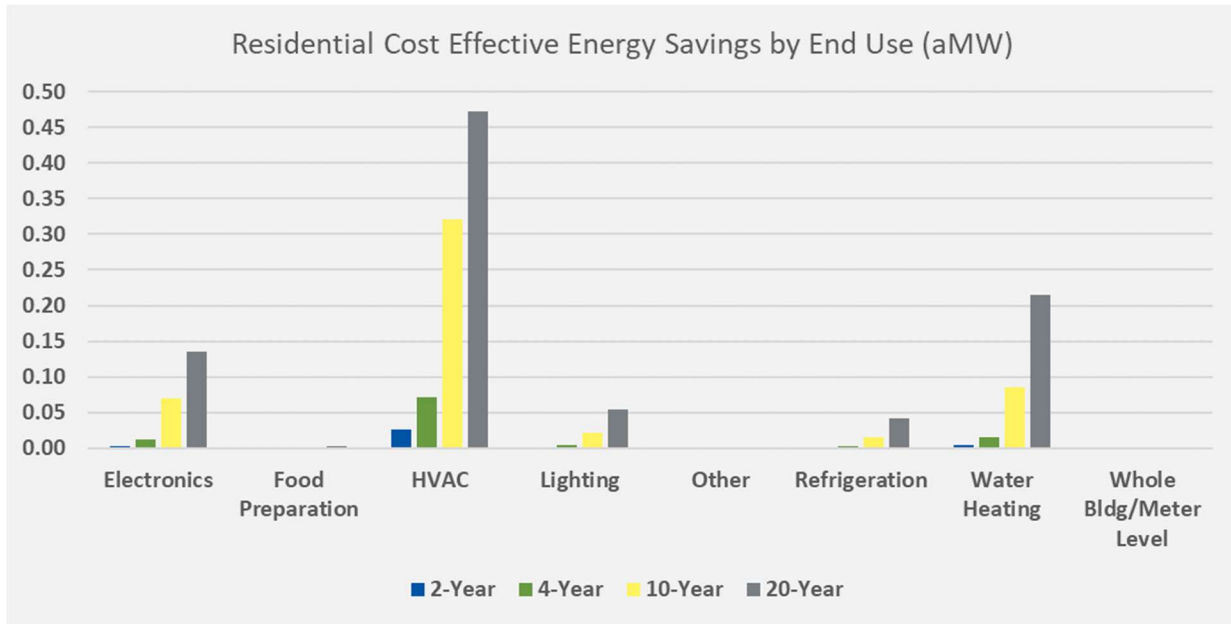
Sector Results

Lighthouse worked with the City to gather the necessary inputs for the Calculator and made several customizations to have the tool better reflect the City's customers. Each of these are discussed below.

Residential

In the residential sector, Lighthouse used data provided by the City to estimate the number of homes in the City's service territory. The Calculator's default values for HVAC system and appliance saturations were adjusted slightly to align with data from the American Community Survey for the City. In addition, Lighthouse removed the potential for showerheads and aerators, as these are covered by state product standards.

The resulting potential for the residential sector is shown below. Most of the potential is in the HVAC and water heating end uses.



Residential Cost Effective Energy Savings by End Use (aMW)				
End Use	2-Year	4-Year	10-Year	20-Year
Electronics	0.00	0.01	0.07	0.13
Food Preparation	0.00	0.00	0.00	0.00
HVAC	0.03	0.07	0.32	0.47
Lighting	0.00	0.00	0.02	0.05
Other	0.00	0.00	0.00	0.00
Refrigeration	0.00	0.00	0.02	0.04
Water Heating	0.00	0.02	0.09	0.21
Whole Bldg/Meter Level	0.00	0.00	0.00	0.00
Total	0.04	0.11	0.51	0.92

The top measures in the residential sector over the initial four-year period include smart thermostats, clothes washers, duct sealing, and clothes dryers. The top ten measures are shown in the table below.

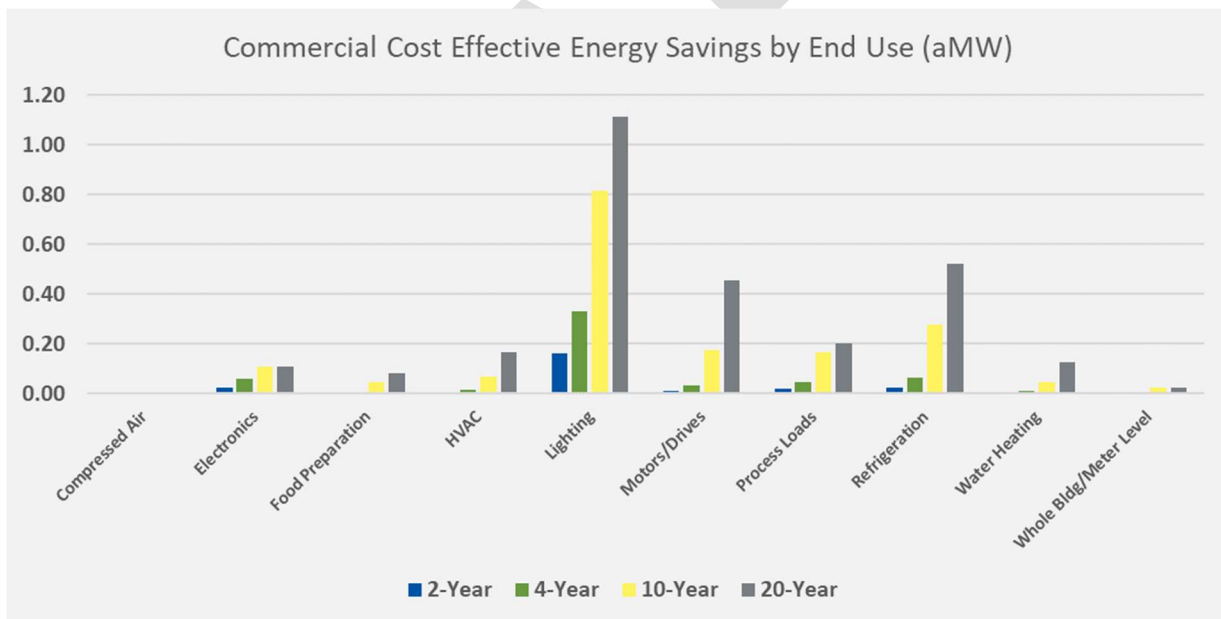
Measure Index Rank	Cost Effective Savings - aMW	Measure Category
1	0.062	Smart Thermostats
2	0.014	Clothes Washer
3	0.008	Duct Sealing
4	0.005	Clothes Dryer

5	0.005	UHD TV
6	0.004	Lighting
7	0.003	Refrigerator
8	0.002	Computer
9	0.002	TSRV
10	0.001	Weatherization

Commercial

In the commercial sector, Lighthouse used load data provided by the City for its largest load categories to estimate the floor area for those specific categories. The remaining load and floor area was distributed across the remaining commercial building types. This adjustment was done in order to reflect the distribution of building types in the City's service territory.

The potential by end use for the commercial sector is shown in the figure and table below. Most of the potential is in the lighting end use, with additional potential in the refrigeration and motors/drives end uses.



Commercial Cost Effective Energy Savings by End Use (aMW)				
End Use	2-Year	4-Year	10-Year	20-Year
Compressed Air	0.00	0.00	0.00	0.00
Electronics	0.02	0.06	0.11	0.11
Food Preparation	0.00	0.01	0.05	0.08
HVAC	0.01	0.02	0.07	0.17

Lighting	0.16	0.33	0.82	1.11
Motors/Drives	0.01	0.03	0.17	0.46
Process Loads	0.02	0.04	0.17	0.20
Refrigeration	0.02	0.06	0.28	0.52
Water Heating	0.00	0.01	0.05	0.12
Whole Bldg/Meter Level	0.00	0.00	0.02	0.02
Total	0.25	0.56	1.72	2.79

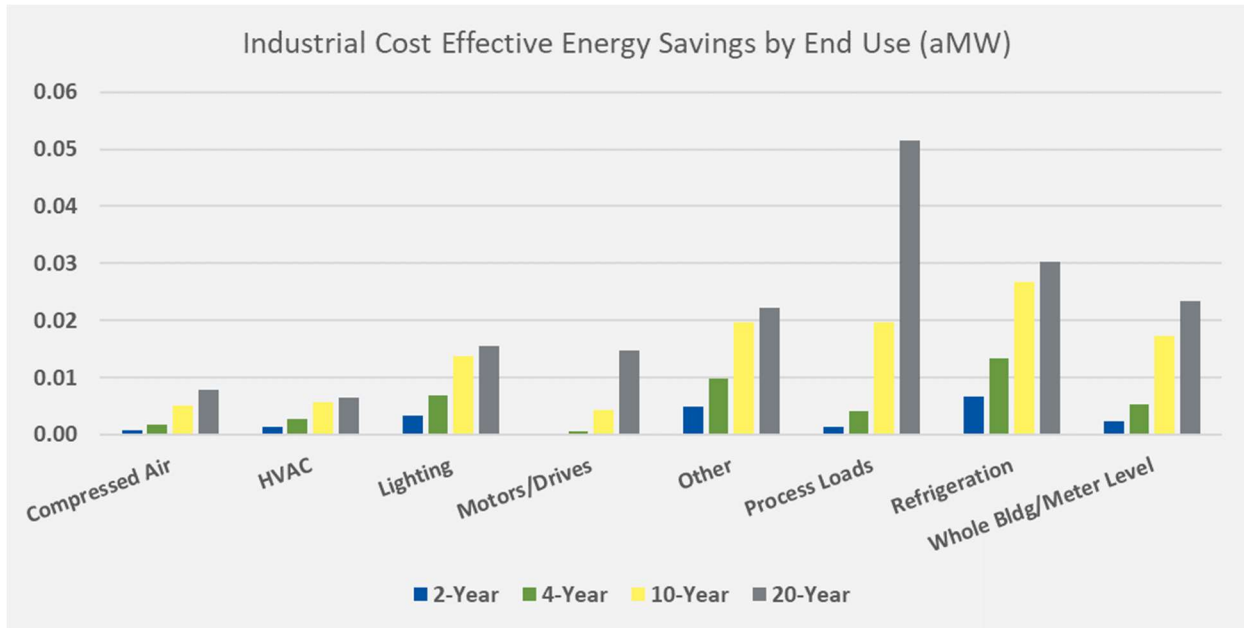
The top measures in the commercial sector over the initial four years are shown below and include lighting, commercial server and power supply equipment, and grocery refrigeration measures.

Measure Index Rank	Cost Effective Savings - aMW	Measure Category
1	0.24	Lighting
2	0.06	Servers and Power Supplies
3	0.06	Grocery Refrigeration Bundle
4	0.04	Block Heater
5	0.04	Exterior Building Lighting
6	0.04	Street and Roadway Lighting
7	0.02	Pumps
8	0.02	LEC Exit Sign
9	0.01	Fans
10	0.01	Cooking Equipment

Industrial

The City's industrial sector is comprised of one frozen food producer as well as facilities treating water and wastewater. Annual loads for these facilities were provided by the City. While the City also expects a new cold storage facility to begin operating in 2023, the load from this facility was excluded from the assessment. Since it is a brand-new facility, it will likely be built with energy efficient equipment. The City can revisit this decision when the facility is completed and operational.

The figure and table below detail the cost-effective energy savings potential for the industrial sector. The key end uses include process loads and refrigeration.



End Use	2-Year	4-Year	10-Year	20-Year
Compressed Air	0.00	0.00	0.01	0.01
HVAC	0.00	0.00	0.01	0.01
Lighting	0.00	0.01	0.01	0.02
Motors/Drives	0.00	0.00	0.00	0.01
Other	0.00	0.01	0.02	0.02
Process Loads	0.00	0.00	0.02	0.05
Refrigeration	0.01	0.01	0.03	0.03
Whole Bldg/Meter Level	0.00	0.01	0.02	0.02
Total	0.02	0.04	0.11	0.17

The table below shows the top measure categories in the industrial sector over the initial four years.

Measure Index Rank	Cost Effective Savings - aMW	Measure Category
1	0.013	Refrigeration Retrofit
2	0.010	Water/Wastewater
3	0.007	Lighting
4	0.005	Energy Management

5	0.003	HVAC
6	0.002	Pumps
7	0.002	Compressed Air
8	0.002	Fans
9	0.001	Motors

Utility Distribution System

Energy savings in the utility distribution system is possible through conservation voltage reduction, where voltages are kept within acceptable but lower levels. The Calculator estimates the following potential for the City for this measure.

Utility System Cost Effective Energy Savings by Measure (aMW)				
End Use	2-Year	4-Year	10-Year	20-Year
Conservation Voltage Reduction	0.00	0.00	0.03	0.06
Total	0.00	0.00	0.03	0.06

APPENDIX E: DEMAND RESPONSE POTENTIAL ASSESSMENT



TO: Buddy Stanavich, City of Ellensburg
FROM: Ted Light, Lighthouse Energy Consulting
SUBJECT: Demand Response Potential Assessment Results
DATE: March 15, 2023

This memo documents the results of the Demand Response Potential Assessment performed by Lighthouse Energy Consulting (Lighthouse) for the City of Ellensburg (City). The assessment generally followed the methodology used by the Northwest Power and Conservation Council (Council) in the draft 2021 Power Plan and included many of the same demand response products. The products included are applicable to the residential, commercial, and industrial sectors, as well as the utility distribution system. The products impact both summer and winter seasons and utilize a range of strategies including direct load control, customer-initiated demand curtailment, and time-varying prices to effect reductions in peak demand.

Note that the potential from the utility distribution system included in this assessment would be achieved through demand voltage regulation (DVR), where voltage is regulated to be at lower but acceptable levels during periods of peak demands. The City does not currently have the ability to implement this practice, therefore the results should be interpreted as indicative of what would be possible if the City were to develop that capability.

The results of this assessment can be used as part of the City's updated Clean Energy Implementation Plan (CEIP) required by Washington's Clean Energy Transformation Act (CETA).

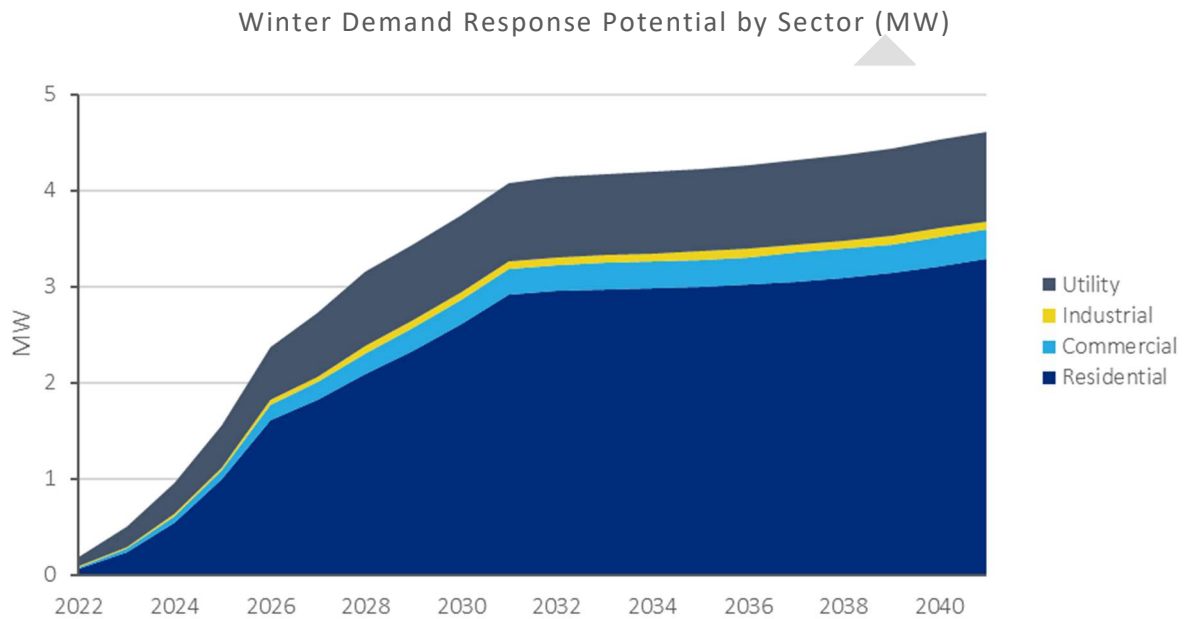
Results

This section documents the results of the DRPA. It begins with a discussion of the winter and summer achievable potential available to the City. The achievable potential is the potential that is available at any cost and has not been screened for cost-effectiveness. Subsequent sections cover the costs and results of the economic screening used to identify the cost-effective DR potential.

Winter Achievable Potential

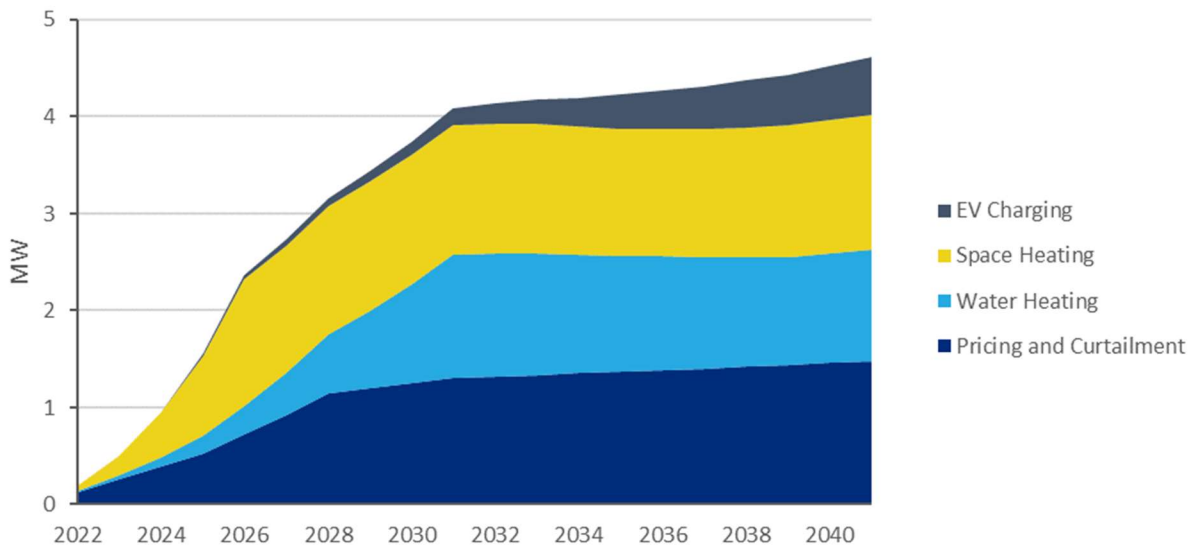
The estimated achievable winter DR potential is summarized by sector and year in the figure below. The total winter potential is 4.6 MW, which is approximately 9.6% of the City's estimated 2041 winter peak

demand. Most of the potential is in the residential sector, which totals 3.3 MW in the last year of the study period. The remaining potential is primarily in the utility distribution and commercial sectors. Limited potential is available from the City's industrial sector.



The figure below shows how the winter potential breaks down by end use. The potential is roughly equally divided between the space heating, water heating, and pricing and curtailment end uses, the last of which includes pricing and curtailment strategies that impact all end uses.

