RESOLUTION NO. 2024-02

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF ELLENSBURG to adopt the 2024 Sustainability and Energy Plan.

WHEREAS, at the City of Ellensburg City Council Study Session on January 2, 2024, staff presented the Final Draft of the Sustainability and Energy Plan for City Council feedback; and

WHEREAS, the Sustainability and Energy Plan was guided by the 2023-2028 Ellensburg City Council Strategic Vision (Resolution 2022-17) - Energy & Resource Management and Sustainable Infrastructure Pillars; and

WHEREAS, the Sustainability and Energy Plan was guided by Washington State's 2019 Clean Energy Transformation Act (CETA)(Chapter 19.405 RCW) compliance laws to address the climate crisis by achieving a zero-emission electricity supply by 2045; and

WHEREAS, the Sustainability and Energy Plan was also guided by Washington State's 2021 Climate Commitment Act (CCA)(Chapter 70A.65 RCW) compliance laws to address the climate crisis by reducing greenhouse gas emissions by 95% by 2050; and

WHEREAS, the Sustainability and Energy Plan was also guided by the 2019 Washington Clean Buildings Act to lower costs and pollution from fossil fuel consumption in the state's existing covered buildings and multifamily dwellings, and

WHEREAS, the Sustainability and Energy Plan considers the needs of the entire community, and the impact emission reduction actions may have on them, the city-owned electric and gas utilities, and the municipality; and

WHEREAS, purpose of the Sustainability and Energy Plan was to develop a combined, cohesive plan detailing how the sustainability and energy portions of the strategic vision will be executed, while remaining in compliance with state energy and climate legislation and considering the needs and impacts of the most vulnerable residents in the community.

NOW, THEREFORE, BE IT RESOLVED, by the City Council of the City of Ellensburg, Washington, as follows:

Section 1. The "Whereas" provisions set forth above are hereby incorporated in this Resolution as findings in support of the actions authorized in this Resolution.

Section 2. The City of Ellensburg City Council hereby adopts the Sustainability and Energy Plan attached hereto as Exhibit 1 and commits to the Sustainability and Energy Plan as the standard that guides the City when making future decisions to amend or adopt ordinances and

policies to address local impacts of climate change and comply with greenhouse gas emission regulations.

ADOPTED by the City Council of the City of Ellensburg this 16th day of January, 2024.

Mayor

Attest: Beth Leader

City Clerk

SUSTAINABILITY AND ENERGY PLAN

City of Ellensburg WASHINGTON

2024

City of Ellensburg
Sustainability and Energy Plan
prepared by:

McKinstry

Cumming Group

Lighthouse Energy Consulting

Critical Data Strategies, LLC

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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*

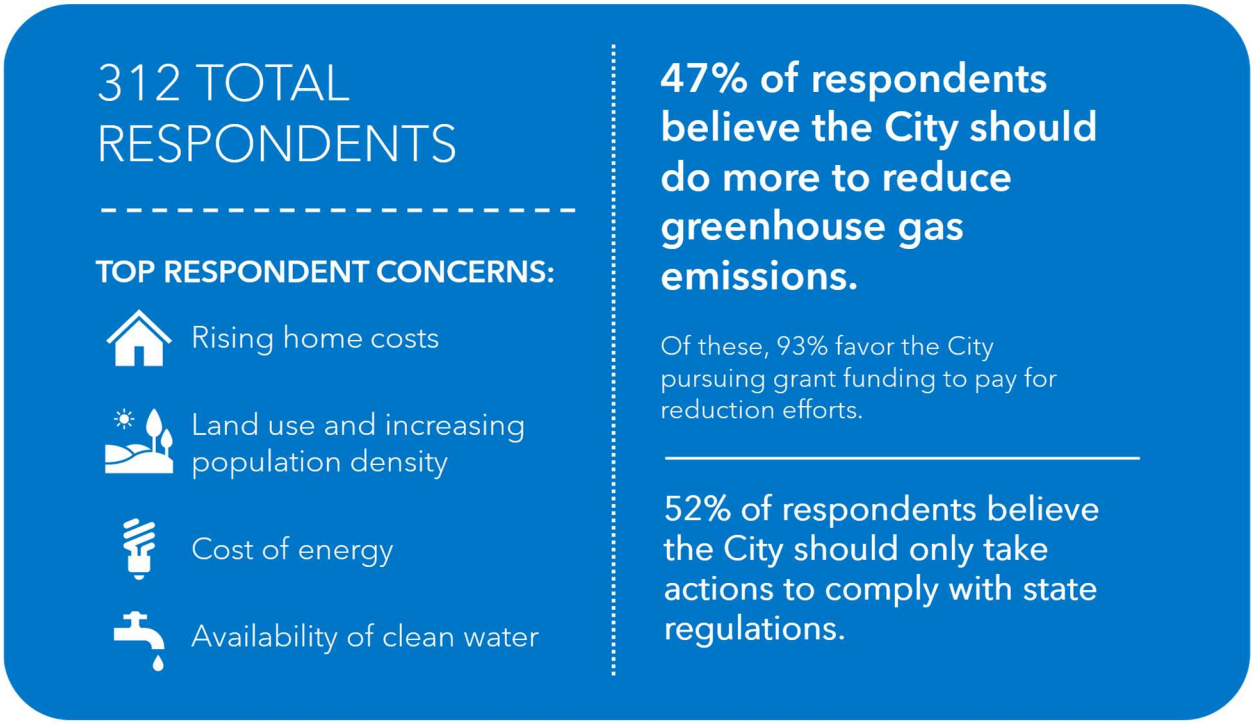
Finalized and adopted its first-ever *Sustainability and Energy Plan* in 2024.

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.

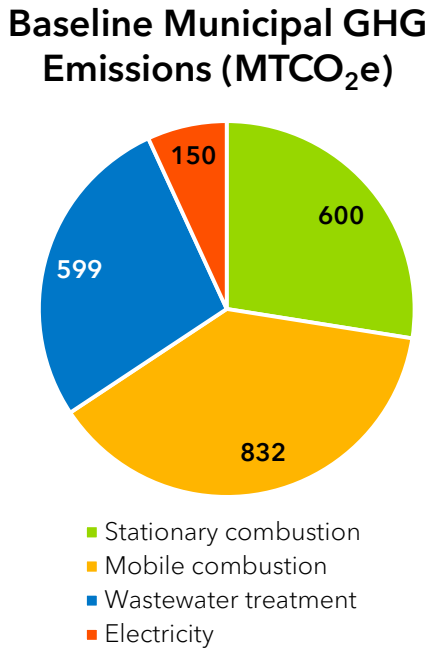
Figure E-1. Sustainability and Energy Plan Community Survey Highlights



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*.

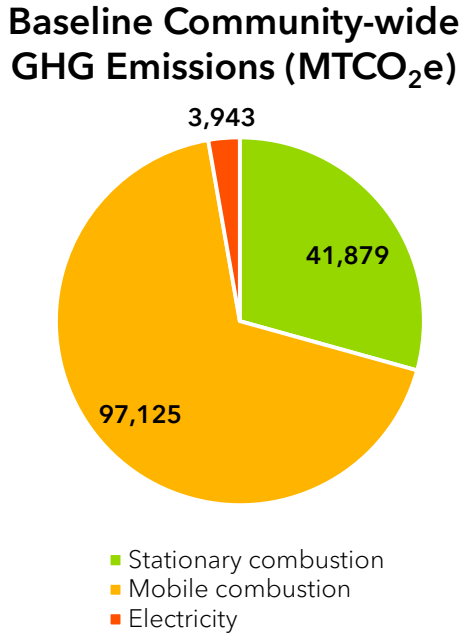
Figure E-2. Baseline Municipal GHG Emissions by Source



Baseline Emissions

Baseline municipal emissions totaled 2,181 metric tons of carbon dioxide equivalent ($MTCO_2e$), 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%.

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

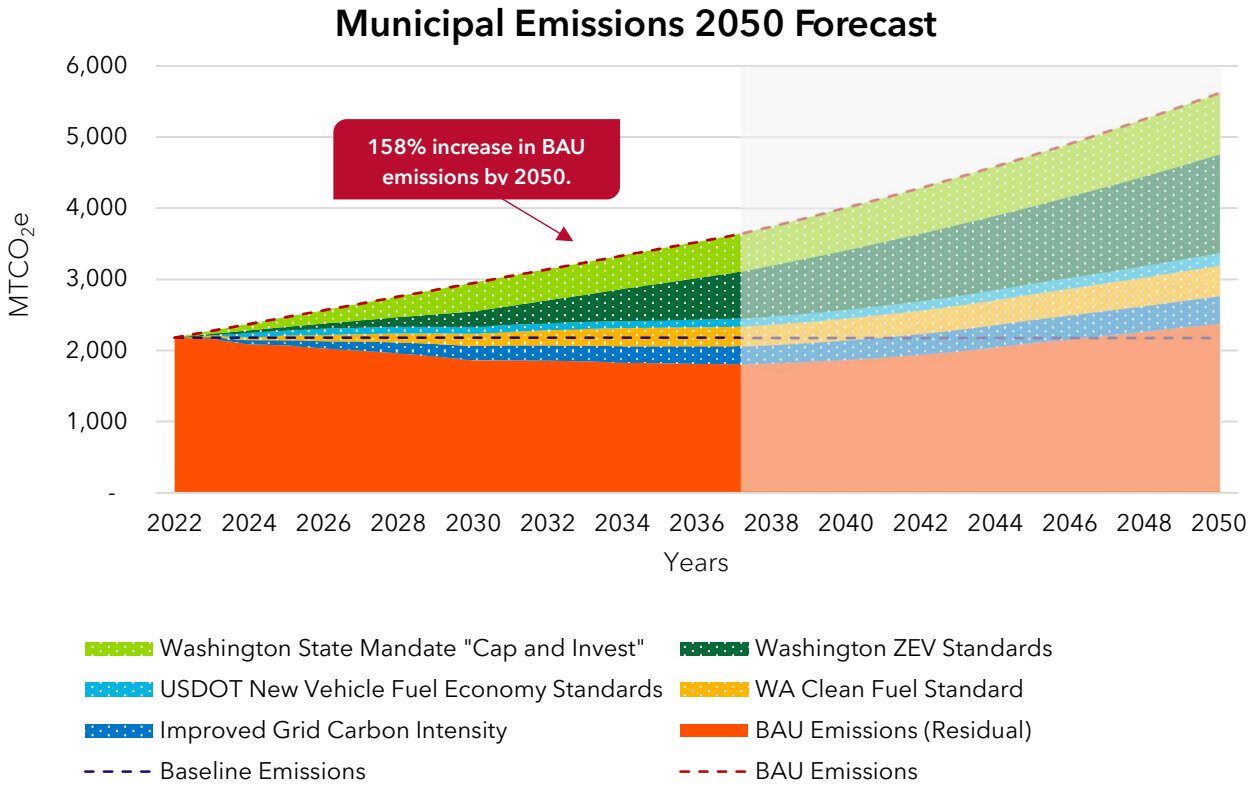


Baseline community-wide emissions totaled 142,947 $MTCO_2e$. They are broken down by source in Figure E-3. Scope 1 emissions (stationary combustion and mobile combustion) make up 97% of community-wide emissions, mostly coming from private and commercial vehicles and natural gas use in residential, commercial 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.

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.

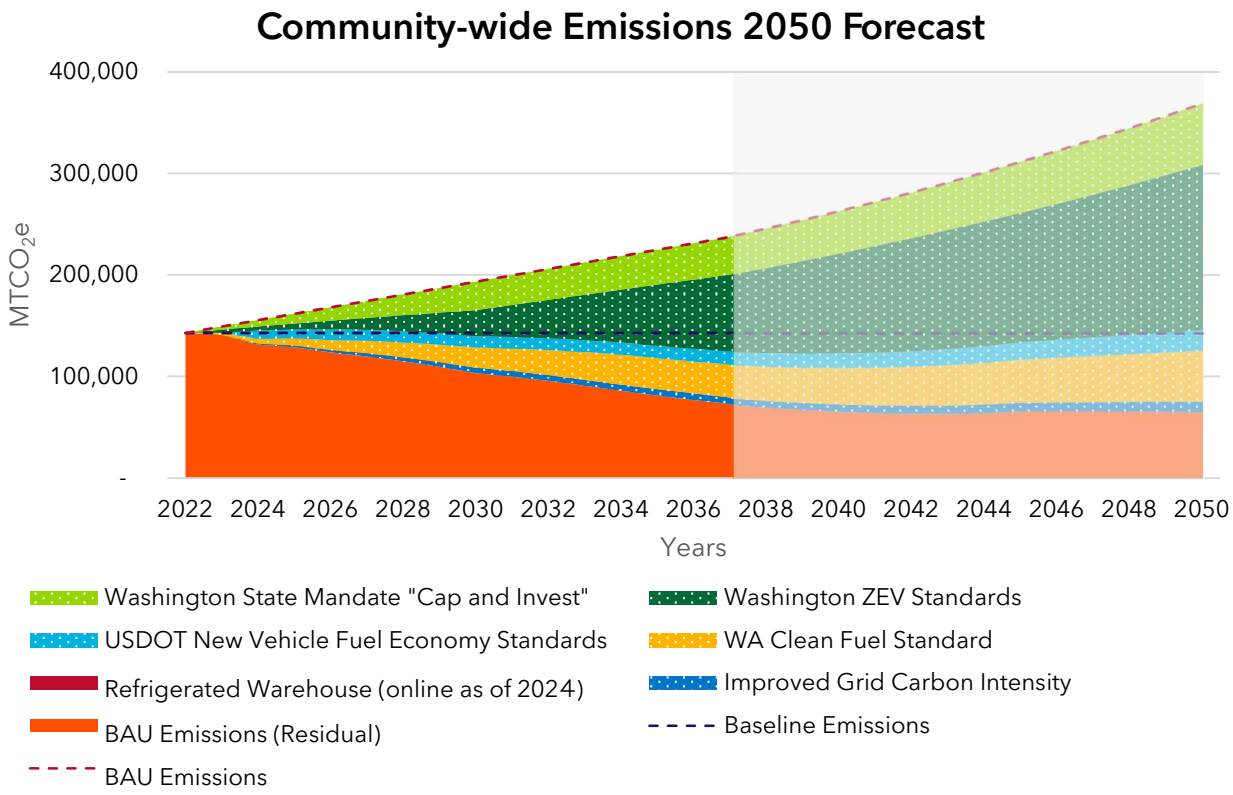
Figure E-4. Municipal Emissions 2050 Forecast



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

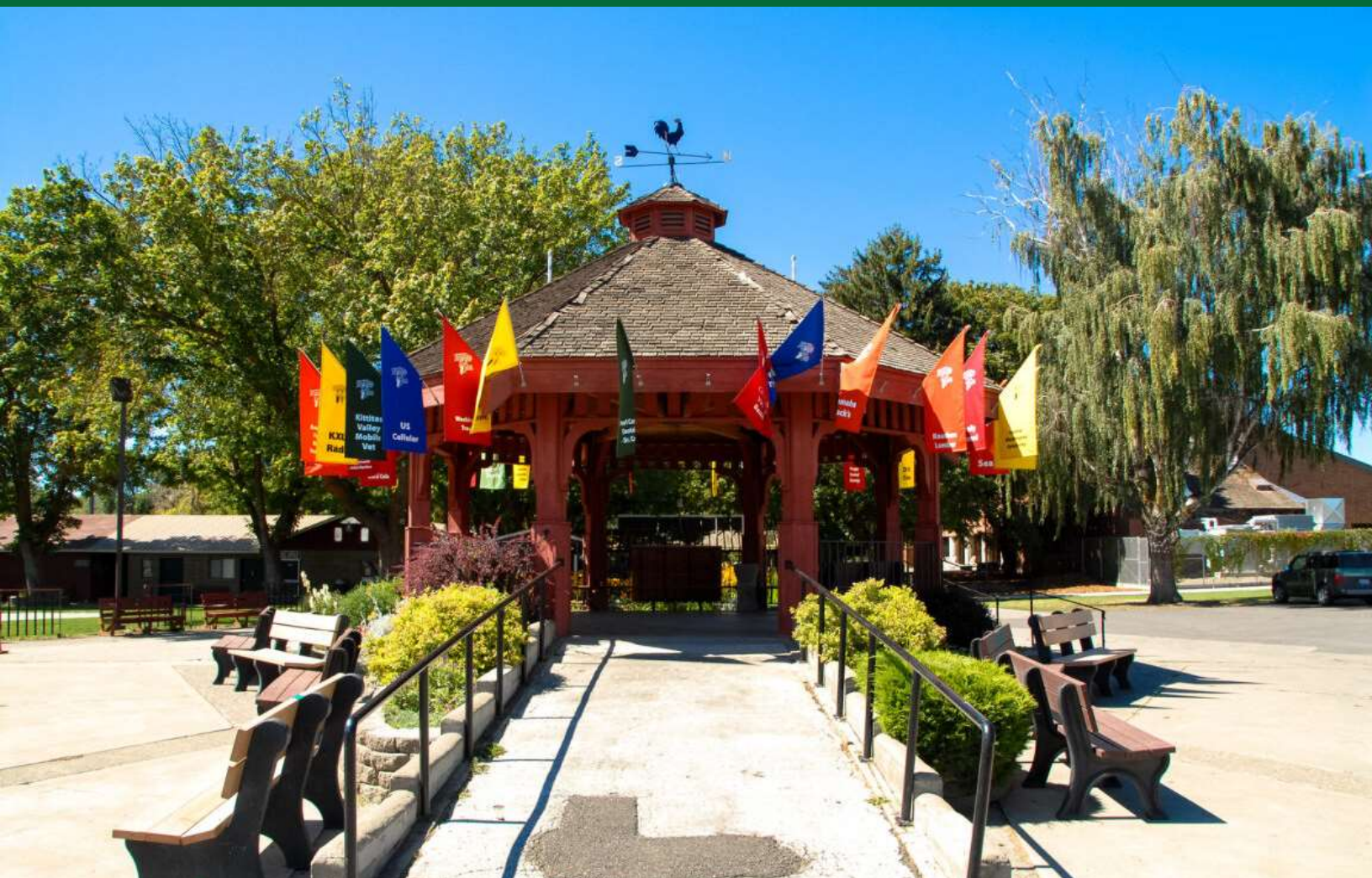
Ellensburg will also evaluate actions for implementation with specific consideration for emissions reduction, community equity and potential co-benefits (e.g., improved air pollution, reduced resource use, climate resilience).

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 Ellenburg'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 Green[5] 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

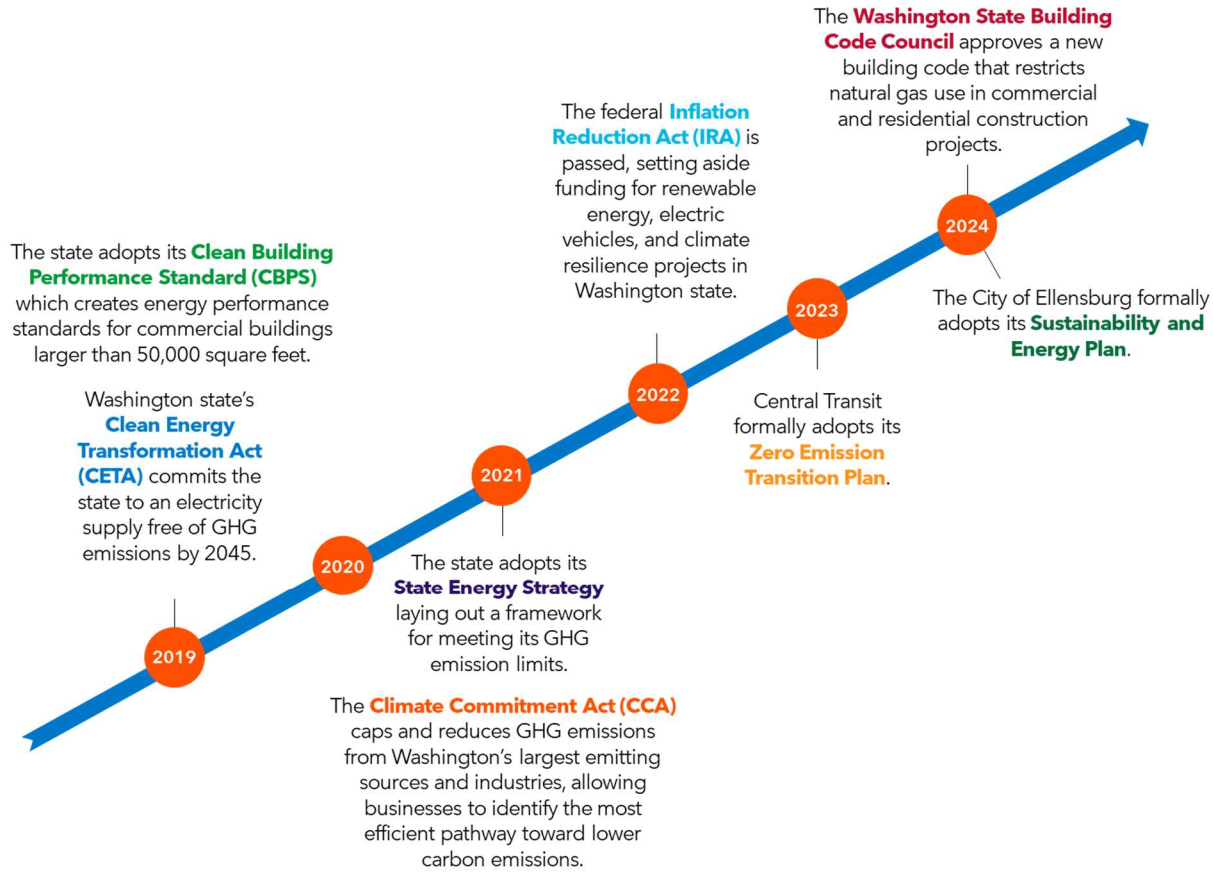
Ellensburg's *SEP* is intended, first and foremost, to establish a roadmap for the City to align with and achieve the goals and mandates set by state legislation. In particular, this Plan will ensure that Ellensburg complies with Washington State's 2019 Clean Energy Transformation Act (CETA), which requires 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 2024.

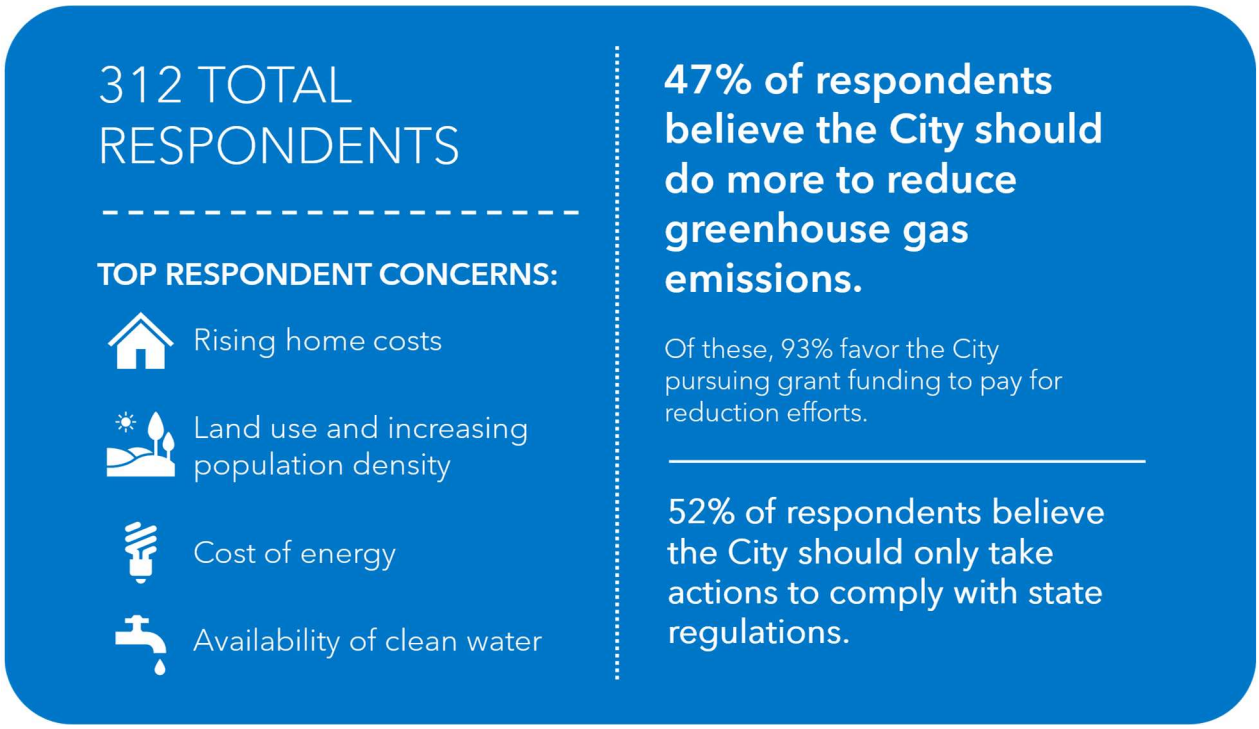
Figure 1-3. *Sustainability and Energy Plan* Development Process

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

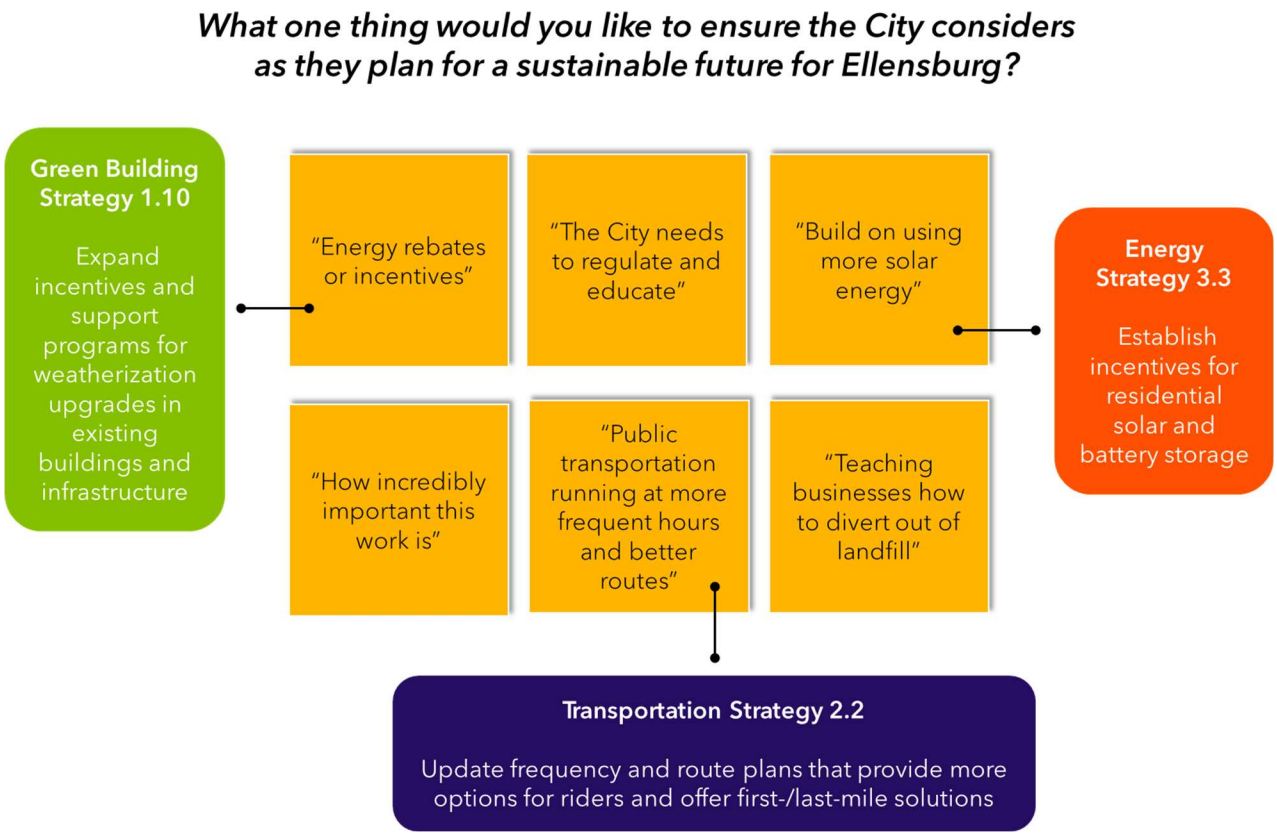


Detailed survey results are included in the appendices to this Plan. Highlights are shown in Figure 1-4, and direct quotes from respondents are featured in Figure 1-5.

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 ($MTCO_2e$).** 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

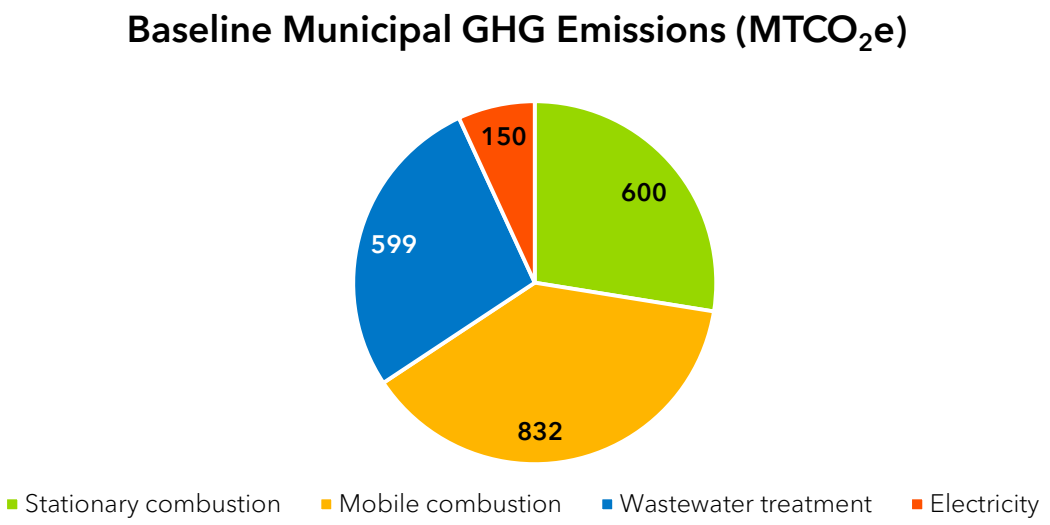


Table 2-1. Baseline Municipal GHG Emissions by Scope and Source

Emissions Source	Emissions ($MTCO_2e$)	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 $MTCO_2e$**. 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

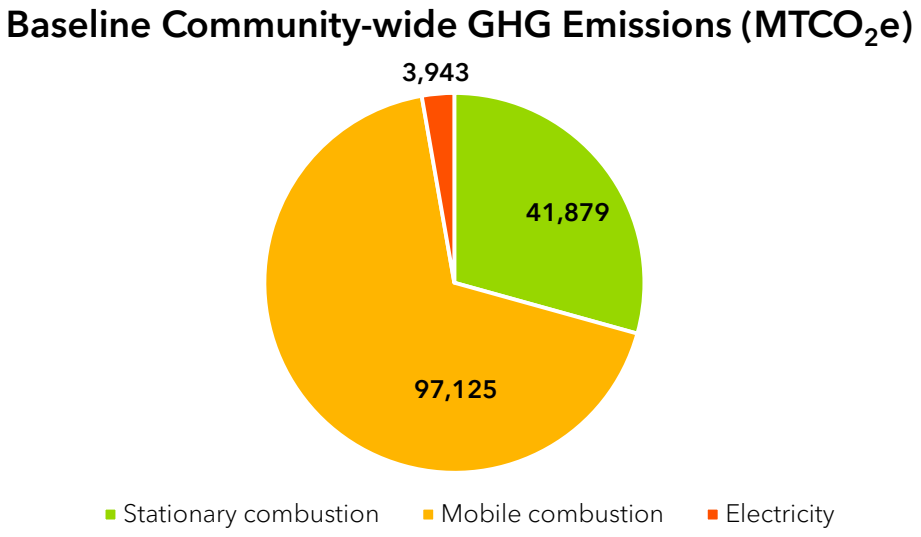


Table 2-2. Baseline Community-wide GHG Emissions by Scope and Source

Emissions Source	Emissions ($MTCO_2e$)	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 ($MTCO_2e$)	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%**

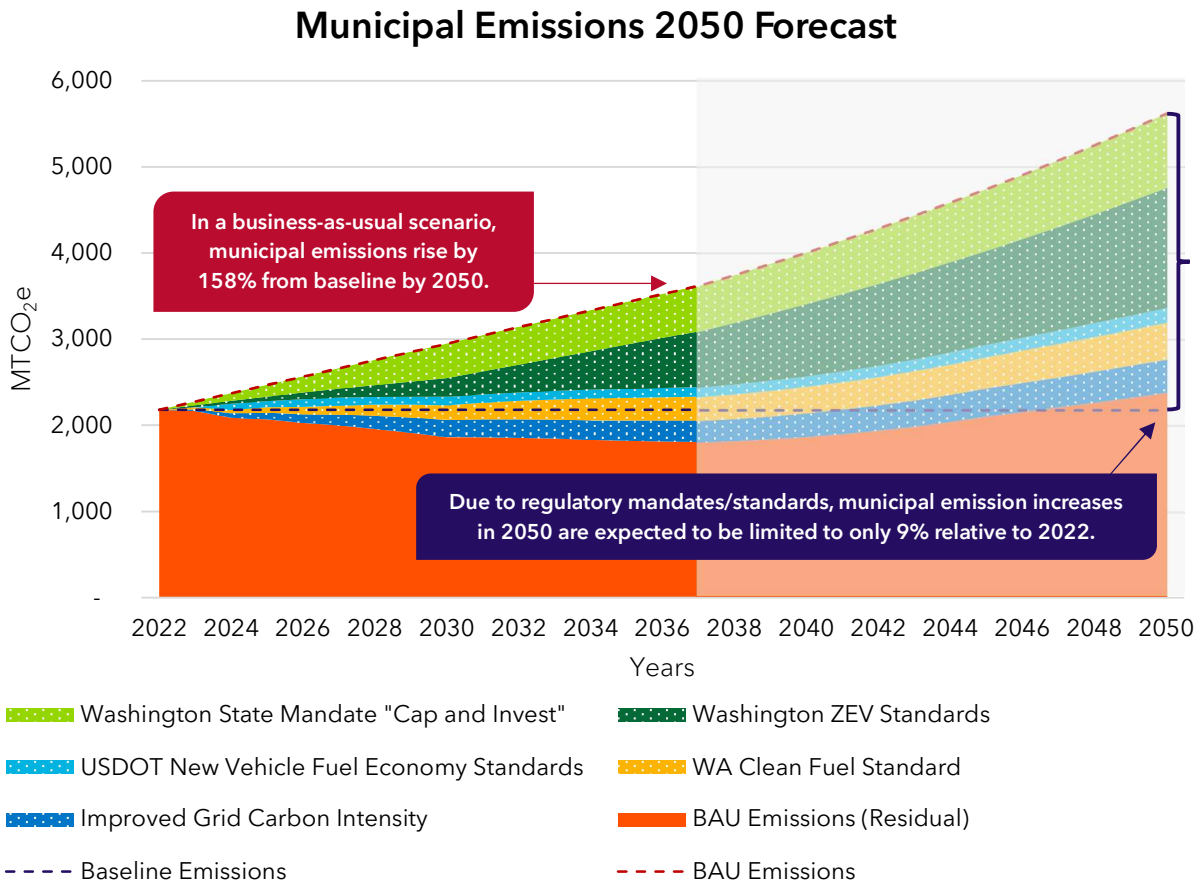
2.4 Projected GHG Emissions

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

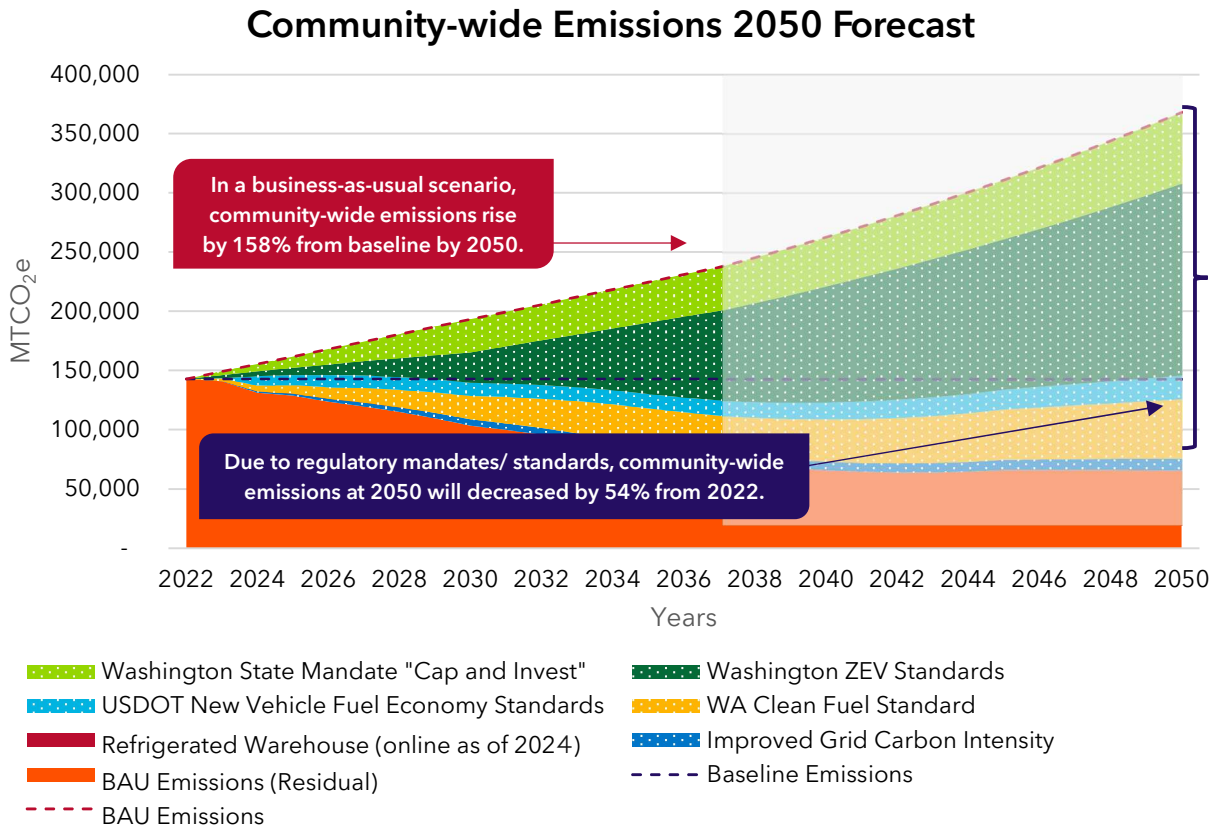


Community-wide Emissions

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

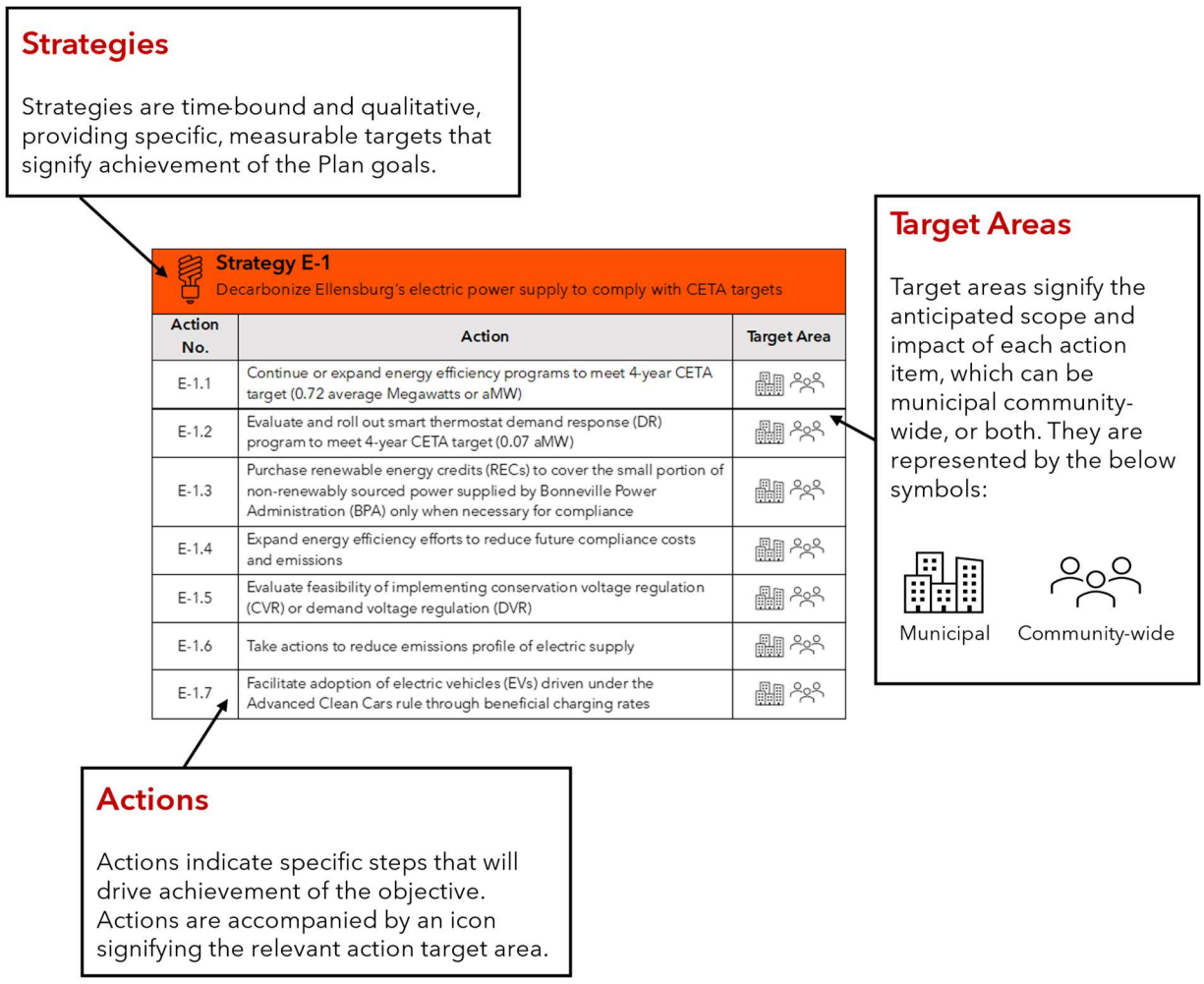


Table 3-1. Sustainability and Energy Roadmap Categories and Strategies

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 and businesses 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 high-efficiency, low-emission energy options and incentives	
E-3.8	Explore renewable and non-emitting power generation alternatives	
E-3.9	Assess the impacts of increased electricity loads on electric transmission and distribution systems	
E-3.10	Develop a strategy to ensure reliable supply for peak power demand	
E-3.11	Explore innovation in energy efficiency measures and renewable resources with Central Washington University to benefit workforce and economy	

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, storage 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	Explore and expand community renewable facilities	

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 *Zero Emission Transition Plan*	
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 *Citywide Transit Master Plan* 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	
T-2.9	Work with partners to improve regional transportation options	

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 *Active Transportation Plan*	
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 needed 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	
T-3.9	Adopt a policy to prefer roundabouts where feasible at strategic intersections and begin a program to purchase adequate rights-of-way	

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,) to support groundwater retention and water recycling	
W-1.2	Introduce water conservation interventions at the building level (e.g., low-flow appliances, xeriscaping) to reduce 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 ($MMTCO_2Eq$)." The carbon dioxide equivalent for a gas is derived by multiplying the tons of the gas by the associated global warming potential. $MMTCO_2Eq$ = (million metric tons of a gas) * (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.

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 hexafluouride.[9]

[9] United States Environmental Protection Agency. 2013. <https://sor.epa.gov/sor_internet/registry/termreg/searchandretrieve/glossariesandkeywordlists/search.do>.

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

CH_4: Methane

CNG: Compressed Natural Gas

CO_2: 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

N_2O: 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 organization[11].

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 (BOD_5) input (kg BOD_5/day).
    b. Percentage of BOD_5 removed in primary treatment.
    c. Average Total Nitrogen Discharged (kg N/day).
    d. Percentage of CH_4 in biogas – using EPA default value of 35%.
    e. Digester Biogas Produced Daily (ft^3/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 CH_4 and N_2O 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 **CO_2, CH_4, and N_2O emission factors were separately** available; in order to fill out the EPA Calculation tool, Cumming estimated the emission factors based on the CO_2e factor in Fuel Mix Disclosure page from Washington State Department of Commerce and the EPA eGRID factors for CO_2, CH_4, N_2O 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.

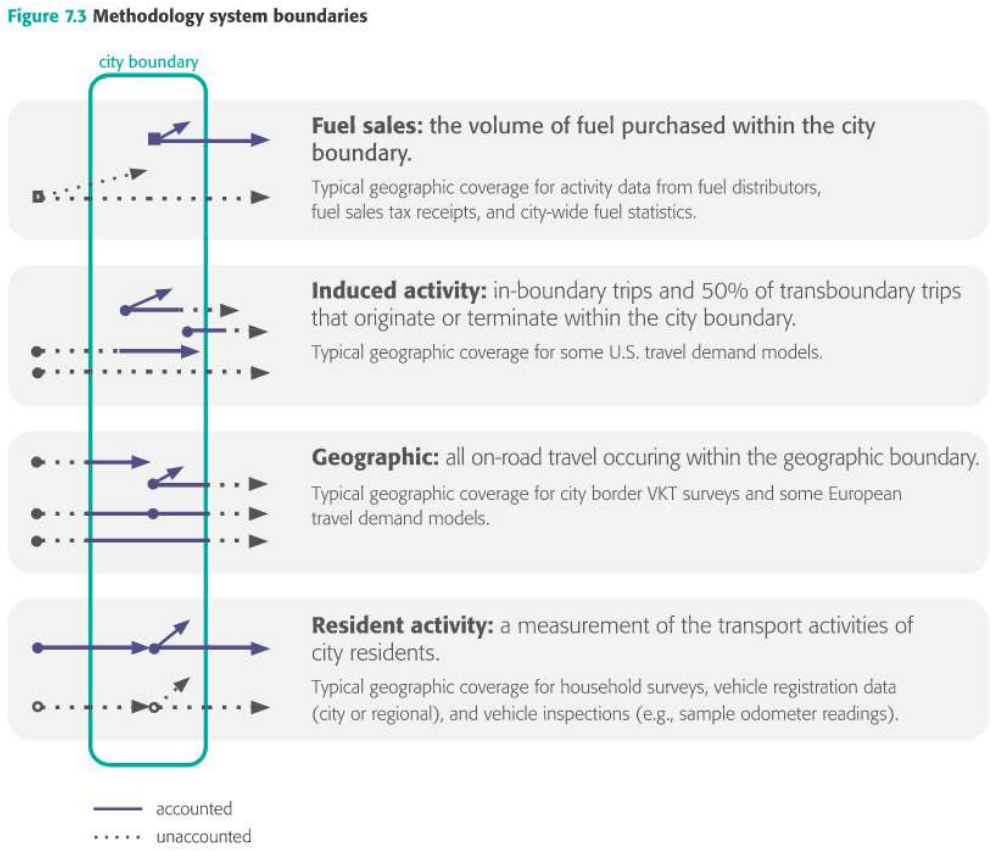
Community GHG Inventory

- 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 Inventories[12].

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



[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 Monitorying 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 descripted 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 2024, consuming 33,000 MWh of electricity per year. This was modeled under the BAP scenario for community GHG in ventory.

APPENDIX C: LISTS OF TABLES AND FIGURES

C.1 List of Tables

C.2 List of Figures

APPENDIX D: CONSERVATION POTENTIAL ASSESSMENT RESULTS

LIGHTHOUSE ENERGY CONSULTING

TO: Buddy Stanavich, City of Ellensburg

FROM: Ted Light, Lighthouse Energy Consulting

SUBJECT: Utility Potential Calculator Results

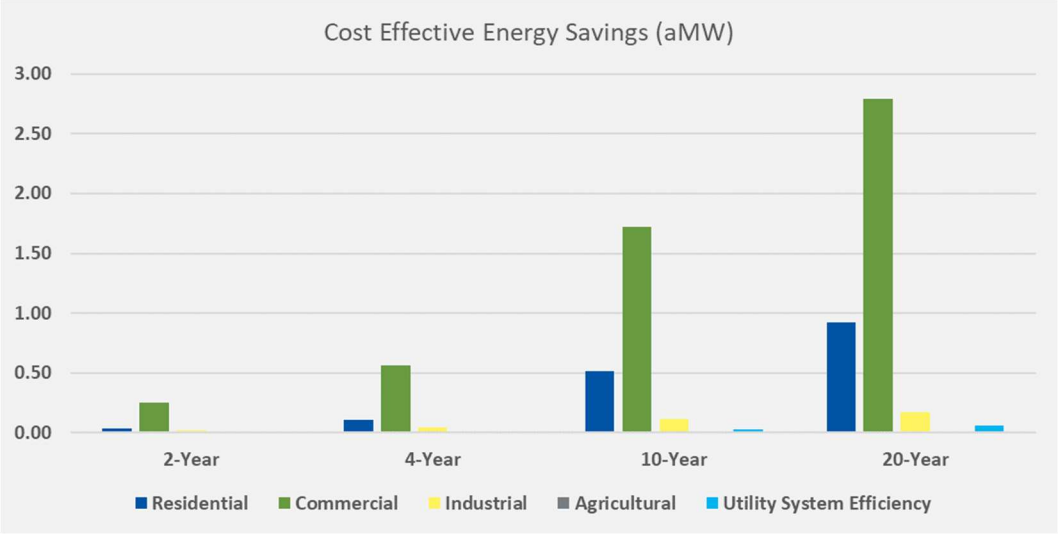
DATE: March 8, 2023

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.

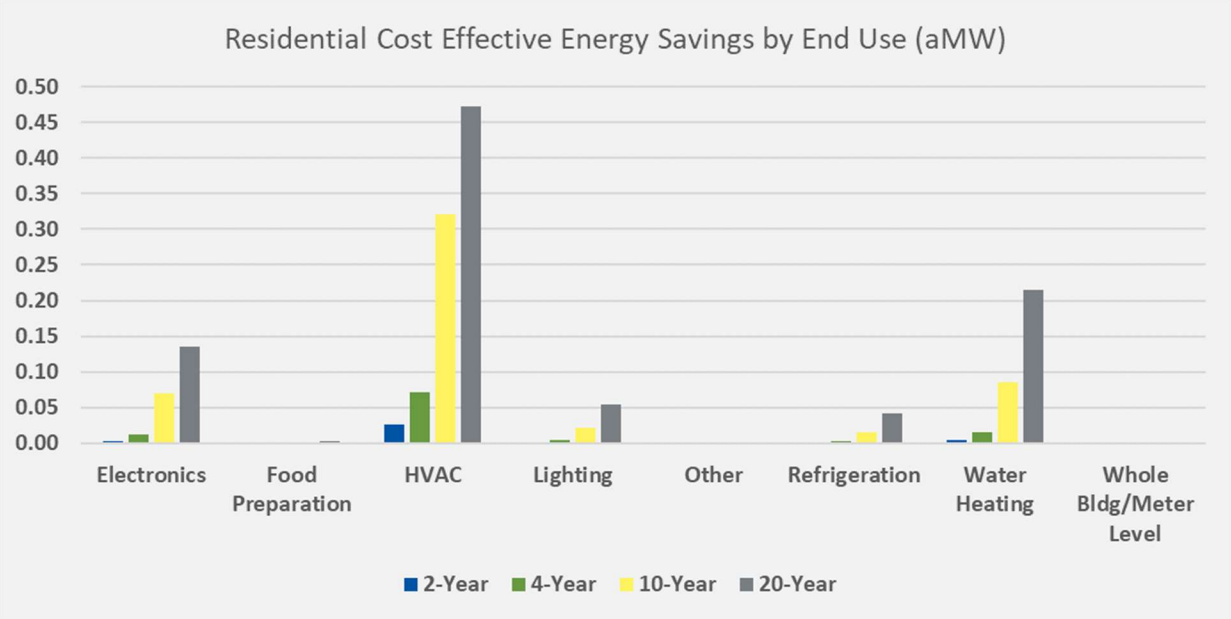
Sector Results

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.

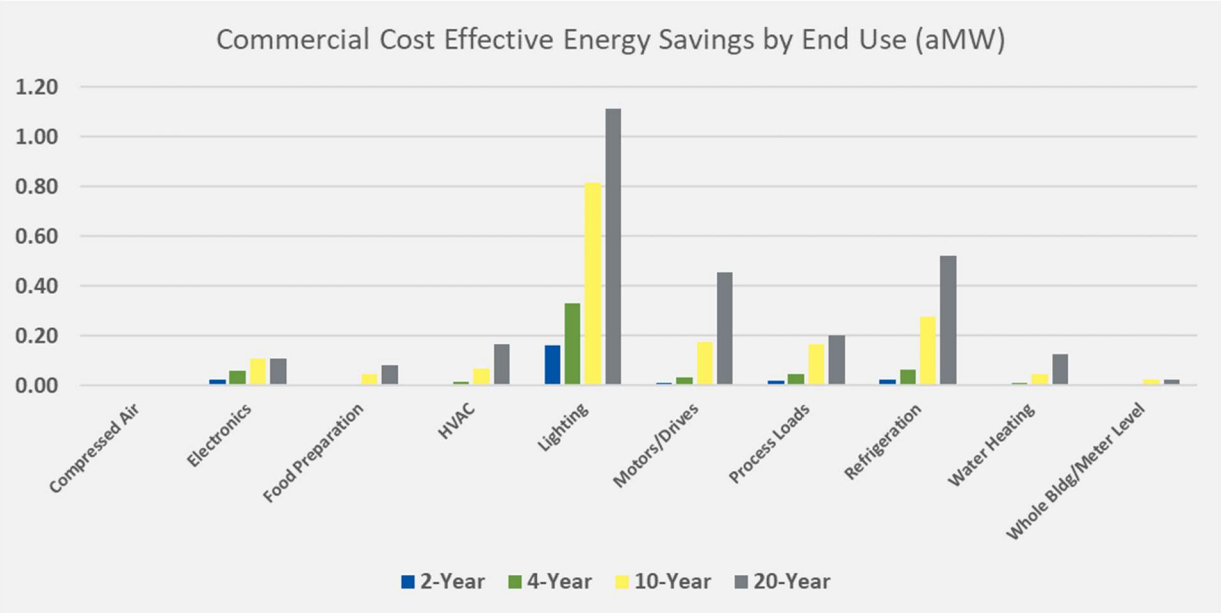
Measure Index Rank	Cost Effective Savings - aMW	Measure Category
1	0.062	Smart Thermostats
2	0.014	Clothes Washer
3	0.008	Duct Sealing
4	0.005	Clothes Dryer

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**

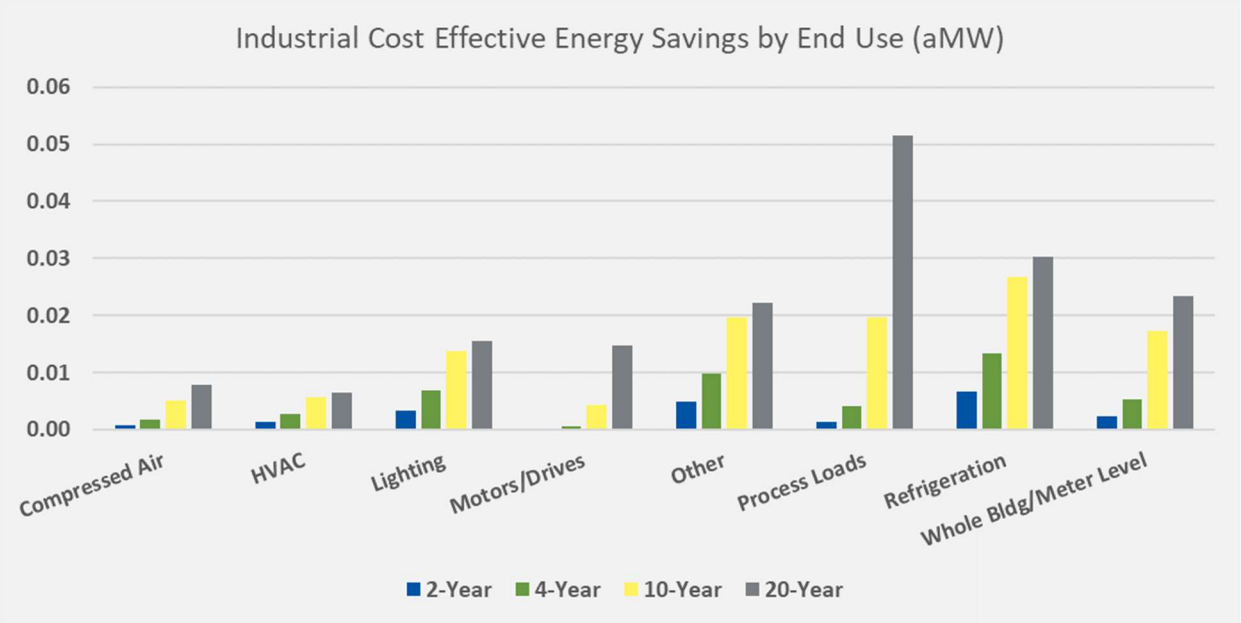
The top measures in the commercial sector over the initial four years are shown below and include lighting, commercial server and power supply equipment, and grocery refrigeration measures.

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.



Industrial Cost Effective Energy Savings by End Use (aMW)				
End Use	2-Year	4-Year	10-Year	20-Year
Compressed Air	0.00	0.00	0.01	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

LIGHTHOUSE ENERGY CONSULTING

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).

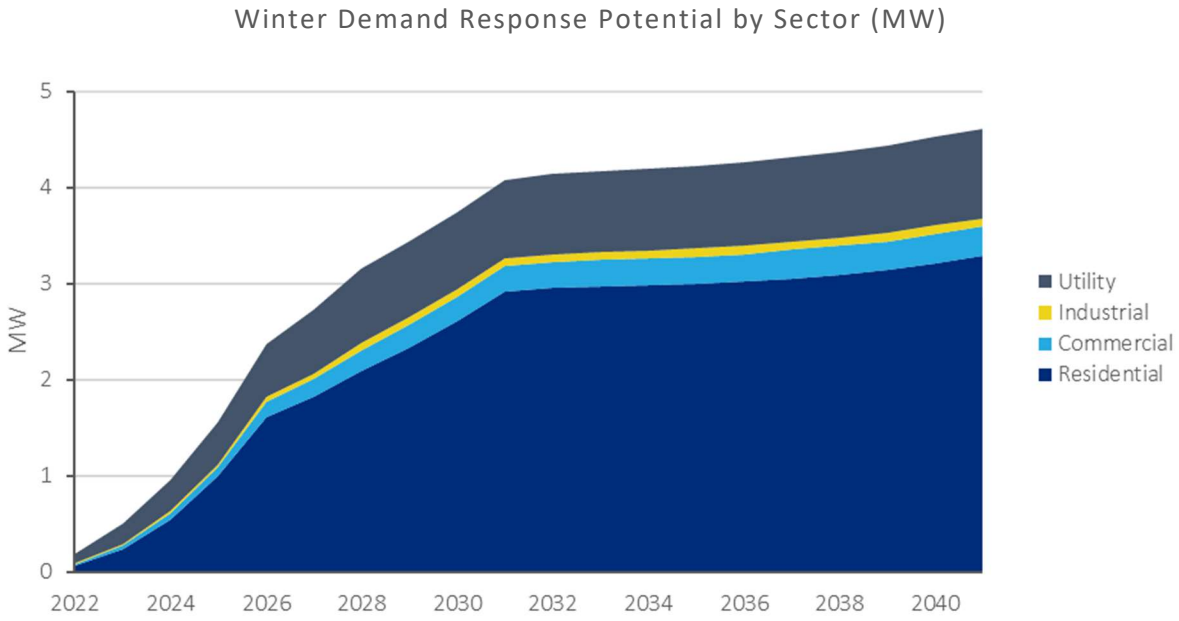
Results

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.

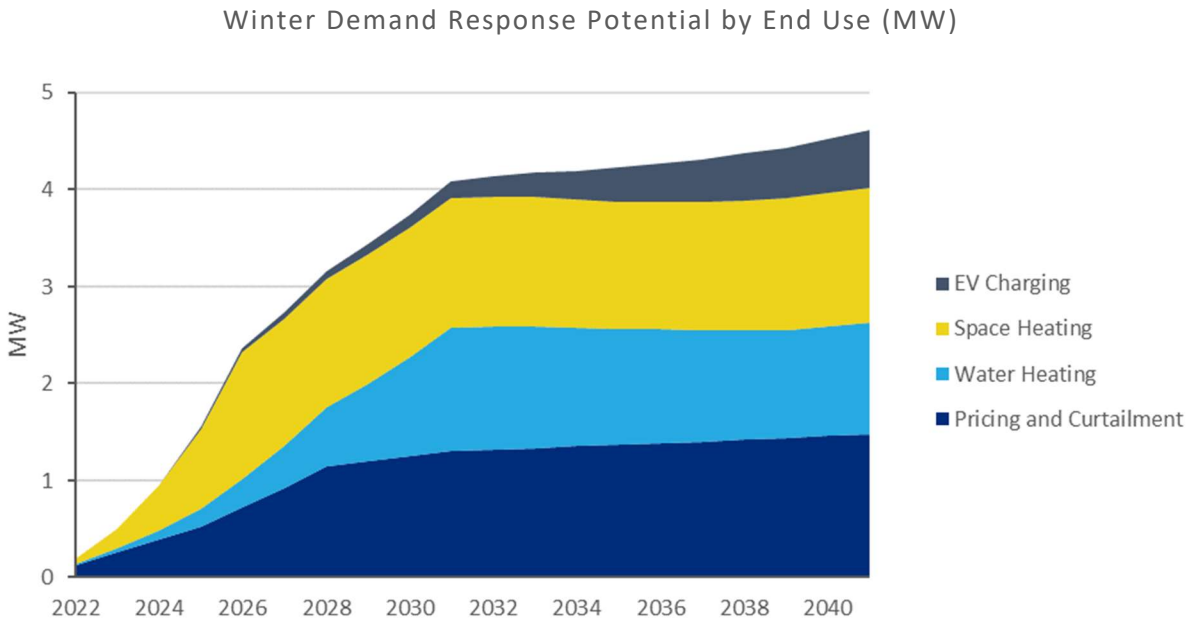
Winter Achievable Potential

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.

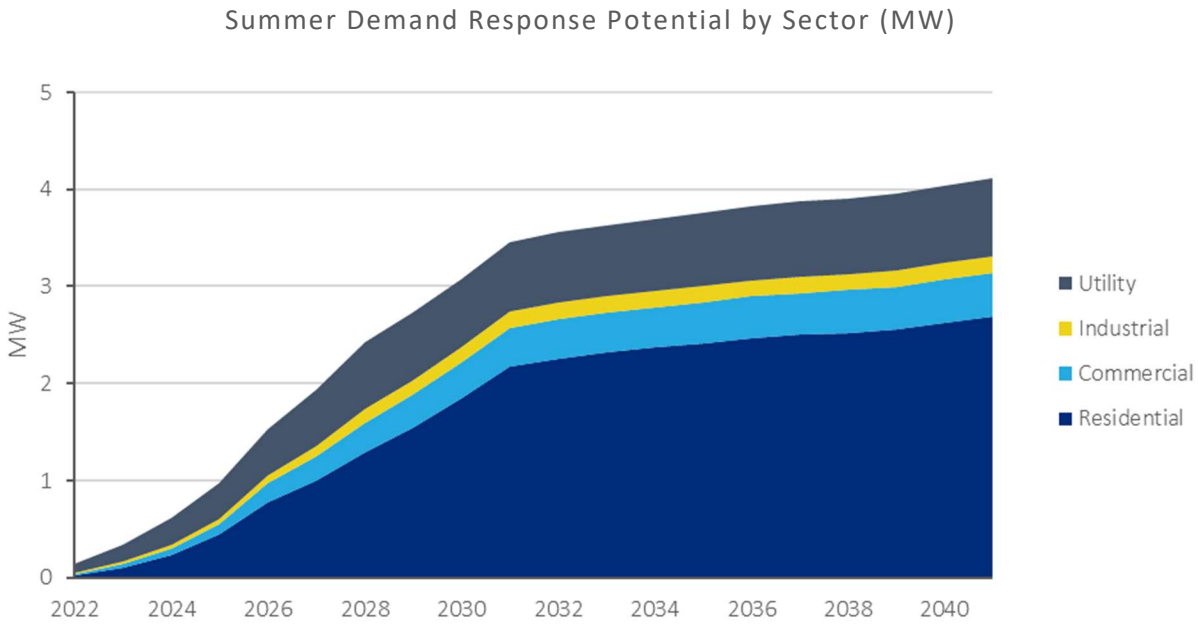


The figure below shows how the winter potential breaks down by end use. The potential is roughly equally divided between the space heating, water heating, and pricing and curtailment end uses, the last of which includes pricing and curtailment strategies that impact all end uses.