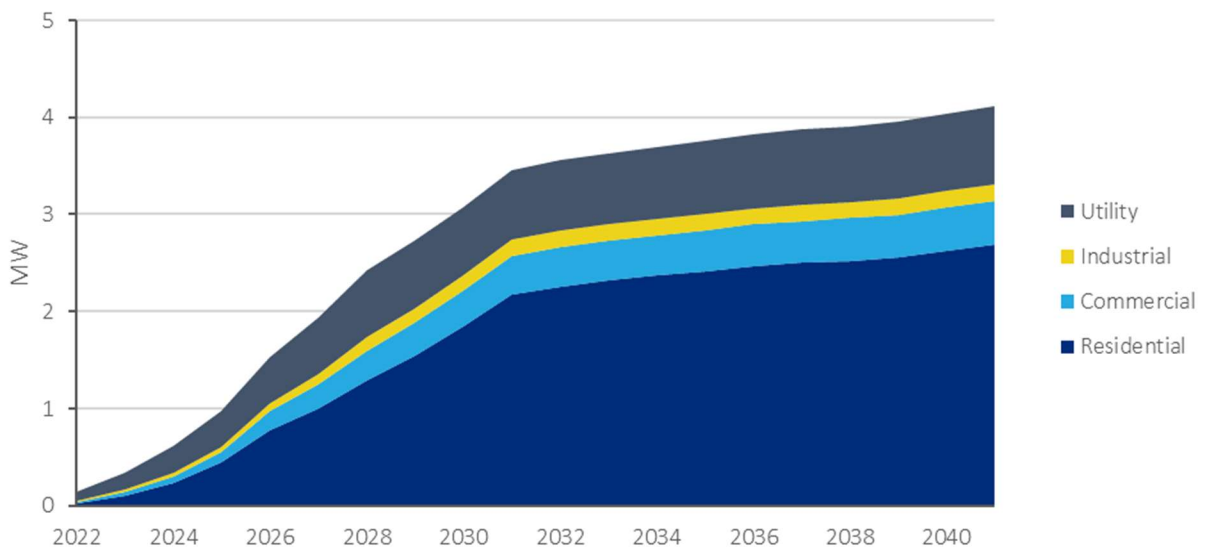
Winter Demand Response Potential by End Use (MW)



Summer Achievable Potential

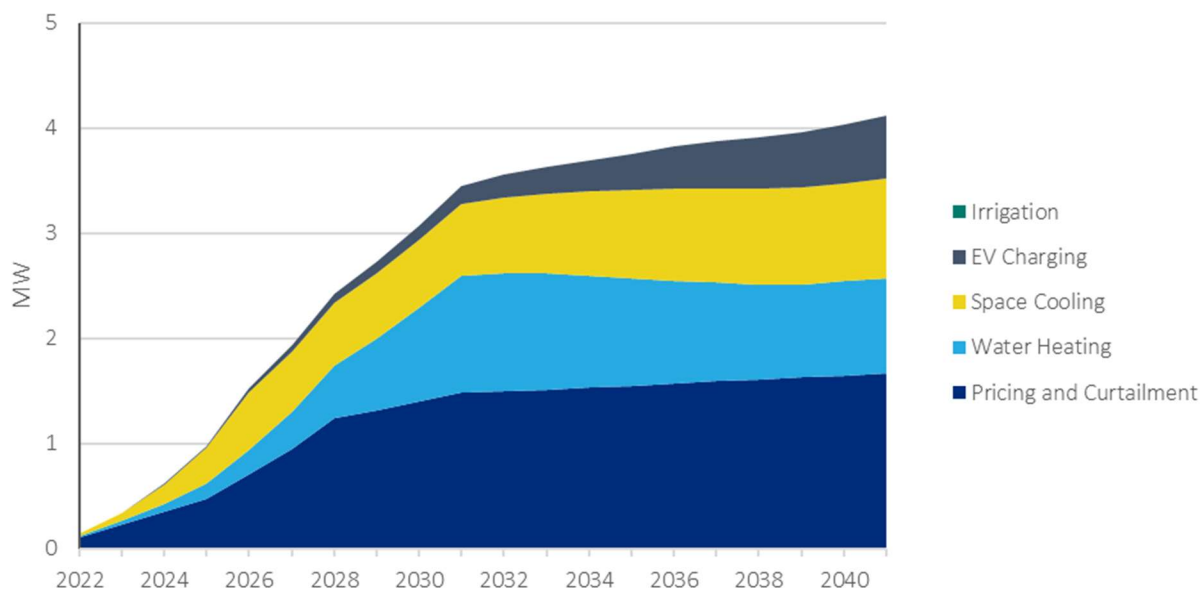
In the summer, the City has 4.1 MW of achievable demand response available. The figure below shows the annual achievable summer potential by sector. The distribution of summer potential across sectors is similar to the winter potential, with slightly more potential available in the commercial and industrial sectors due to higher air conditioning loads.

Summer Demand Response Potential by Sector (MW)



As shown below, space cooling makes up a large share of summer potential, along with the pricing and curtailment end use. The potential associated with EV charging grows over time due to the assumed adoption of electric vehicles due to the Advanced Clean Cars II rules recently adopted by Washington.

Summer Demand Response Potential by End Use (MW)

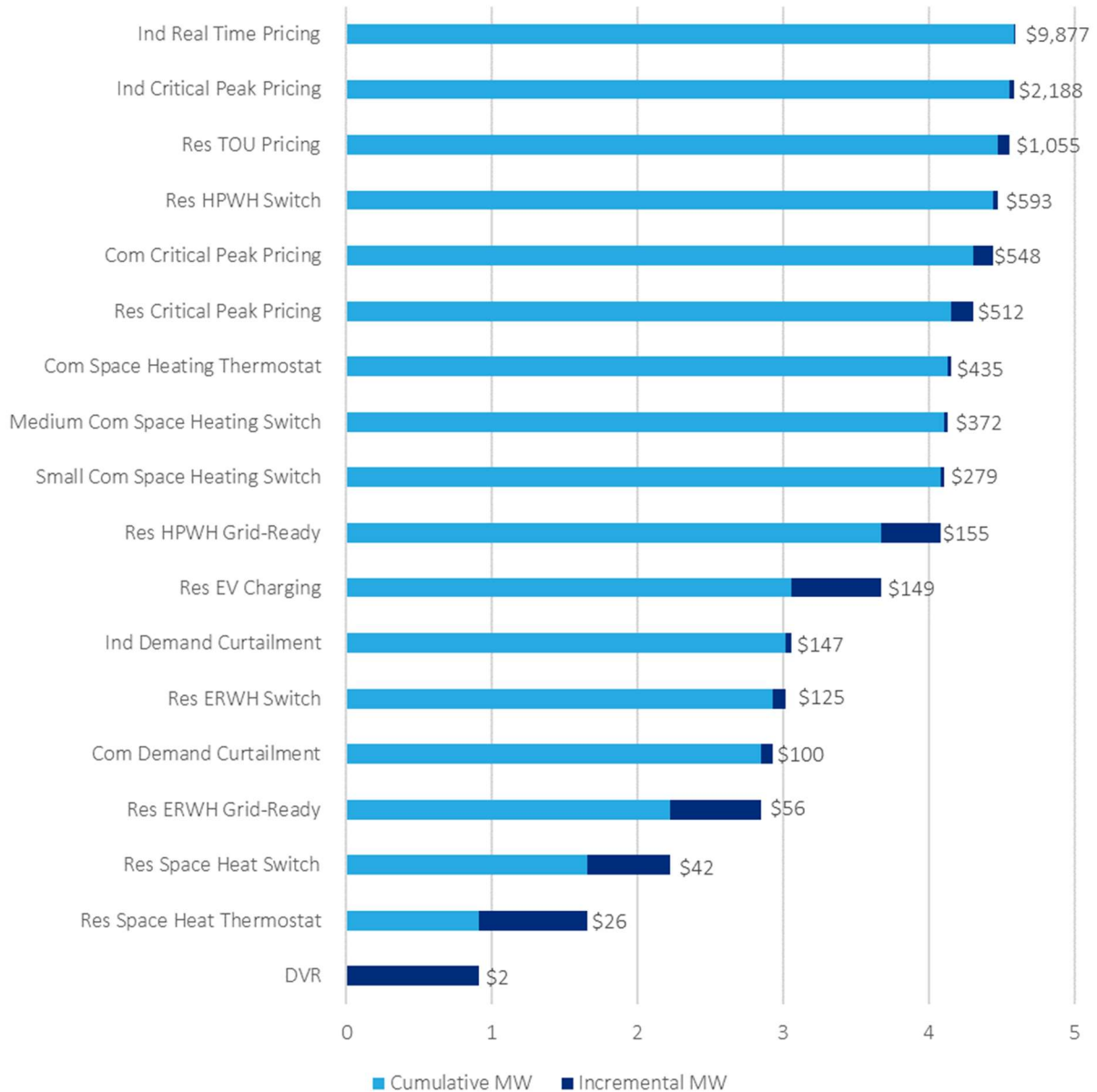


Costs

A supply curve detailing the quantity of capacity available and cost for each winter DR product is shown below. The products are ranked by levelized cost in \$/kW-year, with the lowest cost product at the bottom. As you move up the supply curve, the incremental DR potential for each product is shown in dark blue, with the cumulative potential from all previous products shown in light blue. The horizontal axis reflects the demand response capacity available and the value at the end of each bar shows the levelized cost of each product. The levelized cost calculations include the credits for deferred distribution system capacity costs.

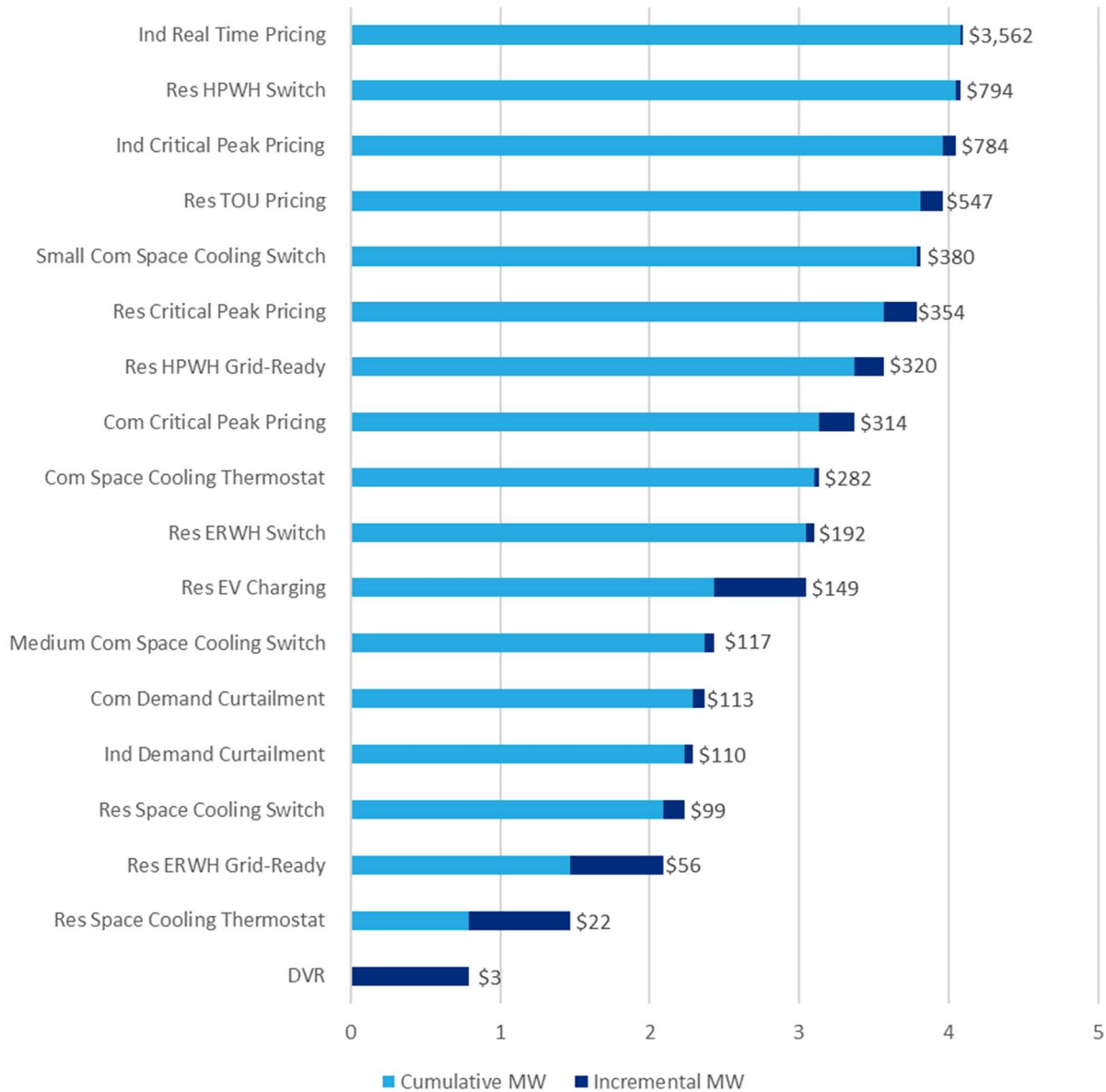
The figure shows that the individual products with the lowest costs include DVR, smart thermostats, and residential space heating switches. Demand response products associated with electric resistance and heat pump water heaters (ERWH and HPWH, respectively) as well as electric vehicles have higher amounts of potential, but at higher costs.

Supply Curve of Winter Demand Response Potential by Product (MW & \$/kW-year)



The supply curve for the summer DR products is shown below. The overall characteristics of the summer supply curve are similar to the winter supply curve discussed above. DVR and smart thermostats offer significant amounts of potential at low costs while water heaters and EV chargers offers additional potential at higher costs. Numerous other products offer smaller amounts of potential at a range of costs.

Supply Curve of Summer Demand Response Potential by Product (MW & \$/kW-year)



Cost Effectiveness

Lighthouse screened each demand response product for cost-effectiveness. The costs of each product were compared against the benefits provided, namely the reduction in capacity costs. In this case, the City's capacity costs come in the form of demand charges from the Bonneville Power Administration. For each product, Lighthouse estimated the number of months in which a product could result in reduced demand charges and applied the demand reductions in those months against the corresponding demand charges. The table below shows the result of the cost-effectiveness screening for each winter DR product. Products are ranked in descending order by benefit-cost ratio. A benefit-cost ratio greater than one means that the lifetime benefits exceed the lifetime costs. The 20-year potential for each product is also

shown. DVR was the only product identified as cost effective while residential smart thermostats scored just below the threshold to be considered cost-effective.

Winter Benefit-Cost Ratio and Potential (MW) by Product

Product Name	Benefit-Cost Ratio	Cumulative MW
DVR	3.0	0.9
Res Space Heat Thermostat	0.9	0.7
Res ERWH Grid-Ready	0.7	0.6
Res Space Heat Switch	0.7	0.6
Res ERWH Switch	0.3	0.1
Com Demand Curtailment	0.3	0.1
Res HPWH Grid-Ready	0.3	0.4
Ind Demand Curtailment	0.2	0.0
Res EV Charging	0.2	0.6
Small Com Space Heating Switch	0.1	0.0
Medium Com Space Heating Switch	0.1	0.0
Com Space Heating Thermostat	0.1	0.0
Res HPWH Switch	0.1	0.0
Res Critical Peak Pricing	0.1	0.2
Com Critical Peak Pricing	0.1	0.1
Res TOU Pricing	0.0	0.1
Ind Critical Peak Pricing	0.0	0.0
Ind Real Time Pricing	0.0	0.0

The equivalent results for the summer season are shown below. DVR was again identified as cost-effective while smart thermostats were marginally above the threshold for cost-effectiveness.

Product Name	Benefit-Cost Ratio	Cumulative MW
DVR	2.7	0.8
Res Space Cooling Thermostat	1.05	0.7
Res ERWH Grid-Ready	0.5	0.6
Res Space Cooling Switch	0.3	0.1
Ind Demand Curtailment	0.3	0.1
Com Demand Curtailment	0.3	0.1
Medium Com Space Cooling Switch	0.3	0.1
Res EV Charging	0.2	0.6
Res ERWH Switch	0.2	0.1
Com Space Cooling Thermostat	0.1	0.0
Com Critical Peak Pricing	0.1	0.2
Res HPWH Grid-Ready	0.1	0.2
Res Critical Peak Pricing	0.1	0.2
Small Com Space Cooling Switch	0.1	0.0
Res TOU Pricing	0.1	0.1
Ind Critical Peak Pricing	0.0	0.1
Res HPWH Switch	0.0	0.0

Summary

This memo summarizes the results of the Demand Response Potential Assessment conducted for the City. The products included and the methodology used were based on those used by the Council in the 2021 Power Plan, customized to the City's service territory. The assessment included products applicable to the winter and summer seasons across the residential, commercial, and industrial sectors, as well as the utility distribution system. The products cover a variety of strategies including direct load control, demand curtailment, and price-based strategies and target a variety of end uses.

Overall, the assessment quantified 4.6 MW of achievable winter demand response potential and 4.1 MW in the summer. Most of the potential identified is in the residential sector, which is consistent with the makeup of the City's customer base. Utility DVR and smart thermostats used to control residential space heating and cooling equipment were the products with the lowest costs and highest potential across both seasons. While DVR is not currently feasible on the City's system, it could be a cost-effective option should the City develop the capability to implement it in the future. Smart thermostats were just above and below the threshold for cost effectiveness in the summer and winter, respectively. Depending on the actual costs to implement a thermostat demand response program, it may or may not be cost effective.

Based on discussions with City staff, the City wishes to establish a target for demand response based on the smart thermostat program while continuing to evaluate the program for cost-effectiveness.

Lighthouse estimates that the City could achieve approximately 0.07 MW of demand response potential over a four-year period and approximately 0.7 MW over a twenty-year period.

APPENDIX F: CLIMATE COMMITMENT ACT COMPLIANCE ANALYSIS



TO: Buddy Stanavich, City of Ellensburg
FROM: Ted Light, Lighthouse Energy Consulting
SUBJECT: Climate Commitment Act Compliance Analysis
DATE: August 14, 2023

Overview

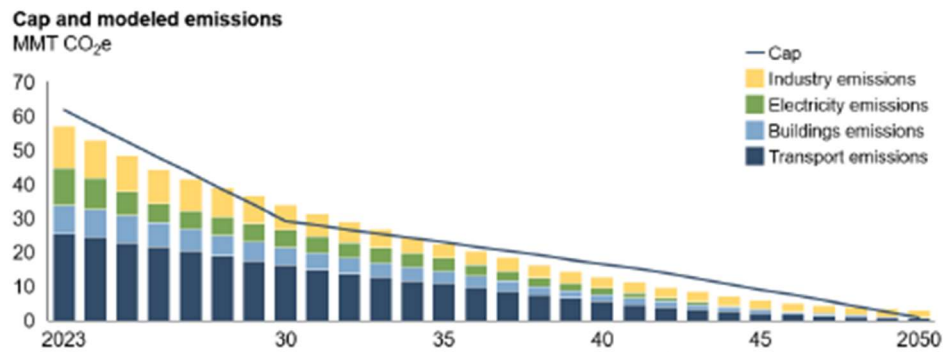
This memo describes the results of an analysis completed by Lighthouse Energy Consulting for the City of Ellensburg to examine the types of actions that the City would need to take in order to reduce emissions commensurate with the lowering cap on emissions implemented in Washington State's Climate Commitment Act (CCA). It also examines the resulting impact on the City's electric system.

The CCA is a cap and invest program that requires allowances for certain covered emissions. The number of available emissions is reduced over time, requiring covered entities to either reduce their emissions and/or purchase allowances to cover their emissions in an increasingly limited supply.

Figure 1 below shows the emissions cap over time and expected emissions under one scenario in an analysis conducted for the Washington Department of Ecology.¹⁸ The statewide cap on emissions decreases by 7% of the baseline each year from 2023 through 2030. In 2031 through 2042, the annual reductions in the emissions cap decreases to a reduction of 1.8% each year, before increasing to 2.6% in 2043.

¹⁸ *Washington State Climate Commitment Act: Summary of Market Modeling and Analysis of the Proposed Cap and Invest Program*. Vivid Economics for the Washington State Department of Ecology. June 2022.

Figure 1 - Cap Trajectory and Modeled CCA Emissions



The City's natural gas service falls under the emissions covered by the CCA. In order to reduce emissions in line with the cap, the City will need to encourage electrification among its natural gas customers. This will place additional demand on the City's electric utility, requiring both additional energy throughout the year as well as additional capacity in the winter months as much of the current demand for natural gas is used for space heating. This analysis examines the City's existing natural gas loads, estimates the end uses for those loads, identifies likely electric substitute equipment, and estimates the quantity and timing of the resulting additional demands for electricity.

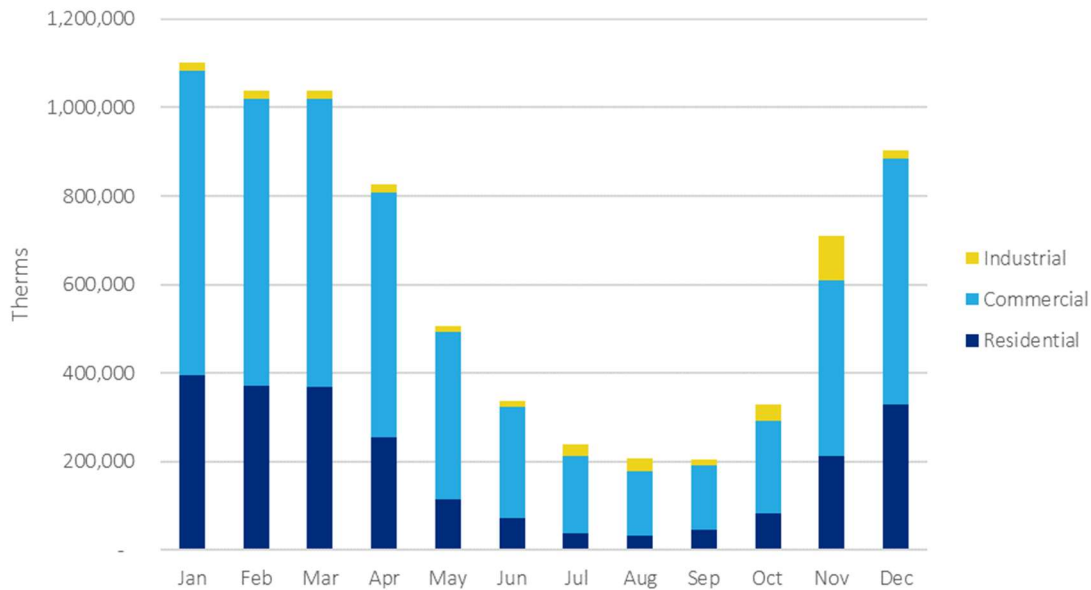
Current Natural Gas Consumption

This section discusses the City's current natural gas consumption. It begins with a discussion of the City's overall natural gas demand and then examines the likely end use consumption by each sector. Estimating the end use consumption is necessary to estimate the likely turnover of natural gas-fired equipment as well as the potential future loads, and their timing, on the City's electric system.

Overall Consumption

Over the 2019-2021 time period, the City's average annual natural gas consumption was 7,746,096 therms, which would result in approximately 41,000 metric tons of CO₂. Figure 2 shows the monthly natural gas consumption for 2021 by sector. Nearly two-thirds of the consumption is in the commercial sector, approximately half of which is from Central Washington University (CWU). As would be expected, consumption is largely concentrated in the heating season, with the consumption in January through April as well as November and December making up more than 75% of the total consumption. Note that this historical consumption does not include the demands from a new industrial customer that is expected to begin service in 2024. This customer will increase demand for natural gas in the industrial sector by 50%, but the overall level of demand from the natural gas sector will remain a small part of the City's natural gas service.

Figure 2 - 2021 Monthly Gas Consumption by Sector



Residential End Use Consumption Modeling

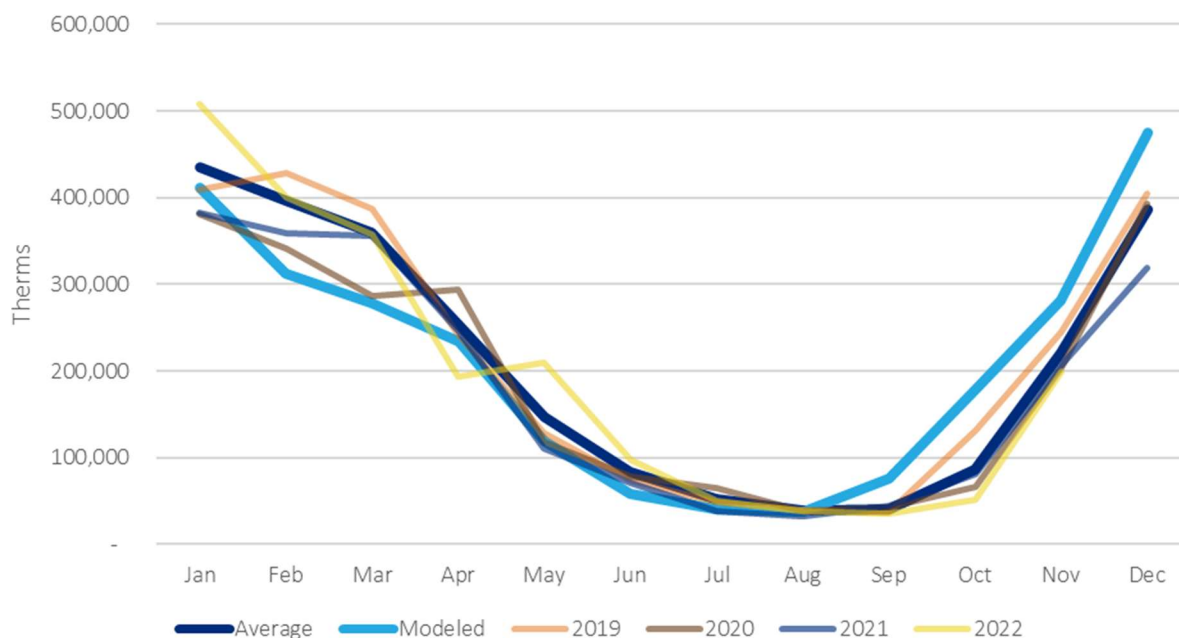
To estimate the end use consumption within the residential sector, Lighthouse first developed estimates of the City's residential building and equipment stock. The building stock estimates include the number and type of home, including single family, multifamily, and manufactured homes. The equipment stock is the number and type of equipment in those homes and is informed by the split of electric versus gas-powered equipment and the saturation of different types of equipment, such as gas-fired storage and tankless water heaters. Lighthouse developed many of this information as part of the conservation and demand response potential assessments prepared for the City. The numbers of building and equipment stock were then combined with estimated consumption levels for gas-fired equipment. Lighthouse also used load profiles developed by the Northwest Power and Conservation Council (Council) to estimate how the annual consumption would be split across months. The resulting end use consumption estimate was then calibrated against the historical consumption of the City's residential customers. The data and sources used for this end use consumption model are summarized below.

Table 1 - Residential End Use Consumption Estimate Data And Sources

Data Element	Source
Number of customers	Ellensburg Utility Data
Share of homes by type (i.e., Single family, Multifamily, Manufactured)	American Community Survey (ACS) 5-Year Data (2017-2021)
End use equipment saturations	Northwest Energy Efficiency Alliance's 2016 Residential Building Stock Assessment (RBSA) and ACS data
End use consumption of gas-fired and substitute electrically powered equipment	RBSA End Use Metering Study and Regional Technical Forum (RTF)
Load Profiles	Northwest Power & Conservation Council

The results of this estimation and calibration process are shown in Figure 3 below, with the dark blue line representing the average of historical years and the light blue line representing the modeled end use consumption, based on the process described above.

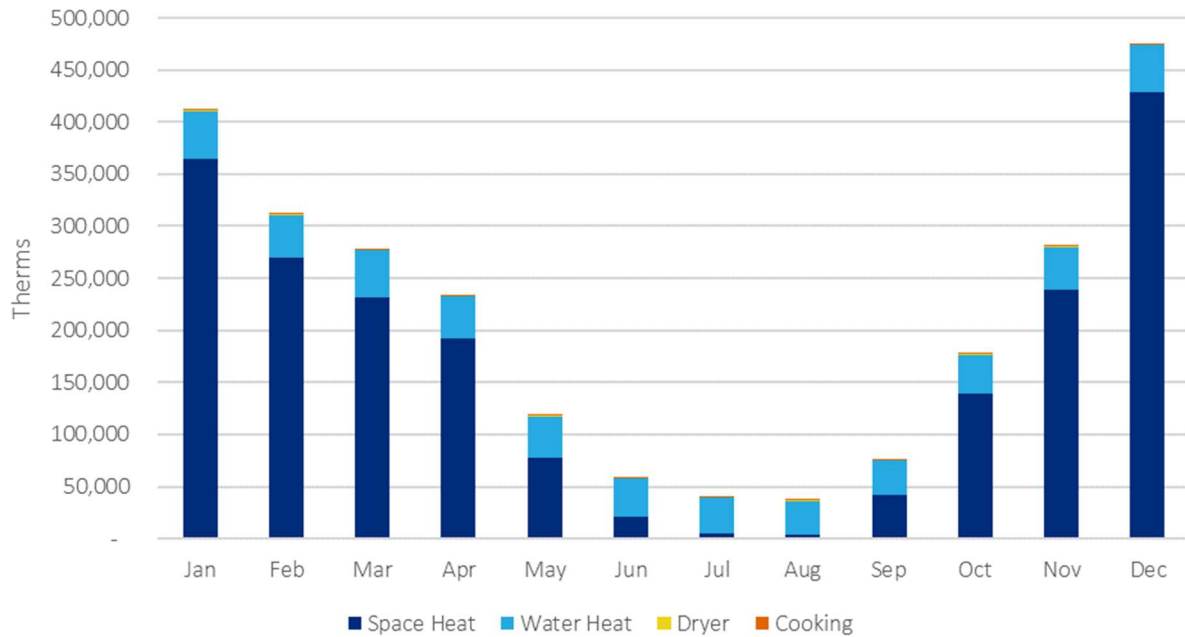
Figure 3 - Modeled and Historical Residential Natural Gas Consumption



The goal of the calibration process is to match the level of annual gas consumption exactly while roughly aligning with the monthly consumption. There may be differences between the actual monthly consumption and the monthly consumption estimated by the load shapes due to the underlying weather. For example, the usage used to develop the Council's load profiles may be based on years with warmer temperatures in the early months and colder temperatures in the later months. This would contribute to the small seasonal differences between the average and modeled usage shown above. Lighthouse applied calibration factors to the annual consumption to ensure that the estimated level of gas consumption exactly matched the average historical consumption. The same calibration factors were subsequently applied to the estimated annual additions in electric load later in the analysis and the monthly shape of those loads was determined by the electric load shapes for each end use technology.

The monthly breakdown of gas consumption by end use is shown in Figure 4 below. Space heating makes up more than 80% of the total consumption while water heating makes up most of the remaining consumption. Gas dryers and cooking appliances comprise 0.4% of the total, an almost imperceptible amount.

Figure 4 - Estimated Monthly Residential Gas Consumption by End Use



Commercial End Use Consumption Modeling

For the commercial sector, Lighthouse developed end use estimates by following an approach similar to what was done for the residential sector, described above. Lighthouse began with estimates of the City's commercial floor area by building type. These were combined with energy use intensity values, which translate the floor area into consumption of natural gas, and end use breakdowns, which split the overall consumption into specific end uses, such as space heating, water heating, and cooking. With these variables, as well as load shapes from the Council, Lighthouse was able to estimate the monthly natural gas consumption by end use for the City's commercial customers.

The data and sources used for the commercial end use consumption model are summarized in Table 2.

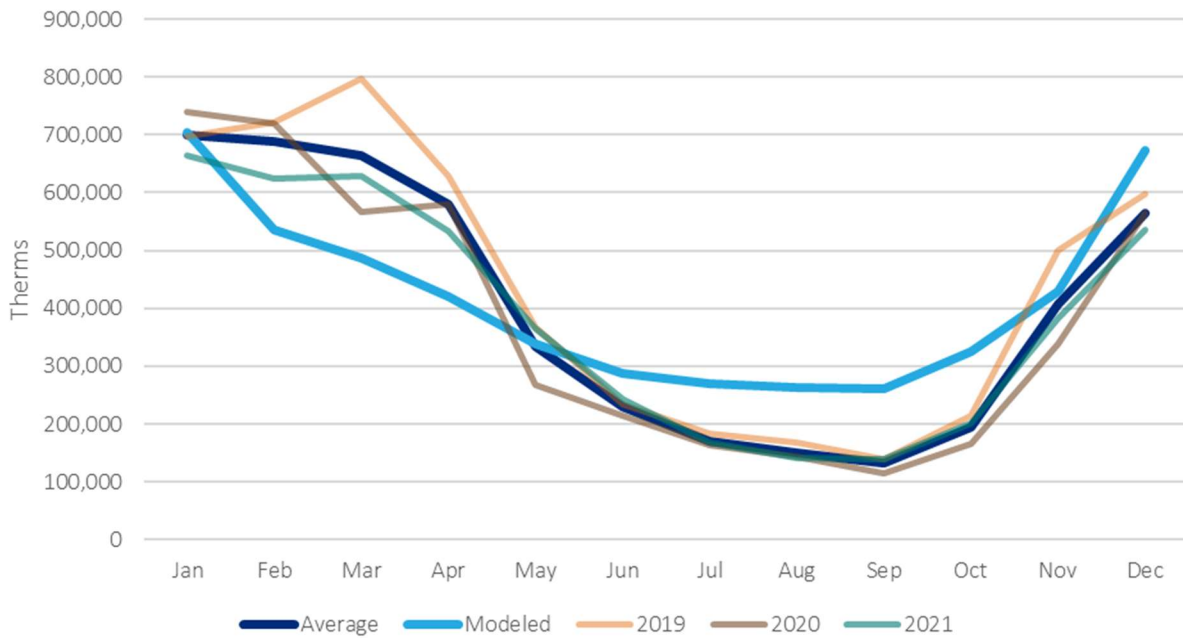
Table 2 - Commercial End Use Consumption Estimate Data And Sources

Data Element	Source
Commercial Floor Area	Ellensburg utility data, 2021 Power Plan, BPA Utility Potential Calculator
Energy Use Intensities	NEEA 2019 Commercial Building Stock Assessment
End Use Consumption Shares	US Energy Information Administration Commercial Building Energy Consumption Survey
Load Profiles	Northwest Power & Conservation Council

The results of the modeling and calibration process for the commercial sector are shown below Figure 5. Similar to the residential sector, the modeled consumption was slightly below the actual consumption in

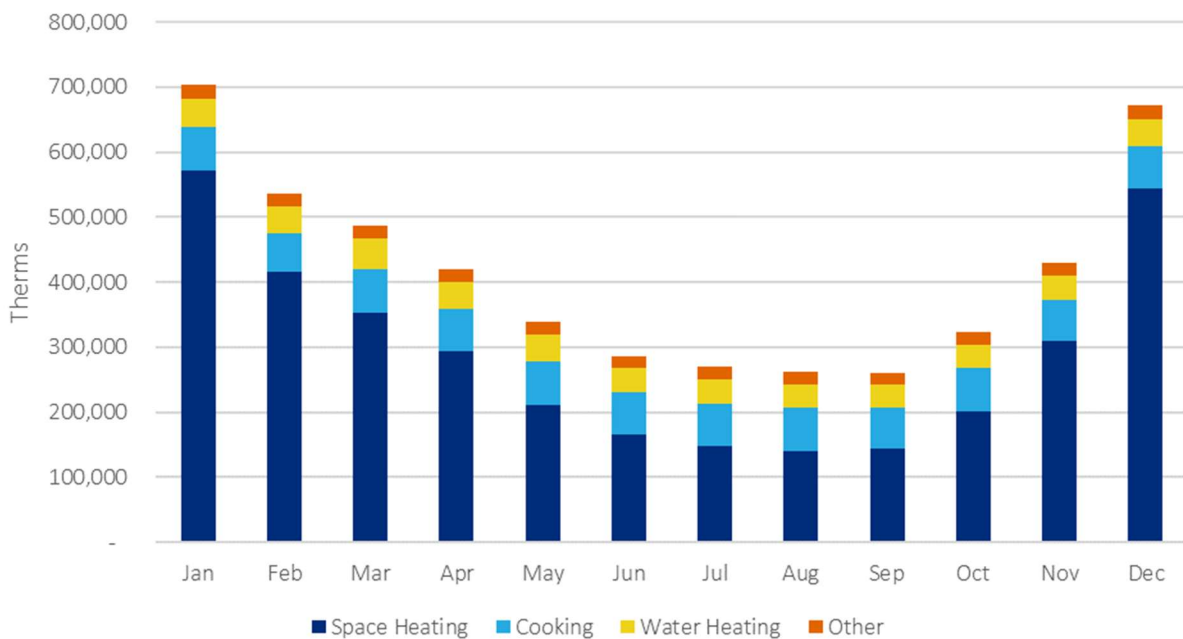
some of the early months of the year, but slightly higher in the later months. Across the year, however, the annual consumption was matched exactly to the average annual consumption through the calibration process.

Figure 5 - Modeled and Historical Commercial Natural Gas Consumption



The resulting monthly breakdown of commercial gas consumption by end use is shown in Figure 6 below.

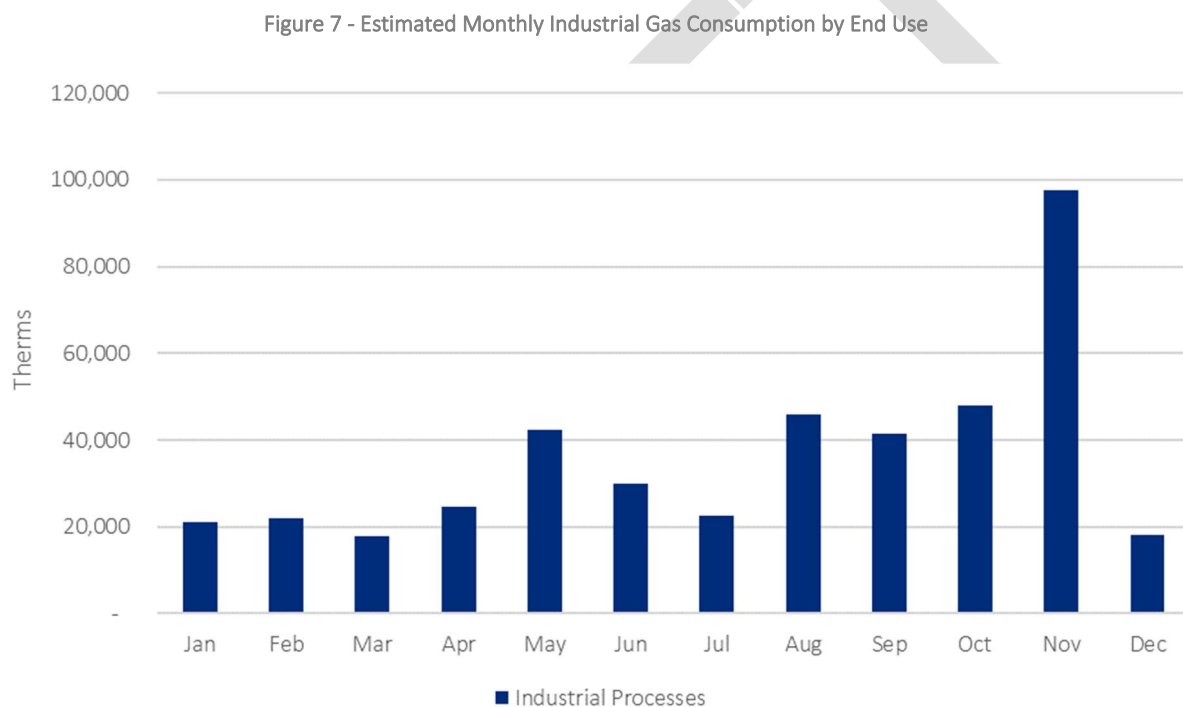
Figure 6 - Estimated Monthly Commercial Gas Consumption by End Use



Space heating makes up approximately 70% of the total consumption while cooking and water heating comprise 16% and 10%, respectively. The Council's load profiles for commercial heating show that heating use continues through the summer. As a result of this, a small level commercial heating consumption is maintained through the summer months, while the residential space heating consumption drops to nearly zero in those same months.

Industrial End Use Consumption Modeling

For the industrial sector, natural gas is primarily consumed for process-related needs and the timing of consumption is driven by production schedules. For the industrial sector, the consumption did not need to be broken out into individual end uses, so Lighthouse directly used the monthly consumption in the usage data provided by the City. The monthly usage patterns for the City's current and anticipated industrial customers is shown in Figure 7.



The pattern of monthly industrial consumption shows the dependency on seasonal processes, as opposed to heating-driven end uses in the residential and commercial sector.

Climate Commitment Act Compliance

This section discusses how the City can achieve compliance with the CCA by substituting electric equipment for gas-fired equipment. While the City is not necessarily required to reduce emissions in line with the exact timing of the CCA's emissions cap, taking no action would result in the need to purchase more and more emissions allowances while the number of available emissions allowances is reduced. Eventually, the overall cap on emissions will be low enough that the City will need to take some action. For simplicity, Lighthouse assumed that the City's goal is to reduce natural gas consumption and emissions in line with the CCA. Lighthouse estimated an Ellensburg-specific cap on natural gas

consumption based on the CCA's defined statewide baseline period and schedule of annual reductions and allocated these across the City's customer sectors based on the share of gas consumption in the baseline period.