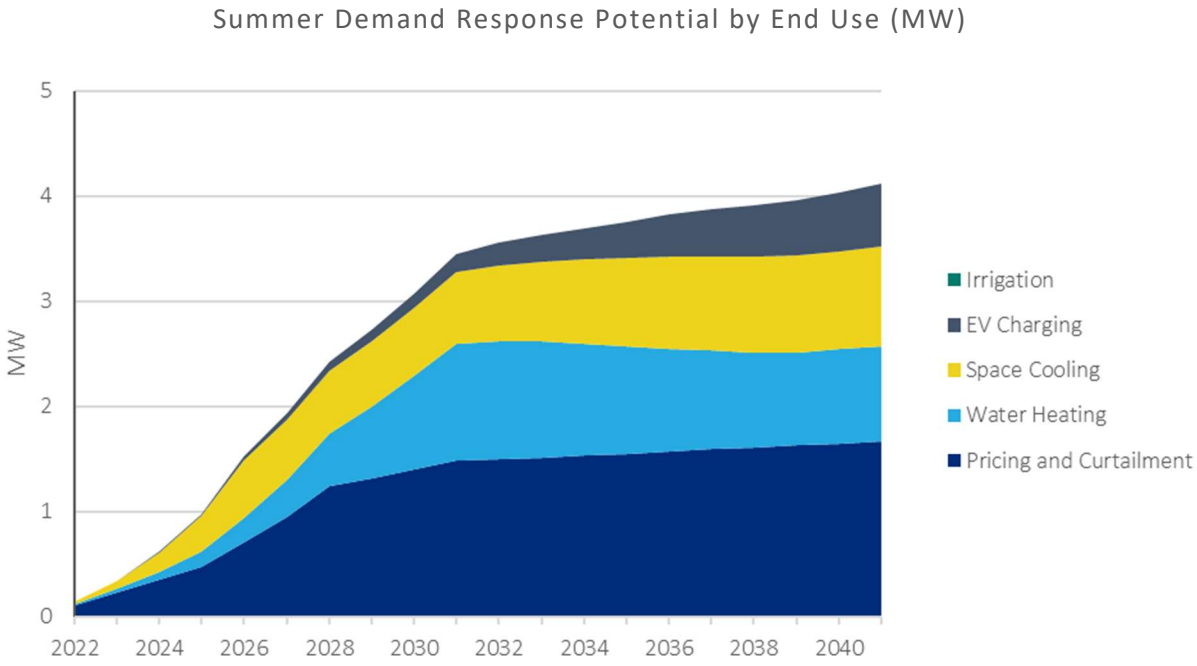


Summer Achievable Potential

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.



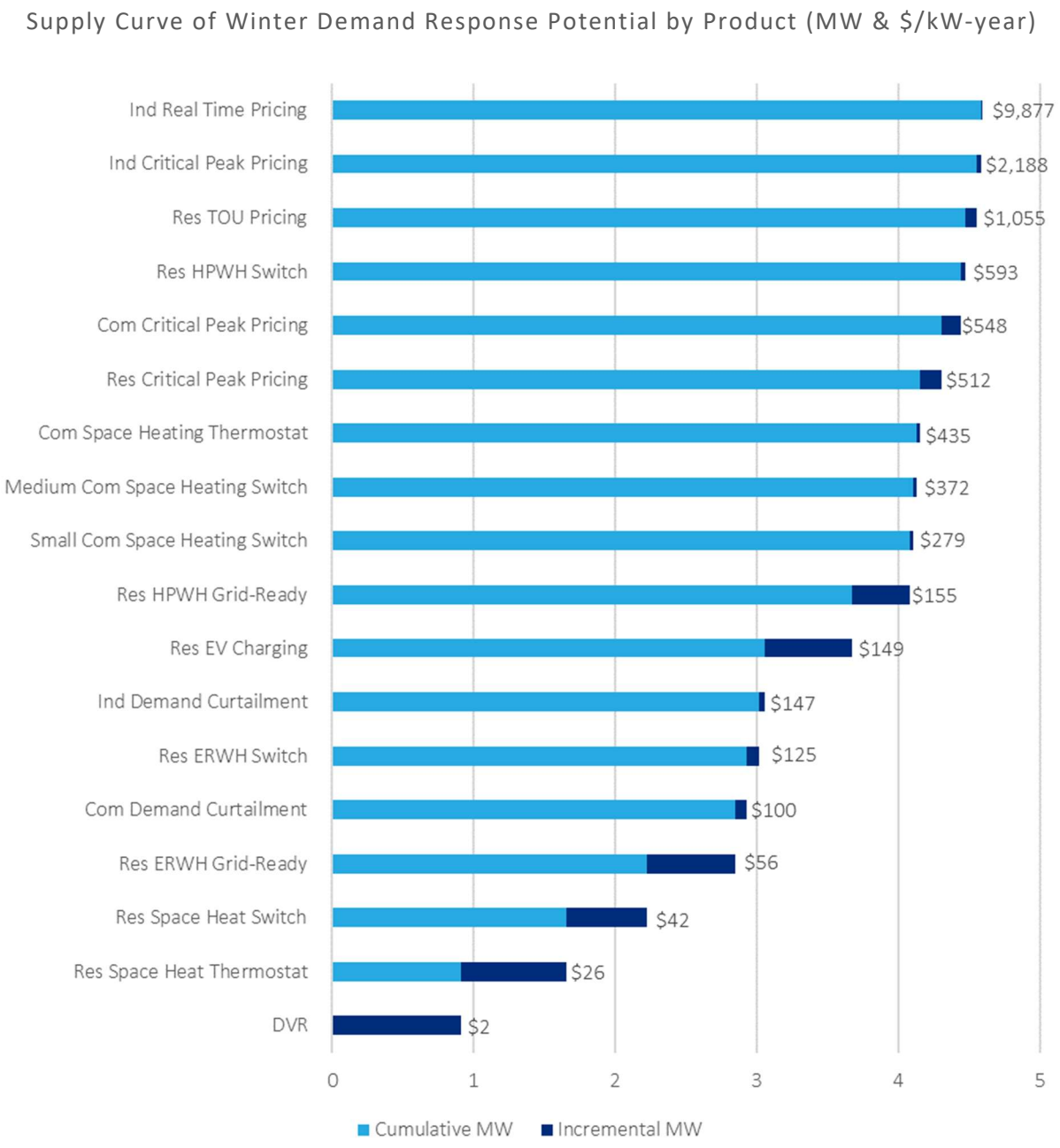
As shown below, space cooling makes up a large share of summer potential, along with the pricing and curtailment end use. The potential associated with EV charging grows over time due to the assumed adoption of electric vehicles due to the Advanced Clean Cars II rules recently adopted by Washington.



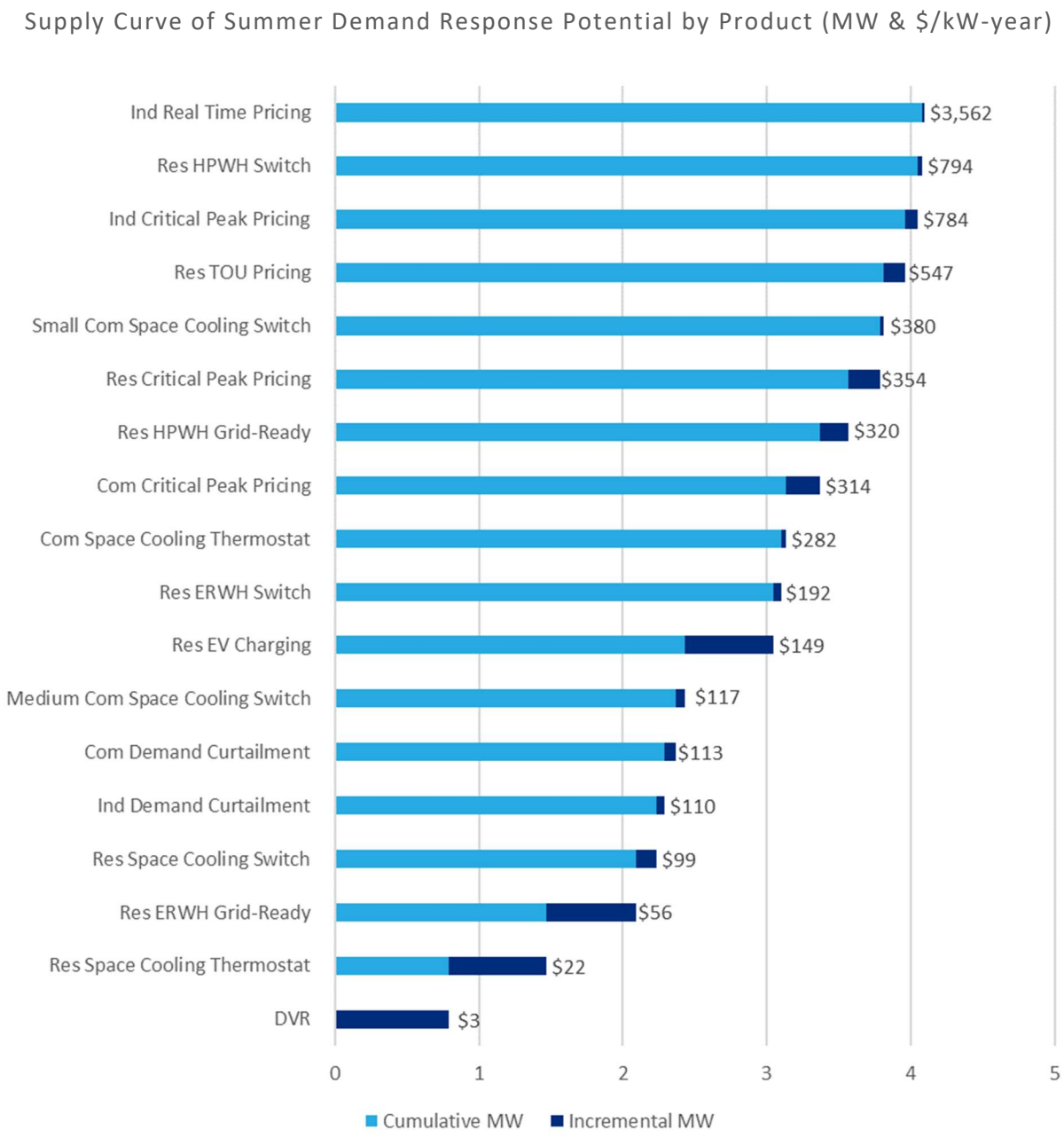
Costs

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.



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.



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 and 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

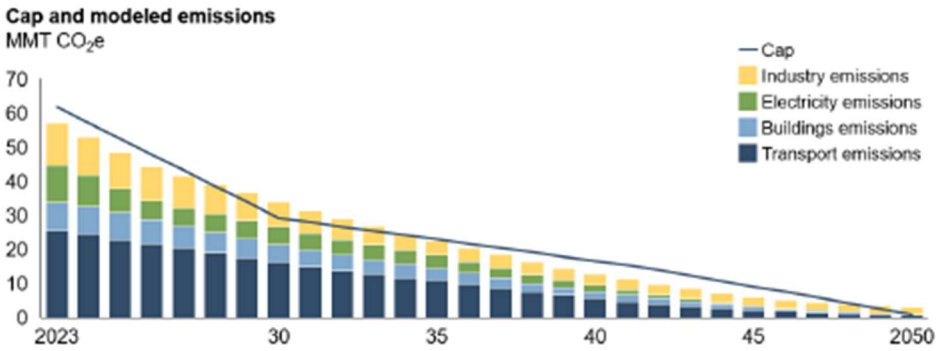
This memo describes the results of an analysis completed by Lighthouse Energy Consulting for the City of Ellensburg to examine the types of actions that the City would need to take in order to reduce emissions commensurate with the lowering cap on emissions implemented in Washington State's Climate Commitment 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.

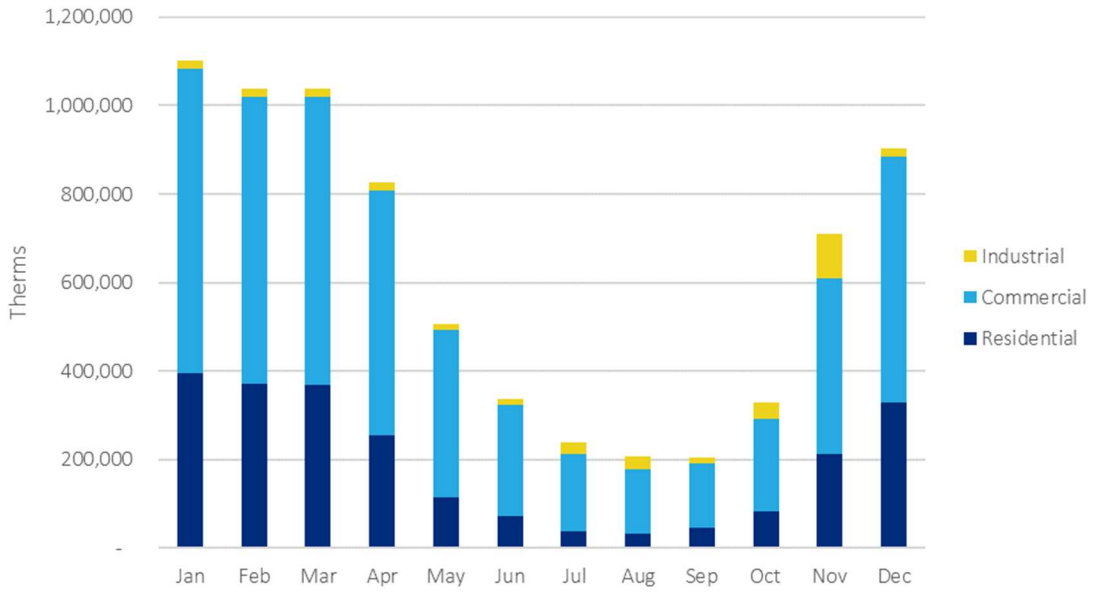
Current Natural Gas Consumption

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 CO_2. 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 industrial 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

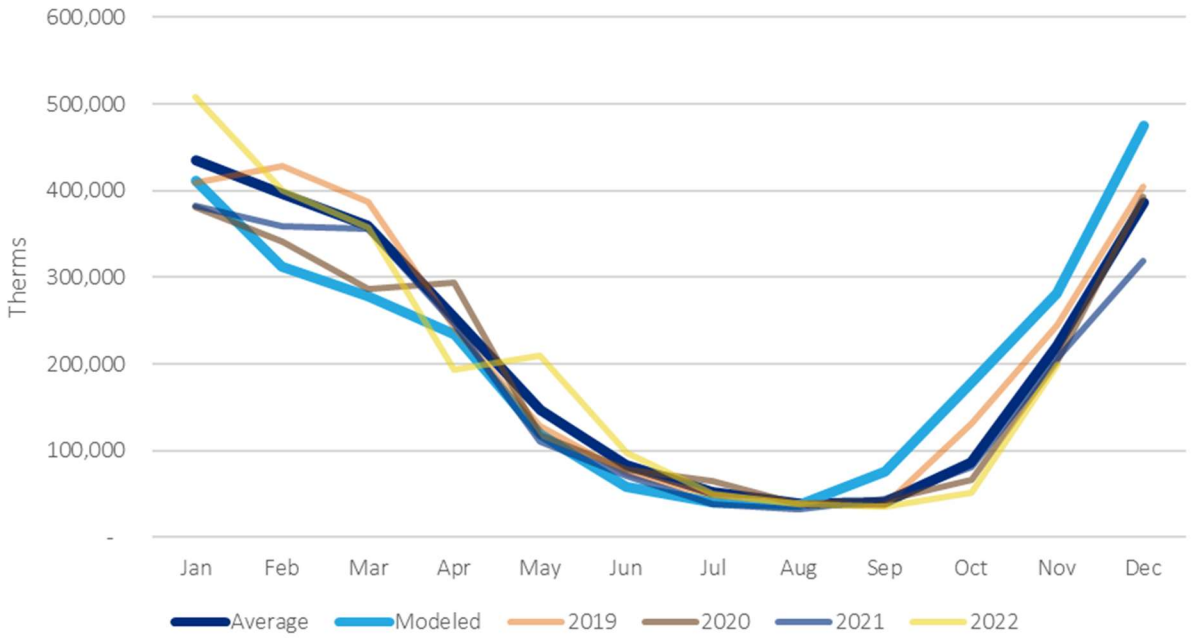
To estimate the end use consumption within the residential sector, Lighthouse first developed estimates of the City's residential building and equipment stock. The building stock estimates include the number and type of home, including single family, multifamily, and manufactured homes. The equipment 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.

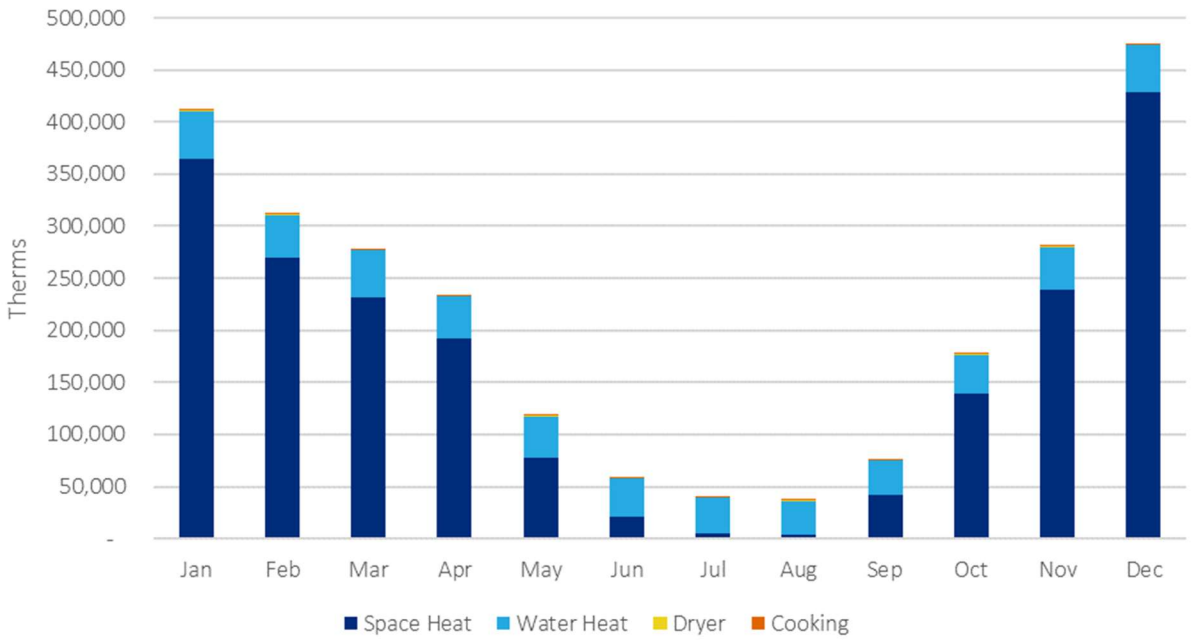
Figure 3 - Modeled and Historical Residential Natural Gas Consumption



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.

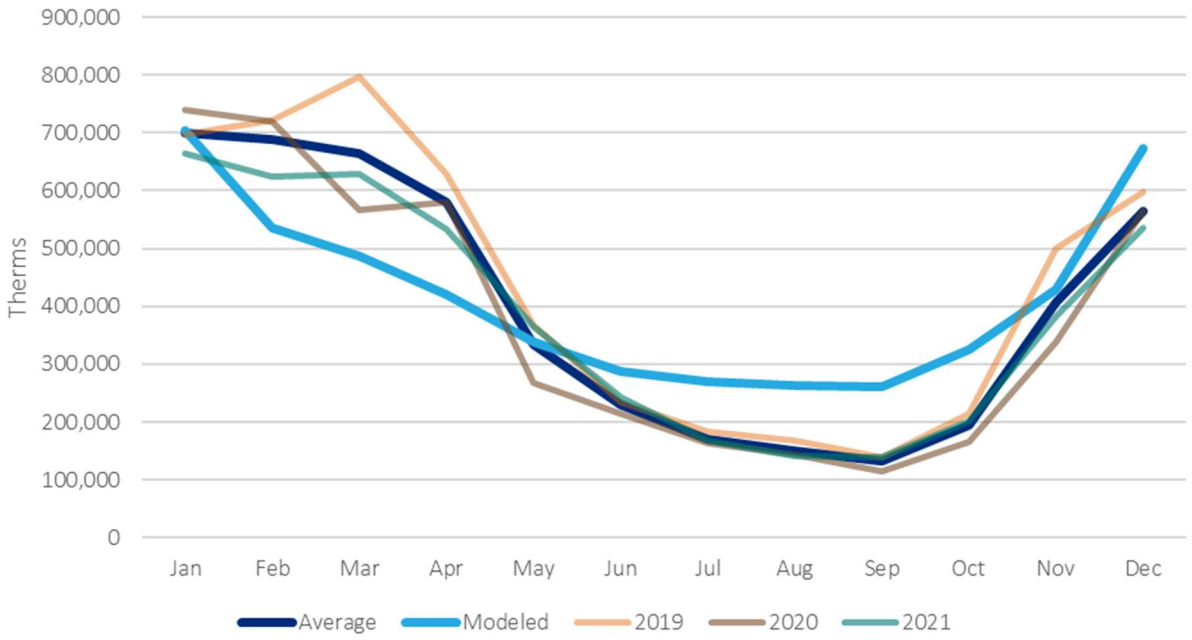
Table 2 - Commercial End Use Consumption Estimate Data And Sources

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

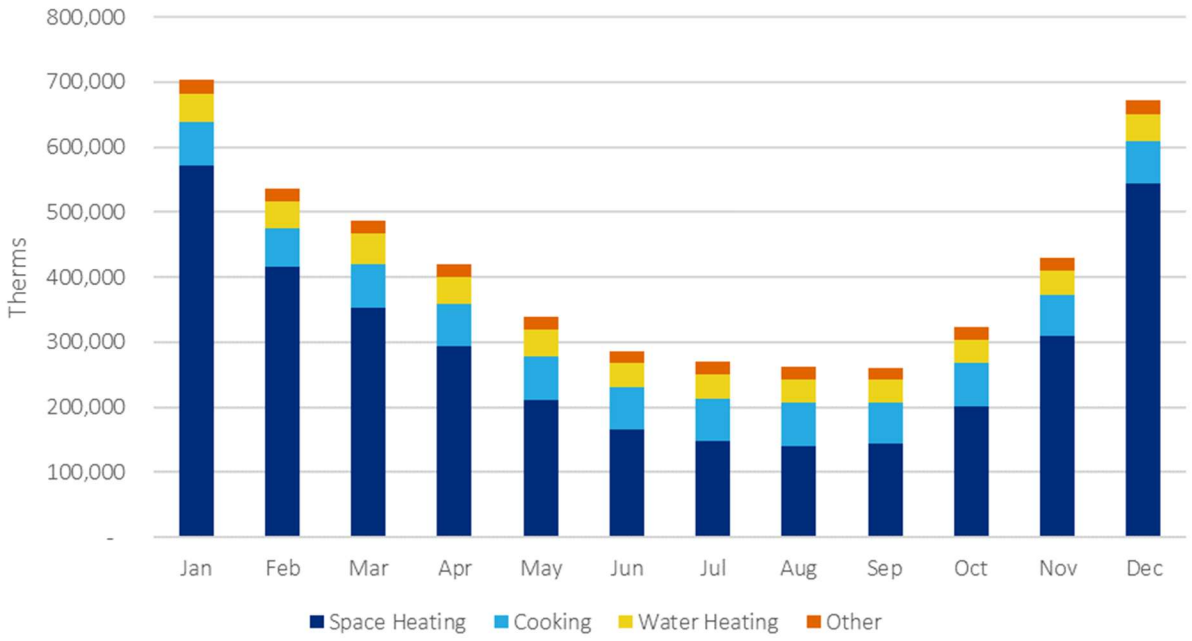
some of the early months of the year, but slightly higher in the later months. Across the year, however, the annual consumption was matched exactly to the average annual consumption through the calibration process.

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 primary 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.

Figure 7 - Estimated Monthly Industrial Gas Consumption by End Use

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

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.

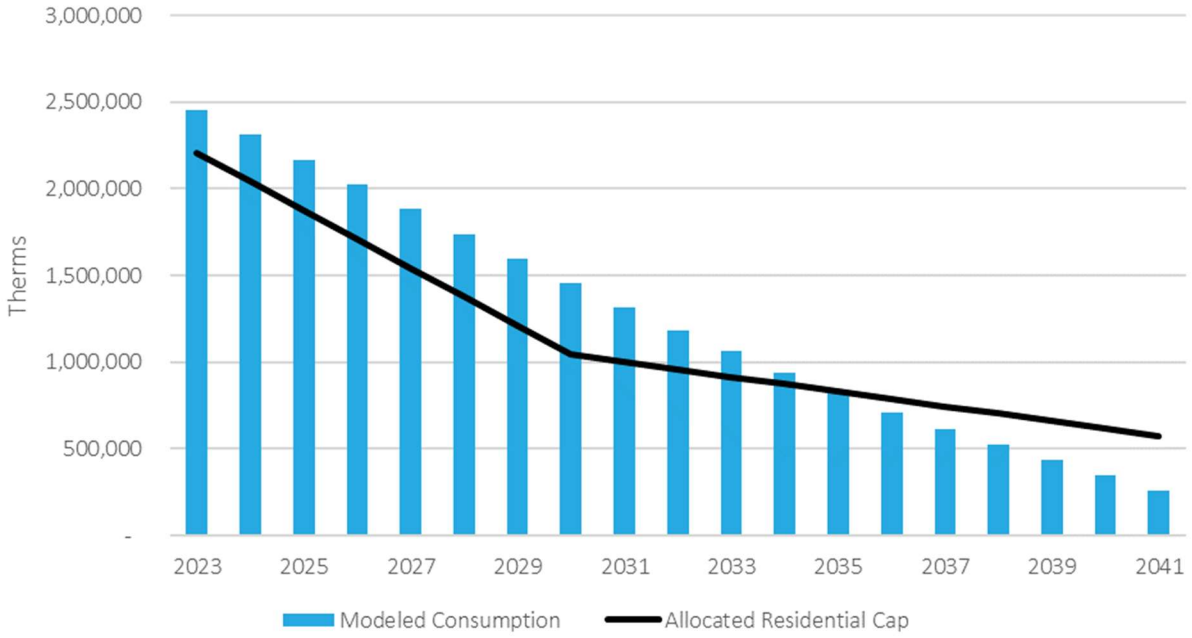
The CCA's cap on emissions lowers by 7% for each of the first eight years, 2023-2030. Accordingly, the cap on emissions in 2024 is 14% lower than the baseline period and lowers an additional 7% each year through 2030. By beginning in 2024, the City would need to replace more than 7% of the natural gas 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.

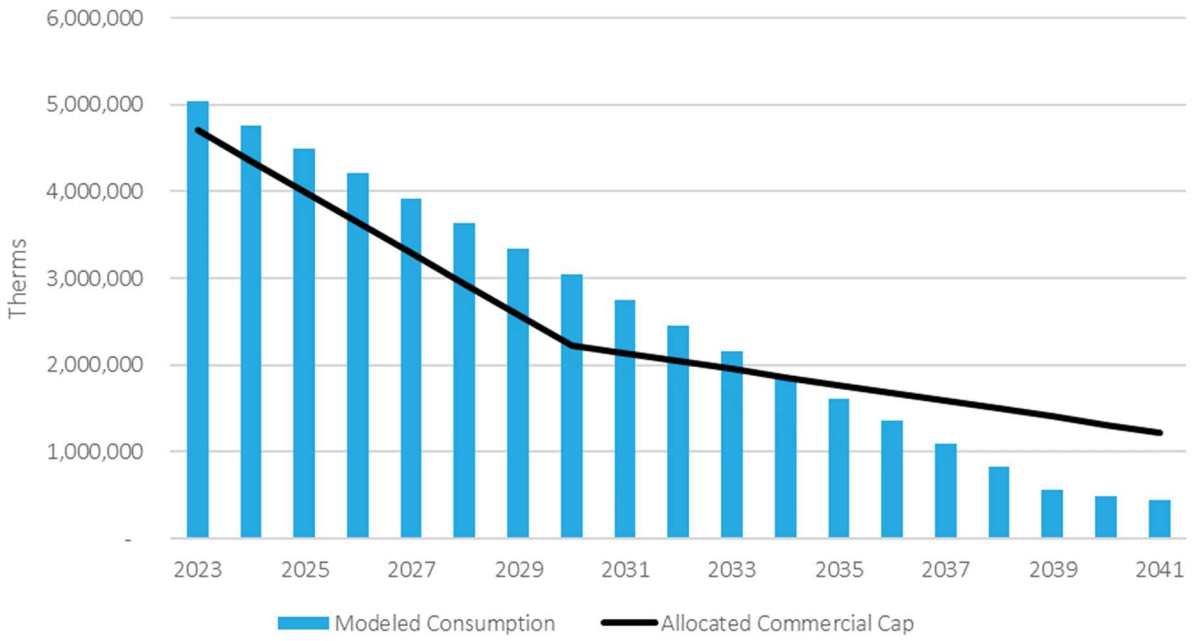
As described above, in both the residential and commercial sectors, Lighthouse found that relying solely on equipment replacement cycles was not sufficient to reduce natural gas consumption below the estimated cap until roughly 2034, several years after the annual reductions in the emissions cap shift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

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



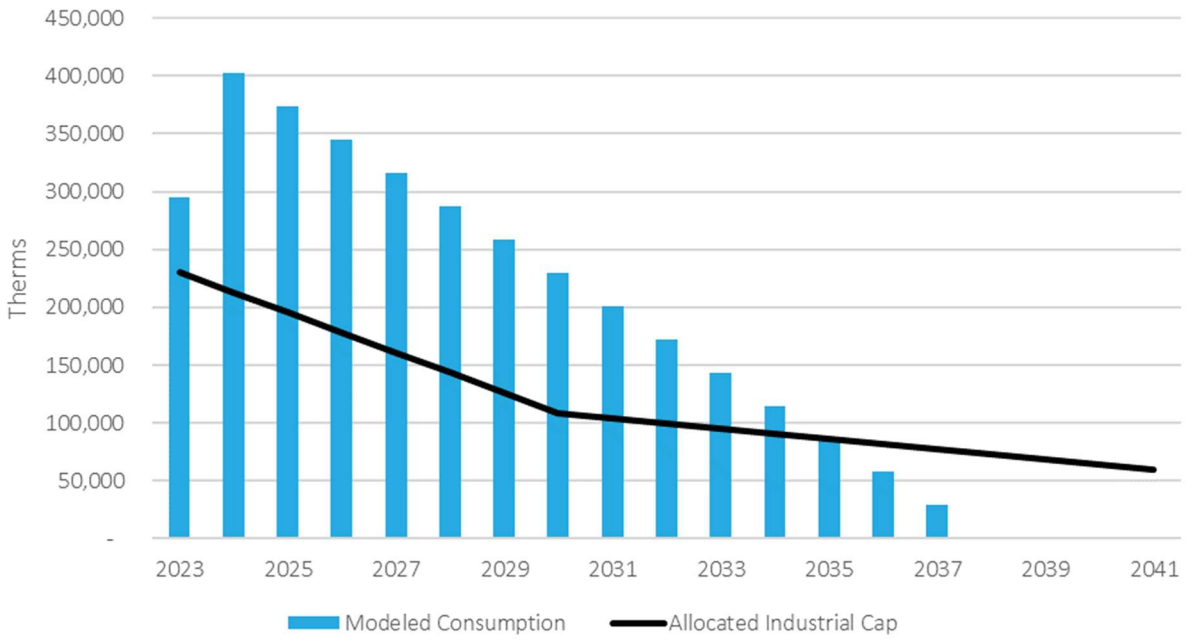
As discussed above, approximately half of the commercial sector's consumption is from CWU, most of which is associated with a large central boiler. Lighthouse modeled the demand from this boiler changing gradually over time, but the exact timing and pace of changes to the operation of this boiler will 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.

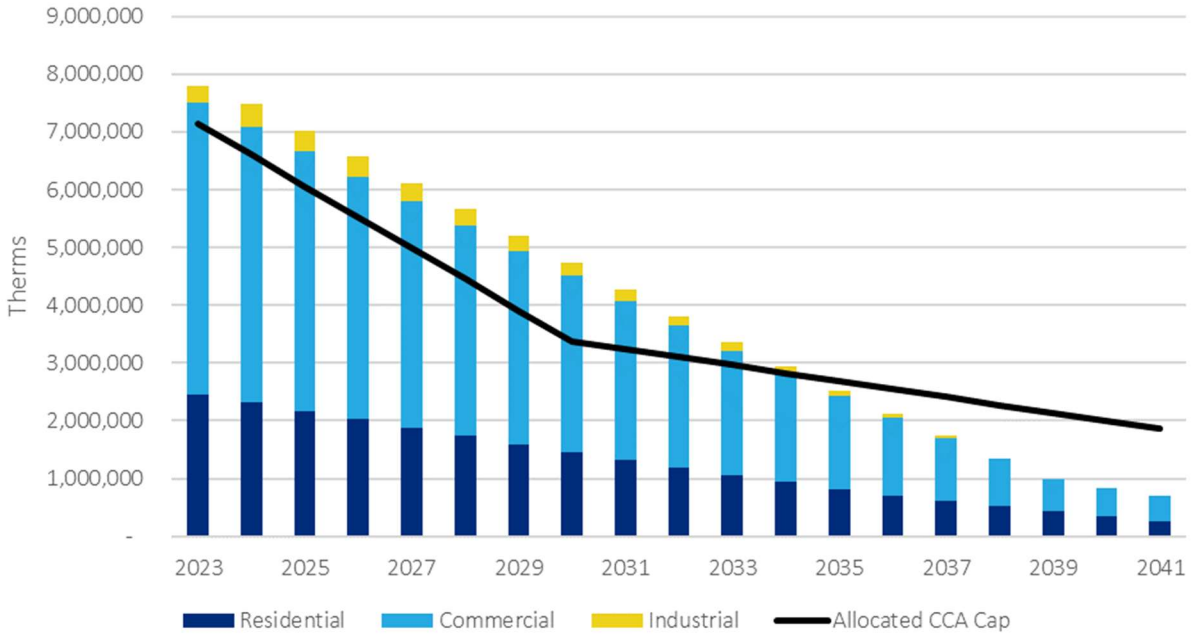
Figure 10 - Modeled Industrial Natural Gas Consumption and Estimated Cap



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 12 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)

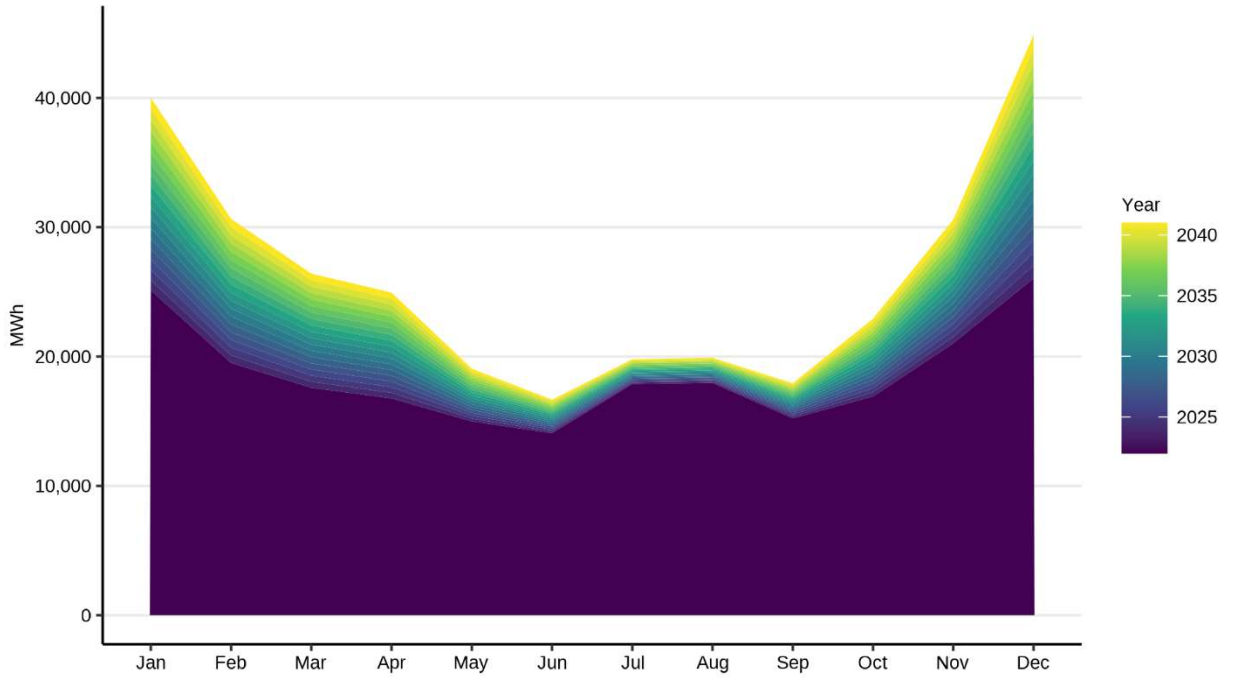
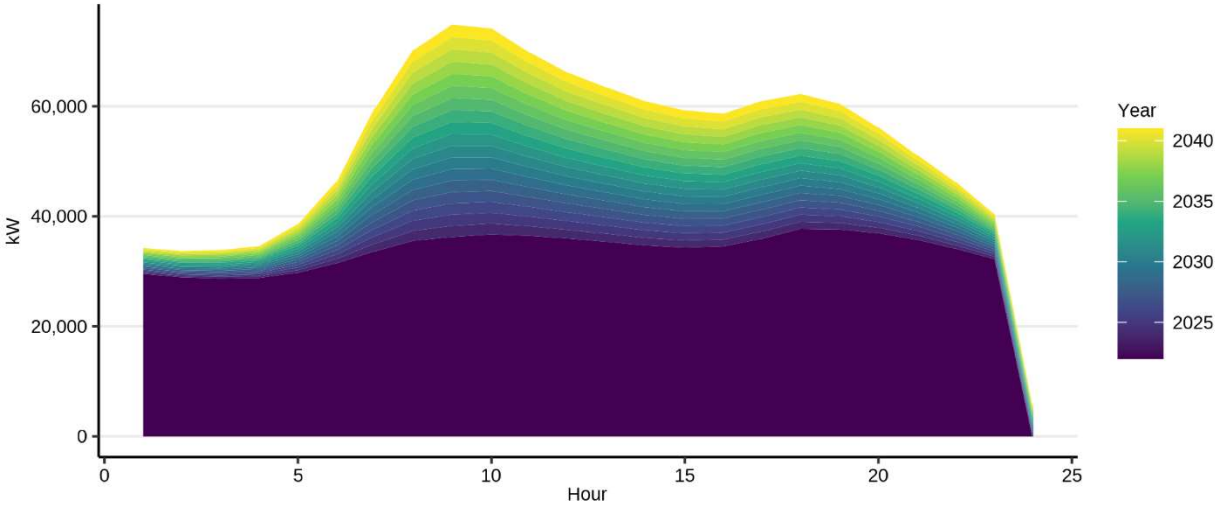


Figure 12 shows monthly demands increasing to the highest levels in December, but this is a consequence of the assumptions on timing of demand in the load profiles used in the analysis. The actual timing of the City's highest demands would vary depending on the weather in a given year.

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 13 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 13 - Incremental Hourly Loads from Electrification on a January Day



APPENDIX G: COMMUNITY ONLINE SURVEY RESULTS

CRITICAL DATA STRATEGIES, LLC

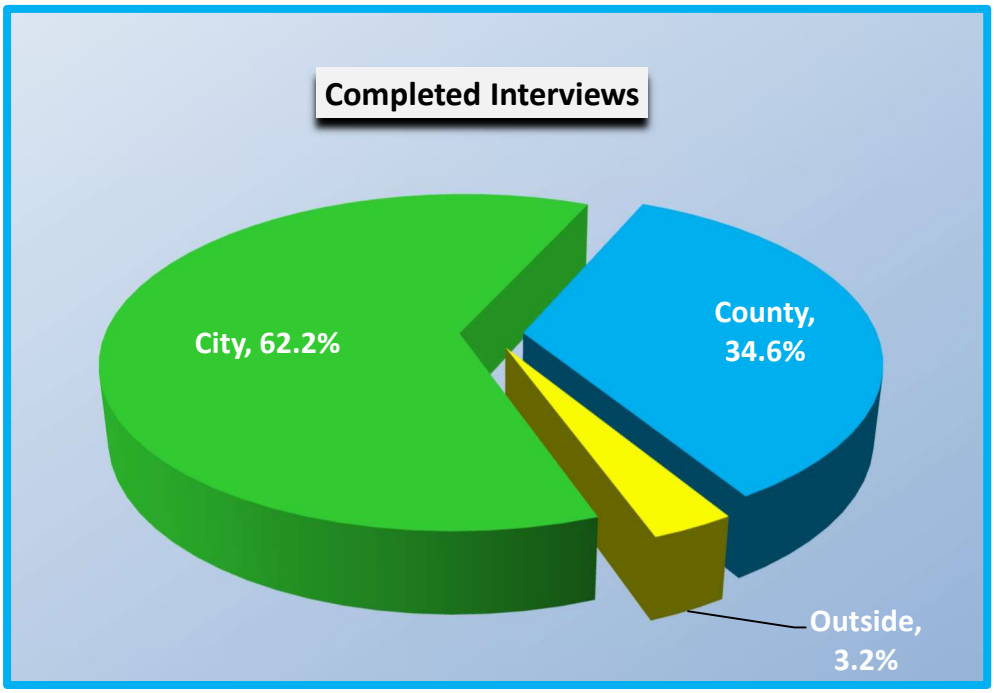
Community Online Survey Findings and Conclusions for City of Ellensburg

July – August 2023

Critical Data Strategies, LLC
620 South Washington Street
Spokane, Washington 99204
CRITICAL-DATA.COM

Findings and Conclusions

- Of the 312 respondents completing this survey, 62.2% reside within the City of Ellensburg, 34.6% live within Kittitas County but outside of the City of Ellensburg, and 3.2% reside outside of Kittitas County.



- Nearly all respondents completing the survey are individuals. (96.2%). Only 3.8% completed the survey as businesses.

(Findings and Conclusions continued)

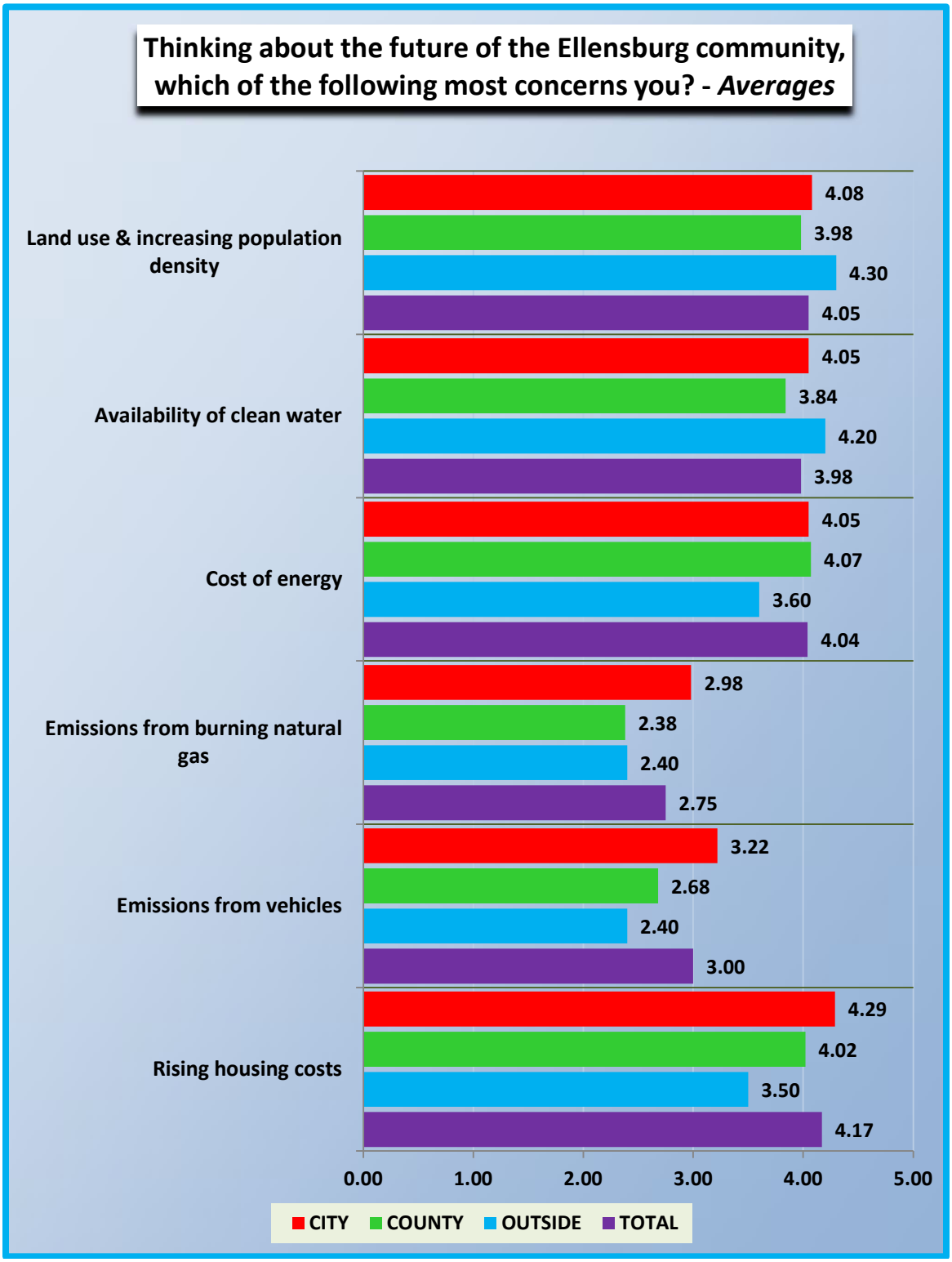
- Survey respondents were asked to rank the importance of each of six concerns they may have relating to the future of the Ellensburg community using a one to five scale with one representing 'no concern' up to five which represents 'extremely concerned'.

TOP CONCERNS	TOTAL RESPONDENTS	CITY RESIDENTS
Rising home costs	4.17	4.29
Land use and increasing population density	4.05	4.08
Cost of energy	4.04	4.05
Availability of clean water	3.98	4.05

- It is worth noting that the top concerns of city residents mirror those of the group as a whole, and in the same ranking of concern.

LOWEST CONCERNS	TOTAL RESPONDENTS	CITY RESIDENTS
Emissions from burning natural gas	2.75	2.98
Emissions from vehicles	3.00	3.22

(Findings and Conclusions continued)



(Findings and Conclusions continued)

- By a slim margin those completing this survey believe that the city should only take actions to comply with state regulations. (53.2%). Those residing within the City of Ellensburg are nearly split on this issue with 50.5% feeling that the city should do more, while 49.5 believe that the city should only comply.

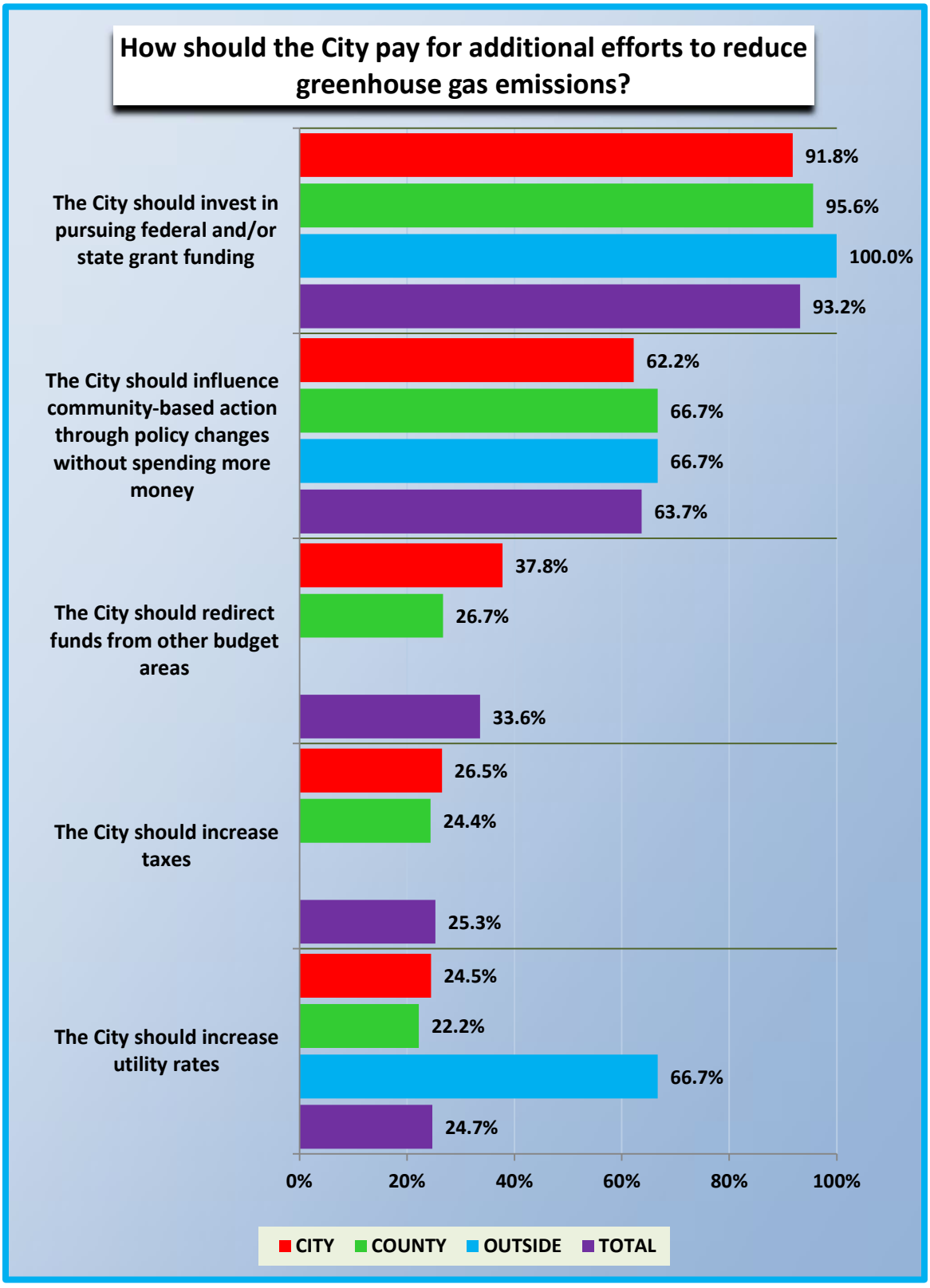
RESPONSE	CITY	COUNTY	OUTSIDE	TOTAL
The City should only take actions to comply with state regulations.	49.5%	**58.3%**	**70.0%**	**53.2%**
The city should do more to reduce greenhouse gas emissions.	**50.5%**	41.7%	30.0%	**46.8%**
TOTAL	**100%**	**100%**	**100%**	**100%**

- Those residents who feel that the City should do more to reduce greenhouse gas emissions than required were asked how the City should pay for these additional reduction efforts. As the findings show, respondents do not favor any increase in taxes or in utility rates, preferring that the City pursue federal and/or state grant funding of by policy changes that do not incur additional costs.

RESPONSE*	CITY	COUNTY	OUTSIDE	TOTAL
The City should invest in pursuing federal and/or state grant funding	**91.8%**	**95.6%**	**100%**	**93.2%**
The City should influence community-based action through policy changes without spending more money	62.2%	66.7%	66.7%	**63.7%**
The City should redirect funds from other budget areas	37.8%	26.7%	0.0%	**33.6%**
The City should increase taxes	26.5%	24.4%	0.0%	**25.3%**
The City should increase utility rates	24.5%	22.2%	66.7%	**24.7%**

**146 responded to this question: 98-City, 45-County, and 3-Outside*
Question allowed for more than one response
Percentages based on number of respondents

(Findings and Conclusions continued)

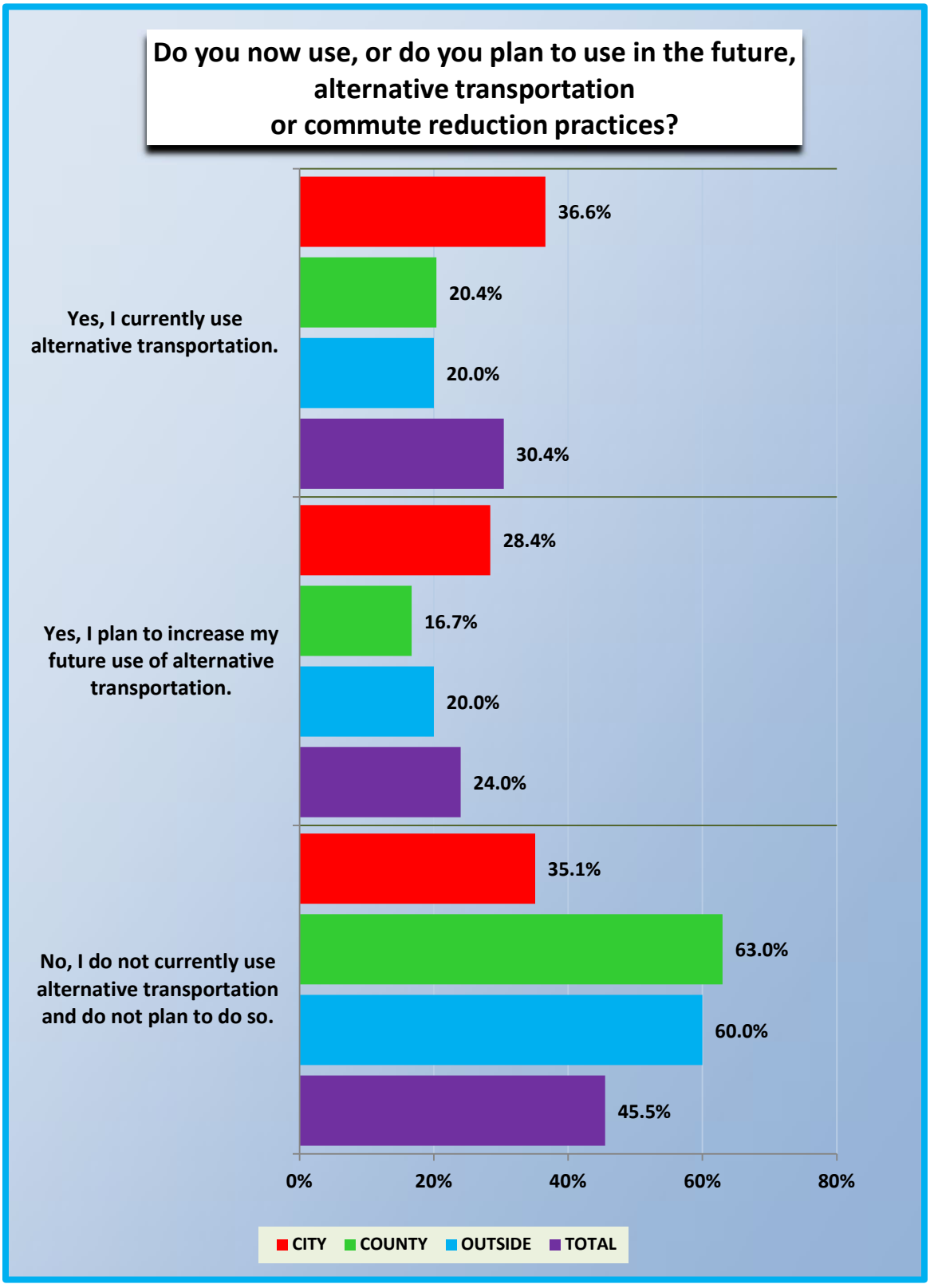


(Findings and Conclusions continued)

- Survey participants were reminded that 68% of Ellensburg's greenhouse gas emissions come from burning gasoline or diesel for transportation, then were asked if they currently use or plan in the future to use alternative transportation practices.
    - 45.5% of those responding do not currently use alternative transportation and do not plan to do so.
    - 30.4% of the total base state that they currently use some forms of alternative transportation, with 36.6% of those residing within the city using alternative forms of transportation.

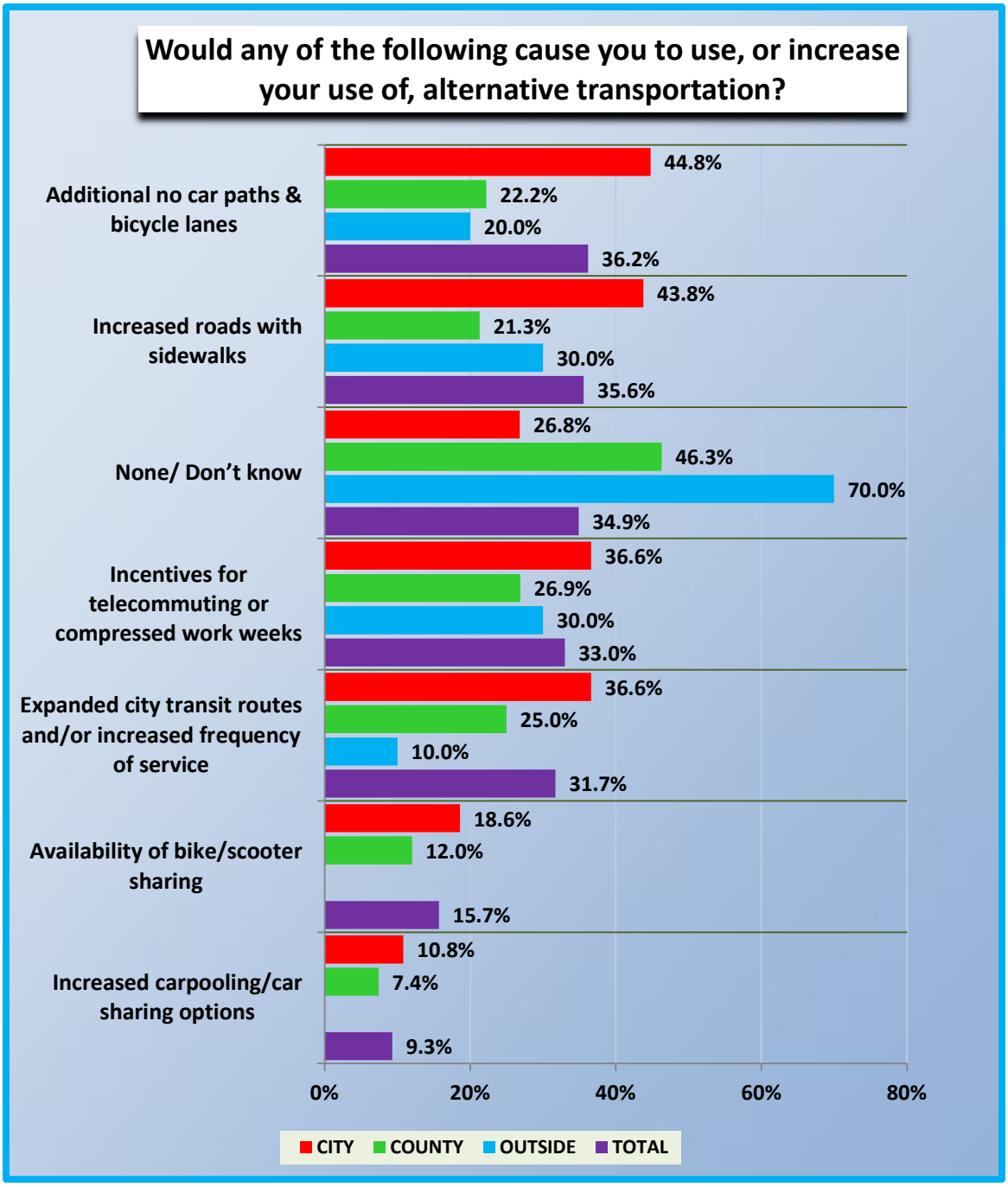
RESPONSE	CITY	COUNTY	OUTSIDE	TOTAL
Yes, I currently use alternative transportation.	**36.6%**	20.4%	20.0%	**30.4%**
Yes, I plan to increase my future use of alternative transportation.	28.4%	16.7%	20.0%	**24.0%**
No, I do not currently use alternative transportation and do not plan to do so.	35.1%	**63.0%**	**60.0%**	**45.5%**
TOTAL	**100%**	**100%**	**100%**	**100%**

(Findings and Conclusions continued)



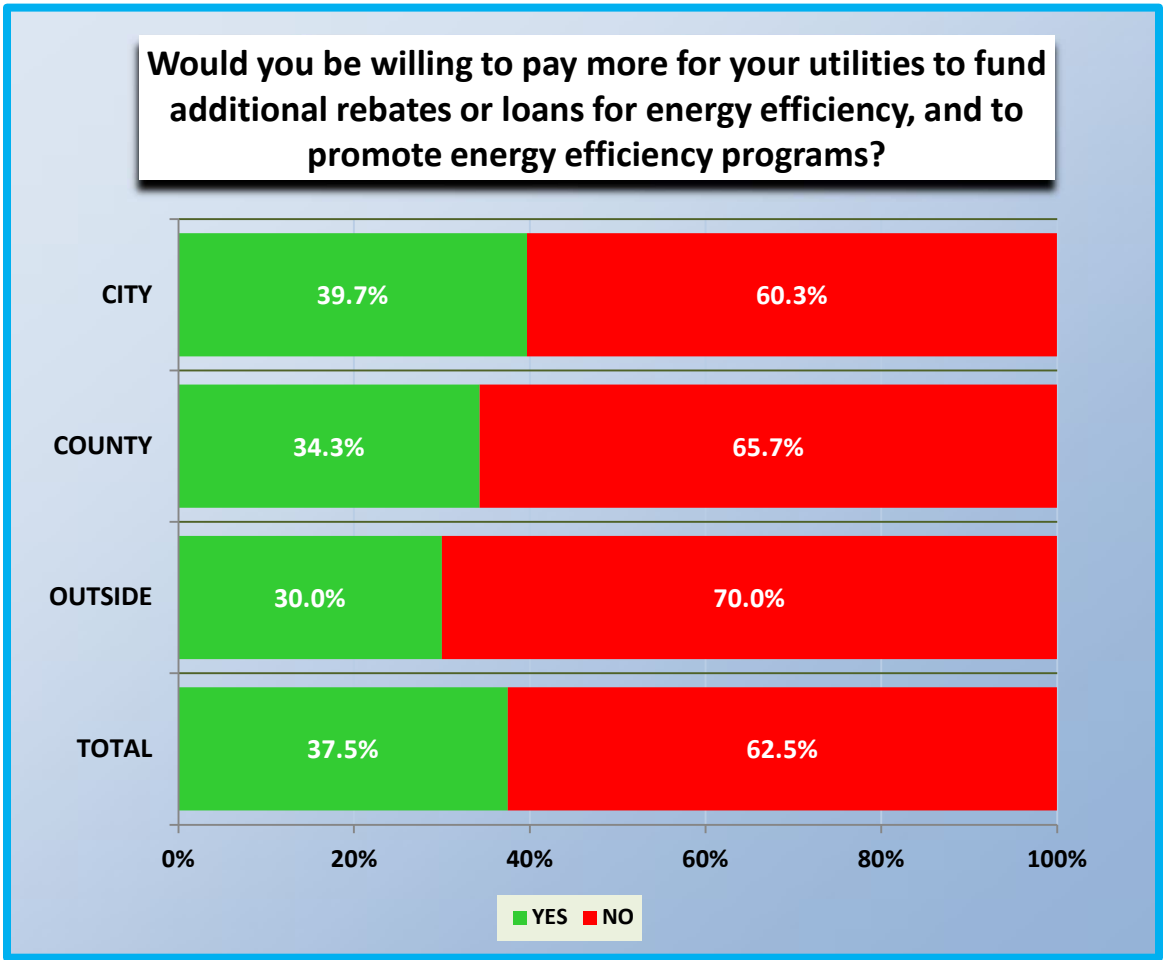
(Findings and Conclusions continued)

- Slightly more than one third of all respondents can be incentivized or motivated to increase their use of alternative transportation with the implementation of four different plans:
  - Additional no car paths and bicycle lanes 36.2%
  - Increased roads with sidewalks 35.6%
  - Incentives for telecommuting or compressed work weeks 33.0%
  - Expanded city transit routes/increased service 31.7%



(Findings and Conclusions continued)

- Two thirds of all respondents (62.5%) are not willing to pay higher utility rates to fund energy efficiency programs.