To estimate the future gas consumption, Lighthouse took the estimated equipment stock discussed above and assumed that some portion of the equipment would convert to an electrically powered substitute at the end of its effective useful life. Converting equipment from gas to electricity when it is at the end of its life is likely the most cost-effective time to encourage fuel switching. Customers are otherwise unlikely to replace working equipment without significant incentives. When customers are faced with an equipment replacement decision where there is a need to make a purchase of some type, they have the opportunity to switch to electrical equipment at a smaller or even negative incremental cost relative to replacing their previous gas-fired equipment with a similar gas-fired replacement.

Another proposed approach to electrification involves switching entire neighborhoods to electricity to avoid replacing natural gas distribution infrastructure. In this approach, instead of replacing a distribution line, the utility would electrify all end-uses of natural gas served by the line instead of replacing the infrastructure. Here, the avoided cost of replacing the line could make the electrification more cost-effective. However, absent the detailed information about the City's natural gas infrastructure and the geographic variation of end use equipment, Lighthouse assumed that the City would take the previously described approach of encouraging electrification at the time of equipment replacement.

Lighthouse assumed that the City would begin encouraging end use fuel switching in 2024. Lighthouse then made assumptions about the share of gas-fired equipment turning over in each year that would be converted to electricity and compared the resulting end-use natural gas consumption against the allocated cap, and adjusted the assumptions about the share of end-use equipment needing to convert in order to comply with the allocated cap.

The expected life of natural gas fired equipment varies by the type of equipment but can last between 12 and 13 years for gas clothes dryers and water heaters to more than 20 years for furnaces. Assuming that the vintages of equipment as well-mixed, Lighthouse assumed that the share of equipment turning over in a given year would be equal to the inverse of the expected life. For example, if the expected life of a piece of equipment was 10 years, then one-tenth or 10% of that equipment would turnover each year. For a gas furnace lasting more than 20 years, fewer than 5% of the units would turnover in a given year and it would take more than 20 years to replace the current equipment stock.

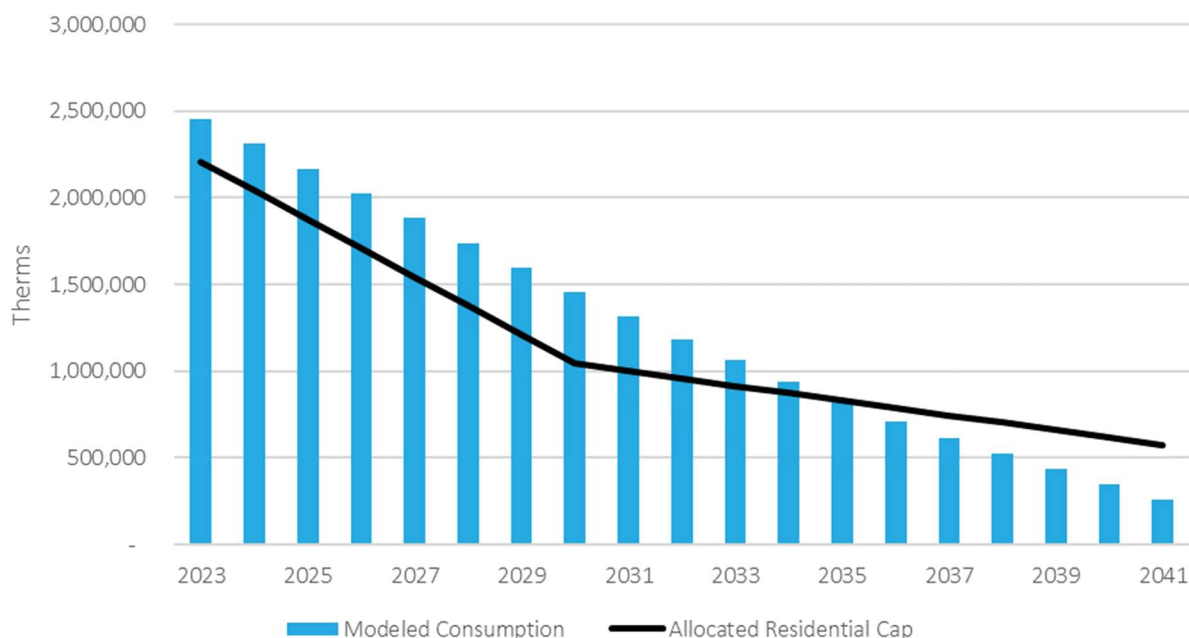
The CCA's cap on emissions lowers by 7% for each of the first eight years, 2023-2030. Accordingly, the cap on emissions in 2024 is 14% lower than the baseline period and lowers an additional 7% each year through 2030. By beginning in 2024, the City would need to replace more than 7% of the natural gas equipment in 2024 and each subsequent year in order to catch up with the timing of the CCA's cap. However, because many types of natural gas appliances have expected lives longer than 14 years (the inverse of 7%), Lighthouse found that even assuming that the City successfully encouraged 100% of the equipment turning over in a given year to convert to electricity and assuming that all new construction and major renovations resulted in no demand for gas was not sufficient to catch up with CCA's annual reduction of 7% per year. The City would need to encourage all new and end of life equipment to be

electric and encourage fuel switching beyond this equipment turnover to comply with the CCA's timeline in the near term. In the longer term, the slowing of annual reductions in the cap after 2030 allows the City to catch up.

The figures below show the estimated CCA cap on natural gas consumption based on the City's 2015-2019 demand for natural gas and how the cap was allocated across individual sectors. The estimated natural gas consumption is shown as well, based on modeling that assumed the City converted 100% of equipment at the end of its useful life.

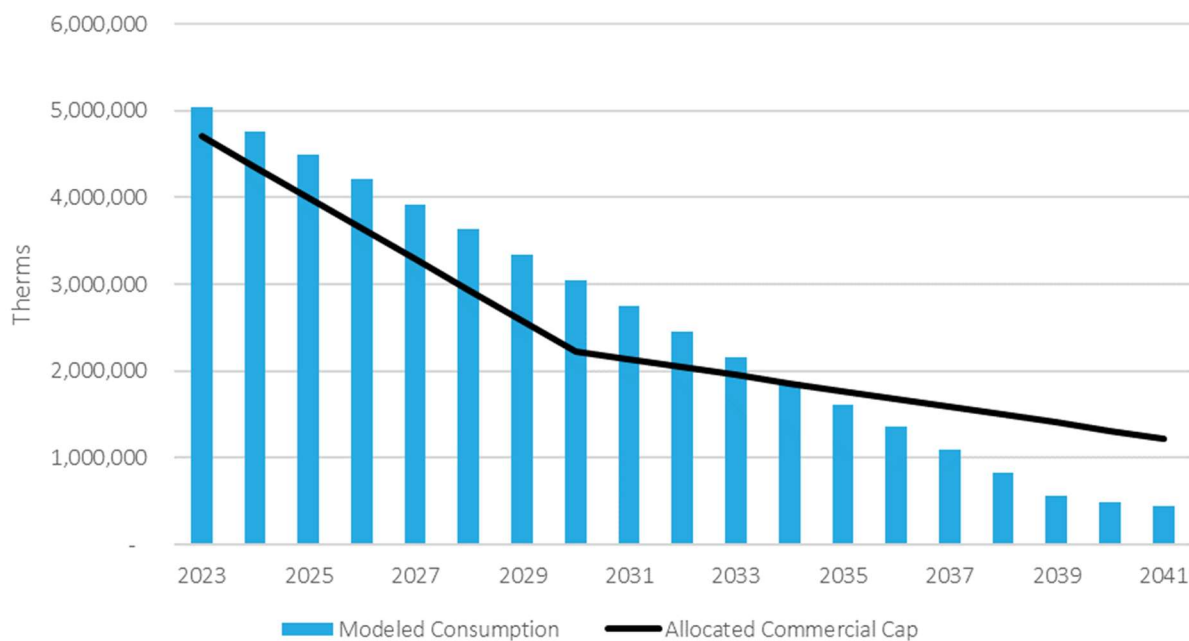
As described above, in both the residential and commercial sectors, Lighthouse found that relying solely on equipment replacement cycles was not sufficient to reduce natural gas consumption below the estimated cap until roughly 2034, several years after the annual reductions in the emissions cap shift from 7% per year to 1.8% per year.

Figure 8 - Modeled Residential Natural Gas Consumption and Estimated Consumption Cap



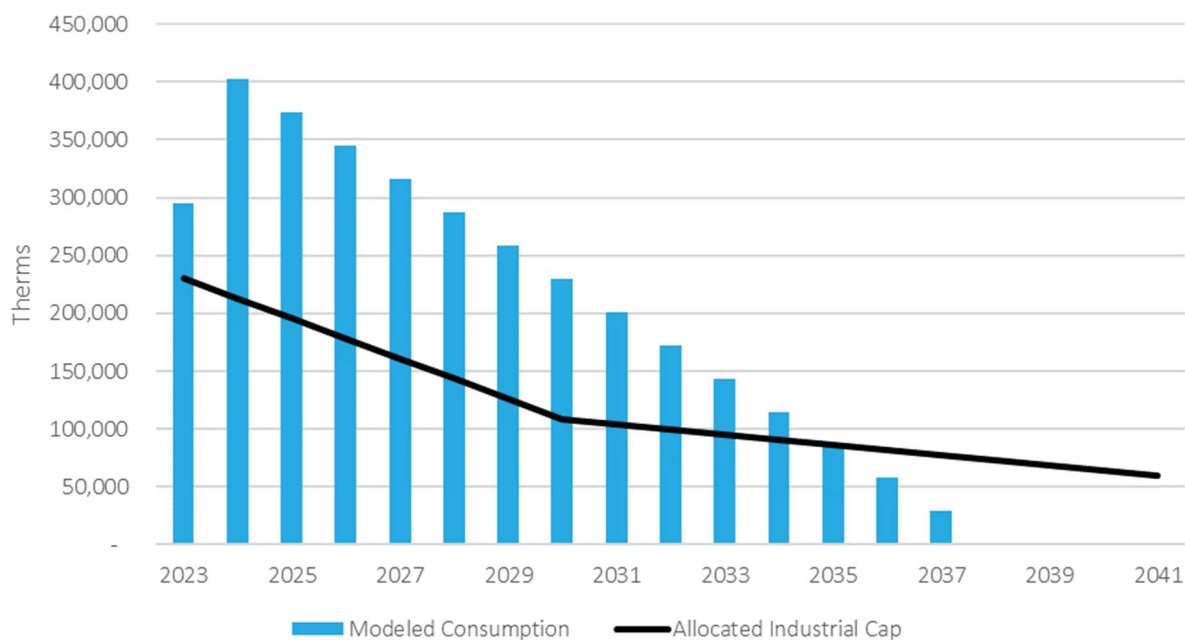
As discussed above, approximately half of the commercial sector's consumption is from CWU, most of which is associated with a large central boiler. Lighthouse modeled the demand from this boiler changing gradually over time, but the exact timing and pace of changes to the operation of this boiler will impact the timing of the City's transition from natural gas. A faster transition would help the City keep below its allocation of allowances, while a slower transition would drive the City to purchase more allowances for a longer period of time.

Figure 9 - Modeled Commercial Natural Gas Consumption and Estimated Cap



In the industrial sector, the addition of new gas demand in 2024 from a new customer makes compliance with the allocated industrial cap in the near term more difficult. Similar to the commercial sector and discussion of CWU above, fuel switching was modeled to occur gradually and linearly, but in reality, the timing of the replacement of large process equipment may make this transition lumpy, with large changes in some years and little to no changes in other years.

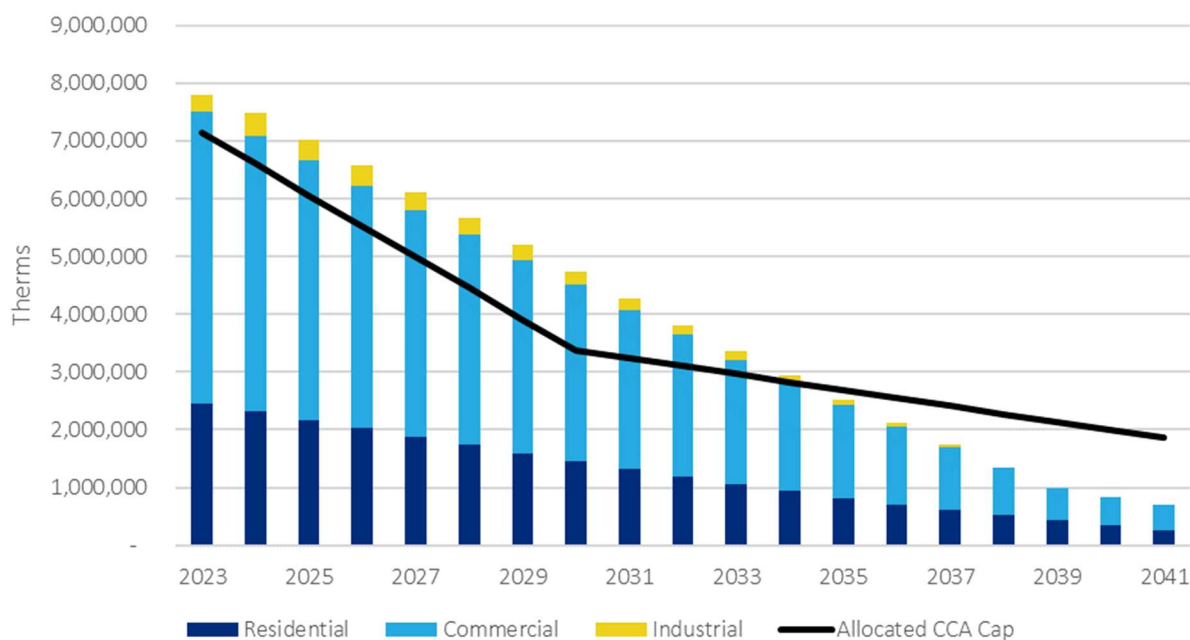
Figure 10 - Modeled Industrial Natural Gas Consumption and Estimated Cap



Note the change in scale between Figure 10 and the residential and industrial figures above.

Figure 11 shows the modeled natural gas consumption across all sectors based on the modeling and assumptions discussed above and the allocated City-wide cap. The City does not reduce demand for natural gas below its allocated cap until 2035.

Figure 11 - Modeled Total Natural Gas Consumption and Estimated Cap



Incremental Electrical Loads

After modeling the timing and pace of fuel switching from natural gas described above, Lighthouse then estimated how those reductions in natural gas consumption would translate into additional loads for the City's electric utility.

For the residential sector, Lighthouse used assumptions about the annual consumption of electric appliances, assuming that the fuel switching would switch to efficient appliances (e.g., heat pumps and heat pump water heaters). In the commercial and industrial sectors, Lighthouse made assumptions about the relative efficiency of electric and gas equipment to convert the natural gas consumption into equivalent amounts of electricity. The annual amounts of electricity were distributed across the year by applying electric load shapes from the Council. This allowed for the examination of how the City's incremental electric loads from electrification over different time scales, which are examined below.

Figure shows how the monthly energy consumption will grow over time as natural gas end uses are switched to electricity. Because much of the demand for natural gas is related to space heating, much of the additional demand for electricity happens during the heating season months. The City may see its monthly demand grow from over 20 GWh in the coldest months to more than 40 GWh per month.

Figure 12 - Incremental Monthly Loads from Electrification (MWh)

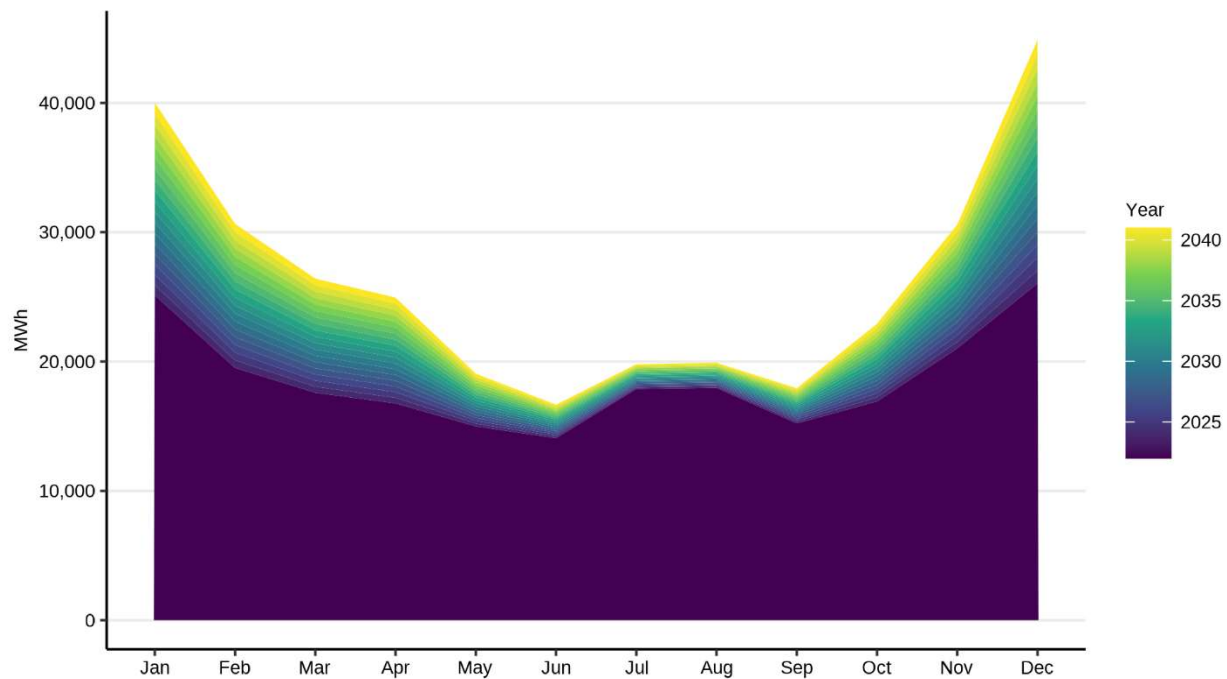
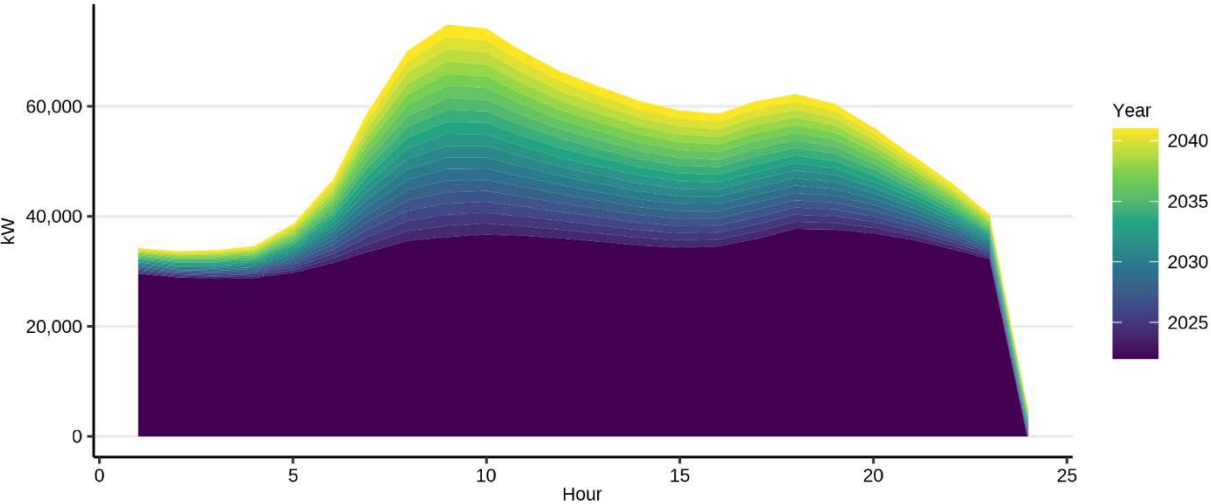


Figure 12 shows monthly demands increasing to the highest levels in December, but this is a consequence of the assumptions on timing of demand in the load profiles used in the analysis. The actual timing of the City's highest demands would vary depending on the weather in a given year.

In Figure 13 the evolution of hourly demand for electricity on an average January day is shown as electrification occurs over time. The evolution shows how demands on the system will grow, but also feature more dramatic peaks as heating loads are added to the electric system. Figure shows slightly higher demand in the evening in the near term but higher morning demand in the long term. This is another consequence of the assumptions and actual usage built into the load profiles applied to the new electrical demand. The timing of the actual daily peak demand would vary based on the weather and other factors. Figure 13 shows hourly demand nearly doubling from just under 40 MW in the near term to over 70 MW by 2041.