- Those residents who stated a willingness to pay higher rates were asked how much more they are willing to pay:

RESPONSE	CITY	COUNTY	OUTSIDE	TOTAL
5% more	39.0%	**51.4%**	0.0%	**41.9%**
10% more	**40.3%**	32.4%	0.0%	**36.8%**
15% more	6.5%	8.1%	**66.7%**	**8.5%**
20% more	14.3%	8.1%	33.3%	**12.8%**
TOTAL	**100%**	**100%**	**100%**	**100%**

**117 responded to this question: 77-City, 37-County, and 3-Outside*
Percentages based on number of respondents

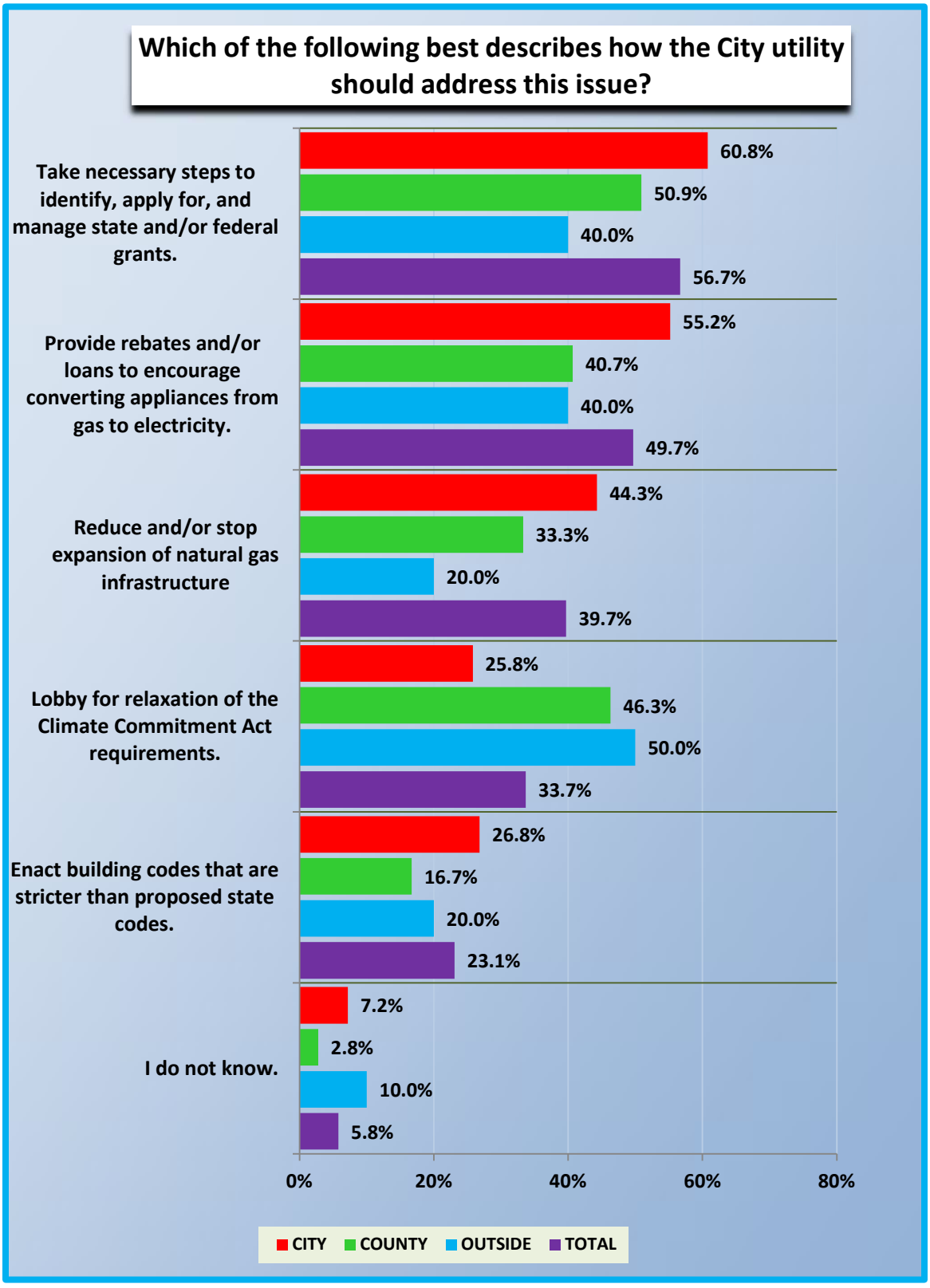
(Findings and Conclusions continued)

- Survey respondents were asked what actions the City should take to achieve a state mandate for the purchase of carbon allowances and reduction of demand by 7% annually through 2030:

RESPONSE	CITY	COUNTY	OUTSIDE	TOTAL
Take necessary steps to identify, apply for, and manage state and/or federal grants.	**60.8%**	**50.9%**	40.0%	**56.7%**
Provide rebates and/or loans to encourage converting appliances from gas to electricity.	55.2%	40.7%	40.0%	**49.7%**
Reduce and/or stop expansion of natural gas infrastructure	44.3%	33.3%	20.0%	**39.7%**
Lobby for relaxation of the Climate Commitment Act requirements.	25.8%	46.3%	**50.0%**	**33.7%**
Enact building codes that are stricter than proposed state codes.	26.8%	16.7%	20.0%	**23.1%**
I do not know.	7.2%	2.8%	10.0%	**5.8%**

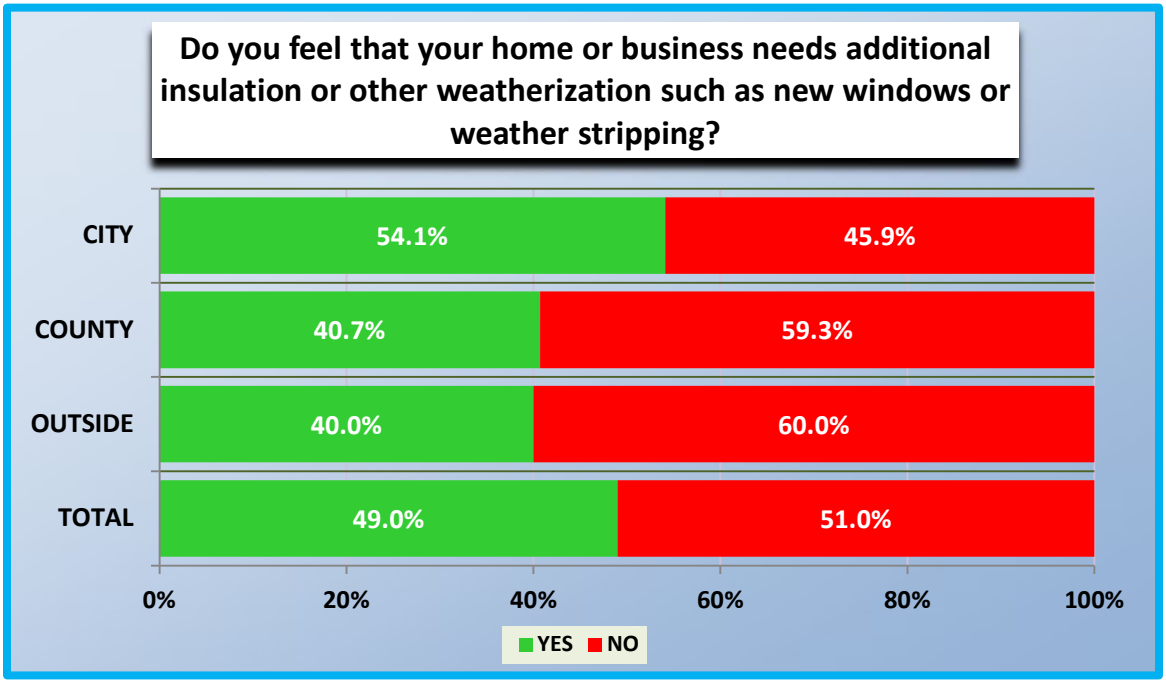
**312 responded to this question: 194-City, 108-County, and 10-Outside*
Question allowed for more than one response
Percentages based on number of respondents

(Findings and Conclusions continued)

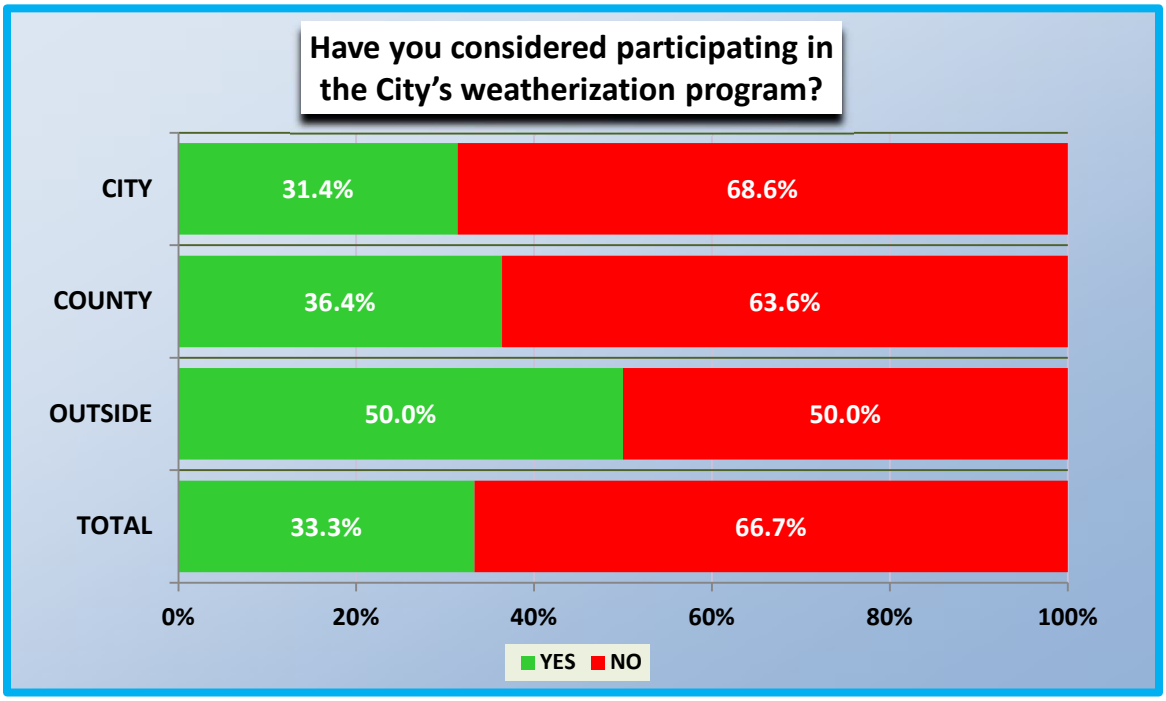


(Findings and Conclusions continued)

- Approximately half of the overall group feels that their homes or business needs additional insulation or weatherization.

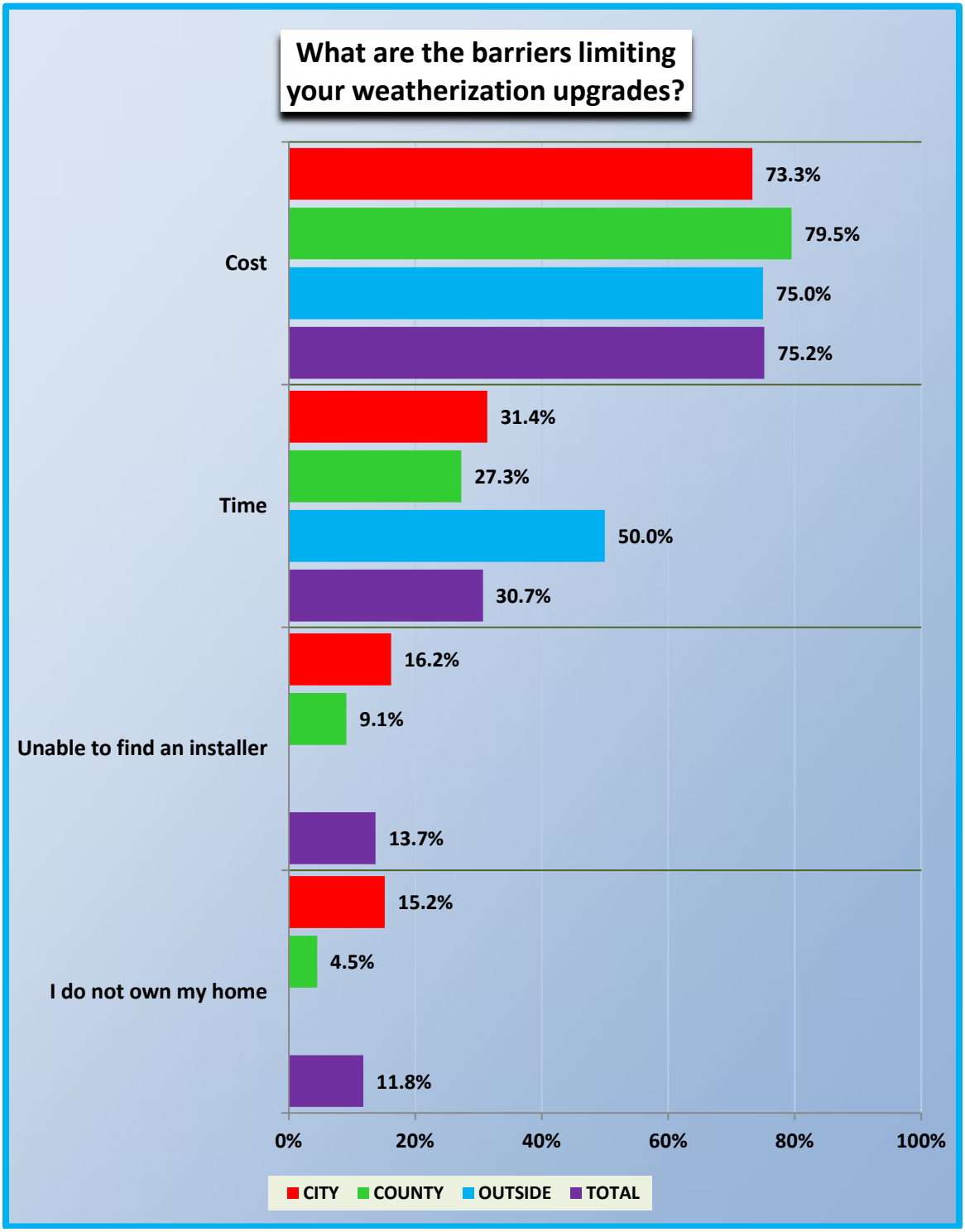


- But more than two thirds (66.7%) have not considered participating in the City's weatherization program.



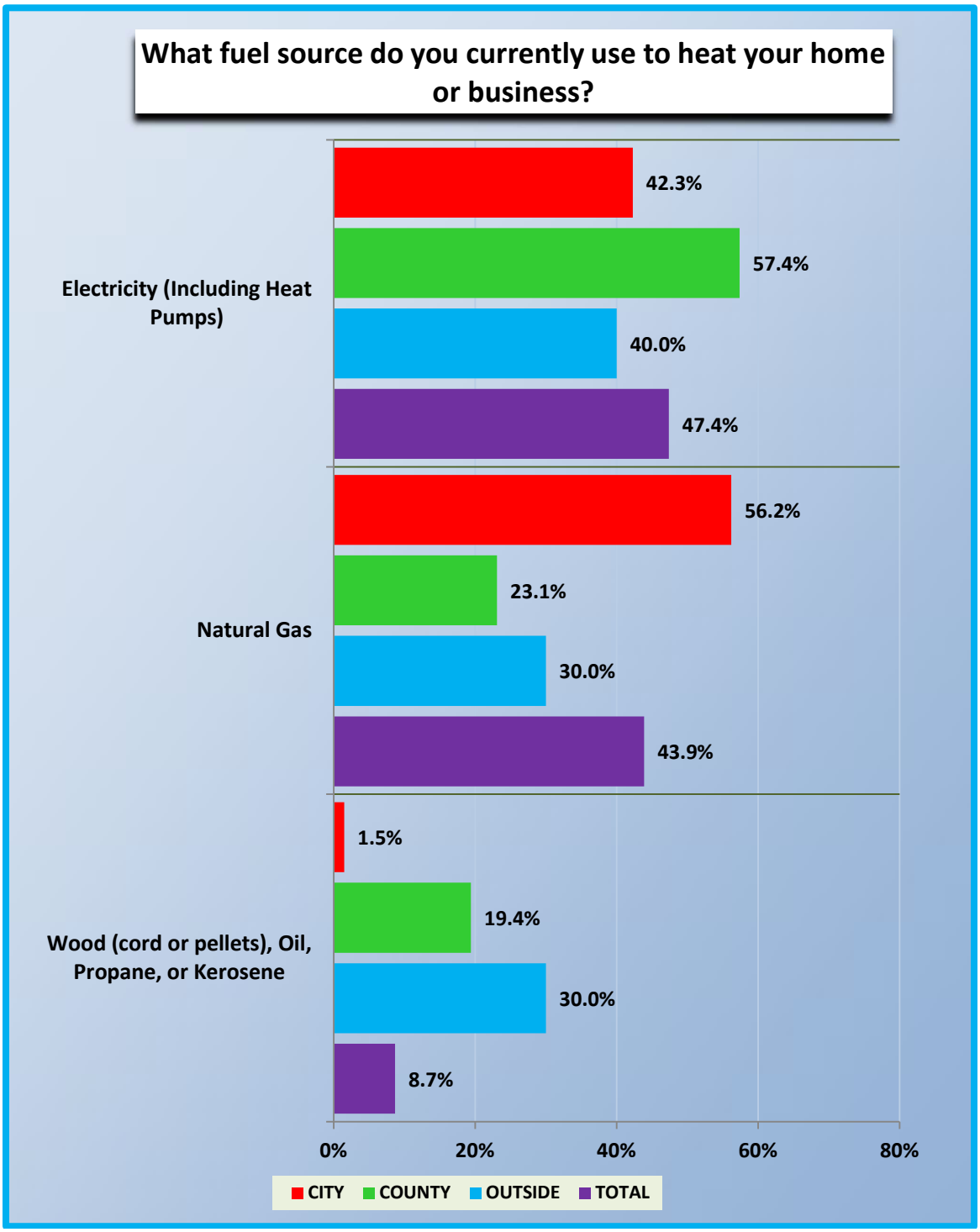
(Findings and Conclusions continued)

- 75% of those who have not considered the weatherization program state that cost is their barrier.



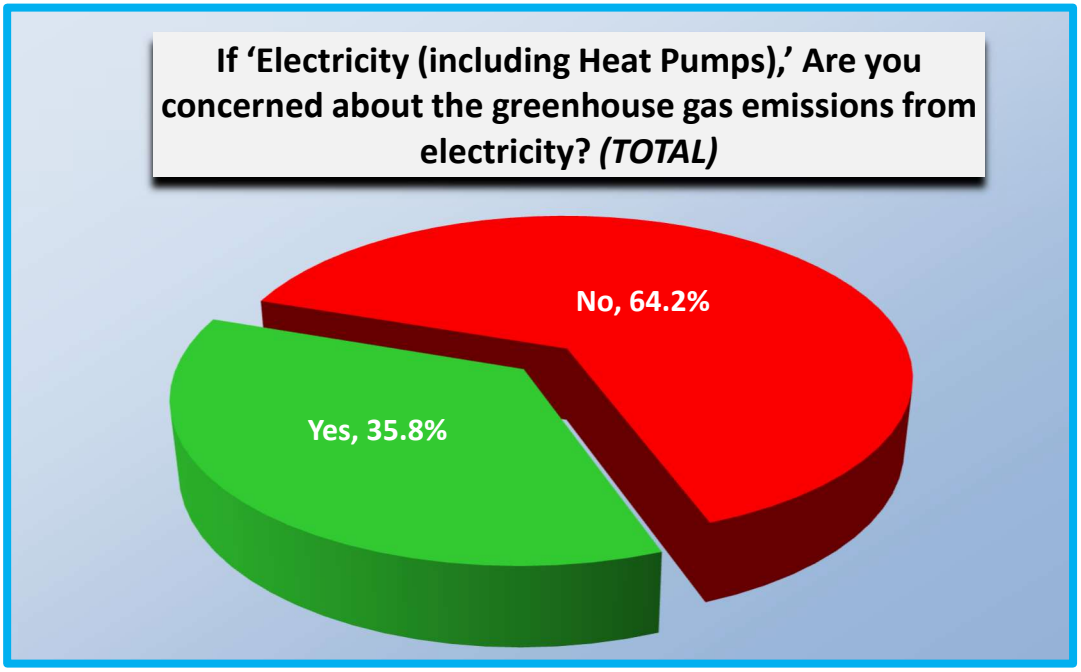
(Findings and Conclusions continued)

- Overall, 47.4% of the respondents use electricity to heat their home or business. 57.4% of respondents residing in the county use electricity, while 56.2% of city residents use natural gas.

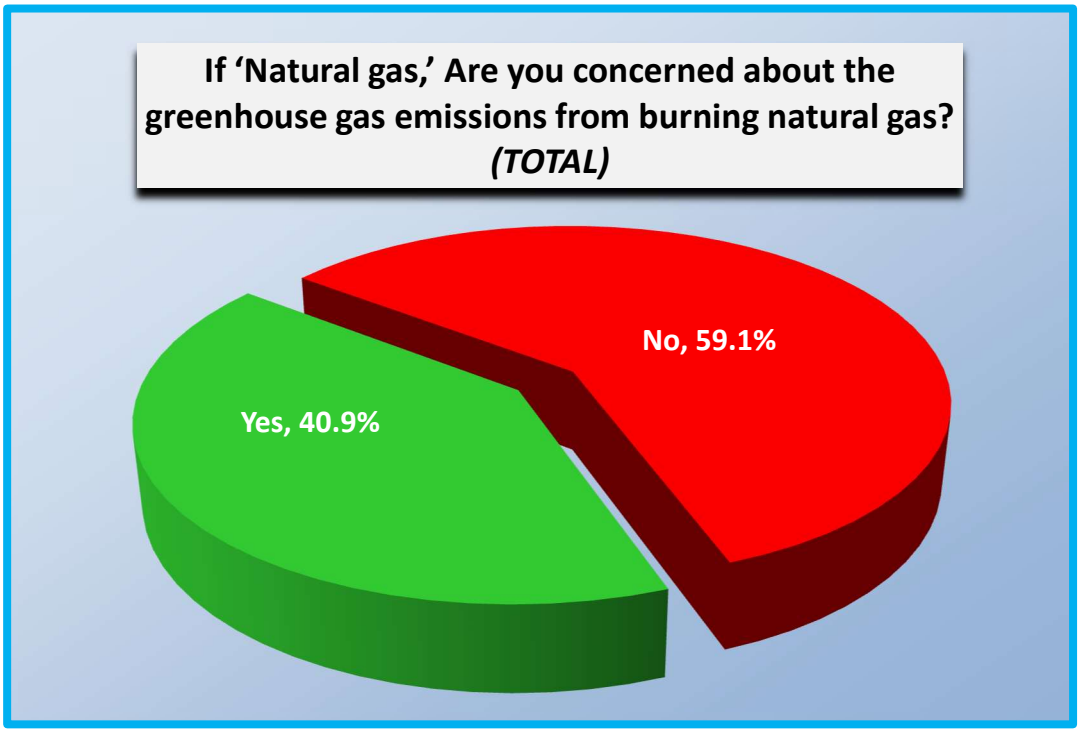


(Findings and Conclusions continued)

- Nearly two thirds (64.2%) of electric users have no concerns about greenhouse gas emissions from electricity.

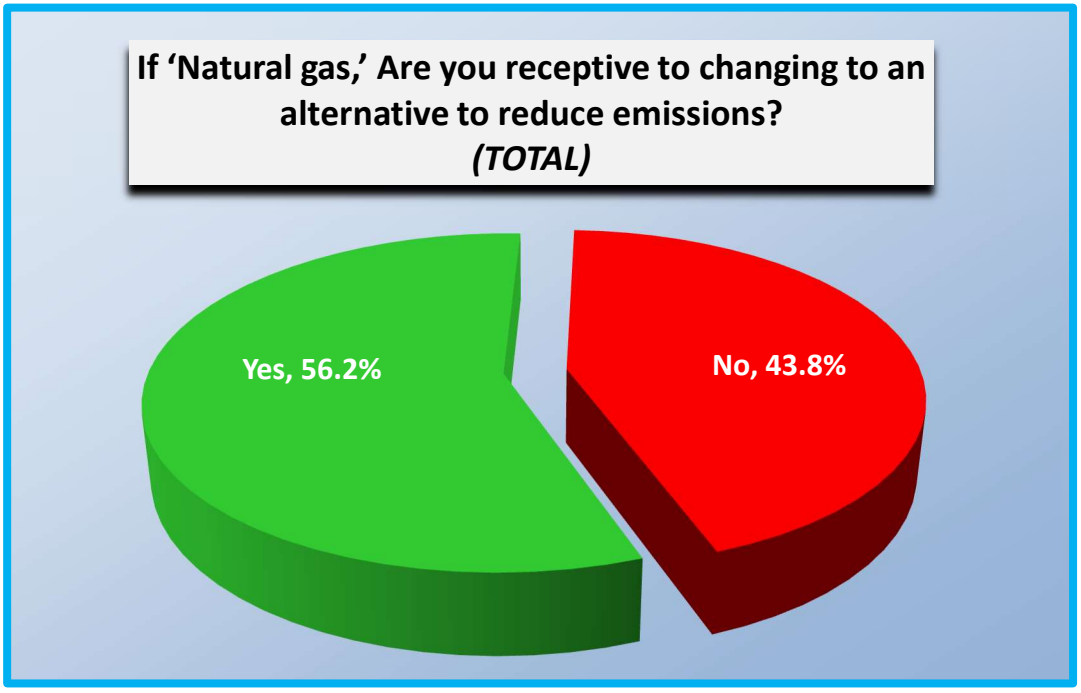


- 59.1% of natural gas users are not concerned about greenhouse gas emissions from burning natural gas.

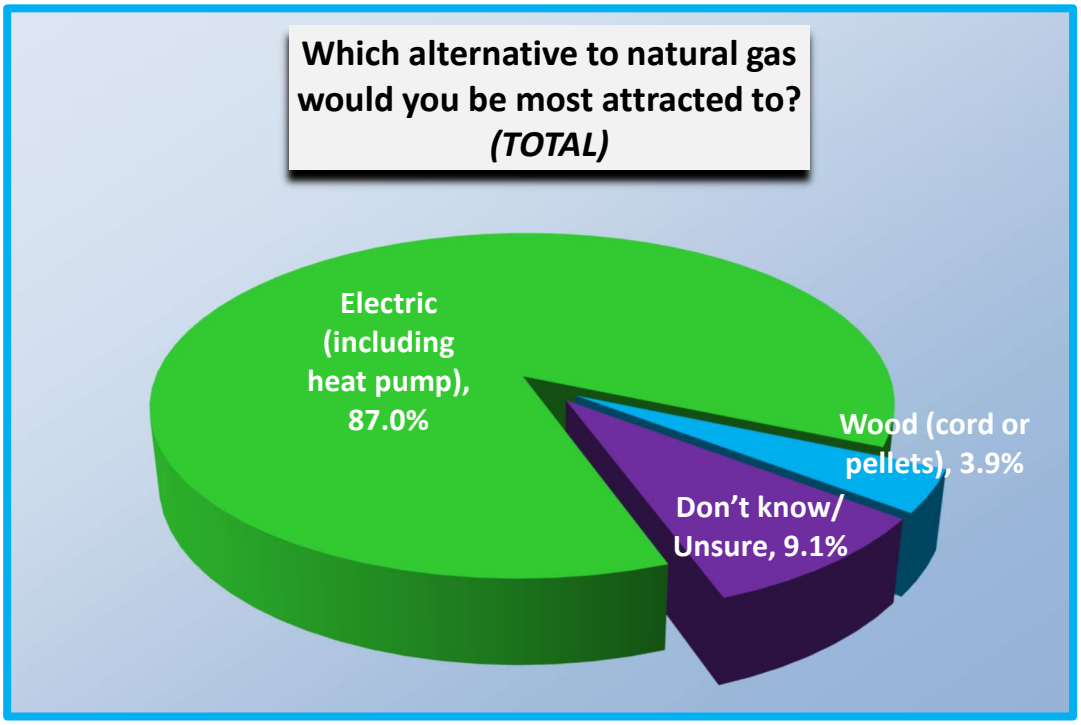


(Findings and Conclusions continued)

- 56.2% of all respondents using natural gas, and 64.2% of those residing within the city are receptive to changing to an alternative to reduce emissions.



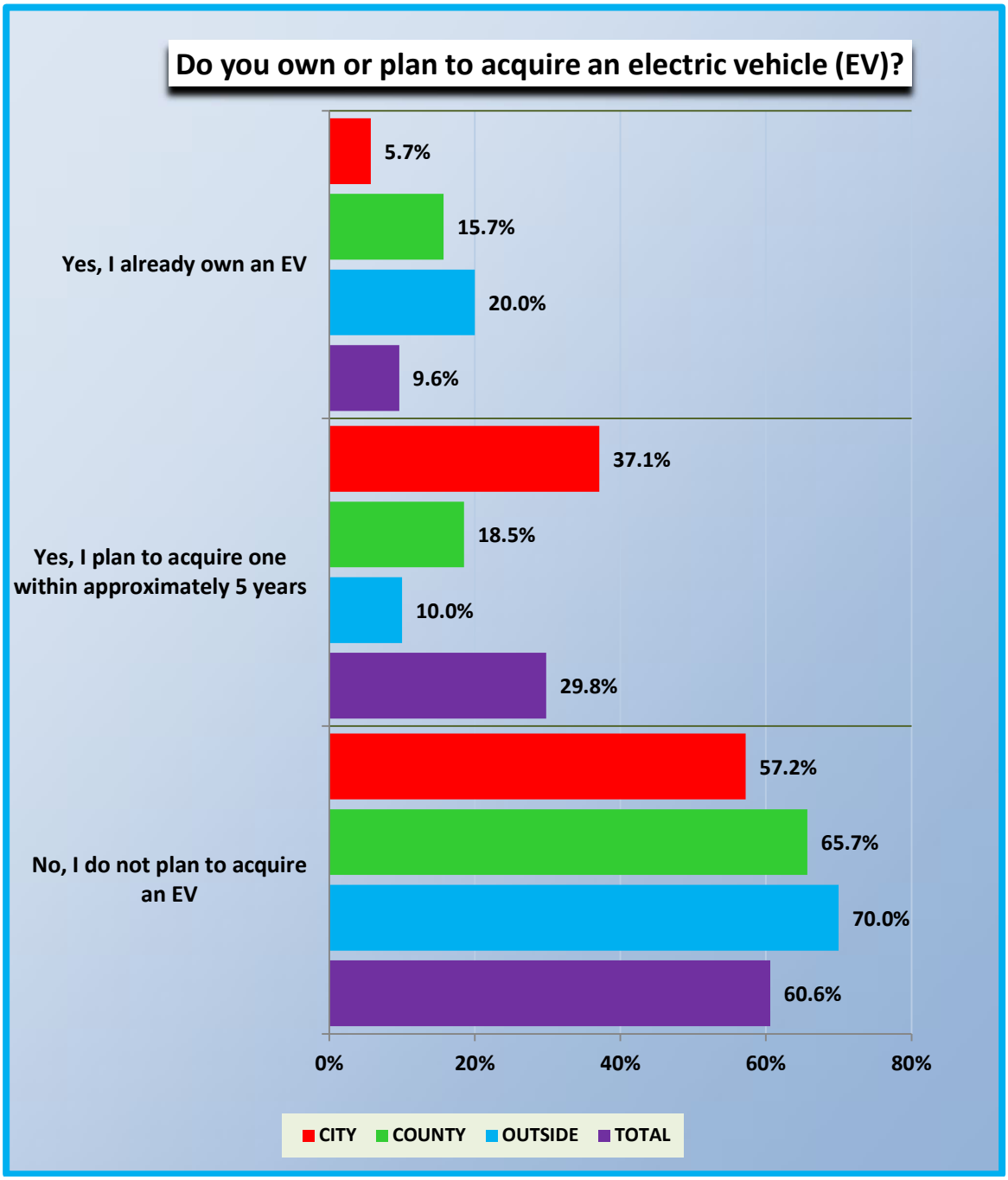
- Overwhelmingly their choice of a change is electricity (87.0%).



(Findings and Conclusions continued)

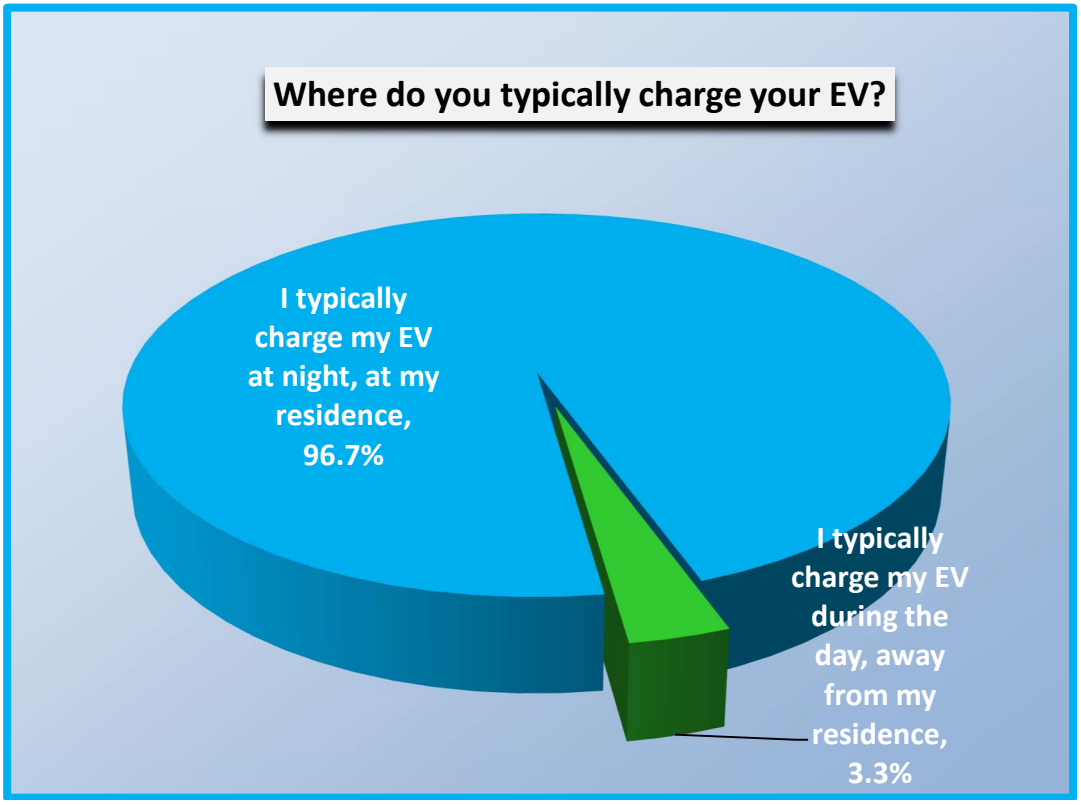
- 9.6% of the market completing the survey currently own an electric vehicle, and 29.8% plan to acquire one within five years.

- 60.6% of all respondents do not plan to acquire an electric vehicle.



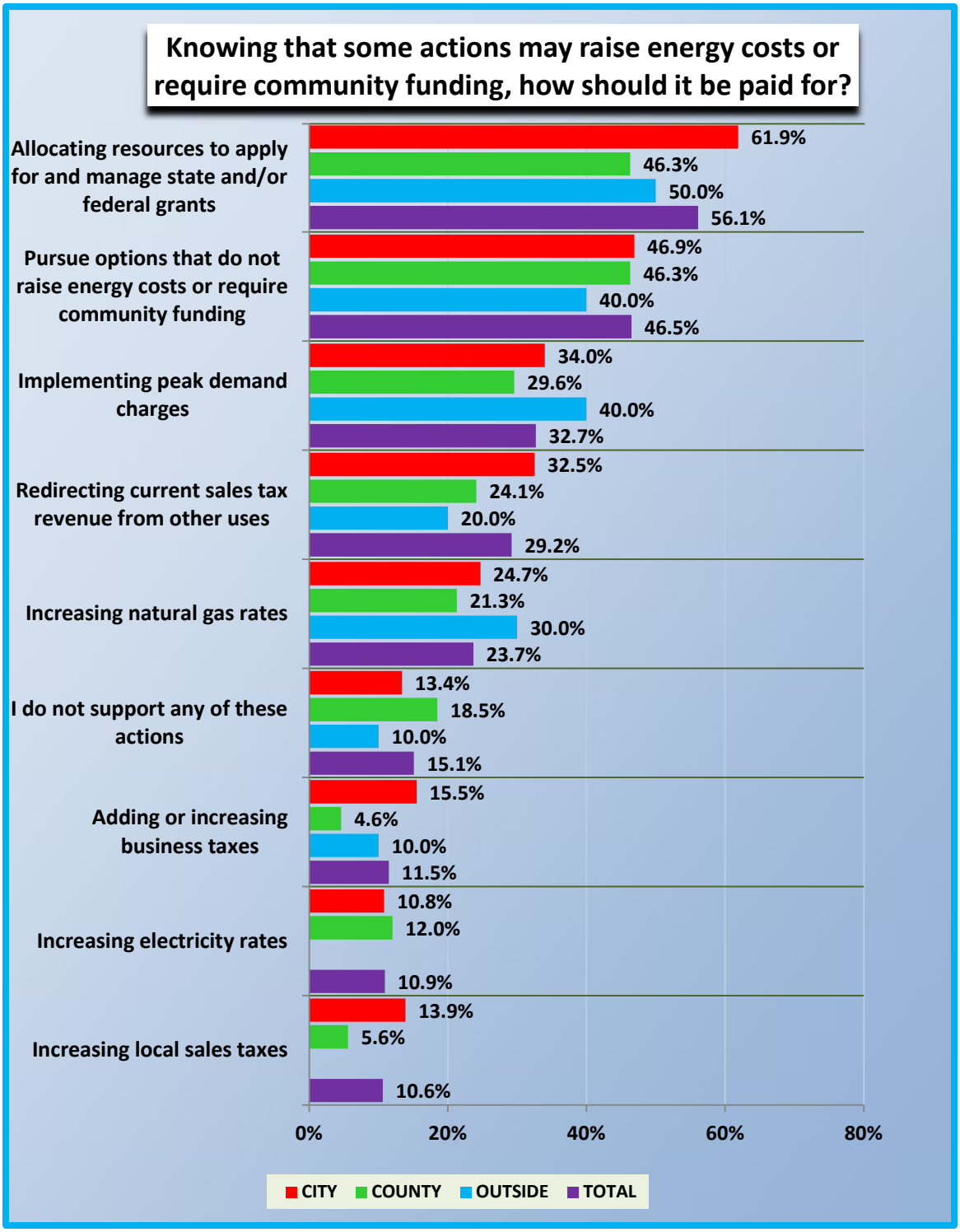
(Findings and Conclusions continued)

- All EV owners except one in this study charge their vehicle at night at their residence.



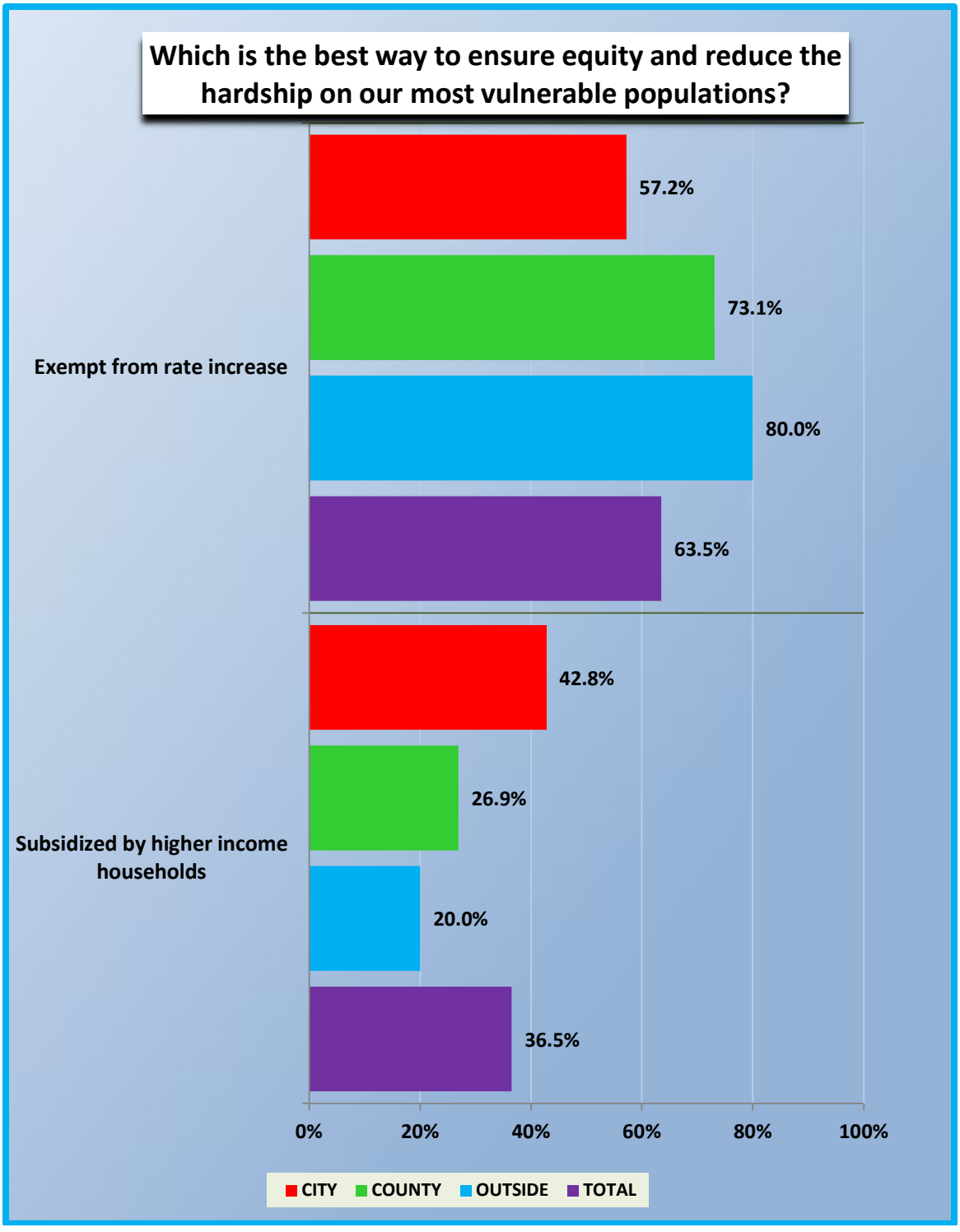
(Findings and Conclusions continued)

- Respondents were asked how rising energy costs due to the actions mentioned in this study should be paid for. A number of suggestions were provided with those most mentioned suggesting applying for state and/or federal grants and options that do not raise energy costs or require community funding.



(Findings and Conclusions continued)

- Survey residents were asked what they feel is the best way to ensure equity and reduce hardship on vulnerable populations that cannot afford utility rate increases. Nearly two out of three responding (63.5%) believe that these vulnerable individuals be exempt from rate increases.



APPENDIX H: EXECUTIVE INTERVIEW SYNOPSIS REPORT

CRITICAL DATA STRATEGIES, LLC

City of Ellensburg

Executive Interview Findings – Top 10 Customers and Community Stakeholders

July – September 2023

• CITY OF ELLENSBURG • EXECUTIVE INTERVIEW FINDINGS

An integral part of the City of Ellensburg's overall sustainability and energy plan is receiving input from Ellensburg's business and community leaders to a number of current and future energy issues.

Critical Data Strategies LLC, a 37-year-old Spokane, WA based market research and planning firm was selected to conduct qualitative executive-style telephone survey interviews with leaders and decision makers.

A total of **11 respondents** completed interviews with Critical Data as follows:

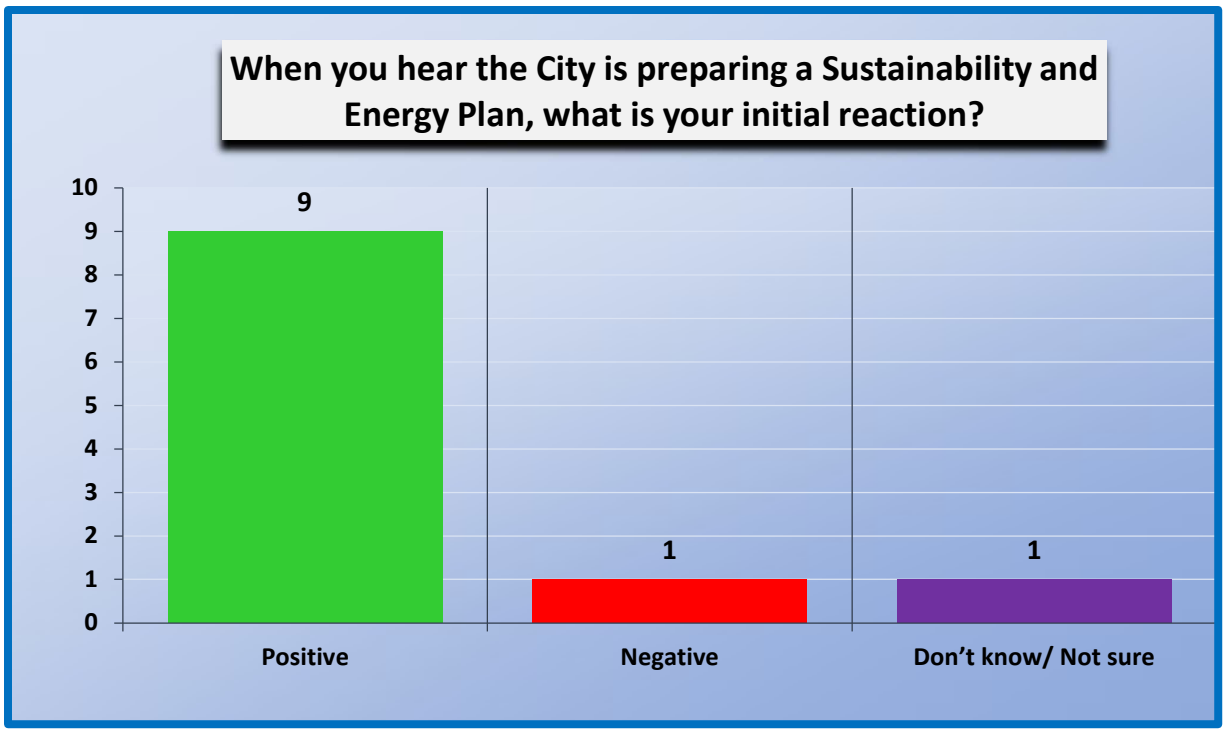
- Central Washington University (2x)
- Top 10 Utility Customers (6x)
- Community Stakeholders/Representatives (3x)

An additional six (6) community stakeholders/representatives and top 10 utility customers were unable to be reached despite multiple attempts.

Based upon these interviews, Critical Data has developed this report summarizing those executive interviews.

1). When you hear the City is preparing a Sustainability and Energy Plan, what is your initial reaction?

RESPONSE	TIMES MENTIONED
Positive	**9**
Negative	1
Don't know/ Not sure	1
TOTAL	**11**



(Question 1 continued, "When you hear the City is preparing a Sustainability and Energy Plan, what is your initial reaction?")

CATEGORIES DEFINED

CATEGORY	RESPONSE
Don't know	I don't know enough of the details, or what it means.
Negative	We do have finite resources and that leads me to wonder if utility prices would increase because of that.
Positive	All I can say is "better late than never."
Positive	Excitement and recognition to be in partnership with the City. We have already set goals and meetings, taking steps so we can work together, forming alliances to continue the sustainability and decarbonization of our community.
Positive	I hope my power gets cheaper.
Positive	I think it's a good idea, something that helps provide a sort of strategic design so it, which makes sense to me
Positive	I think it's a good project to work on.
Positive	I think they are looking for ways to reduce our carbon footprint and being more efficient.
Positive	It is in line with one of the projects we are working on.
Positive	Outstanding.
Positive	We are shoulder to shoulder with them on this journey, and we are excited to join them and help them meet the goals.

(Question 1 continued, "When you hear the City is preparing a Sustainability and Energy Plan, what is your initial reaction?")

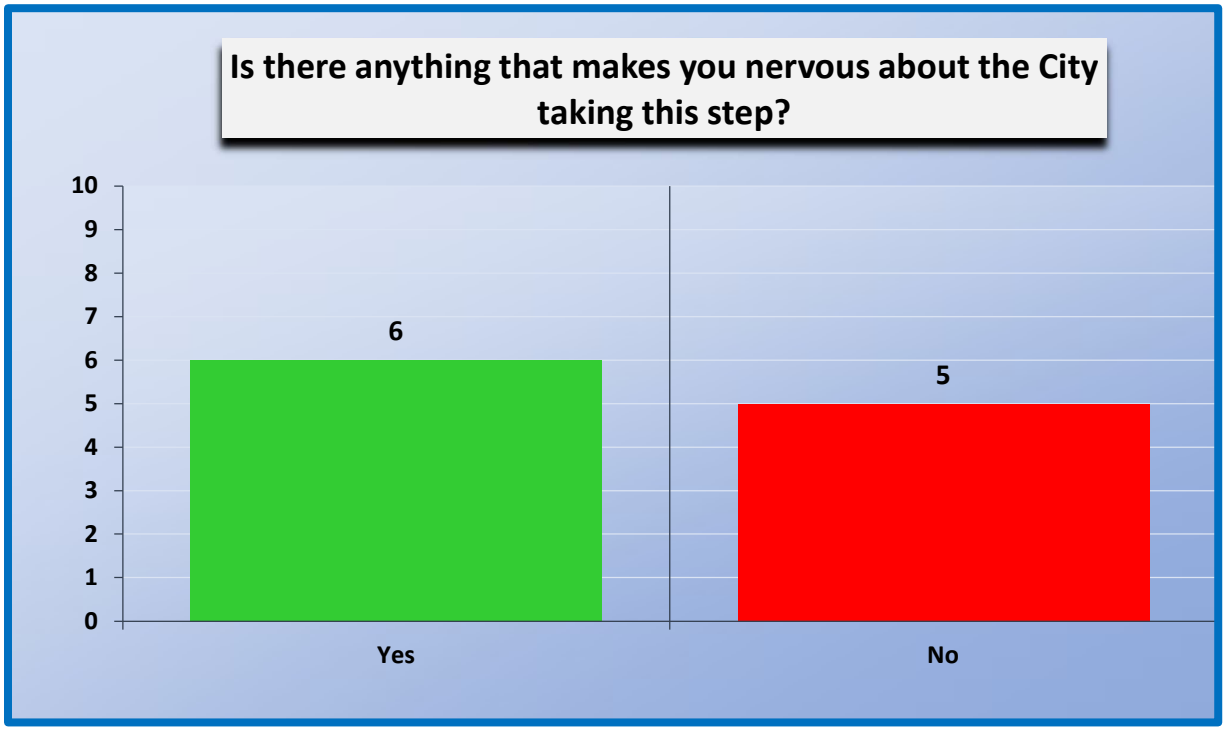
1a). Is there anything that excites you about the City taking this step?

RESPONSE
Everything excites me about this plan. We must take climate change seriously, reduce all we can, and develop innovative ideas to get our climate under control. We have written into our laws.
I think it is a necessary step.
I think it's mostly similar to the way we worked with the City utilities in the past, so it's good.
I think we are definitely going in the right direction.
I'm not quite sure, I know I get my utility bill from Ellensburg, and as a major consumer, I would love to see something more efficient, more or different grants, community-wide work on wind, air, and solar.
Opportunity on a grand scale to contribute to decarbonization and being proactive, while being a model on what decarbonization can do, not only for the State of Washington, but for other cities and states, and to be a model in advancing geothermal as a heating and cooling source. I also think about our role in wind and solar, and I think about the structure of solar and accelerating our pace to decarbonize. I can see our further amplification in this area.
Reducing our carbon footprint is a good idea.
That they are actually doing something and thinking pro-actively.
The fact that they are looking at sustainability, because over time, we will all have to consider ways to sustain energy.
We don't know exactly what the City is doing or planning on doing.
Yes, it definitely does. We live in a rich environment, as far as solar energy and the utilization of it is concerned. We are already doing it, but we could be expanding it. We are surrounded with wind farms, but we could be doing more with solar.

(Question 1 continued, "When you hear the City is preparing a Sustainability and Energy Plan, what is your initial reaction?")

1b). Is there anything that makes you nervous about the City taking this step?

RESPONSE	TIMES MENTIONED
Yes	**6**
No	5
TOTAL	**11**



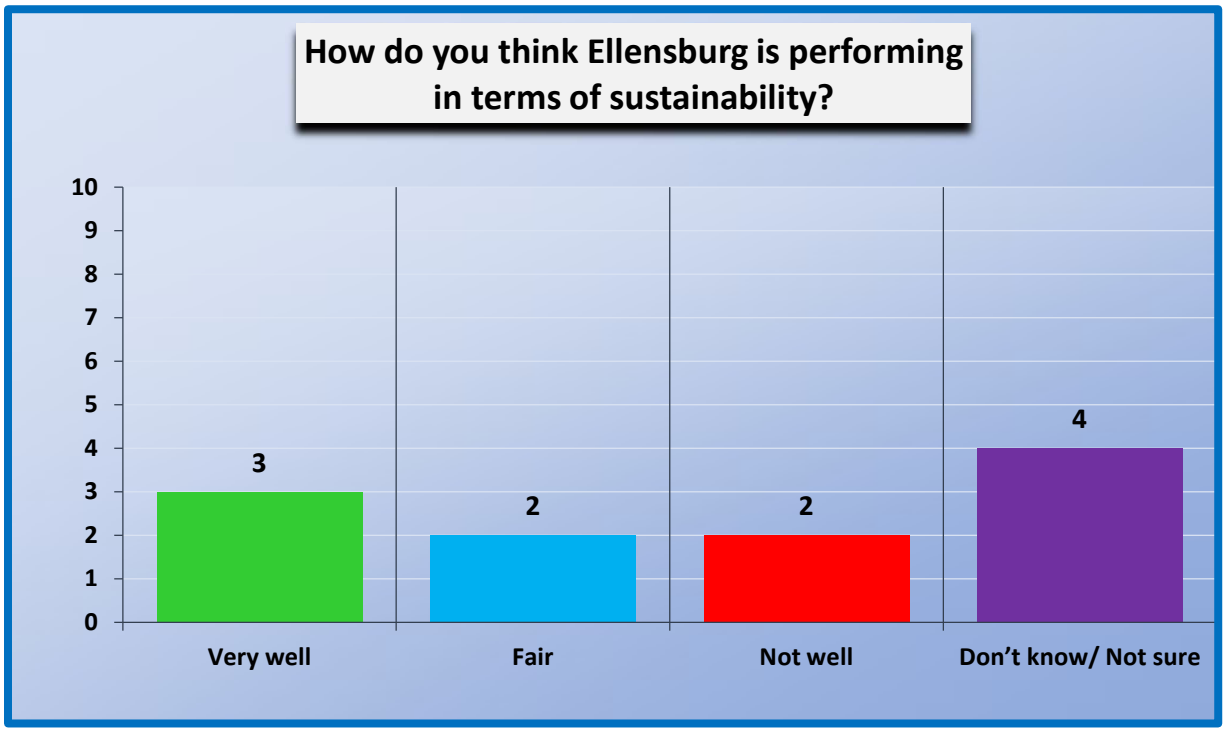
(Question 1b continued, "Is there anything that makes you nervous about the City taking this step?")

CATEGORIES DEFINED

CATEGORIES	RESPONSE
No	No, nothing I can think of.
No	No.
No	No.
No	No. I think exploring options is the right thing to do.
No	Not at this time.
Yes	All the requirements and red tape that we have to go through.
Yes	Just the specter of over-regulation.
Yes	My concerns lie with the State and what they will fund, because without maximum funding, we will not be able to support the expectations of the City. The state will have to step up to the plate.
Yes	One point is the timeline relative to state legislation and the ability to build to capacity for decarbonization.
Yes	Right now, it's very confusing
Yes	What makes me nervous is what generally happens with government led initiatives, they get watered down or forgotten. They spend a lot of time discussing and planning, and then nothing happens. I would like to see discussion and the measurable progress; make a plan, put it down on paper, and then follow through.

2). How do you think Ellensburg is performing in terms of sustainability?

RESPONSE	TIMES MENTIONED
Very well	3
Fair	2
Not well	2
Don't know/ Not sure	**4**
TOTAL	**11**

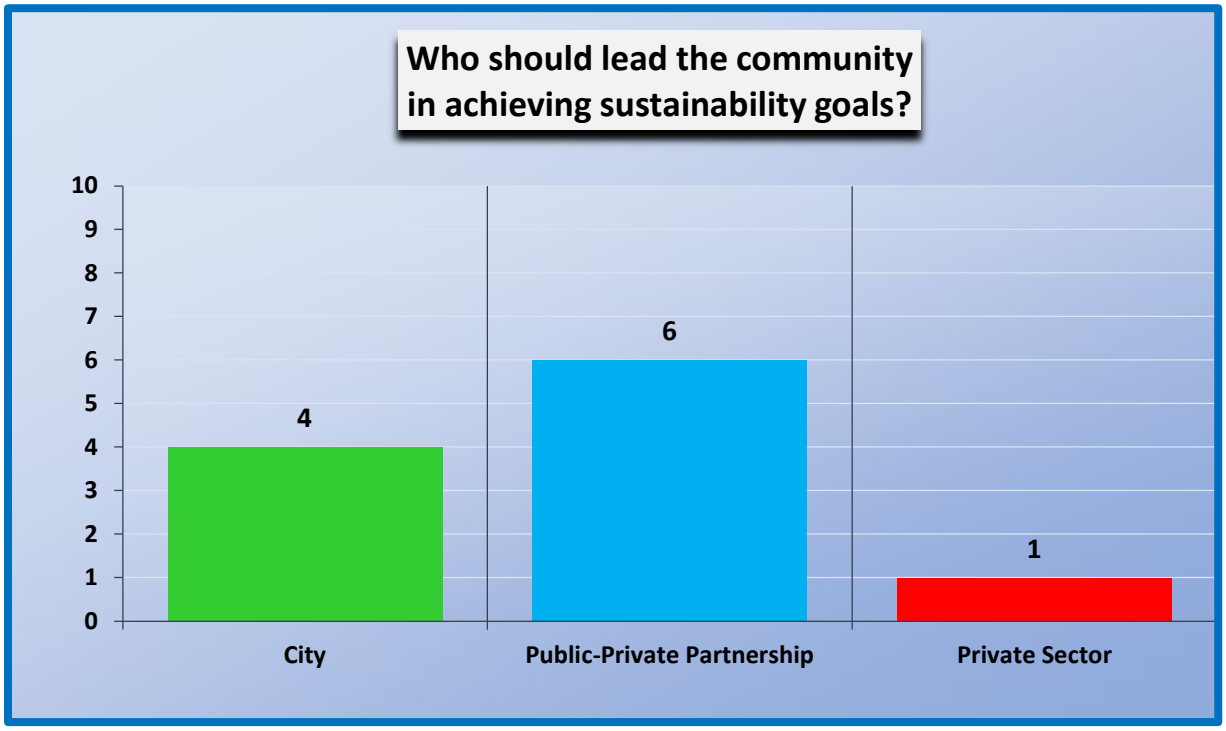


3). What are some sustainability successes you've noticed and where do you think there are opportunities to do more?

RESPONSE
Creating a plan that focuses on sustainability is a good beginning.
Funding is definitely needed. Great plans and ideas are just that, and they must be put together and finalized. However, the biggest opportunity will be tons of grants that are available, like parking lot charging stations, and some of the conversions from certain natural gas to electricity; leverage grant dollars to help with that.
Promoting bicycle riding and promoting central transit systems.
Solar power seems to be doing well, and we have some businesses that are starting to look at solar. I think the public should be educated on all levels of compostables.
The City of Ellensburg has done a great job with solar and wind, and we are building to meet standards.
The City should be thinking about more solar, but the City owns the utility, so every time someone goes solar, the city loses money, and the City goes toward gas instead of moving closer to electric. They must figure out a way to encourage more renewables.
The wind tunnels are a success. I see more potential for wind because there are more open hills that can be used.
There are some businesses in Ellensburg that seem to create a ton of garbage. I think it is okay to charge or penalize businesses who are thoughtless about renewables.
There is a lot of sustainability programing in the community. We have bike friendly paths, a good trail system, and we are working in geothermal and solar areas for improvement. I think we should just deepen and improve what we have in front of us, working to accelerate in all the area.
We've done a lot of energy projects to reduce usage.
Windmills and solar, but, if possible, I think the City should definitely look into geothermal wells.

4). Do you feel the City should lead the community in achieving sustainability goals, or should it be a responsibility of the private sector?

RESPONSE	TIMES MENTIONED
City	4
Public-Private Partnership	**6**
Private Sector	1
TOTAL	**11**



(Question 4 continued, "Do you feel the City should lead the community in achieving sustainability goals, or should it be a responsibility of the private sector?")

CATEGORIES DEFINED

CATEGORY	RESPONSE
City	City is the one in charge of the wind tunnels and the dam, so I think they should lead.
City	City should set an example. When we have our events, we have refill stations for water, but when there are other events in the community, there are no refill stations or recycle bins for empty water bottles or recycle trash. When we do our events, we avoid plastic water bottles. I think the City should partner with waste management to award businesses with a "Golden Dumpster Award" for using the most compostables or having a recycle bin or a refill station. I also think the City and waste management could have community programs to encourage clean energy, recycling and compostables.
City	No, the City is the given utility provider, and the government should lead, providing incentives, and issuing fines and fees for those who misuse.
City	The City should definitely take the lead.
Private Sector	I think it should fall more toward the private sector, just keeping in line with the core concepts of the government.
Public-Private Partnership	I would actually meet somewhere in the middle, public/private combination. It must be a recognized partnership across all parties.
Public-Private Partnership	It should be a partnership between the City and the business community. Yes the City will have to take the lead, and absolutely it will require our business community to step up. We all have to work together because it is that important.
Public-Private Partnership	Partnership is the way to go. The City is the regulatory, and as such, should lead that way, while building a strong partnerships with the businesses as well as with the community.
Public-Private Partnership	The City definitely has a leadership role and should partner with the private sector. The City won't be able to do it alone.
Public-Private Partnership	The City should lead the community, but a private/public partnership, private by-in, would be a good thing. However, there must be more outreach to educate the population to the changes, simply because most are not aware of any of the changes.
Public-Private Partnership	Well, I see both sides. I think the private side should do their part as much as possible, but I'm not too sure how import it is to the private sector so it should be on the City.

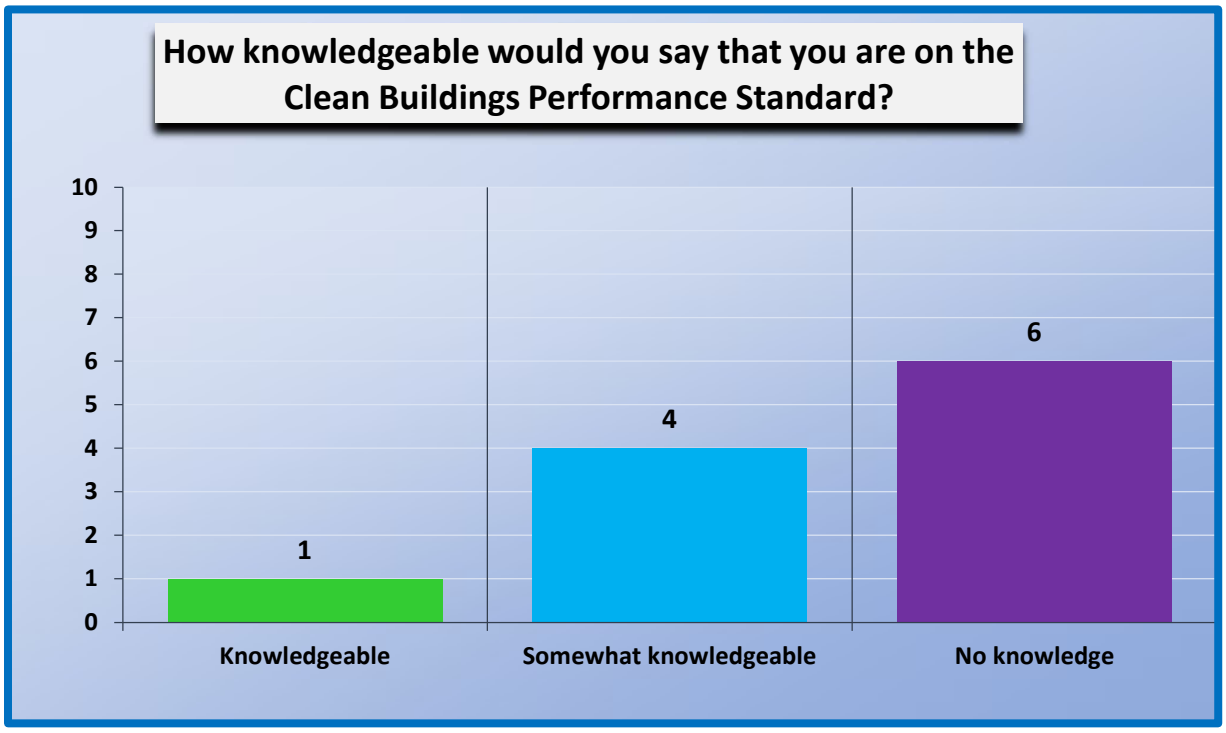
5). Where do you see opportunities for the organization you represent to partner with the City to achieve sustainability and energy goals?

RESPONSE
Continue to reduce our energy usage.
Habitat conversation and education. Promoting conservation and addressing the issues.
I would supply charging stations, partner with grants, and find energy efficiency programs that we can tap into.
Look into possibly installing solar panels on our roof.
Much is already taking place and we continue our meetings and working toward mutual goals. Our central focus is building a master plan that will assure the City will meet its goals.
Simple things as energy efficient window replacement, heating and cooling systems upgraded, and perhaps irrigation, if there is a better way to water your property.
Sustainability both fiscal and otherwise. We have regular meetings with common goals to reduce our energy consumption and our carbon footprint.
We can definitely be supportive in achieving those goals.
We can educate and help promote education and communication. I also think the City and waste management could partner with the big hospital and the college, just to make sure they are as green as they could be.
We need the State to step up.
We will continue to increase partnership when appropriate.