Figure 0-1 - Incremental Hourly Loads from Electrification on a January Day`



Clean Energy Implementation Plan

2022 - 2025

CITY OF ELLENSBURG



Deadline: January 1, 2022

Submission: Email this workbook and all supporting documentation to CETA@commerce.wa.gov

Questions: Glenn Blackmon, Sarah Vorpahl, Austin Scharff, State Energy Office, CETA@commerce.wa.gov

Enter information in green fields.

Do not modify blue-shaded fields.

RCW 19.405.060

Clean energy implementation plan—Compliance criteria—Incremental cost of compliance.

(2)(a) By January 1, 2022, and every four years thereafter, each consumer-owned utility must develop and submit to the department a four-year clean energy implementation plan for the standards established under RCW 19.405.040(1) and 19.405.050(1) that: (i) Proposes interim targets for meeting the standard under RCW 19.405.040(1) during the years prior to 2030 and between 2030 and 2045, as well as specific targets for energy efficiency, demand response, and renewable energy; (ii) Is informed by the consumer-owned utility's clean energy action plan developed under RCW 19.280.030(1) or other ten-year plan developed under RCW 19.280.030(5); (iii) Is consistent with subsection (4) of this section; and (iv) Identifies specific actions to be taken by the consumer-owned utility over the next four years, consistent with the utility's long-range resource plan and resource adequacy requirements, that demonstrate progress towards meeting the standards under RCW 19.405.040(1) and 19.405.050(1) and the interim targets proposed under (a)(i) of this subsection. The specific actions identified must be informed by the consumer-owned utility's historic performance under median water conditions and resource capability and by the consumer-owned utility's participation in centralized markets. In identifying specific actions in its clean energy implementation plan, the consumer-owned utility may also take into consideration any significant and unplanned loss or addition of load it experiences.

(b) The governing body of the consumer-owned utility must, after a public meeting, adopt the consumer-owned utility's clean energy implementation plan. The clean energy implementation plan must be submitted to the department and made available to the public. The governing body may adopt more stringent targets than those proposed by the consumer-owned utility and periodically adjust or expedite timelines if it can be demonstrated that such targets or timelines can be achieved in a manner consistent with the following: (i) Maintaining and protecting the safety, reliable operation, and balancing of the electric system; (ii) Planning to meet the standards at the lowest reasonable cost, considering risk; (iii) Ensuring that all customers are benefiting from the transition to clean energy: Through the equitable distribution of energy and nonenergy benefits and reduction of burdens to vulnerable populations and highly impacted communities; long-term and short-term public health and environmental benefits and reduction of costs and risks; and energy security and resiliency; and (iv) Ensuring that no customer or class of customers is unreasonably harmed by any resulting increases in the cost of utility-supplied electricity as may be necessary to comply with the standards.

(3)(a) An investor-owned utility must be considered to be in compliance with the standards under RCW 19.405.040(1) and 19.405.050(1) if, over the four-year compliance period, the average annual incremental cost of meeting the standards or the interim targets established under subsection (1) of this section equals a two percent increase of the investor-owned utility's weather-adjusted sales revenue to customers for electric operations above the previous year, as reported by the investor-owned utility in its most recent commission basis report. All costs included in the determination of cost impact must be directly attributable to actions necessary to comply with the requirements of RCW 19.405.040 and 19.405.050.

(b) If an investor-owned utility relies on (a) of this subsection as a basis for compliance with the standard under RCW 19.405.040(1), then it must demonstrate that it has maximized investments in renewable resources and nonemitting electric generation prior to using alternative compliance options allowed under RCW 19.405.040(1)(b).

(4)(a) A consumer-owned utility must be considered to be in compliance with the standards under RCW 19.405.040(1) and 19.405.050(1) if, over the four-year compliance period, the average annual incremental cost of meeting the standards or the interim targets established under subsection (2) of this section meets or exceeds a two percent increase of the consumer-owned utility's retail revenue requirement above the previous year. All costs included in the determination of cost impact must be directly attributable to actions necessary to comply with the requirements of RCW 19.405.040 and 19.405.050.

(b) If a consumer-owned utility relies on (a) of this subsection as a basis for compliance with the standard under RCW 19.405.040(1), and it has not met eighty percent of its annual retail electric load using electricity from renewable resources and nonemitting electric generation, then it must demonstrate that it has maximized investments in renewable resources and nonemitting electric generation prior to using alternative compliance options allowed under RCW 19.405.040(1)(b).

(5) The commission, for investor-owned utilities, and the department, for consumer-owned utilities, must adopt rules establishing the methodology for calculating the incremental cost of compliance under this section, as compared to the cost of an alternative lowest reasonable cost portfolio of investments that are reasonably available.

WAC 194-40-200

Clean energy implementation plan.

(1) **Specific actions.** Each utility must identify in each CEIP the specific actions the utility will take during the next interim performance period or GHG neutral compliance period to demonstrate progress toward meeting the standards under RCW 19.405.040(1) and 19.405.050(1) and the interim targets under subsection (2) of this section and the specific targets under subsection (3) of this section. Specific actions must be consistent with the requirements of RCW 19.405.060 (2)(a)(iv).

(2) **Interim target.** The CEIP must establish an interim target for the percentage of retail load to be served using renewable and nonemitting resources during the period covered by the CEIP. The interim target must demonstrate progress toward meeting the standards under RCW 19.405.040(1) and 19.405.050(1), if the utility is not already meeting the relevant standard.

(3) **Specific targets.** The CEIP must establish specific targets, for the interim performance period or GHG neutral compliance period covered by the CEIP, for each of the following categories of resources:

(a) **Energy efficiency.** (i) The CEIP must establish a target for the amount, expressed in megawatt-hours of first-year savings, of energy efficiency resources expected to be acquired during the period. The energy efficiency target must comply with WAC 194-40-330(1). (ii) A utility may update its CEIP to incorporate a revised energy efficiency target to match a biennial conservation target established by the utility under RCW 19.285.040 (1)(b) and WAC 194-37-070.

(b) **Demand response resources.** The CEIP must specify a target for the amount, expressed in megawatts, of demand response resources to be acquired during the period. The demand response target must comply with WAC 194-40-330(2).

(c) **Renewable energy.** The utility's target for renewable energy must identify the quantity in megawatt-hours of renewable electricity to be used in the period.

(4) **Specific actions to ensure equitable transition.** To meet the requirements of RCW 19.405.040(8), the CEIP must, at a minimum:

(a) Identify each highly impacted community, as defined in RCW 19.405.020(23), and its designation as either: (i) A community designated by the department of health based on cumulative impact analyses; or (ii) A community located in census tracts that are at least partially on Indian country.

(b) Identify vulnerable populations based on the adverse socioeconomic factors and sensitivity factors developed through a public process established by the utility and describe and explain any changes from the utility's previous CEIP, if any;

(c) Report the forecasted distribution of energy and nonenergy costs and benefits for the utility's portfolio of specific actions, including impacts resulting from achievement of the specific targets established under subsection (3) of this section. The report must: (i) Include one or more indicators applicable to the utility's service area and associated with energy benefits, nonenergy benefits, reduction of burdens, public health, environment, reduction in cost, energy security, or resiliency developed through a public process as part of the utility's long-term planning, for the provisions in RCW 19.405.040(8); (ii) Identify the expected effect of specific actions on highly impacted communities and vulnerable populations and the general location, if applicable, timing, and estimated cost of each specific action. If applicable, identify whether any resource will be located in highly impacted communities or will be governed by, serve, or otherwise benefit highly impacted communities or vulnerable populations in part or in whole; and (iii) Describe how the specific actions in the CEIP are consistent with, and informed by, the utility's longer-term strategies based on the analysis in RCW 19.280.030 (1)(k) and clean energy action plan in RCW 19.280.030(1)(l) from its most recent integrated resource plan, if applicable.

(d) Describe how the utility intends to reduce risks to highly impacted communities and vulnerable populations associated with the transition to clean energy.

(5) **Use of alternative compliance options.** The CEIP must identify any planned use during the period of alternative compliance options, as provided for in RCW 19.405.040 (1)(b).

(6) The CEIP must be consistent with the most recent integrated resource plan or resource plan, as applicable, prepared by the utility under RCW 19.280.030.

(7) The CEIP must be consistent with the utility's clean energy action plan developed under RCW 19.280.030(1) or other ten-year plan developed under RCW 19.280.030(5).

(8) The CEIP must identify the resource adequacy standard and measurement metrics adopted by the utility under WAC 194-40-210 and used in establishing the targets in its CEIP. (9) If the utility intends to comply using the two percent incremental cost approach specified in WAC 194-40-230, the CEIP must include the information required in WAC 194-40-230(3) and, if applicable, the demonstration required in WAC 194-40-350(2).

(10) Any utility that is not subject to RCW 19.280.030(1) may meet the requirements of this section through a simplified reporting form provided by commerce.

Utility name:	City of Ellensburg
Report date:	10/2/2023
Contact name/Dept:	Buddy Stanavich
Phone:	509-962-7225
Email:	stanavichm@ci.ellensburg.wa.us
Web address of published CEIP:	https://ci.ellensburg.wa.us/
Small utility:	Yes

A small utility is a utility that is not required by RCW 19.280.030(1) to prepare an integrated resource plan.

Interim target: Percentage of retail load to be served using renewable and nonemitting resources (WAC 194-40-200(2))

Resource	2022	2023	2024	2025	4-year Period
Renewable					
Nonemitting					
Total					92%

[Small utilities may enter a single value in cell G6 and leave the remaining cells blank.]

Describe how the target demonstrates progress toward meeting the 2030 and 2045 CETA standards (WAC 194-40-200(2)). This section is not required if the value in cell G6 is 80% or greater :

The City is already exceeding the 2030 standard of 80% clean energy.

Specific targets (WAC 194-40-200(3)):

Resource	Amount	
Energy Efficiency	6,307	MWh to be acquired over the interim performance period (measured in first-year savings)
Renewable energy	722,933	MWh to be used during the interim performance period
Demand response	0.07	MW to be acquired over the interim performance period

Identify and describe the specific actions the utility will take over the next interim performance period to demonstrate progress toward meeting the utility's interim targets and the 2030 GHG neutral and 2045 clean electricity standard (WAC 194-40-200(1)):	
Specific action proposed	Description of how the action demonstrates progress toward meeting interim targets and the standards
Continue EE Program	When combined with savings from NEEA's market transformation work, the City is likely to achieve much of, if not exceed, its specific target for energy efficiency
Evaluate smart thermostat DR program	Smart thermostat demand response programs had the lowest cost and greatest potential that the City is currently capable of implementing. Based on the combined EE and DR benefits, smart thermostats could potentially be offered to customers at little to no cost, enabling low-income customers to reduce their utility bills.
Evaluate actions to remove language barriers and improve communication.	By removing language barriers to obtaining information and participation in its programs, the City will be able to expand its pool of potential program participants, facilitating the achievement of its identified specific targets above.
Increase educational opportunities	By increasing educational opportunities with customers and/or the organizations that serve them, the City can raise awareness of its programs which will help it to achieve its specific targets.

Highly impacted communities (WAC 194-40-200(4))

Report each Highly Impacted Community in the table below.

Highly Impacted Community is defined in RCW 19.405.020(23) as:

(23) *"Highly impacted community" means a community designated by the department of health based on cumulative impact analyses in RCW 19.405.140 or a community located in census tracts that are fully or partially on "Indian country" as defined in 18 U.S.C. Sec. 1151.*

Department of Health has designated Highly Impacted Communities as those ranking 9 or 10 on the Environmental Health Disparities map. Visit the Department of Health website for instructions on how to identify Highly Impacted Communities:

<https://www.doh.wa.gov/DataandStatisticalReports/WashingtonTrackingNetworkWTN/ClimateProjections/CleanEnergyTransformationAct/CETAUtilityInstructions>

Census Tract (enter 11 digit FIPS code)	County Name	Tribal Lands (Yes/No)	Environmental Health Disparities Topic Rank
Based on the available information, the City of Ellensburg does not have any Census Tracts that qualify as Highly Impacted Communities			

Public participation (WAC 194-40-200(4), -220(1))

Provide a summary of the public input process conducted in compliance with WAC 194-40-220. Describe how public comments were reflected in the specific actions under WAC 194-40-200(4), including the development of one or more indicators and other elements of the CEIP and the utility's supporting integrated resource plan or resource plans, as applicable.

In order to identify vulnerable populations, assess the risks to them during the clean energy transition, identify specific actions the City could take to address those risks, and develop indicators to measure the distribution of costs and benefits, the City chose to engage with community organizations serving vulnerable populations in the service territory through in depth interviews.

The City chose this approach after considering other possible engagement strategies for three reasons. First, engaging with organizations rather than individual community members allowed for breadth (across different populations) and depth (detailed understanding of each population). There were several longstanding community organizations active in the City's service territory that were willing to participate in the engagement process. Finally, an emerging best practice for serving vulnerable populations involves working with trusted community partners.

To identify participants for the engagement, the City identified local community organizations serving populations commonly identified in the equity literature as "vulnerable"—these included households with low and moderate incomes, people of color, non-English speakers, renters, people with disabilities, and other groups. In total, the City identified nine organizations with potential to contribute to the engagement process and reached out to those organizations to invite them to participate. Of the nine organizations identified, eight agreed to participate.

The community organizations that the City engaged with during its two input sessions were:

- Allied People Offering Year-Round Outreach (APOYO)
- Ellensburg DEI Commission
- Friends in Service to Humanity (FISH)
- HopeSource
- Kittitas County Habitat for Humanity
- Kittitas County Veterans Coalition
- Kittitas Early Learning Coalition
- WorkSource Kittitas County

The City engaged with these community organizations through in-depth interviews, each lasting over one hour. The interview format allowed the City to provide context on the topics specified in the CETA legislation and rulemaking and included discussion on identifying vulnerable populations, understanding their current challenges, potential actions the City could take that could address the risks identified, and indicators the City could use to measure its progress toward an equitable clean energy transition.

The City also interviewed community members as part of a broader survey to inform a city-wide sustainability plan and provided opportunities for public input at the City's meetings on ... *(complete with details of public meetings where CEIP was discussed and approved)* .

Vulnerable populations (WAC 194-40-200(4))

Please list all socioeconomic factors and sensitivity factors developed through a public process and used to identify Vulnerable Populations based on the definition in RCW 19.405.020(40):

(40) "Vulnerable populations" means communities that experience a disproportionate cumulative risk from environmental burdens due to:

(a) Adverse socioeconomic factors, including unemployment, high housing and transportation costs relative to income, access to food and health care, and linguistic isolation; and

(b) Sensitivity factors, such as low birth weight and higher rates of hospitalization

Factors	Details	Source	Date Last Updated	Approximate number of households in service territory (if applicable)
Low-income	The greater of <80% of AMI or <200% of FPL, this is intended to capture residents with a variety of income challenges	ACS PUMS Data, US EIA Form 861	2023	5,319
Unaffordable housing	"Unaffordable housing" is defined as households spending great than 30 percent of their income on housing costs.	WTN Data, US EIA Form 861	2023	3,558
Unemployed	This indicator uses the percent of the population over the age of 16 that is unemployed and eligible for the labor force from the U.S. Census Bureau's American Community Survey for 2015– 2019. This indicator excludes retirees, students, homemakers, institutionalized persons except for prisoners, those not looking for work, and military personnel on active duty.	WTN Data, US EIA Form 861	2023	524
High Transportation Expense	Transportation costs based on percentage of income for the regional moderate household (80% AMI).	ACS PUMS Data, US EIA Form 861	2023	6,285
Non-native English speakers	Population Age 5+ Speaking English Less than Very Well	WTN Data, US EIA Form 861	2023	244
Disability	Population with a Disability	WTN Data, US EIA Form 861	2023	939

Describe and explain any changes to the factors from the utility's previous CEIP, if any:

The City's definition of vulnerable populations was updated following a more robust public process in 2023 that is described on the "Public Participation" tab. The revisions in this updated CEIP reflect continued improvement in understanding of the scope of vulnerable populations and incorporate additional input received through the improved public process.

Low Income						
	Share of Homes below 80% AMI		61%			
	Share of Homes below 200% of FPL		38%			
	Total Ellensburg Households		8,792	(US EIA Form 861 Residential Customers)		
	Estimated Households		5,319			
Compare to WTN Data (uses 185% of FPL)						
Census Tract	People Living Below Poverty Level		Total Population			
975300	537		5,352			
975401	2,755		5,891			
975402	971		5,285			
975500	1,447		6,624			
975600	532		2,434			
	Share of Population		24%			
High Housing Expense						
Census Tract	Unaffordable Housing Units		Total Occupied Housing Units	Source		
975300	480		2,107	WTN Data		
975401	1,221		2,452			
975402	1,044		2,469			
975500	1,052		2,604			
975600	573		1,168			
	Weighted Average Share		40%			
	Total Ellensburg Households		8,792	(US EIA Form 861 Residential Customers)		
	Estimated Households		3,558			

Unemployed					
Census Tract	Unemployed Population	Employable Population			
975300	67	2,814	WTN Data		
975401	390	4,148			
975402	151	2,461			
975500	204	4,113			
975600	80	1,419			
	Total Unemployment Share	6%			
	Total Ellensburg Households	8,792	(US EIA Form 861 Residential Customers)		
	Estimated households with at least one member experiencing unemployment		524		
High Transportation Expense					
Census Tract	Total Households	% Income Spent by Moderate Income Families			
975300	2,107	39%	WTN Data		
975401	2,452	26%			
975402	2,469	26%			
975500	2,604	30%			
975600	1,168	25%			
	State average transportation expense rate is 25%. All census tracts meet or exceed the state average.				
	Moderate income based on area AMI.				
	ACS Data to Estimate Moderate Income	71%			
	Total Ellensburg Households	8,792	(US EIA Form 861 Residential Customers)		
	Estimate of Homes Qualifying as Moderate Income		6,285		

Non-native English Speakers					
Census Tract	# Speaks English Less Than Very Well	Total Population			
975300	62	5,099	WTN Data		
975401	255	7,633			
975402	174	5,015			
975500	251	6,317			
975600	0	2,636			
Total	742	26,700			
	Total Share of Population	3%			
	Total Ellensburg Households	8,792	(US EIA Form 861 Residential Customers)		
	Estimate of Households	244			
Population with a Disability					
Census Tract	# of People with a Disability	Total Population			
975300	445	5,362	WTN Data		
975401	556	7,690			
975402	1,001	5,285			
975500	549	6,796			
975600	415	2,650			
Total	2,966	27,783			
	Total Share of Population	11%			
	Total Ellensburg Households	8,792	(US EIA Form 861 Residential Customers)		
	Estimate of Households	939			

Distribution of energy and non-energy costs and benefits (WAC 194-40-200(4))

Please report one or more indicators, developed through a public process, and used to identify the forecasted distribution of energy and non-energy costs and benefits for the utility's portfolio of specific actions, including impacts resulting from achievement of the specific targets established under WAC 194-40-200(3).

Indicators must be associated with one of the following categories: energy benefits, non-energy benefits, reduction of burdens, public health, environment, reduction in cost, energy security, or resiliency.

Category	Indicator	Details	Source	Date Last Updated
Energy and non-energy benefits	Distribution of program participation and incentive dollars	Track the distribution of	Utility program data	2023

Please report the forecasted distribution of energy and non-energy costs and benefits on identified highly impacted communities and vulnerable populations for the utility's portfolio of specific actions, including impacts resulting from achievement of the specific targets established under WAC 194-40-200(3). You must do a separate row for each action and for each population affected.

Identify the expected effect of specific actions on highly impacted communities and vulnerable populations and the general location, if applicable, timing, and estimated cost of each specific action. If applicable, identify whether any resource will be located in highly impacted communities or will be governed by, serve, or otherwise benefit highly impacted communities or vulnerable populations in part or in whole.

Utility Specific Action or (e.g. name of resource or program)	Population(s) Affected	Indicator	Detail (describe distribution of energy and non-energy benefits on named population)	Location of Resource (if applicable)
Continue EE Program	All vulnerable populations	Distribution of program participation and incentive dollars	While all of the City's customers benefit from the acquisition of energy efficiency as a low-cost resource, benefits such as bill savings, incentives, and home improvements often go only to those who can afford the cost of purchasing energy efficient equipment. The City's current and planned actions to reduce the risks faced by these populations will help them receive more of these benefits.	n/a
Evaluate smart thermostat DR program	All vulnerable populations	Distribution of program participation and incentive dollars	If a smart thermostat program is found to be cost effective and the City moves forward with implementing a program, it could enable broader participation in the City's programs, including the vulnerable populations, as smart thermostats require a lower level of investment than other programs and could be offered to participants at little to no cost when the combined benefits of EE and DR are considered.	n/a
Evaluate actions to remove language barriers and improve communication.	All vulnerable populations	Distribution of program participation and incentive dollars	This action will help improve participation in the City's programs that could benefit vulnerable populations, whether due to lack of awareness or language barriers.	n/a
Increase educational opportunities	All vulnerable populations	Distribution of program participation and incentive dollars	Depending on the educational opportunities pursued, this action will help improve participation in the City's programs that could benefit vulnerable populations.	n/a

Risk (WAC 194-40-200(4)(d))

Describe how the utility intends to reduce risks to highly impacted communities and vulnerable populations associated with the transition to clean energy.

The City used its interviews with community organizations to identify the risks faced by the identified vulnerable populations and the most helpful actions the City could take to reduce those risks.

The community organizations that participated in the interviews identified the following as key risks potentially faced by vulnerable populations:

- Rising housing costs
- Costs of energy
- Evictions due to utility costs or other costs
- Lack of awareness or language barriers preventing participation in programs
- Seniors entering into a potentially detrimental agreement due to lack of understanding

The primary way the City can address these risks is by keeping utility costs low. To that end, the City already has multiple programs that benefit vulnerable populations. These include:

- Discounts for low-income customers
- No-cost weatherization for eligible customers
- Higher incentives for some energy efficiency measures
- Free LED lights provided by HopeSource, the local CAP agency

In addition to these actions, the City will be providing additional funding to reduce energy burdens based on the Clean Energy Transformation Act's requirements.

The City also plans to explore different ways for customers to pay their bills, including a potential pilot for pre-pay when the City's rollout of advanced metering infrastructure is completed near the end of 2024.

The City also intends to add information in multiple languages on its website, expanding what is already available.

Integrated resource plan compliance (WAC 194-40-200(6))

This CEIP is consistent with the most recent integrated resource plan or resource plan, as applicable, prepared by the utility under RCW 19.280.030. **Select yes or no.**

Yes

Clean energy action plan compliance (WAC 194-40-200(7))

The CEIP is consistent with the utility's clean energy action plan developed under RCW 19.280.030(1) or other ten-year plan developed under RCW 19.280.030(5). **Select yes or no.**

Yes

Long-term plans (WAC 194-40-200(4)(c)(iii))

Describe how the specific actions in the CEIP are consistent with, and informed by, the utility's longer-term strategies based on the analysis in RCW 19.280.030 (1)(k) and clean energy action plan in RCW 19.280.030 (1)(l) from its most recent integrated resource plan, if applicable:

As a load following customer of BPA, the City of Ellensburg prepares a resource plan every two years, with the most recent one being completed in 2020.

Based on this plan, the City expects to meet future loads with a combination of energy efficiency and purchases from BPA.

This CEIP is consistent with these strategies, while updating projections of future loads and acquisitions of cost-effective energy efficiency.

Use of alternative compliance options (WAC 194-40-200(5))

Identify any planned use during the period of alternative compliance options, as provided for in RCW 19.405.040(1)(b):

Alternative compliance payments:	0	Dollars
Unbundled renewable energy credits:	0	Credits
Credits from energy transformation projects:	0	MWh
Electricity from the Spokane municipal solid waste to energy facility:	0	MWh

Resource adequacy standard (WAC 194-40-200(8))

Identify the resource adequacy standard and measurement metrics adopted by the utility under WAC 194-40-210 and used in establishing the targets in the CEIP.

Resource adequacy standard

BPA assures its power supply is available to meet its firm power supply obligation on a long term planning, forecast, basis. As directed by the Pacific Northwest Electric Power Planning and Conservation Act, a fundamental statutory purpose for BPA is to assure it has an adequate supply of power, which BPA meets through its power planning function as guided by the Northwest Power and Conservation Council Power Plan.

BPA's firm power supply obligation under the Northwest power Act means BPA supplies all the power a customer needs to serve its retail consumer demands on a continuous basis except for reasons of force majeure. BPA's currently effective Regional Dialogue Load Following Contracts obligates BPA to supply all the electricity required to meet the second-to-second variation in the City's load.

Methods of measurement	BPA uses its Resource Program, which includes a Needs Assessment that examines on a 10-year forecast basis the uncertainty in customer loads, expected water conditions affecting federal hydro production including Biological Opinion requirements, resource availability, natural gas prices, and electricity market prices to develop a least-cost portfolio of resources that meet BPA's obligations. The goal of the Needs Assessment, which is one of the early steps in the Resource Program, is to measure BPA's existing system, in relative isolation, against BPA's obligations to supply power to show whether any long-term energy and/or capacity shortfalls may occur over the 10-year study horizon. The Needs Assessment forecasts BPA's needs for long-term energy and capacity based on resource capabilities and projected obligations to serve power. The Needs Assessment informs later steps of the Resource Program, where resource optimization techniques are used to evaluate and select potential solutions for meeting BPA's long-term needs based on cost and risk. The Needs Assessment uses the following four metrics to assess BPA's long-term energy and capacity needs: • Annual Energy: Evaluates the annual energy surplus/deficit under 1937 critical water conditions, using forecasted load obligations and expected Columbia Generating Station output. • P10 Heavy Load Hour: Evaluates the 10th percentile (P10) surplus/deficit over heavy load hours by month given variability in hydropower generation, load obligations, and Columbia Generating Station output amounts. • P10 Superpeak: Evaluates the P10 surplus/deficit over the six peak load hours per weekday by month, given variability in hydropower generation, load obligations, and Columbia Generating Station output. • 18-Hour Capacity: Evaluates the surplus/deficit over the six peak load hours per day during three-day extreme weather events and assuming median water conditions. Winter and summer extreme weather events, such as cold snaps or heat waves, are analyzed, both of which assume maximum delivery of the Canadian Entitlement outside of the region, zero wind generation, and limited energy market purchases. Winter events assume reduced streamflows due to impacts from ice forming in reservoirs. Summer events assume reduced Columbia Generating Station output due to adverse weather conditions, as the plant must power down during high temperatures for safety reasons.
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Annual cost threshold (WAC 194-40-200(9))

The City of Ellensburg does not intend to use the 2% incremental cost approach during this interim compliance period



Meeting Date: November 16, 2023

**City of Ellensburg
Utility Advisory Committee Agenda Report**

Agenda Subject: 2023 Electrical System Plan
Submitted by:
Department: Public Works & Utilities

Suggested Motion/Action:

Recommend that City Council approve the City Manager to execute the Agreement for Professional Services for the 2023 Electrical System Plan with the consultant Powers Engineers, Inc.

Background/Summary:

Every six years, the City of Ellensburg hires a consultant to perform an electric system study to analyze our distribution system and infrastructure needs based on load requirements. The last study was completed in 2017. This study includes reviewing and updating our current distribution system's model, determining the City's load growth requirements based on population increases and development of a six-year capital facilities plan.

Previous Council Action:

None

Analysis:

At the conclusion of the RFQ evaluation process, the selection committee chose Power Engineers, Inc. as the most qualified consultant. Staff successfully completed negotiation of the attached Professional Services Agreement with Power Engineers, Inc., including the scope of work, schedule and fee exhibits.

Financial Impact:

The City Light Dept. budgeted for this project \$160,000 in the 2023/2024 Light Department Budget. The current fee from the consultant is \$194,996 plus tax. The 2023/2024 Light Fund has an adequate ending fund balance to cover the additional costs.

Budget Adjustment: No

Attachments:

1. RFQ R23-02 2023 Electric System Plan Agreement for Professional Services



AGREEMENT FOR PROFESSIONAL SERVICES

BETWEEN THE CITY OF ELLENSBURG

AND

POWER ENGINEERS, Inc

RELATING TO: City of Ellensburg Consultant Services for, 2023 Electric System Plan

THIS LUMP SUM AGREEMENT is made and entered into this ____ day of _____, 2023 ("Effective Date"), by and between THE CITY OF ELLENSBURG, a non-charter code city of the State of Washington (hereinafter called the "CITY") and POWER Engineers, Inc, a Corporation authorized to do business in the state of Washington (hereinafter called the "CONSULTANT").

1. RECITALS.

1.1. The CITY desires to obtain professional services for work related to the **2023 Electric System Plan** project.

1.2. The CITY has solicited for such professional services as required by law, including RCW Chapter 39.80 if applicable.

1.3. CONSULTANT represents that it is available and able to provide qualified personnel and facilities necessary for the work and services contemplated herein, and can accomplish the work and services within the required time period and in accordance with CITY's specifications, WSDOT Standard Specifications (as applicable), and professional standards.

1.4. CONSULTANT agrees to perform the work and services specified herein in accordance with the terms and conditions of this Agreement.

NOW, THEREFORE, in consideration of the above representations and the terms, conditions, covenants, and agreements set forth below, the parties hereto agree as follows:

2. SCOPE OF WORK.

2.1. The scope of professional services to be performed and the results to be achieved by the CONSULTANT shall be as detailed in the attached Exhibit A and shall include all services and material necessary to accomplish the work ("Services").

2.2. The CITY may review the CONSULTANT'S work product, and if it does not meet the standards stated in Section 11.3 of this Agreement, the CONSULTANT shall make such changes as may be required by the CITY to bring the work product into conformance with Section 11.3. Such changes shall not constitute "Extra Work" as related in Section 13 of this Agreement.

2.3. The CONSULTANT agrees that all services performed under this Agreement shall be in accordance with the standards of the profession and in compliance with applicable federal, state and local laws.

2.4. The Scope of Work may be amended upon written approval of both parties.

3. TIME OF PERFORMANCE. The CONSULTANT may begin work upon the Effective Date of this Agreement by both parties, or the CITY's issuance of a Notice to Proceed, whichever is applicable, and the duration of the Agreement shall extend through December 31, 2025. The work shall be completed in accordance with the schedule set forth in the attached Exhibit B.

4. PAYMENT. The CITY shall pay the CONSULTANT as set forth in this section of the Agreement. Such payment shall be full compensation for work performed, services rendered, and all labor, materials, supplies, equipment and incidentals necessary to complete the work.

4.1. The CITY shall pay the CONSULTANT as set forth in this section. In no event shall the amount paid by CITY exceed the Maximum Compensation as set forth in Section 5, unless otherwise agreed to by the CITY in writing. Such payment shall be full compensation for work performed, services rendered, and all labor, materials, supplies, equipment and incidentals necessary to complete the work.

4.2. The CONSULTANT shall submit invoices to the CITY for work completed in accordance with Exhibit A. Invoices shall detail the work, and shall itemize with receipts and invoices the non-salary direct costs.

4.3. The CITY shall review the invoices and make payment for the portion of the project or tasks that have been completed less the amounts previously paid.

4.4. The CONSULTANT invoices are due and payable within 30 days of receipt. In the event of a disputed billing, only the disputed portion will be withheld from payment.

4.5. Final payment for the balance due to the CONSULTANT will be made after the completion of the work and acceptance by the CITY.

4.6. Payment for “Extra Work” performed under Section 13 of this Agreement shall be as agreed to by the parties in writing.

5. MAXIMUM COMPENSATION.

5.1. The CONSULTANT’s total compensation and reimbursement under this Agreement, including labor, direct non-salary reimbursable costs and outside services, shall not exceed the maximum sum of \$194,996 plus tax. This amount is the maximum amount to be paid under this Agreement and shall not be exceeded without prior written authorization from CITY in the form of a negotiated and executed amendment of this Agreement.

5.2. The budget for each task is as set forth in the attached Exhibit D. Budgets for task(s) may be modified upon mutual agreement between the two parties, but in any event, the total payment to CONSULTANT shall not exceed the maximum amount per Section 5.1 above.

6. RELATIONSHIP OF PARTIES.

6.1. The relationship created by this Agreement is that of owner-independent contractor. Neither the CONSULTANT nor CONSULTANT’s employees are employees of the CITY and are not entitled to the benefits provided by the CITY to its employees. The CONSULTANT, as an independent contractor, has the authority to control and direct the performance of the details of the services to be provided. No employee, agent, representative or subconsultant of CONSULTANT shall be or shall be deemed to be the employee, agent representative or subconsultant of the CITY. The CONSULTANT shall assume full responsibility for all wages, along with any Federal, State, and local taxes or contributions imposed or required, including, but not limited to, unemployment insurance, Social Security, and income tax, payable as a result of work performed under this Agreement.

6.2. Employees of the CONSULTANT, while engaged in the performance of any work or services under this Agreement, shall be considered employees of the CONSULTANT only and not of the CITY, and claims that may arise under the Workman’s Compensation Act on behalf of said employees while so engaged, and any and all claims made by a third party as a consequence of any negligent act or omission on the part of the CONSULTANT’S employees while so engaged, on any of the work or services provided to be rendered herein, shall be the sole obligation and responsibility of the CONSULTANT. On or before the Effective Date, CONSULTANT shall file, maintain and/or open all necessary records with the Internal Revenue Service and the State of Washington, and as may be required by RCW 51.08.195, to establish CONSULTANT’s status as an independent contractor.

7. OWNERSHIP OF DOCUMENTS.

7.1. The work product and all documents produced under this Agreement shall be furnished by the CONSULTANT to the CITY, and upon completion of the work shall become the property of the CITY, for use without restriction and without representation as to suitability for reuse by any other party unless specifically verified or adapted by the CONSULTANT, except that the CONSULTANT may retain one copy of the work product and documents for its records. The CONSULTANT will be responsible for the accuracy of the work, even though the work has been accepted by the CITY.

7.2. In the event that the CONSULTANT shall default on this Agreement or in the event that this Agreement shall be terminated prior to its completion as herein provided, all work product of the CONSULTANT, along with a summary of work as of the date of default or termination, shall become the property of the CITY. Upon request, the CONSULTANT shall tender the work product and summary to the CITY. Tender of said work product shall be a prerequisite to final payment under this Agreement. The summary of work done shall be prepared at no additional cost to the CITY.

7.3. CONSULTANT will not be held liable for reuse of documents produced under this Agreement or modifications thereof for any purpose other than those authorized under this Agreement without the written authorization of CONSULTANT.

8. RECORDS. As a public agency, the CITY is subject to the Public Records Act, Chapter 42.56 RCW (the "Act"). To the extent that CONSULTANT keeps records that are deemed public records and are needed for the CITY to respond to a request under the Act, as determined by the CITY, CONSULTANT agrees to make them promptly available to the CITY. Pursuant to Chapter 40.14 RCW, CONSULTANT shall retain records associated with this Agreement in accordance with the applicable retention schedule. CONSULTANT also agrees to indemnify and hold the CITY harmless from any claims or losses caused by CONSULTANT'S failure to make records available to the CITY as provided in this Agreement.

9. NONDISCRIMINATION. The CONSULTANT shall conduct its business in a manner, which assures fair, equal and non-discriminatory treatment of all persons, in particular:

9.1. The CONSULTANT shall maintain open hiring and employment practices and will welcome applications for employment in all positions, from qualified individuals who are members of minorities protected by federal equal opportunity/affirmative action requirements; and,

9.2. The CONSULTANT shall comply with all requirements of applicable federal, state or local laws or regulations issued pursuant thereto, relating to the establishment of non-discriminatory requirements in hiring and employment practices and assuring the

service of all persons without discrimination as to any person's race, creed, color, religion, national origin, status as a military veteran, marital status, gender, sexual orientation, disability or other legally protected classification.

10. SUBCONTRACTING.

10.1. The CONSULTANT shall not sublet or assign any of the work covered by this Agreement without the written consent of the CITY.

10.2. In the event any subcontracting is approved, the subcontractor and its employees shall be required to execute the Non-Disclosure Agreement prior to being given access to any confidential information regarding the CITY's computer system.

10.3. In all solicitation either by competitive bidding or negotiation made by the CONSULTANT for work to be performed pursuant to a subcontractor, including procurement of materials and equipment, each potential subconsultant or supplier shall be notified by the CONSULTANT of CONSULTANT's obligations under this Agreement, including the nondiscrimination requirements.

10.4. In performing this Agreement, the CONSULTANT shall not subcontract with or employ any CITY employee without the CITY's written consent.

11. SUPERVISION, INSPECTION AND PERFORMANCE.

11.1. Even though CONSULTANT is an independent contractor with the authority to control and direct the performance and details of the Services, the Services must meet the approval of CITY and shall be subject to CITY's general right of inspection and supervision to secure the satisfactory completion of this Agreement.

11.2. CONSULTANT represents that it has or will obtain all personnel necessary to perform the Services and that such personnel shall be qualified, experienced, and licensed as may be necessary or required by applicable laws and regulations to perform the Services. All Services shall be performed by CONSULTANT, its employees, or by subconsultants whose selection has been authorized by CITY; provided that CITY's authorization shall not relieve CONSULTANT or its subconsultants from any duties or obligations under this Agreement, or at law, to perform the Services in a satisfactory and competent manner. CONSULTANT shall ensure that all contractual duties, requirements and obligations that CONSULTANT owes to CITY shall also be owed to CITY by CONSULTANT's subconsultants retained to perform the Services.

11.3. CONSULTANT shall be responsible for the professional quality, technical adequacy, accuracy, timely completion, and coordination of the Services and all plans,

designs, drawings, specifications, reports, and other work performed pursuant to this Agreement. CONSULTANT shall perform the Services in accordance with the standard of care of its profession in the same or similar localities at the time services are performed. CONSULTANT shall be responsible for the professional standards, performance, and actions of all persons and firms performing the Services under this Agreement. CONSULTANT shall, without additional compensation, correct any specific breach of a contractual obligation in the Services and revise any errors or omissions in any plans, designs, drawings, specifications, reports, and other products prepared under this Agreement. Within one (1) year from the date of providing any service hereunder, should such service be found to be defective by the CITY, the CITY shall identify the nature of such deficiency in writing and CONSULTANT shall have thirty (30) days from the date of receipt of such notice to correct, re-perform, or replace the defective services or item.

12. CHANGES IN WORK. Other than changes directed by the CITY as set forth in Section 1 above, either party may request changes in the scope of work. Such changes shall not become part of this Agreement unless and until mutually agreed upon and incorporated herein by written amendments to this Agreement executed by both parties.

13. EXTRA WORK. The CITY may desire to have the CONSULTANT perform work or render services in connection with this project, in addition to the Scope of Work set forth in Exhibit A and minor revisions to satisfactorily completed work. Such work shall be considered as "Extra Work" and shall be addressed in a written supplement to this Agreement. The CITY shall not be responsible for paying for such extra work unless and until the written supplement is executed by both parties.

14. TERMINATION.

14.1. The CITY may terminate this Agreement in whole or in part whenever the CITY determines, in its sole discretion that such termination is in the best interests of the CITY, upon not less than ten (10) days' written notice to the CONSULTANT. Written notice will be by certified mail sent to the CONSULTANT'S designated representative at the address provided by the CONSULTANT. If this Agreement is terminated in its entirety by the CITY for its convenience, the CITY shall pay the CONSULTANT for satisfactory services performed through the date of termination, but no amount shall be allowed for anticipated profit on unperformed Services or other work.

14.2. The CITY may terminate this Agreement, in whole or in part and at any time, in writing if CONSULTANT substantially fails to fulfill any or all of its material obligations through no fault of CITY. If CITY terminates all or part of this Agreement for default, CITY shall determine the amount of Services satisfactorily performed to the date of termination and the amount owing to CONSULTANT using the criteria set forth below; provided that (a) no amount shall be allowed for anticipated profit on unperformed Services or other work, and (b) any payment due to CONSULTANT at the time of termination may be adjusted to the extent of any additional costs CITY incurs or will incur because of CONSULTANT's

default. In such event, CITY shall consider the actual costs incurred by CONSULTANT in performing the Services to the date of termination, the amount of Services originally required which was satisfactorily completed to the date of termination, whether the Services or deliverables were in a form or of a type which is usable and suitable to CITY at the date of termination, the cost to CITY of either completing the Services itself or employing another firm to complete the Services in addition to the inconvenience and time which may be required to do so, and other factors which affect the value to CITY of the Services performed to the date of termination. Under no circumstances shall payments made under this provision exceed the Schedule of Charges. This provision shall not preclude CITY from filing claims and/or commencing litigation to secure compensation for damages incurred beyond that covered by withheld payments.

14.3. In the event this Agreement is terminated prior to the completion of the work, a final payment shall be made to the CONSULTANT, which, when added to any payments previously made, shall compensate the CONSULTANT for the portion of work completed. Whenever the Agreement is terminated in accordance with this Section 14, the CONSULTANT shall be entitled to payment for actual work performed up to the termination date. Upon such termination, whether for convenience or default, an equitable adjustment in the contract price will be made by the CITY for partially completed items of work, but such adjustment shall not include provision for loss of anticipated profit on deleted or uncompleted work. Termination under this Section 14 shall not constitute a breach of the Agreement by the CITY.