6). How knowledgeable would you say that you are on the breadth of legislation recently passed in WA state impacting energy in general?

a. Clean Buildings Performance Standard

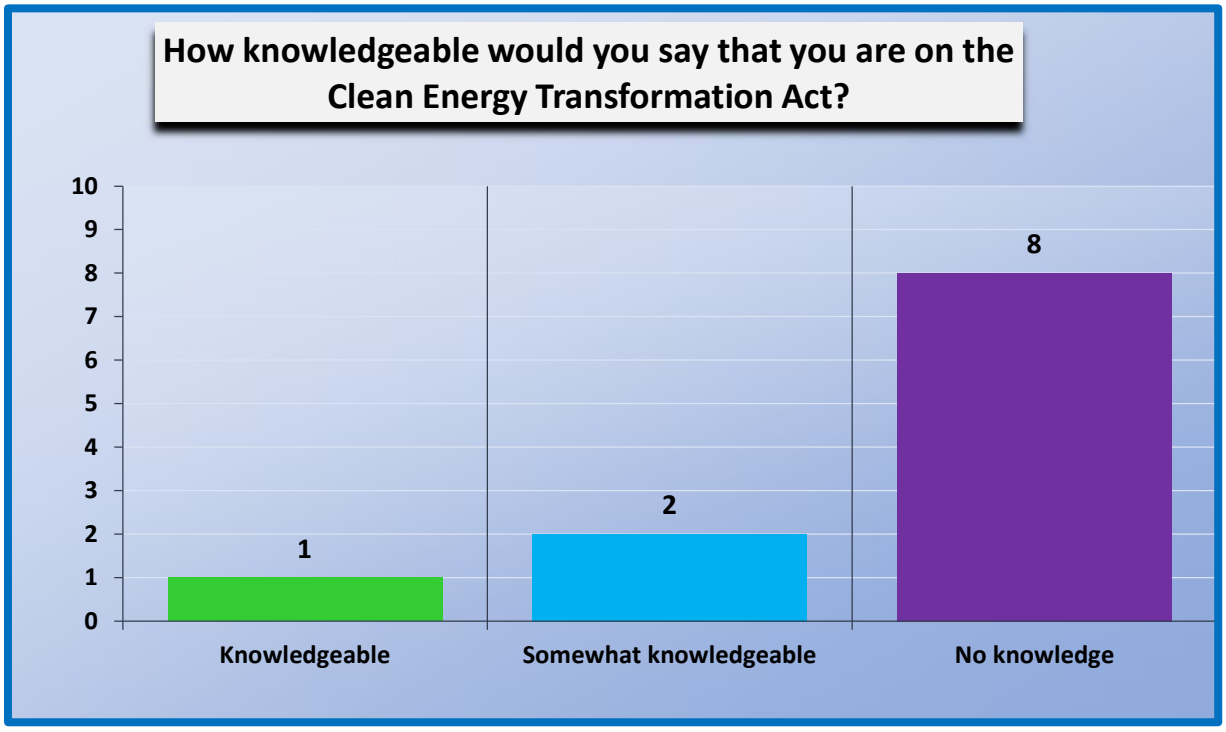
RESPONSE	TIMES MENTIONED
Knowledgeable	1
Somewhat knowledgeable	4
No knowledge	**6**
TOTAL	**11**



(Question 6 continued, "How knowledgeable would you say that you are on the breadth of legislation recently passed in WA state impacting energy in general?")

b. Clean Energy Transformation Act

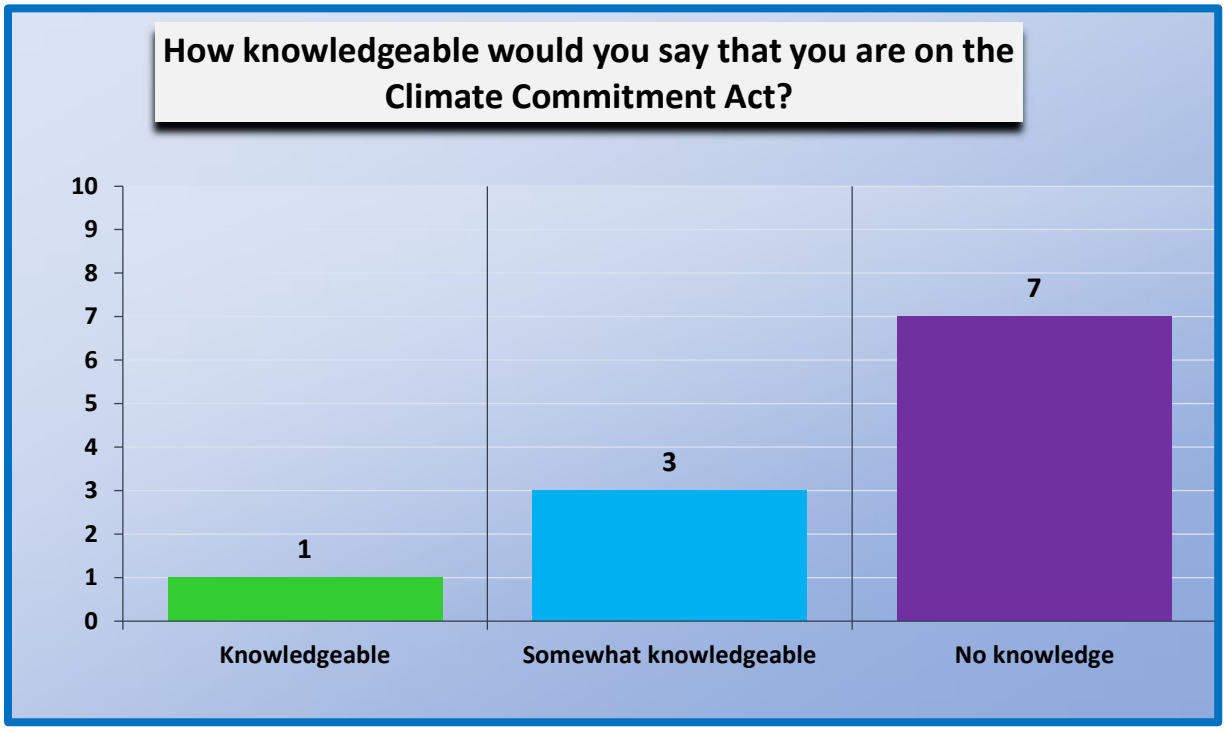
RESPONSE	TIMES MENTIONED
Knowledgeable	1
Somewhat knowledgeable	2
No knowledge	**8**
TOTAL	**11**



(Question 6 continued, "How knowledgeable would you say that you are on the breadth of legislation recently passed in WA state impacting energy in general?")

c. Climate Commitment Act

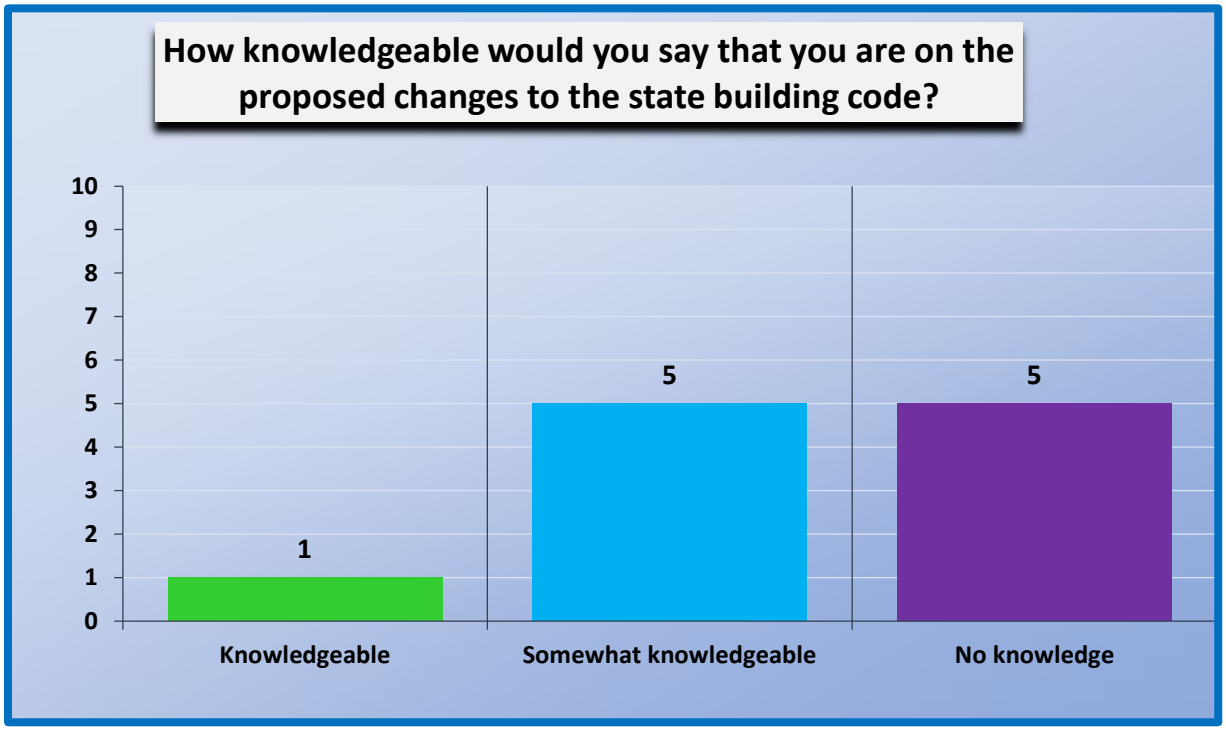
RESPONSE	TIMES MENTIONED
Knowledgeable	1
Somewhat knowledgeable	3
No knowledge	**7**
TOTAL	**11**



(Question 6 continued, "How knowledgeable would you say that you are on the breadth of legislation recently passed in WA state impacting energy in general?")

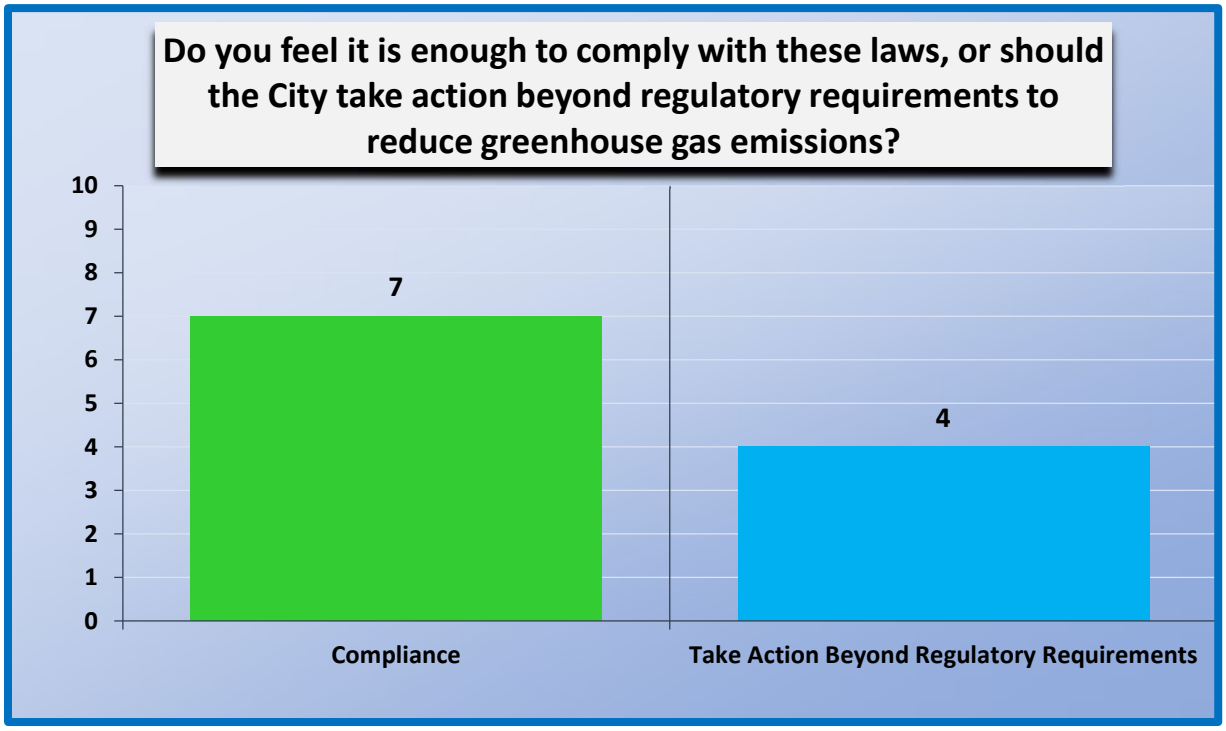
d. Proposed changes to the state building code

RESPONSE	TIMES MENTIONED
Knowledgeable	1
Somewhat knowledgeable	**5**
No knowledge	**5**
TOTAL	**11**



7). By complying with the state's new laws and building codes, it is estimated that by 2037 the City's emissions will be half of what they are today. Given this, do you feel it is enough to comply with these laws, or should the City take action beyond regulatory requirements to reduce greenhouse gas emissions?

RESPONSE	TIMES MENTIONED
Compliance	**7**
Take Action Beyond Regulatory Requirements	4
TOTAL	**11**



(Question 7 continued, "Do you feel it is enough to comply with these laws, or should the City take action beyond regulatory requirements to reduce greenhouse gas emissions?")

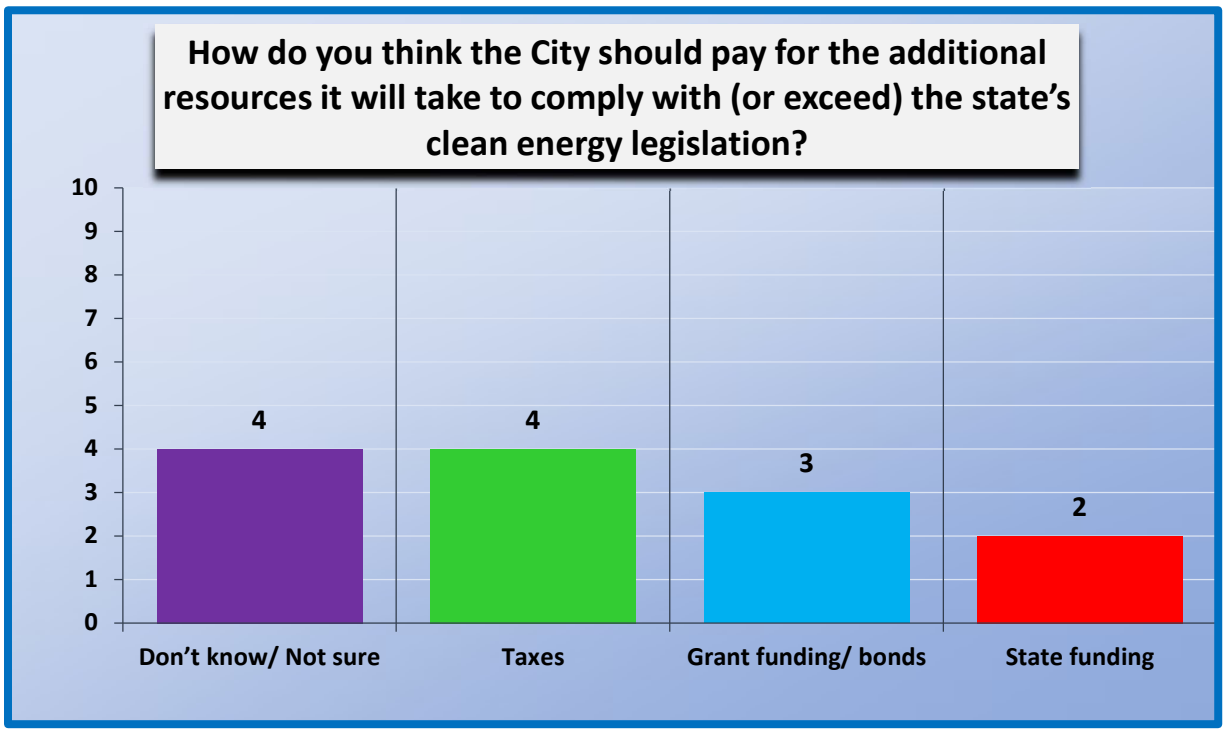
CATEGORIES DEFINED

CATEGORY	RESPONSE
Compliance	I think compliance with these laws is good enough.
Compliance	I think for now, compliance is enough, decreasing by 50% is enough for now. I also believe doing more has hazards.
Compliance	I think it is enough for the City to comply with laws, and I don't think it's needed for them to go beyond. The City compliance is more than enough.
Compliance	I think it will work with commercial businesses, but I don't see that hitting homeowners, nor schools. More education would be needed on that level, both for the homeowner and the student.
Compliance	I think it would be entirely fitting for Ellensburg to use the state standard as a base for water and energy and build on it.
Compliance	I think we should start where we are, build on it, and continue doing better. Just build on what you have already started.
Compliance	I'm not fully familiar with it, so what I would say is just focus on the law.
Take Action Beyond Regulatory Requirements	I think we should all be continually thinking about maximizing decarbonization levels and reducing greenhouse gas emissions.
Take Action Beyond Regulatory Requirements	The City should move beyond just compliance. The thing is, when you try to please everyone, you wind up not pleasing anyone. Take action and let our City be the leader in the state.
Take Action Beyond Regulatory Requirements	To an extent I suppose, since parts of the city has utilities, and I would offer more incentives, beyond what they already do.
Take Action Beyond Regulatory Requirements	We are one of the largest consumers in the City. We should meet and possibly exceed the goals, but what is the State going to do?

8). How do you think the City should pay for the additional resources it will take to comply with (or exceed) the state's clean energy legislation?

RESPONSE	TIMES MENTIONED
Don't know/ Not sure	**4**
Taxes	**4**
Grant funding/ bonds	3
State funding	2

**Question allowed for more than one response*



(Question 8 continued, "How do you think the City should pay for the additional resources it will take to comply with (or exceed) the state's clean energy legislation?")

CATEGORIES DEFINED

CATEGORY	RESPONSE
Don't know/ Not sure	I don't have a comment on that.
Don't know/ Not sure	I really don't know. This is above my pay grade.
Don't know/ Not sure	It's not fair to impose levies on those who do not consume energy.
Don't know/ Not sure	What I am not is a City finance expert; I don't have any knowledge regarding the City's finance to comment to fully answer the question.
Grant funding/ bonds	The City has been terrible taking advantage of grants. They haven't had a dedicated department to secure resources, and they tend to rely on utility funds which is not working. They need a dedicated staff to find all the resources and grants that are out there, because there are a lot, they just need a staff to keep looking for them.
Grant funding/ bonds & Taxes	Energy surcharges against grants. I think climate change is an existential threat, and I'm willing to pay for it.
Grant funding/ bonds & Taxes	They would have to search out some bonds, or raise taxes, either on items or property. I am not a fan of raising taxes, but is there another way, I don't know – perhaps the City has some other ideas.
State funding	I don't think the City will have to do much if the State takes care of us.
State funding	I would hope the City would search for grant funding from the state or government, and not raising taxes.
Taxes	I don't know, I'm guessing taxes, but I would reach out to the community on that and maybe put it up for a vote.
Taxes	I think it would be great if somehow, they could make money generated from recycling and provide the money necessary for the additional resources. Otherwise, I'm afraid you're looking at taxing.

9). To what extent does your business encourage the use of alternative transportation for your employees?

RESPONSE
Figuring that out is a journey and not a destination. I think exploring micro mobility options would be a good plan.
I walk to work every day, and the company has provided cycles to go between buildings. We are looking to get an electric van for those who commute a distance.
We are designated a walkable and bikeable community. We have a national bike to work day, and I would like to see signage for bike and walk advertising. Maybe a reward to walk or bike to work could be an incentive.
We are doing very little regarding that right now.
We could do a whole lot better in encouraging that.
We do encourage carpool, riding bikes, or walking.
We don't. We encourage saving energy, but not with transportation.
We encourage alternative transportation.
We have programs in place.
We offer free electric charging stations for employees who have electric vehicles, we are trying to purchase electric vehicles, and we encourage walking.
Zero percent for the employees. I just want them to get to work and I don't push them how they do it. We support the carpool program, and we allow them to park in our parking lot, so we support the ride share program.

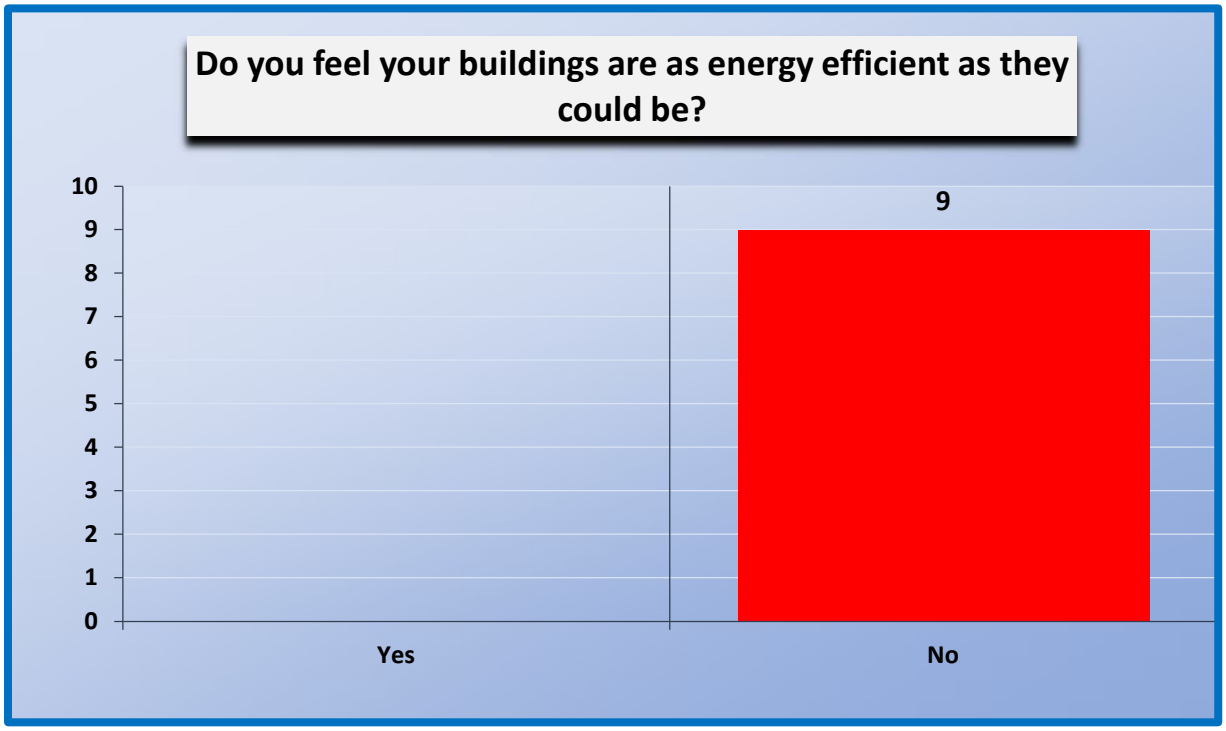
10). Is there anything the City could do to increase the use of alternative transportation?

RESPONSE
Bike lanes to make bike travel safer.
Ellensburg is already an alternative friendly city, but it would be nice to create a walkable downtown area, no car access, pedestrian access only.
I think a more comfortable answer in terms of process would be to identify what is working well and areas of improvement.
I think they should try to adequately get the word out, perhaps through advertising.
I'm not aware of anything.
Look at bus service improvements. Perhaps add more routes and easier access.
That is a City's responsibility, and I think the City has done a good job.
The bus system is pretty good, and I've heard it has improved, but we could do more. We have a great bus system that could be expanded.
There are buses traveling around town that should be electric, making the City biking paths as friendly as possible, create more room for walking and bicycling, and along with City buses being electric, provide grants for electric school buses.
We have worked with the City to encourage additional bus stops.
We partner with the City on the central bus system, and we have employees who travel by and use the bus system to/from Yakima. That transit system travels between the two cities. Perhaps the City could partner with other communities to expand the bus systems. I think that would help.

11). Do you feel your buildings are as energy efficient as they could be?

(ANSWERED BY COMMUNITY STAKEHOLDERS AND TOP 10 UTILITY CUSTOMERS ONLY)

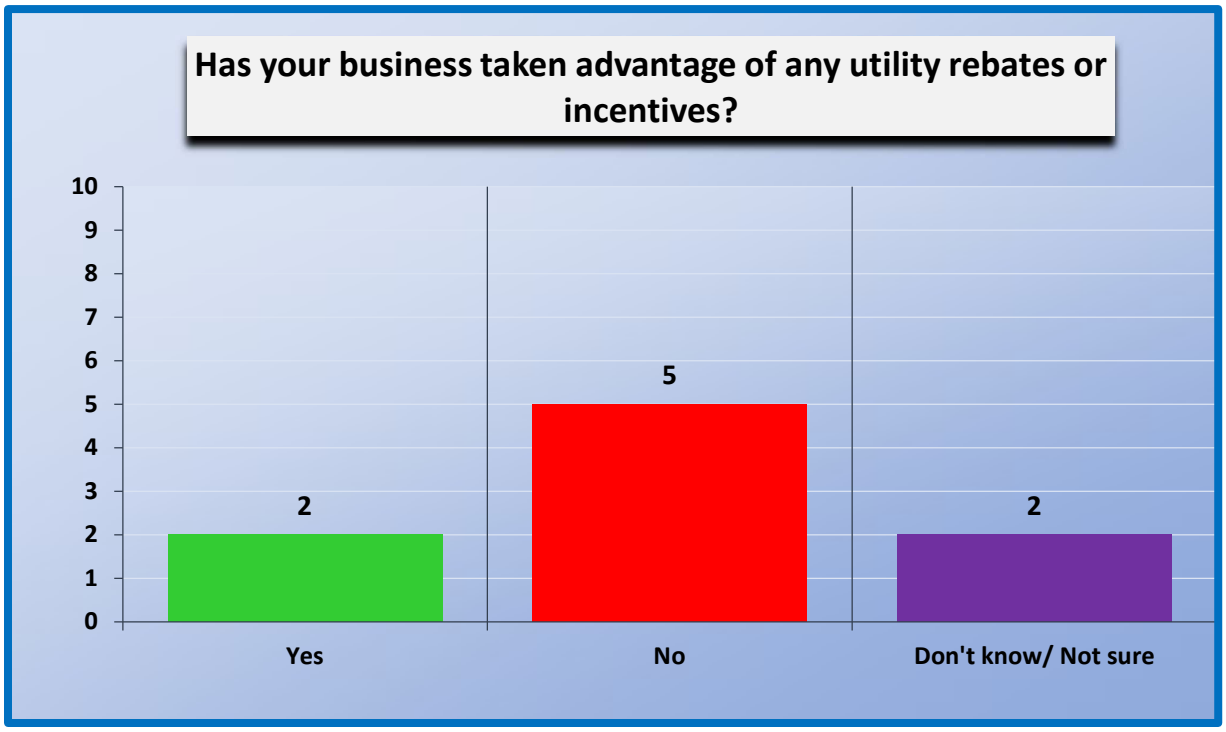
RESPONSE	TIMES MENTIONED
Yes	0
No	**9**
TOTAL	**9**



12). Has your business taken advantage of any utility rebates or incentives? Are there any additional incentives would compel you to make additional improvements?

(ANSWERED BY COMMUNITY STAKEHOLDERS AND TOP 10 UTILITY CUSTOMERS ONLY)

RESPONSE	TIMES MENTIONED
Yes	2
No	**5**
Don't know/ Not sure	2
TOTAL	**9**



(Question 12 continued, "Has your business taken advantage of any utility rebates or incentives?")

RESPONSES

Q12 RESPONSE	COMMENT
Yes	We are currently working to upgrade boilers, windows, with more upgrades throughout our entire facility.
Yes	We have used some incentives that seem to help out our strategic energy incentives.
No	I don't know if any of that is available to us.
No	I'm not aware of any rebates we could use.
No	We have not. If there were grants available, we would try to leverage those.
No	We rent our office space. I personally purchased a hybrid water heater and took advantage of the incentive.
No	We rent, and I don't know what the property owner has done in the regard. Perhaps the City could educate property owners and provide them with alternative energy solutions.
Don't know/ Not sure	I don't know, because this is not within my area of control.
Don't know/ Not sure	That is a corporate office question.

13). Washington State now requires natural gas utilities, including the City of Ellensburg, to purchase carbon allowances and reduce their demand by 7% annually through 2030. Proposed changes to the state's building energy code will promote switching to electricity, but the City utility will not achieve this target without taking additional actions. How do you think the City utility should address this issue?

RESPONSE
Buildings that turn everything off by 5pm and solar power options.
Find alternative income sources for the City.
Get in front of property buyers, builders, areas like that, and offer incentives to follow guidelines.
I have no comment.
I have no idea.
I think the City should be working with the large consumers in the City to find ways that they could be more efficient.
I'm not in favor of it, simply because it won't work and it's not worth the time and effort.
If the State provides the funds we need, the City will be on target, if the state moves quickly. City taxes have been raised. Why not use that tax to help with what we need?
Lean on the energy experts and City consultants to do that part.
Take additional actions, whatever it takes, raising rate on high users, having a premium on excess, and extreme over usage.
They should try to make it a legislative issue, and it should be a priority because something like that takes a long time. Start with elected officials and work to fix it that way.

13). Is there an established timeline to electrify CWU's fleet? If so, what is that timeline?

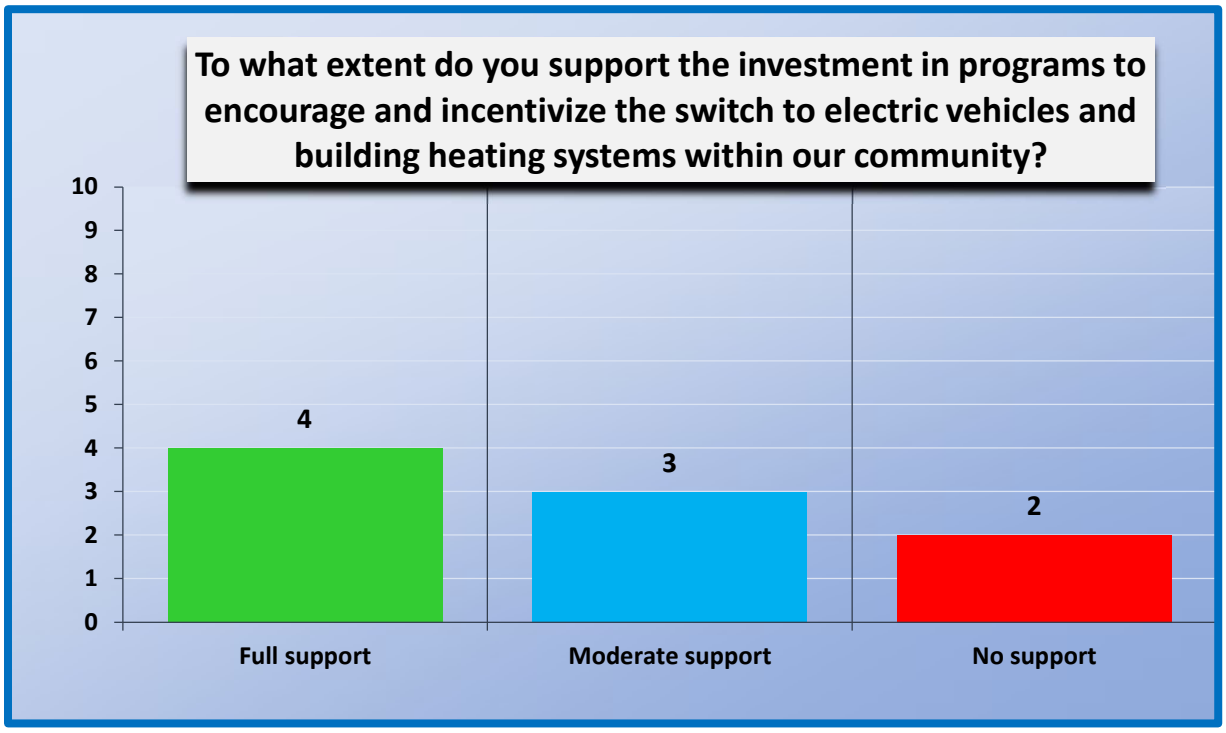
(ANSWERED BY CENTRAL WASHINGTON UNIVERSITY RESPONDENTS ONLY)

RESPONSE
We do not have an established timeline, but we started the process.

14). To what extent do you support the investment in programs to encourage and incentivize the switch to electric vehicles and building heating systems within our community?

(ANSWERED BY COMMUNITY STAKEHOLDERS AND TOP 10 UTILITY CUSTOMERS ONLY)

RESPONSE	TIMES MENTIONED
Full support	**4**
Moderate support	3
No support	2
TOTAL	**9**



(Question 14 continued, "To what extent do you support the investment in programs to encourage and incentivize the switch to electric vehicles and building heating systems within our community?")

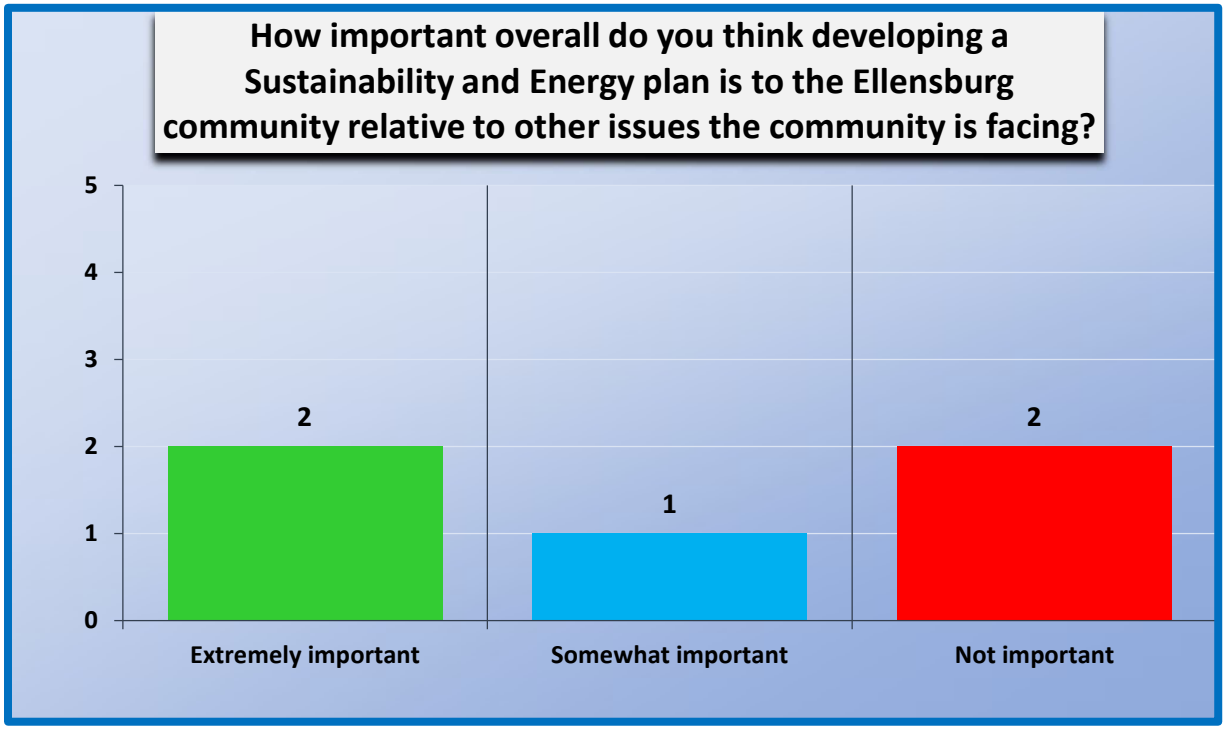
CATEGORIES DEFINED

CATEGORIES	RESPONSE
Full support	Totally.
Full support	We've been putting out electric vehicles and adding many charging stations for our vehicles.
Full support	100%, no, 150%.
Full support	90%. I would say 100%, but there should be no such thing as 100%.
Moderate support	I support the need to keep the ball moving forward.
Moderate support	My support of that is moderate, however, my support grows as technology gets better.
Moderate support	The only way you can incentivize those kinds of programs is through tax breaks or cash, the same way it works in other utility programs.
No support	I do not support the switch to electric vehicles. I think encouraging and incentivizing just looks like the government is forcing it on us. It should be a choice.
No support	I have no problem with natural gas, but I have a problem with how much it costs to replace the electric vehicle battery and what it does to the land fill when it's discarded. I think we should invest in different kinds of fuel, like grain, because we are not ready for electric vehicles. We only have two charging stations, and I don't support putting in more charging stations at this time. We are not ready for electric vehicles.