15. INDEMNIFICATION/HOLD HARMLESS.

15.1. CONSULTANT shall defend, indemnify and hold the CITY, its officers, officials, employees and volunteers harmless from any and all claims, injuries, damages, losses or suits including attorney fees, arising out of or resulting from the negligent acts, errors or omissions of the CONSULTANT in performance of this Agreement, except for injuries and damages caused by the negligence of the CITY.

However, should a court of competent jurisdiction determine that this Agreement is subject to RCW 4.24.115, then, in the event of liability for damages arising out of bodily injury to persons or damages to property caused by or resulting from the concurrent negligence of the CONSULTANT and the CITY, its officers, officials, employees, and volunteers, the CONSULTANT's liability, including the duty and cost to defend, hereunder shall be only to the extent of the CONSULTANT's negligence.

15.2. It is further specifically and expressly understood that the indemnification provided herein constitutes the CONSULTANT's waiver of immunity under Industrial Insurance, Title 51 RCW, solely for the purposes of this indemnification. This waiver has been mutually negotiated by the parties.

15.3. The provisions of this section shall survive the expiration or termination of this Agreement. Further, the indemnity obligations shall extend to claims that are not reduced

to a suit and to any claims that may be compromised prior to the culmination of any litigation or the institution of any litigation. Inspection, acceptance or payment by CITY of or for any Services performed by CONSULTANT shall not be grounds for avoidance of any Indemnity Obligations.

16. INSURANCE.

16.1. The CONSULTANT shall procure and maintain for the duration of the Agreement, insurance against claims for injuries to persons or damage to property which may arise from or in connection with the performance of the work hereunder by the CONSULTANT, its agents, representatives, employees or subcontractors.

16.2. CONSULTANT'S maintenance of insurance as required by the Agreement shall not be construed to limit the liability of the CONSULTANT to the coverage provided by such insurance, or otherwise limit the CITY'S recourse to any remedy available at law or in equity.

16.3. Minimum Scope of Insurance. CONSULTANT shall obtain insurance of the types described below:

16.3.1. Automobile Liability insurance covering all owned, non-owned, hired and leased vehicles. Coverage shall be written on Insurance Services Office (ISO) form CA 00 01 or a substitute form providing equivalent liability coverage. If necessary, the policy shall be endorsed to provide contract liability coverage; and,

16.3.2. Commercial General Liability insurance shall be written on ISO occurrence form CG 00 01 and shall cover liability arising from premises, operations, independent contractors, and personal injury and advertising injury. The CITY shall be named or added as an additional insured under the Consultant's Commercial General Liability insurance policy using ISO endorsement form CG 20 26, or coverage at least as broad; and,

16.3.3. Workers' Compensation coverage as required by the Industrial Insurance laws of the State of Washington; and

16.3.4. Professional Liability insurance appropriate to the CONSULTANT's profession.

16.4. Amounts of Insurance. CONSULTANT shall maintain the following insurance limits:

16.4.1. Automobile Liability insurance with a combined single limit for bodily injury and property damage of \$1,000,000 per accident.

16.4.2. Commercial General Liability insurance shall be written with limits of \$2,000,000 each occurrence, \$2,000,000 general aggregate.

16.4.3. Professional Liability insurance shall be written with limits of \$2,000,000 per claim and \$2,000,000 policy aggregate limit.

16.5. Other Insurance Provisions. The insurance policies are to contain, or be endorsed to contain, the following provisions for Automobile Liability and Commercial General Liability insurance:

16.5.1. The CONSULTANT's insurance coverage shall be primary insurance with respect to the CITY. Any insurance, self-insurance, or insurance pool coverage maintained by the CITY shall be excess of the CONSULTANT's insurance and shall not contribute with it.

16.5.2. Any payment of deductible or self-insured retention shall be the sole responsibility of the CONSULTANT.

16.5.3. The CONSULTANT'S insurance shall contain a clause stating that coverage shall apply separately to each insured against whom claim is made or suit is brought, except with respects to the limits of the insurer's liability.

16.6. Acceptability of Insurers. Insurance is to be placed with insurers with a current A.M. Best rating of not less than A:VII.

16.7. Verification of Coverage. CONSULTANT shall furnish the CITY with original certificates and a copy of the amendatory endorsements, including but not necessarily limited to the additional insured endorsement, evidencing the insurance requirements of the CONSULTANT before commencement of the work.

16.8. Cancellation. CONSULTANT will provide notice to the CITY of any cancellation of coverage by no later than three (3) days after CONSULTANT is notified by its insurer that coverage will or has been canceled, whichever occurs earliest.

17. LIMITATION OF LIABILITY. Notwithstanding any other provision of this Agreement to the contrary, the liability of CONSULTANT to the CITY in connection with this



Agreement, for any claim whatsoever related to this Agreement, including any cause of action in contract, tort or strict liability, and including any obligations to indemnify the CITY as set forth in this Agreement, shall not exceed the limits of the insurance as set forth in Section 16 of this Agreement.

18. APPLICABLE LAW/VENUE. This Agreement shall be construed and interpreted in accordance with the laws of the State of Washington. The Parties shall attempt in good faith to resolve any dispute arising out of or relating to this Agreement, or any breach hereof or any Work performed hereunder, promptly by negotiation between executives who have authority to settle the controversy. Any party may give the other party written notice of any dispute not resolved during the normal course of business. Within thirty (30) days after delivery of the initial notice, the executives of both parties shall meet at a mutually acceptable time and place and use good faith efforts to resolve the dispute. In the event that the parties are unable to settle the dispute through direct negotiations as set forth above, all remaining controversies or claims shall then be submitted to mediation within ten days from written notice of concluded negotiations. Mediation will follow the Commercial Mediation Rules published by the American Arbitration Association effective September 1, 2022. Mediation shall occur in Kittitas County, Washington unless the parties mutually agree to virtual mediation (and with agreement of the mediator). Each party shall bear its own costs and attorney fees for mediation. The parties reserve all rights to pursue any claim or litigation in law or equity if mediation does not resolve the dispute. The venue of any litigation brought hereunder shall be Kittitas County.

19. NOTICE. All communications regarding this Agreement shall be sent to the parties at the addresses listed below, or at such other address as given pursuant to this Section, and shall be effective on the next business day if sent by registered or certified mail or deposited with an overnight delivery service.

City of Ellensburg
Light Department
Attention: Paul Meyer
Email: meyerp@ci.ellensburg.wa.us
501 N. Anderson
Ellensburg, WA 98926

POWER Engineers, Inc
Kyle Bennett, PE (Project Manager)
Email: kyle.bennett@powereng.com
491 Teanaway Road
Cle Elum, WA 98922

20. ENTIRE AGREEMENT. The written terms and provisions of this Agreement, together with all referenced Exhibits, supersede all prior verbal statements of any officer or other representative of CITY, and such statements shall not be effective or be construed as entering into or forming a part of, or altering in any manner whatsoever, this Agreement. The entire agreement between the parties with respect to the subject matter hereunder is contained in this Agreement and the referenced Exhibits.

21. PRIORITY OF DOCUMENTS. In the event that the language and provisions of this Agreement are contrary to or conflict with any language or provisions set forth in any exhibit to this Agreement, the language and provisions of this Agreement shall control, and the contrary or conflicting language or provisions of the exhibit(s) shall be disregarded and shall be considered void.

22. MODIFICATION. No waiver, alteration, or modification of any of the provisions of this Agreement shall be binding unless in writing and signed by a duly authorized representative of CITY and CONSULTANT.

23. ASSIGNMENT. Any assignment of this Agreement by CONSULTANT without the prior written consent of CITY shall be void.

24. WAIVER. A waiver of any breach by either party shall not constitute a waiver of any subsequent breach.

25. THIRD-PARTY BENEFICIARIES. There are no third-party beneficiaries to this Agreement.

26. EXHIBITS AND SIGNATURES. This Agreement, including its exhibits, constitutes the entire Agreement, supersedes all prior written or oral understandings, and may only be changed by a written amendment executed by both parties. The following exhibits are hereby made a part of this Agreement:

- Exhibit A – Scope of Work
- Exhibit B – Schedule for the Work
- Exhibit C – Consultant Labor Costs and Non-salary Reimbursable Costs
- Exhibit D – Budget for Each Task
- Exhibit E – Non-Disclosure Agreement



REQUEST FOR QUALIFICATIONS R23-02

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first written above.

CONSULTANT:

By: _____

Printed
Name: _____

Title: _____

Tax ID#: _____

THE CITY OF ELLENSBURG:

By: _____

Printed
Name: _____

Title: _____

ATTEST: _____

Clerk

Approved as to Form:

City Attorney

EXHIBIT A - SCOPE OF WORK

POWER Engineers (POWER) is submitting this proposal in response to the City's request for development of a 2023 Electric System Plan (20 year look ahead) and a 6-year Capital Facilities Plan (2024-2029) that will review and update the City's current Comprehensive Plan that was adopted in 2017. It is our understanding that the City's distribution system consists of 4 substations and 14 feeders. The population growth estimates for years 2017-2037 is 2% per year, which would increase the population of the City by approximately 11,757 during the next 20 years. The plan will consider 20-year load growth estimates with detailed focus on the six-year period for 2024-2029. Consulting and study work will be in accordance with City practices and typical industry standards.

The study is a guide for developing the City's existing system toward the capacity level which will be required at the end of the plan period. By planning for the construction of new facilities and expansion of existing facilities at appropriate times, interim changes or system additions will be compatible with the final (end of plan) system configuration. The study will provide recommendations based upon system analyses, review of the system's operating records, previous studies conducted by the City, the City's staff knowledge, and other applicable data. System modifications and additions, cost estimates, and identification of proposed system improvements required to meet the load forecast and system configuration scenarios will be developed in the study.

The study will evaluate the City's existing system at current loading, at future load levels for the 2024-2029 period and investigations as to the capabilities of the system to provide quality service for the next 20 years. Key elements include changes to load growth areas, forecasts, system improvements, and future planning including assessing the Bonneville Power Administration transmission capacity and providing a road map for future transmission capacity. The resulting report will position the City's Energy Service Department to identify the impacts of the change in energy use.

A major projects construction program will be developed to transition the existing system to the conceptual future system with the required mitigation of identified deficiencies to adequately meet the City's service requirements. Construction projects will be identified, prioritized and costs estimated to assist with the City's fiscal planning requirements. Specific tasks that must be conducted to complete the study include:

- Work with City staff to gather the information and data required to perform the study.
- Interview City staff to define growth patterns, system deficiencies and planning criteria.
- Prepare a non-coincident load forecast for each individual distribution feeder. End of study period and transition load levels will be determined for system evaluation.
- Develop planning criteria and evaluate the system.
- Review the entire existing DNV-GL SynerGEE software model for accuracy against the City's AutoCAD model and make all necessary revisions required to match the AutoCAD model.
- Perform load flow simulations of the City's system for the existing and transition configurations, to determine how the system will respond to future demands.
- Analyze distribution switching/backfeed configurations during N-1 conditions.
- Investigate and analyze conservation voltage reduction programs that currently exist and how potential changes to federal, state, and local laws, codes, standards may affect the City.

- Identify alternate solutions, including cost estimates, for system improvements. Consult with the City to choose the alternates for the final recommended transition plan.
- Prepare a construction program, including associated estimated costs and schedules, for each element of the transition plan.
- Validate BPA transmission capacity limits and determine what reconfiguration or line improvements may be required to support the City's potential load increases.
- Video conference with City staff to review the draft report document, revise and issue the final report document.
- Prepare and present a Power Point summarization of the Final Report to the City's Utility Advisory Committee.

PROPOSED WORK SCOPE

The following presents our work plan prepared specifically for your project. Our work plan does the following:

- Defines the scope of work so you know exactly what we intend to do.
- Lists the deliverables that you will receive.
- Identifies your key project concerns and our proposed solutions.
- Serves as a ready-made project control system when the project begins.
- Becomes the foundation for project scheduling and budgeting throughout the project life.

TECHNICAL SPECIFICATIONS

Task 0 – Project Management

0.1 Project Management

Provide project supervision. Monitor the progress of the work, enforce compliance with the general project procedures, assure timely task completion, review status reports, and expedite the work by providing for the coordination of and allocation or redirection of resources.

Deliverable(s): Schedules and Updates, Workplan Updates

0.2 Project Administration

Prepare and submit to the City monthly status reports. Summarize the progress of the work, costs, work expected to be accomplished in the next month, problems, trends, and/or delays and the reasons for and actions being taken to bring those areas back on schedule or budget.

Deliverable(s): Monthly Status Reports, Invoicing

Task 1 – Project Initiation

1.1 Data Acquisition

Develop and transmit to the City a data requirements list specifying information required from the City, to include, but not be limited to:

- System maps, circuit diagrams, station one-line diagrams
- Current SynerGEE databases (summer and winter)

- Project status for projects listed in the 2017 Electric System Plan and Comprehensive Plan for 2017-2037
- Load forecasts including new large load additions
- Historical outage information
- Known existing system deficiencies
- City's cost estimating guidelines
- List of known "desired" projects to be included
- Reliability data and operational driven projects to be included
- PSLF or Power World model of BPA's Central Washington Region including Moxie, Columbia, Dolarway, and interconnected stations.
- BPA published transmission assessment plans for this region.
- City's South Substation Siting Study
- City of Ellensburg Emissions Plan
- City of Ellensburg Zero Emissions Transit Plan
- Central Washington University's Geothermal Plan

Review and become familiar with the data and information provided by the City. Develop a filing system for the data to facilitate retrieval and use of the data.

Deliverable(s): Data Requirements List

1.2 Preliminary Conference

A project scoping meeting will be held at the City's offices after detailed review of the data supplied by the City. System field survey is not included in this scope of work, however, this work can be accommodated as the City feels appropriate.

Deliverable(s): Proposed Report Format, Conference Minutes

Task 2 – Load Forecasts and Planning Criteria

2.1 Load Forecasts

Allocate peak kW demand projections for each City substation and feeder based on the City's forecasting and growth rates provided by the City. Load growth will be based on a population increase of 11,757 during the next 20-years. A 6-year peak kW demand projection for each feeder will be based on non-coincident peak loading. The load projections will be tabulated in spreadsheet format, by year. Known newly proposed spot loads (Continental Cold Storage, WinCo Foods and a Marijuana growing facility, County Transfer Station, CWU Boiler System) will be included in the forecasts as well as possible new Data Center Sites within the system. The forecast will also include EV Market penetration and fuel switching adoption rate.

Deliverable(s): System load projections.

2.2 Planning Criteria

Document the agreed upon criteria for acceptable voltage levels, loading of facilities and age/reliability standards. The planning criteria will be based on City and industry standard practices.

Deliverable(s): The City and POWER agreed upon planning criteria documentation.

Task 3 – Existing System Analysis

3.1 Distribution Substations

Review the voltage, capacity, and adequacy of each existing distribution substation. Review the existing City guidelines, standards, and operation and maintenance practices. Develop recommendations, using City input, for modifications and/or

improvement to these existing practices. Develop recommendations as to the optimum voltage, capacity, and configuration for the development of the study.

Deliverable(s): Existing distribution substation review results

3.2 **Distribution System Model**

Update the existing 6-year-old SynerGEE model to current configurations. It is assumed that this effort will require approximately sixty (60) hours to complete.

3.3 **Distribution System**

Utilize the SynerGEE computer model of the distribution system for load flow analyses. Using this model, POWER will perform load flow and voltage drop analyses of the existing distribution system, including projects completed from the previous Electrical System Plan, at base year loads (N-0 conditions). These computed results (voltage and capacity) will be compared with recent City supplied field City measurements and/or readings, with the model being adjusted as necessary to reflect actual system conditions. The need for additional or upgraded distribution lines to maintain acceptable voltage, capacity, power factor, current balance, losses, backfeed (N-1) of each feeder capabilities and reliability will be examined during the development of the study (Task 4).

Deliverable(s): Existing distribution system analysis results.

Assumption(s): It is assumed that emergency backfeed analysis will be performed for those adjacent feeders identified by the City; POWER will provide and the City will review/approve of the existing system calculated performance.

Task 4 – 20-Year Look Ahead and 6-Year Capital Facilities Plan (2024-2029)

4.1 **Distribution System**

Utilize the SynerGEE computer model of the distribution system for the plan period under system intact and N-1 conditions. Utilize the non-coincident peak loading developed in Task 2.1 for existing feeders to perform load flow analyses for the distribution system to identify voltage and capacity restraints including emergency back feed (N-1) analysis be performed for those adjacent feeders identified by the City. The study will review each feeder power factor and existing capacitor bank locations and provide suggestion for the removal, relocation, or addition of switched or fixed capacitor banks including kVAR sizing. Review the existing installation of the City and privately owned photovoltaic (PV) systems and identify system improvements to support current and future PV systems. Develop plan alternatives (where possible) for the intermediate system load within the 6-year load level period developed in Task 2.1.

Deliverable(s): Alternative distribution project identification to mitigate system constraints.

Assumption(s): The N-1 cases identified in the 2017 Electric System Plan will be considered.

4.2 **Volt/Var Investigation**

Determine the potential energy savings from implementing voltage reduction and voltage/VAR optimization tools. Review the existing distribution system, feeder and substation loading and provide recommendations for the following:

- Identify current and potential federal, state, and local laws, codes, standards, or regulations regarding the implementation of a conservation voltage programs.

- Analyze the impact of a CVR, VVO, and DVR program on the electrical distribution system.
- Determine the minimum and optimal voltage reductions of CVR, VVO, and DVR that customers are not affected as a result.
- Provide recommendations for design standards required to implement a CVR, VVO, and DVR program.

4.3 **Natural Gas Investigations**

New regulations and energy codes are discouraging the use of natural gas as an energy source in new construction. Additionally, agencies are offering incentives and rebates to perform fuel switching away from natural gas to electric.

Identify current and potential federal, state, and local laws, codes, standards, or regulations regarding the restrictions on the use of natural gas and their potential impact on the electrical distribution system. Provide recommendations for new feeder installation and/or existing feeder improvement resulting from the reduced use of natural gas as an energy source.

- Provide recommendations for revised design standards to address the increasing electrical loads associated with the reduced use of natural gas as an energy source.
- Identify the potential impacts of fuel switching to existing residential distribution systems for both newer underground residential neighborhoods and older overhead neighborhoods.

4.4 **Electrical Vehicle Charging Stations**

With the increasing market for electric vehicles (EV) and the increased load associated with the private and commercial charging stations the City is concerned with the impacts of this trend on the utility's distribution system. Review the existing distribution system, feeder and substation loading and provide recommendations for the following:

- Identify current and potential federal, state, and local laws, codes, standards, or regulations regarding the installation requirements for EV's and their potential impact on the electrical distribution system.
- Provide recommendations for new feeder installation and/or existing feeder improvement for large commercial charging stations located at both the west and south interchanges. These charging stations will be 25 or more level 3 DC fast charging stations.
- Provide recommendations for revised design standards to address the increasing electrical loads associated with residential car chargers in new residential developments.
- Identify the potential impacts of EV chargers to existing residential distribution systems for both newer underground residential neighborhoods and older overhead neighborhoods.
- Discuss the impacts of Clustered EV adoption.
- Review the City's current rate schedule and discuss a rate class specific for EV charging or large EV charging stations.

4.5 **Development of System Improvement Options**

Utilize results of the existing system analysis, planning criteria, and design considerations to formulate improvement plans that will accommodate additional services and loads. Within the development process for the alternative plans, consider the results of future demand levels, replacement of

aging infrastructure; service reliability; and geographic, environmental, and governmental constraints.

Deliverable(s): Alternative major project identification

Assumption(s): Alternatives will be limited to three per feeder mitigation.

4.6 Comparison of System Improvement Options

For each of the alternative plans identified, develop net present value cost estimates for the transition of the existing system through 2029. Organize the comparison of each plan to assist in the selection of the preferred alternative.

Deliverable(s): Cost estimates and benefit identification

4.7 Demand Response Program

Present a program and path for the City to use to establish a Demand Response Program. POWER will include in the report a program that defines the steps the City will need to take to generate public support/interest, understand technology requirements, overall project costs and schedule, and to consider the pros and cons of a program for its customers. Challenges will be presented to show primary concerns and hurdles faced by organizations that have implemented similar programs.

POWER will supply examples of forms, surveys, strategies, techniques, and anticipated costs for implementing a program. This scope of work will begin with the customer engagement phase and end with the presentation of anticipated benefits, costs, schedule, and technology requirements for consideration by the UAC.

4.8 System Model Software Migration Investigation

POWER will include in the report discussion on the impacts of changing the City's electrical system modeling software. System planning and analysis can be performed with higher levels of accuracy and confidence when system information is frequently updated. This allows for more precise planning of funds and direction of resources. Up to date system models can assist in reduced costs in engineering and unplanned maintenance. Options, challenges, advantages, disadvantages, cost estimates, modules, implementation phasing.

POWER will include a generalized comparison of the capabilities of the existing software and alternative software. POWER will include in the report each software with the associated options/modules, implementation challenges, advantages, disadvantages, general cost estimates, and estimated schedule to implement. POWER will identify the type of information database that each option can interface with, to position the City in determining if migration from their existing SynergEE program is beneficial. the City can use the information as they consider changes in software and data management platforms.

4.9 Benefits of AMI Implementation

The City is investigating the implementation of Advanced Metering Infrastructure (AMI) throughout the distribution system. POWER will include discussion and evaluation of the benefits of applying AMI to support the long range and construction work plans. Identifying benefits of AMI and how AMI can be used to defer or delay infrastructure improvements will be beneficial to the City. The report will include known capabilities of various AMI providers to give the City an ability to begin developing an RFP for that system implementation and to be used in evaluating any potential solution. AMI strategies and techniques (ex. outage tracing and management, load forecasting, demand response actions) to fully leverage the selected product will be described in the report as possible solutions to system

performance issues. These solutions will be considered based on the City's proposed AMI integration schedule. POWER will also offer recommendations and lessons learned of past AMI deployments for the benefit the City as it evaluates its options.

4.10 Interim Conference

Conduct an Interim Video Conference to discuss alternatives and comparison of alternatives. Determine the alternative that is most suitable for the City based on in-depth discussion of pros and cons of each.

Deliverable(s): Conference Minutes

4.11 Development of Electric System Plan

Following City's approval of POWER's recommended alternative or selection of a different alternative, incorporate the appropriate alternative into the ESP. The plan will address and include the following items, as applicable:

- An orderly construction program development to eliminate waste, due to early obsolescence or inadequacy of facilities.
- Generate cost estimates, using City cost data, for each alternative.
- Transition schedule of each project, from the existing to future system based on load development.
- Upgrade or replacement of existing facilities
- Routing and site selection criteria for major new facilities
- System investment scheduling that is in step with expected load growth
- Maximum use of opportunities to improve the quality of service at minimal cost.
- A combination of the best alternatives considering economics and system reliability.
- Assign project numbers based on the previous ESP projects to develop a priority scoring method.

Task 5 – Additional Services

- 5.1** POWER will support the City's engineering staff by performing additional services or studies as requested and directed, that relate to the long-range performance of the distribution system. the City and POWER will discuss each request to define requirements and deliverables. A report of findings will be delivered to the City for all agreed upon requests.

Task 6 – BPA Consultation

- 6.1** Review the City's current BPA peak demand, BPA billing records, projected growth, future large customers and the L0527 Line, Load Interconnection Feasibility Study and any other BPA system documentation. Evaluate BPA's Columbia Line and Moxee Line current loading and their capacity for future growth and single point large customers. Provide recommendations for the City to use when approaching BPA regarding improving the transmission capacity for the City.

Task 7 – Reports

7.1 Draft Report and Review Conference

Prepare and issue, in electronic format, drafts of the City Construction Work Plan for the City's review and comment. Report format will include table of contents, introduction, executive summary, discussion, findings and conclusions by Task

along with supporting appendices and drawings. An early draft (10%) and 2nd draft (30%) will be provided to the City for review. Approximately two (2) weeks after receipt of the draft, conduct a draft review video conference with City management and staff to discuss the content and format of the report.

Deliverable(s): Draft Report and teleconference minutes.

7.2 **Final Report**

After receipt of comments from the City relative to the draft City Construction Work Plan, review the comments and revise the report to incorporate changes agreed upon by the City and POWER. It is understood that these revisions will be limited to minor corrections and/or additions relative to the alternative selected by the City and will not include additions to the agreed-upon scope of work for the project. Submit copies of the final City Construction Work Plan document to the City. Model databases used for the analysis will be submitted to the City electronically with the final report.

Deliverable(s): Two (2) copies of Final Report, electronic copies of SynerGEE databases and Word, Excel, etc. files.

7.3 **Plan Presentation**

Prepare and present a Power Point summarization of the Final Report to the City's Utility Advisory Committee.

LIST OF DELIVERABLES

The list of deliverables within the above scope of work includes:

- Schedules and Updates
- Monthly Status Reports, Invoicing
- Data Requirements List
- Preliminary Conference, Proposed Report Format, Conference Minutes
- System Load Projections Summary Documentation
- Planning Criteria Documentation
- Existing Distribution Substation Review Results
- SynerGEE Model Updates
- Existing Distribution System Analysis Results
- Volt/Var Optimization Results
- Potential Impacts of Electric Vehicle charging stations
- Potential Impacts of Reduction On Use of Natural Gas
- Alternative Distribution Project Identification to Mitigate System Constraints
- Cost Estimates and Benefit Identification
- Discussion of BPA System Constraints and Mitigation Proposals
- Interim Conference Minutes
- 30% Draft Report (early-stage report to confirm approach, format, and findings).
- Draft Report and Teleconference Minutes
- Final Report and Electronic Copies of native files
- Presentation of the Final Report to the City's Utility Advisory Committee

EXHIBIT B - PROPOSED SCHEDULE

The final schedule, considering the input from the city, includes each element of the transition plan and will be based on the deliverables listed in each subtask in the work plan (Scope of Work).

SCHEDULE

POWER agrees with the City's required schedule to prepare the study as listed below.

Milestones	Completion Date
1. Signed Agreement for Professional Services	November 13, 2023
2. Utility Advisory Committee consideration	November 16, 2023
3. City Council accepts Agreement for Professional Services	November 16, 2023
4. City provides consultant notice to proceed	November 20, 2023
5. Consultant requests City to provide records and Information	November 24, 2023
6. Consultant submits draft System Plan report to City	March 14, 2024
7. City provides feedback on draft System Plan report	March 28, 2024
8. Consultant provides final System Plan Report	May 2, 2024
9. Consultant presentation to the Utility Advisory Committee	May 16, 2024
10. City Council accepts as complete	June 3, 2024

POWER ENGINEERS, INC.
SCHEDULE OF CHARGES – 2023

This standard Schedule of Charges is for professional services. Unless agreed otherwise, charges for work on continuing projects will be based on the then current Schedule of Charges. A new Schedule of Charges will be issued to be effective January 1 of each new year and as necessary on an intermediate basis to accommodate new items or revised charges. Invoices will be submitted monthly and/or upon completion of the work and will be due and payable when issued. All accounts not paid within thirty (30) days after Owner's receipt of the invoice will bear a **SERVICE CHARGE OF 1.0% PER MONTH** for each month the invoice is unpaid.

GRADE	PERSONNEL CLASSIFICATION	
13	President	\$220.00/hr.
	Executive Vice President	
	Senior Project Manager IV	
12	Project Manager Director	\$220.00/hr.
	Senior Project Manager III	
11	Senior Project Manager II	\$220.00/hr.
	Senior Program Manager II	
	Principal Engineer II	
10	Senior Project Manager I	\$220.00/hr.
	Senior Program Manager I	
	Senior Project Engineer III	
	Senior Project Lead III	
	Strategic Consultant III	
	Principal Engineer I	
9	Project Manager III	\$210.00/hr.
	Senior Project Lead II	
	Construction Manager III	
	Senior Project Engineer II	
	Strategic Consultant II	
	Senior Consultant III	
	Senior Engineer II	
8	Project Manager II	\$192.00/hr.
	Senior Project Lead I	
	Strategic Consultant I	
	Senior Consultant II	
	Senior Project Engineer I	
	Construction Manager II	
	Senior Engineer I	
7	Project Manager I	\$169.00/hr.
	Project Lead II	
	Construction Manager I	
	Environmental Specialist IV	
	Project Engineer II	
	Engineer IV	
	Designer V	
	Project Administrator III	
	Senior Consultant I	
6	Project Lead I	\$156.00/hr.
	Project Engineer I	
	Engineer III	
	Designer IV	
	Environmental Specialist III	
	Procurement Specialist III	
	Scheduling Specialist III	
	Project Administrator II	
	Consultant III	
5	Engineer II	\$143.00/hr.
	Designer III	
	Technician IV	
	Environmental Specialist II	
	Procurement Specialist II	
	Scheduling Specialist II	
	Project Administrator I	
	Consultant II	
4	Engineer I	\$132.00/hr.
	Designer II	
	Drafter IV	
	Technician III	
	Environmental Specialist I	
	Procurement Specialist I	
	Field Representative IV	
	Scheduling Specialist I	
	Project Managers Assistant III	
	Consultant I	
3	Designer I	\$117.00/hr.
	Drafter III	
	Technician II	
	Field Representative III	
	Staff Assistant II	
	Project Managers Assistant II	
2	Drafter II	\$99.00/hr.
	Staff Assistant	
	Field Representative II	
	Project Managers Assistant I	
1	Drafter I	\$80.00/hr.
	General Office Assistant	
	Field Representative I	

Personnel with specialized experience are employed by or on retainer to POWER. Charges for these specialists are negotiated on an individual basis depending on the assignment. Professional time for depositions and testimony is charged at 1.5 times the rate for services; full-day minimums apply.

POWER ENGINEERS, INC.
SCHEDULE OF CHARGES – 2023

This standard Schedule of Charges is for professional services. Unless agreed otherwise, charges for work on continuing projects will be based on the then current Schedule of Charges. A new Schedule of Charges will be issued to be effective January 1 of each new year and as necessary on an intermediate basis to accommodate new items or revised charges. Invoices will be submitted monthly and/or upon completion of the work and will be due and payable when issued. All accounts not paid within thirty (30) days after Owner's receipt of the invoice will bear a **SERVICE CHARGE OF 1.0% PER MONTH** for each month the invoice is unpaid.

REPRODUCTION

Drawings – Black & White

Large Scale Drawings (C Size)	\$1.90/ea.
Large Scale Drawings (D Size)	\$3.30/ea.
Large Scale Drawings (E Size)	\$5.50/ea.

Drawings – Color

Large Scale Drawings (C Size)	\$6.00/ea.
Large Scale Drawings (D Size)	\$10.90/ea.
Large Scale Drawings (E Size)	\$17.50/ea.

Documents – Black & White

Single-sided Copies	8 x 11 \$0.11/ea.	11 x 17 \$0.17/ea.
Double-sided Copies	8 x 11 \$0.22/ea.	11 x 17 \$0.34/ea.

Documents – Color

Single-sided Copies	8 x 11 \$0.50/ea.	11 x 17 \$1.00/ea.
Double-sided Copies	8 x 11 \$1.00/ea.	
Spiral Comb		\$2.65/ea.
3 Ring Binder	Dependent on size	
Special Copy Center Projects (Labor)		\$45.00/hr.

SURVEY EQUIPMENT

Survey Equip. to support field crew		\$70.00/day
GPS Equipment 2 Units	\$60.00/hour	\$350.00/day
GPS Equipment 3 Units	\$80.00/hour	\$450.00/day

Other expenses including but not limited to subcontractors, airfare, lodging, meals, postage and shipping, purchases, rentals, are charged at cost plus a carrying and handling charge of 10%.

Communication Charge - including but not limited to VOIP charges, file sharing cloud services, and web collaboration sites, charged at 1% of labor billing charges.

CAD and Software Usage Charge – charged at 3% of labor billing charges. This charge covers CAD application and design software including: AutoCAD, MicroStation, Autodesk Revit, PLS-Cad, Smart Plant P&ID, electrical studies software, and other design software as required.

EXHIBIT D - BUDGET

We've developed the following budget based on our understanding of this project's scope of work. Please review the budget carefully and contact us with any questions. Our budget is based on the deliverables listed in each subtask in Exhibit A.

BUDGET SUMMARY BY TASK					
Task	Description	Hrs	Labor \$	Exp \$	Total \$
0	Project Management	75	13,500	700	14,200
1	Project Initiation	40	6,596	400	6,996
2	Load Forecast and Planning Criteria	26	4,032	0	4,032
3	Existing System Analysis	145	20,880	1,120	22,000
4	20-Year Look Ahead and 6-Year CFP	547	82,630	0	82,630
5	Additional Services	95	19,950	0	19,950
6	BPA Consultation	91	14,292	600	14,892
7	Reports	162	26,548	700	27,248
PROJECT TOTAL		1,181	\$188,428	\$3,520	\$194,996

Public Works & Utilities Monthly Report

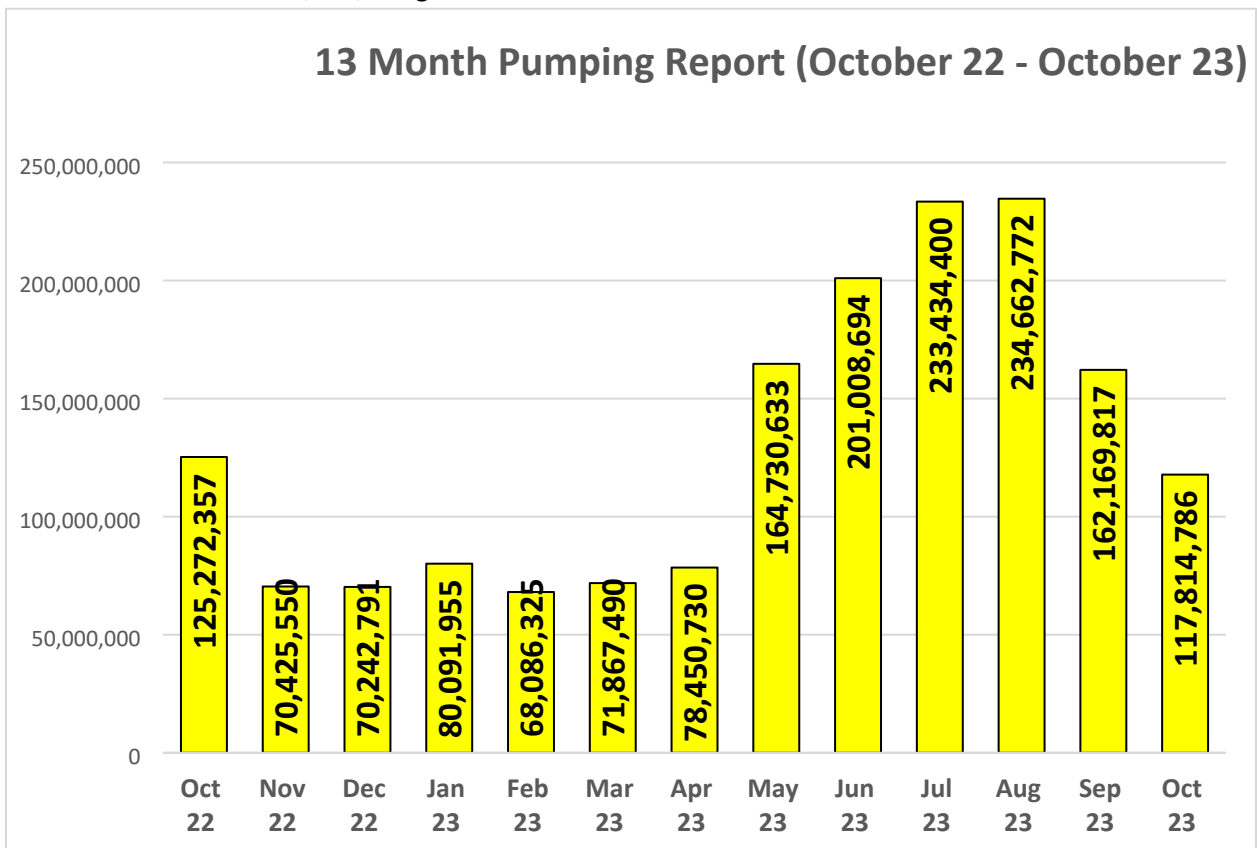
Date: November 2023

Sewer:

- Staff met with the Washington Department of Fish and Wildlife (WDFW) at the outfall to the Yakima river to discuss the removal of river rock that has accumulated over the diffusers. Permission has been granted to perform the displacement of some of the rock under the City's HPA. Staff plan to do the work in mid-November.
- One fine screen has been fabricated and installed at the headworks of the Wastewater Treatment Facility. The second is currently being built and should be received within a few weeks.
- Biosolids testing has been completed and approval has been given to Natural Selection Farms to begin hauling for beneficial reuse. Staff hope to have all the biosolids removed by the middle of November.
- Staff have been working with Iron Horse Brewery (IHB) on a renewal to the wastewater discharge agreement between IHB and the City. The current agreement expires on November 30, 2023.

Water:

- Crews are still receiving requests and installing new meters this fall in developments and on projects such as Gateway 1.
- Staff have been working with RH2 and the Department of Health on the Water System Plan Update.
- Crews are getting ready for winter by installing insulation in meter boxes in new developments.
- Seasonal disconnects are complete and staff are finishing up the dead-end flush list.
- Water pumped during October of 2023 was 117,814,786 gallons. The amount of water pumped in October of 2022 was 125,272,357 gallons.



Stormwater and Street Trees:

- Staff is actively writing the annual stormwater management plan (SWMP) and will take to the UAC when finished.
- Staff is actively writing a stormwater pollution prevention plan (SWPPP) for the city shop and wastewater treatment facility. This is a new requirement from Ecology.
- Training for all field crews for both the SWPPP and SWMP will be held the first week of December.
- Gateway 1 is nearing substantial completion, and the contractor will have to come back in the spring and address several punch list items before final completion is awarded.
- Gateway 2 is moving towards 90% design while at the same time undertaking the federal and state permitting. Construction will likely take place 2025-2026.
- Phase 2 of the Dolarway levee project is working through some cultural issues with a consultant while at the same time dealing with water rights issues and irrigation distribution to customers along Dolarway.
- City staff will hold a meeting with the County regarding the FCAAP grant on November 7th to discuss moving forward with project and required match.

Electric:

- Potelco will be onsite through the middle of November with a primary focus on replacing poles identified by our pole testing contractor for replacement.
- Staff advertised a request for qualifications RFQ R23-02 for the Electrical System Plan. The city received six submittals and has selected Power Engineers as the most qualified consultant. Staff is finalizing the fees, scope of work and the contract.
- Light Dept. staff is working with the Gas Dept. To extend duct and vault system up Hwy 97 under the railroad to Hwy 10.
- Staff advertised Bid Call 2023-15 Tree Trimming for the trimming of trees around Light department equipment and power lines. Staff received one bid from Uribe's Tree Service, the contract was awarded at the Nov. 6th City Council meeting.
- City Light crews will be shorthanded through the month of November. They will focus on customer service and critical work such as services, street-light maintenance, traffic signal maintenance, outages, connect/disconnects and locates.
- The draft Sustainability and Energy plan is being reviewed by staff and will be distributed to the Steering Committee ahead of their next meeting on October 24th.
- Submitted a Grant application in mid-August for the Solar Park Upgrade. The application is still under review but is expected to be acceptable to Department of Energy.

Gas:

- Staff and crews continue working on OQ hands-on and computer based training sessions and updating OQ records.
- Crew members will be attending the Williams Pipeline Fire School in November at the Williams LNG plant in Plymouth, WA.
- Staff continues to review material inventory and projected needs in anticipation of supply chain issues. Timely material acquisition continues to be an issue.
- Granite Service Line and System Loop project is still under design review and permitting.
- On Wednesday, November 8, Avista was alerted to an incident impacting the Williams Pipeline natural gas system between the cities of Pullman and Colfax. This incident, which caused the largest natural gas outage in Avista's history, led to the downstream loss of natural gas service to approximately 37,000 customers in the Albion, Pullman, Palouse, and Lewiston/Clarkston regions. Ellensburg's natural gas utility was able to respond to the request for mutual aid and deploy two of our Operator Qualified crewmembers to assist over 300 mutual aid partners from across the western United States and around

60 private and local HVAC contractors. Including Avista personnel, over 800 individuals are responding to restoration services during this historic event. These crews are working 16-hour shifts to relight natural gas appliances between the hours of 6 a.m. and 10 p.m. As of Sunday November 12, an estimated 50% of services had been restored and Avista is still expecting to have natural gas services fully restored to each zone by the end of day Tuesday.