15). How important overall do you think developing a Sustainability and Energy plan is to the Ellensburg community relative to other issues the community is facing?

(ANSWERED BY CENTRAL WASHINGTON UNIVERSITY AND COMMUNITY STAKEHOLDERS ONLY)

RESPONSE	TIMES MENTIONED
Extremely important	**2**
Somewhat important	1
Not important	**2**
TOTAL	**5**



(Question 15 continued, "How important overall do you think developing a Sustainability and Energy plan is to the Ellensburg community relative to other issues the community is facing?")

CATEGORIES DEFINED

CATEGORIES	RESPONSE
Extremely important	For me, it's #1, it is the most important issue period.
Extremely important	The sustainability and energy plan is one of our top five priorities.
Not important	I don't think general populus sees it as super important.
Not important	We need an infrastructure for internet, and I think more effort should be spent developing that infrastructure for the internet. Solar and natural gas are at the very bottom of my list, and electric cars are even lower. Teaching people how to garden and no till agriculture is more important.
Somewhat important	The challenge is why do we need to rank them? Why can't it all be parallel with poverty, sustainability, green energy, etc.

16). What one thing would you like to ensure the City considers as they plan for a sustainable future for Ellensburg?

(ANSWERED BY CENTRAL WASHINGTON UNIVERSITY AND COMMUNITY STAKEHOLDERS ONLY)

RESPONSE
Education is what my organization does, saving energy, recycling, conservation. We tell people to think of ways to save energy. Adults are a lot harder to teach or change their actions. I love the carrot idea, offering incentives, but the City is to lead and govern, not be passive. The City needs to regulate and educate. Build solar panels over the parking lots – that is a lot of wasted space which could collect energy and keep the cars cooler, an added benefit. We are not looking for City reports that feel good, but progressive and aggressive ways to handle our sustainability and energy plan, progress or not, and also, what to do about land fill and recycle.
Having them know the University is partnered with the City, leveraging technology and decreasing the carbon footprint. The City has access to expert faculty and staff to partner with City experts to accelerate decarbonization.
I would like them to know how incredibly important this work is and how supportive we are for the City of Ellensburg and its future.
No plastic bags in any retail or grocery store, only reusable bags, take away plastic straws, build on using more solar energy, teaching businesses how to divert out of landfill and all take out containers should be compostable. Look into public transportation running at more frequent hours and better routes. I'm the only business that has a recycle bin in the alley next to our building, and there are no others around, and no compost bins either. Who knows if KBH hospital composts and recycles – how green is the hospital.
Years ago, they used to have energy rebates or incentives, like if you upgraded to better, more efficient refrigerator, stove, etc., something along those lines, or a type of tax deductible for items like that, within a reasonable upgrade, not something like a $10,000 upgrade or above.

APPENDIX I: CETA INTERVIEW FINDINGS

CRITICAL DATA STRATEGIES, LLC

City of Ellensburg

CETA Interview Findings – Community Organizations

July – August 2023

2. CITY OF ELLENSBURG
3. EXECUTIVE INTERVIEW FINDINGS

COMPLETED INTERVIEWS

ORGANIZATION	CONTACT
Allied People Offering Year-Round Outreach (APOYO)	Stefanie Wickstrom
Ellensburg DEI Commission	Nancy Goodloe
Friends in Service to Humanity (FISH)	Peggy Morache
HopeSource	Andrew Lyons
Kittitas County Habitat for Humanity	Stephanie Bohman
Kittitas County Veterans Coalition	Dave Sturgell
Kittitas Early Learning Coalition	Michelle Cawley
WorkSource Kittitas County	Elise Rel

INTERVIEWS NOT COMPLETED

ORGANIZATION	CONTACT
Community Health of Central Washington	Angela Gonzalez

1). Based on your experience with the community members your organization serves, what factors would you say define the most vulnerable populations within the City of Ellensburg?

RESPONDENT	RESPONSE
Allied People Offering Year-Round Outreach (APOYO)	Off the top of my head, poor housing, inability to pay the bills, also, with the wildfires, people don't have quality filters in their homes which means poor air quality in their homes. Most low-income families have poor heating units and no air conditioning. Communication and linguistic isolation presents difficulties, and they try to pay the full amount of their utility bill while living day to day, because they are not aware of programs that could help them.
Ellensburg DEI Commission	Low-income people, people with disabilities, mental and physical, and within that cross-section, are the Hispanics.
Friends in Service to Humanity (FISH)	Our primary population would be our seniors. The cost of living is incredibly high and many of our seniors are on a fixed income, mostly Social Security, and I have statistics to back it up. We do not have a lot of industry in Ellensburg that would afford retirement income, so it's mostly Social Security that sustains the seniors. There are some families that move from Seatle, selling their home at a high price, then come here, spend half of that income on housing in Ellensburg, and use the rest as a retirement fund, but most of our seniors do not have that option. Rentals have increased 35% and single family increased equally. It is very difficult for a young family, with both parents working, to get ahead, what with the high cost of housing, food and utilities. Ellensburg is the fastest growing community, housing is growing quickly, and prices reflect it.
HopeSource	One of the biggest challenges in our community is affordability in housing. It is difficult to find affordable housing that works and is a functionable place to live. There are other issues of course, like childcare, access to mental health services, access to opportunities like recreation and education. We have some pretty good options for people in our little community, but we are still limited. We have strong public transportation, but given our rural nature, travel to places like Yakima, Spokane or Seattle for things like doctor appointments, could be costly, but there is that option.
Kittitas County Habitat for Humanity	• Low-income families: These families often have one or more working adults, but their wages are not enough to cover the high cost of housing in Ellensburg. • Single-parent families: Single-parent families are particularly vulnerable housing insecurity, as they often have one income to support multiple people. • Renters: Renters are more likely to be housing insecure than homeowners, as they have less control over their housing costs and are more likely to be displaced by rising rents. • People with disabilities: People with disabilities may have difficulty finding and maintaining affordable housing, as they may need accessible housing that is not always available. • People of color: People of color are disproportionately represented among the homeless population in Ellensburg, and they may face additional barriers to accessing affordable housing.

Table Continued

(Question 1 continued, "What factors would you say define the most vulnerable populations within the City of Ellensburg?")

TABLE CONTINUED

RESPONDENT	RESPONSE
Kittitas County Veterans Coalition	4,000 veterans or 7% of the population is where my interest lies. We have had a large demographic pump, and we have 1200 Vietnam vets that need help with medical appointments, housework, yard work, and even bathing, and additionally, the veterans in our county are significantly lagging behind the rest of the state. This is judged by 2 metrics. The first metric is if they aren't doing or getting wellness checks, they can't and don't succeed, and the second metric is the veteran receiving VA disability in our community is behind nationally and statewide. Our veterans are not being taken care of. Statewide, benefits are around 25% to 27%, but only 20% in Kittitas, Ellensburg only 20% while others 25%. Our vulnerable population is more likely to suffer homelessness, trouble with law, addiction, and 22 veterans commit suicide every day, and the number is not going down. Direct assistance can work, a fund from the county for grocery, gas, and utility bills. Over the last 2 years, the most pressing veteran needs is based on inflation, gas and utility; this is the most needed. Money for utility bills and auto gas is what is needed most.
Kittitas Early Learning Coalition	Income, housing, language, access to health care, transportation is an issue for some, but not the most important, and some mental health care and substance abuse are also issues.
WorkSource Kittitas County	Unemployment, high housing cost, low income, lack of the ability to pay their utilities, and extreme weather.

2). Recognizing that energy conservation helps the entire community, what additional strategies or actions do you think Ellensburg should consider when planning to achieve this target?

RESPONDENT	RESPONSE
Allied People Offering Year-Round Outreach (APOYO)	None of this, so far as I can see, has anything to do with the community we serve. People could research how to make homes more energy efficient. Communication is needed to instruct people regarding home audits. The district agencies dealing in energy audits should explain how it works, because when they come to homes, people don't understand and are afraid of the men with the "funny machines" and because they don't understand they back out. Communication in other languages is very important. We need more programs like HopeSource that can deal with varied languages. Landlords should be spoken to, especially central housing areas.
Ellensburg DEI Commission	There are struggles with that right now. I'm not sure I have any ideas, and the funding that we pay for the alliances, we get some of that back, and the attorney is looking for ways to use that money. 40% of our population falls in that rate class, and I know at least 30% have not signed up for it. We need a strategy to reach the population that does not apply.
Friends in Service to Humanity (FISH)	Not my area of expertise, just my opinion, about energy conversation; are they talking about changing from natural gas to electric? I had a conversation with a city council member, and I hear that the city is looking at a moratorium on using natural gas, and that would be a huge impact on the electric grid. Maybe there should be some consulting, because they don't have a plan. I do know that auto emissions are very high, which goes back to the county, because they just authorized 900 new housing units, and the auto impact will be outrageous which is a concern in the communities.
HopeSource	There is not a lot of information about conservation education, and that should be the strategy to make changes in living conditions. The building itself is part of the equation and the behavior and education of the people can influence the change as to how people use energy. It is not with just a sign or flyer to educate people, you need more robust, helpful suggestions to help them and show them the different ways to conserve that make sense to them. Included in the list of current strategies, full house weatherization should be a part of continued education and growth.

Table Continued

(Question 2 continued, "What additional strategies or actions do you think Ellensburg should consider when planning to achieve this target??")

TABLE CONTINUED

RESPONDENT	RESPONSE
Kittitas County Habitat for Humanity	• Promote energy efficiency in new construction. The City of Ellensburg could require new construction to meet specific energy efficiency standards. This would help ensure that new buildings are more energy-efficient and use less energy over their lifetime. • Provide incentives for energy efficiency upgrades. The City of Ellensburg could offer financial incentives to homeowners and businesses that make energy efficiency upgrades to their homes and businesses. This would help to make energy efficiency more affordable and accessible to everyone. • Could you educate the public about energy conservation? The City of Ellensburg could launch a public education campaign to teach residents about the benefits of energy conservation and how they can make changes in their homes and businesses to conserve energy. Include the youth in this initiative by bringing an energy-saving competition to the Middle or High school programs. • Make it easier for residents to get energy-efficient appliances and products. The City of Ellensburg could partner with local retailers to offer energy-efficient appliances and products at a discounted price. This would help to make energy-efficient products more affordable and accessible to everyone. • Invest in renewable energy. The City of Ellensburg could invest in renewable energy projects, such as solar and wind power. This would help to reduce the city's reliance on fossil fuels and create a more sustainable energy future. These are just a few strategies or actions Ellensburg could consider when planning to achieve its energy conservation goals. By taking these steps, the city can help to reduce energy costs, improve air quality, and protect the environment for future generations. In addition to the above strategies, Ellensburg could also consider the following: • Incentivize the use of public transportation and walking/biking. This would reduce the amount of energy used for transportation. • Develop a plan for managing energy demand during peak times. This would help to avoid blackouts and brownouts.
Kittitas County Veterans Coalition	Here is a crazy idea, it can be expensive, possibly not, I thought to cover parking lot with solar panels, which would protect cars and provide solar energy, and the city could negotiate lower rates. We have a lot of wind in Kittitas and we are lucky, because Kittitas County has numerous wind farms and we are very windy, and we see them everywhere. Back in 2015, there were many times on weekdays, that the fans were idle and they were only turned on in peak times. I see some worth of bringing the towers online more often, since we are richly blessed with wind farms that could be used more effectively and efficiently, especially during peak times.

Table Continued

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(Question 2 continued, "What additional strategies or actions do you think Ellensburg should consider when planning to achieve this target??")

TABLE CONTINUED

RESPONDENT	RESPONSE
Kittitas Early Learning Coalition	The city should be looking at people who live in low income housing, such as trailers, have window fans/air conditioners, and also people who live in travel parks, which are fire hazards. The windows and doors are not efficient, electric outlets are dangerous, and those places use a lot of energy because of the inefficiency of the trailer. I talked to a checker at a grocery store who left her air conditioner for a cat, because of our high temperatures. Think about giving incentives for better windows or help with insulation. Go to different housing areas and ask people what they think they need to make their apartment or home or trailer more efficient and what help can be offered. Go to people who live alone and help them connect with professionals to help them with new windows or better insulation or show them how they can apply for the incentives that are already being offered.
WorkSource Kittitas County	Affordability, people don't know how they will pay their bills.

3). Is there anything that you would like Ellensburg to focus on as it works to achieve this target?

RESPONDENT	RESPONSE
Allied People Offering Year-Round Outreach (APOYO)	Incentives for low-income residents, communication and instruction on projects and ways to achieve energy efficiency.
Ellensburg DEI Commission	I know it's not going to happen by just educating people, so we need to have some policies and a sustainability plan that will address that, and we are waiting until we get the information regarding that plan. I wonder if the plan backs the moratorium on gas hookup and is there an incentive program for homeowners to change from gas to electric. There is no money for that right now, but perhaps some incentive, but I'm not sure that will work.
Friends in Service to Humanity (FISH)	Infrastructure. We have a bus system that is not very good. It can take a person 3 hours to get to the point of destination because of the way the bus has to travel. If our buses were more convenient and easier to use, more seniors would use them, because traffic has become a big issue.
HopeSource	Behavior and focus on making necessary changes in the home to conserve energy. I don't see included on the list, solar; that needs to be a component.
Kittitas County Habitat for Humanity	With the information I have provided above, I do not have any one focus I can suggest.
Kittitas County Veterans Coalition	Wind farms and covering parking lots with solar panels. We would not be taking land away, the parking lot is already there, and we would be protecting cars, and everyone can see the panels as an immediate benefit. Also, Ellensburg is lucky to own the utility company, and if the city is serious wanting to give more help for our most vulnerable communities, perhaps lower rates for some of the lower income, based on some criteria.
Kittitas Early Learning Coalition	Talk to people, offer instructions on how to apply to already existing programs. Talk to the Spanish community, get to know them, and instruct them as to how they can save money.
WorkSource Kittitas County	Again, affordability. Low-income families stress to pay utilities.

4). Are there programs that especially benefit the vulnerable populations that were discussed earlier?

RESPONDENT	RESPONSE
Allied People Offering Year-Round Outreach (APOYO)	HopeSource and Veterans Coalition help and the City must hold instructions and classes for various languages.
Ellensburg DEI Commission	We have Rate classes for our energy, and the low income enroll in the rate class which provide a considerable reduction in their rates. This program has been in place for about 3 years. CAP agency provides help with utility payments for people who help, and we have a network of churches that have a dedicated fund to frequently help with utilities bills. Also, we have made changes to the policy at the city that we won't turn the gas off during the winter, even if they don't pay at all.
Friends in Service to Humanity (FISH)	Our programs provide food every month for 40% of the county. Senior Nutrition, sponsored by the federal government, takes care of our seniors, and through the S.E. WA Aging and Care, we also provide lunch and meals on wheels to others, and free lunch for those who do not qualify for senior benefits. Our main concern is Nutrition, food and security.
HopeSource	Solar, behavior education, and whole house weatherization. Discount prices offered for energy efficient programs.
Kittitas County Habitat for Humanity	In my line of work, we focus on helping families build and maintain homes to create stability in their lives and their community. Other organizations work with the demographic you are seeking that offer a variety of support, but I don't have the specifics of them.
Kittitas County Veterans Coalition	As a veteran advocate relief fund, mandate RCW, #73.08, those funds which are 1 tenth of 1%, additionally the leading social county is called Hope Source, programs EAP through Hope Source which has been very beneficial. As an example: a veteran family of 4 received $865.00 off their utility bill. PSE(Puget Sound Energy) however could not figure out how to take it off their bill because they did not have system in place to do that. The family was given the dollar amount in a lump sum. That type of help is not just for veterans, but for all. EAP and PSE will come to audit your utility service and give light bulbs and additional items and credits.
Kittitas Early Learning Coalition	There are trailers and low-income housing that no electrician would add additional outlets, mostly because those trailers or bad housing should really be knocked down, or just wait until they burn down. We need more access to housing. Not all people/families can go into low-income housing, lower rent or purchase lower income homes. There is a language barrier mostly because they do not trust government people, so people like us, our organization, can help bridge the gap. I was able to get a family to trust me and I got them smoke detectors installed. Once they learn to trust the fire department more homes get smoke detectors. and once you create that trust, they will listen to ways to help them.
WorkSource Kittitas County	HopeSource, helps people pay utility bills, and TANS also helps.

5). Recognizing that reducing demand during peak times has the potential of reducing energy costs for the entire community, by deferring the cost of adding additional electric capacity, what additional strategies or actions do you think Ellensburg should consider when planning to achieve this target?

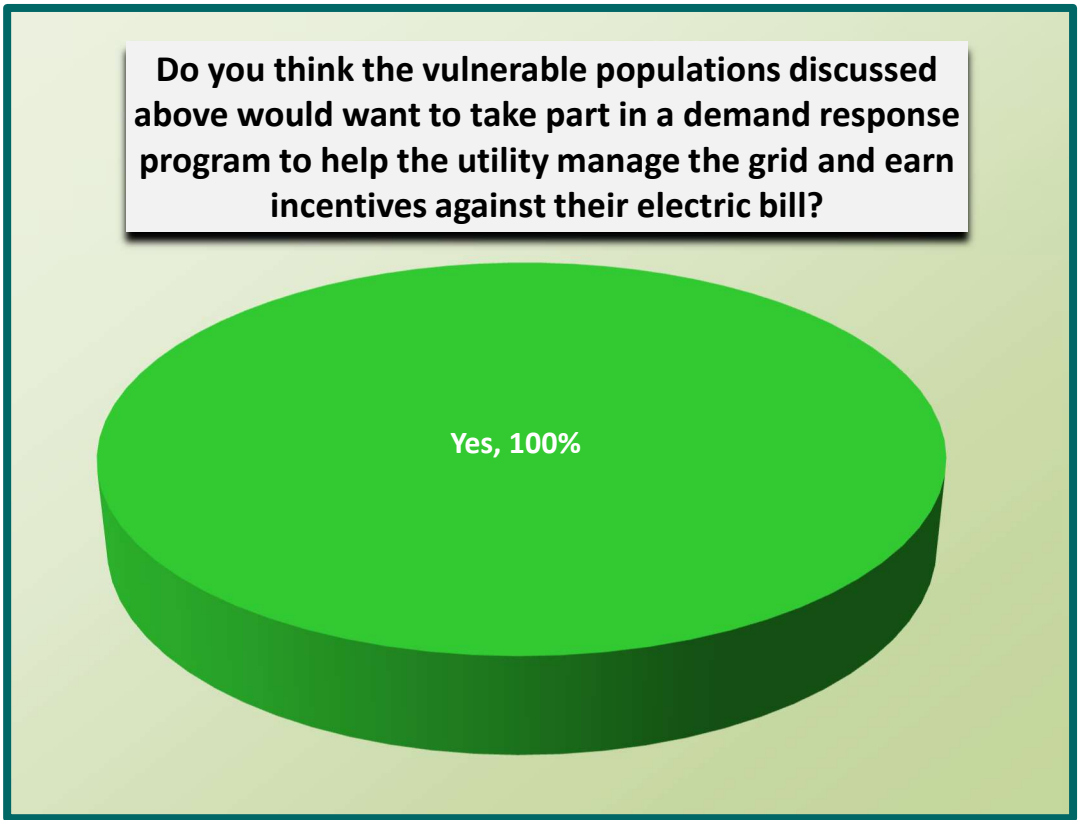
RESPONDENT	RESPONSE
Allied People Offering Year-Round Outreach (APOYO)	Due to linguistic isolation, many low-income residents do know about the thermostat DR program. Perhaps workers who speak the language could canvas the homes or apartments and explain how it works and give them a free thermostat.
Ellensburg DEI Commission	The smart thermostat is a great idea, if we could get people to understand how to use it. That could help a little bit, but other than that, I have no other clue.
Friends in Service to Humanity (FISH)	This is not my area of expertise. I think that anything they can do to help people to be smarter about the way they use electricity makes sense, but I don't know how to really answer the question.
HopeSource	Smart thermostats are an easy give me, but the benefits are over emphasized. We have already installed several of them, but with limited result, and there is still the need for behavioral education.
Kittitas County Habitat for Humanity	If we can get more people to use pre-set thermostats, that change to different temperatures, and put more of them into people's hands, and then we can defer the cost. I've worked in non-profit, and if we offer workshops on how to use the device and then, have the device go home with instruction, that will help. Putting those devices into spaces, for instance the food bank, Hope Source is another team that offers utility help. Have those people provide the device with simple instructions, or offer instruction to the homeowner, offer a presentation. Meeting people where they are at is the most important piece.
Kittitas County Veterans Coalition	I'm not sure about that, so I don't really have an answer.
Kittitas Early Learning Coalition	Smart thermostats would be great, but you will have to offer instruction in a way that people understand. Most people have phones and with knowledge, they can learn to control their thermostats to turn lights on and off, adjust air conditioning for that cat, just by using their phone to control. We could give things away, like pamphlets to educate as to how things work.
WorkSource Kittitas County	I'm not sure, but one thing the City could do would be to hold classes or programs, that would explain all the things that are available for help and explain to individuals in layman terms what is available and free.

6). Is there anything that you would like Ellensburg to focus on as it works to achieve this target?

RESPONDENT	RESPONSE
Allied People Offering Year-Round Outreach (APOYO)	Incentives to lower utility bills.
Ellensburg DEI Commission	We already have an advisory committee formed to implement the strategies and the plan, and we understand the city will inform them about the strategies when they get them, as well as city council.
Friends in Service to Humanity (FISH)	Better planning from the city of Ellensburg. I don't see much planning in the way they are bringing in new business, and they don't make demands on the businesses to conserve energy and be more efficient, and maybe if they did, that would help with the environmental status. They should require the businesses to adhere to the gold standard in being energy efficient, within the city and county as well.
HopeSource	There is talk about moving to electric vehicles but thought has to be considered as to when they choose to charge them, when is the best time for conservation, and when the person/family has the time to charge. I believe there will be a big demand for electricity, and response time will be an issue that will have to be considered. Once again behavioral education as to when to choose to charge the vehicle, or even to run a dryer.
Kittitas County Habitat for Humanity	I already answered that – meet the community where they are at, to get desired results.
Kittitas County Veterans Coalition	Ellensburg has absolutely crazy growth right now, and we are concerned about housing. The federal definition of a housing shortage is less than ½ of 1% of the actual housing shortage, with seems common, so Ellensburg needs to plan for the explosive growth. In the last 4 years, the population has almost doubled, and a home that cost $200K a year ago is now $450K. I could not afford my house today, or afford rent, because Ellensburg is #3 in the nation for rent. Rent for a 1-bedroom apartment has increased 35.7%, the highest in the nation. An internet company has terrific algorithms, Dwellsy. Google it or email Dave Sturgell, and he will provide the link.
Kittitas Early Learning Coalition	Collaborate with other agencies, for example a health network, transparency, are we all talking to each other, and council members could come to meetings, but we don't usually see that.
WorkSource Kittitas County	Teach people all the services that are available to help them and explain how it all works.

7). Do you think the vulnerable populations discussed above would want to take part in a demand response program to help the utility manage the grid and earn incentives against their electric bill?

RESPONSE	TIMES MENTIONED	PERCENTAGES
Yes	**8**	**100%**
No	0	0.0%
TOTAL	**8**	**100%**



(Question 7 continued, "Do you think the vulnerable populations discussed above would want to take part in a demand response program to help the utility manage the grid and earn incentives against their electric bill?")

RESPONSES

RESPONDENT	RESPONSE	COMMENT
Allied People Offering Year-Round Outreach (APOYO)	Yes	I think they would be interested if they knew the entire process
Ellensburg DEI Commission	Yes	I think a good chance, maybe not the whole community, but a lot would.
Friends in Service to Humanity (FISH)	Yes	---
HopeSource	Yes	In general, with a lot of qualifier. People who could take advantage of the programs have more resources, while working families with a low income, typically have one person working the graveyard shift, another person working days, and they are limited as to when they can do things.
Kittitas County Habitat for Humanity	Yes	If it is earning incentives toward their bill, then I think yes, they will.
Kittitas County Veterans Coalition	Yes	A Veteran, once they are out of the service, are notorious for not trusting the government, and they do not want to be seen going into a building that provide welfare, but baring that in mind, utility bills are so high, that I believe a veteran would participate.
Kittitas Early Learning Coalition	Yes	If they thought they could decrease the bill, it would motivate. However, college kids living together have to have different motivation, as opposed to a family living together. Education is probably the best way to incentivize energy decrease to lower energy bills. Education about better insulation for homes, apartments, trailers; but don't just pick on the trailer park, because a lot of people who should and would comply just need to be educated and ways to get help.
WorkSource Kittitas County	Yes	If they taught what the program really is and help them understand it.

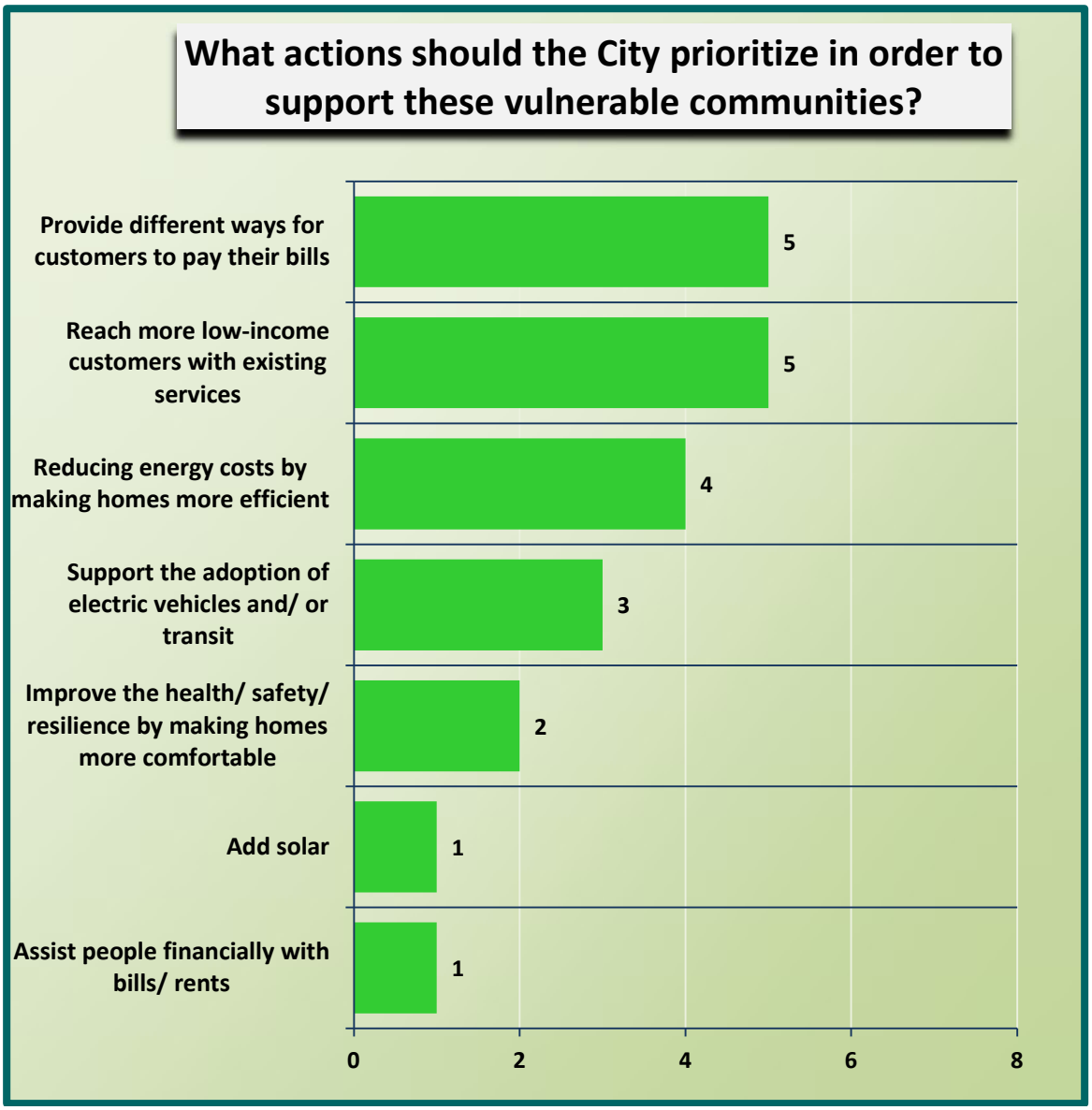
7). Based on the factors you indicated earlier to define the City's vulnerable populations, what specific risks do you believe these populations face relative to actions the City utility is considering or may take?

RESPONDENT	RESPONSE
Allied People Offering Year-Round Outreach (APOYO)	I think education is the key to helping this vulnerable population. HopeSource I think is a major help as well as Kittitas Cunty Veterans Coalition.
Ellensburg DEI Commission	The utility increase is the ultimate risk, along with other factors imposed on this population, to the point that they may have to move. Already burdened, they bear the support of their family, and if you put high utility bills on top of that, they will have to move because they cannot/will not be able to afford it. When we first started talking about this, the way the state laid out our area to identify the low income, they left off the area of where most of the low-income housing and rentals are within the city limit. They started from a position of error tracking in the wrong area which will not provide an accuracy count for low income with the correct numbers to show we have a real issue. They were not getting the majority of the most vulnerable and it was a state mandate.
Friends in Service to Humanity (FISH)	I think that there is a possibility, especially our seniors, that they might enter into something without fully understanding, which could be detrimental for them. They are not good at explaining all the ramifications that could affect them, and I think I would be concerned about how that might affect and impact them.
HopeSource	As I said before, smart thermostats, I think, are an ineffective measure, multiple language information and education is helpful and needed especially with utilities since 99% of our population is either English or Spanish speaking, and that would not be a heavy lift; it would be a good thing.
Kittitas County Habitat for Humanity	I'm not sure what the city action will take, so unless I have content, I would not be able to determine specific risks the population would be taking.
Kittitas County Veterans Coalition	I have directly observed where utility rate increases have led to a financial death spiral with veterans being evicted or even homeless. We have been able to intervene at times, but not nearly enough. I think a demand response program offering low or no-cost thermostats is good, but providing information in multiple languages is not a concern for my populations.
Kittitas Early Learning Coalition	I have no feedback.
WorkSource Kittitas County	I think that is a big risk because a lot of the community does not know what programs exist, how to access them, or how to apply for them, and that will be even harder once the rates are raised.

8). What actions should the City prioritize in order to support these vulnerable communities?

RESPONSE*	TIMES MENTIONED
Provide different ways for customers to pay their bills	**5**
Reach more low-income customers with existing services	**5**
Reducing energy costs by making homes more efficient	4
Support the adoption of electric vehicles and/or transit	3
Improve the health/safety/resilience by making homes more comfortable	2
Add solar	1
Assist people financially with bills/rents	1

**8 responded to this question*
Question allowed for more than one response



(Question 8 continued, "What actions should the City prioritize in order to support these vulnerable communities?")

RESPONSES

RESPONDENT	RESPONSE
Allied People Offering Year-Round Outreach (APOYO)	• Reach more low-income customers with existing services • Provide different ways for customers to pay their bills
Ellensburg DEI Commission	• Reducing energy costs by making homes more efficient *The landlords don't want to make home more efficient. Do weather and energy audit and they can fix a lot of the problems with a grant from the city. Emphasize more would be helpful* • Support the adoption of electric vehicles and/or transit • Reach more low-income customers with existing services • Provide different ways for customers to pay their bills
Friends in Service to Humanity (FISH)	• Support the adoption of electric vehicles and/or transit • Provide different ways for customers to pay their bills
HopeSource	• Reducing energy costs by making homes more efficient • Improve the health/safety/resilience by making homes more comfortable • Support the adoption of electric vehicles and/or transit • Reach more low-income customers with existing services • Provide different ways for customers to pay their bills • I would also like to add Solar
Kittitas County Habitat for Humanity	• Provide different ways for customers to pay their bills
Kittitas County Veterans Coalition	Perhaps take $4 million to give to people to help with bills, i.e., immediate assistance toward those who rent, as well as homeowners. Always keep in mind those who rent, not just the homeowner.
Kittitas Early Learning Coalition	• Reducing energy costs by making homes more efficient • Reach more low-income customers with existing services
WorkSource Kittitas County	• Reducing energy costs by making homes more efficient • Improve the health/safety/resilience by making homes more comfortable • Reach more low-income customers with existing services

9). Do you have any feedback on what the City currently does? What is most/least helpful?

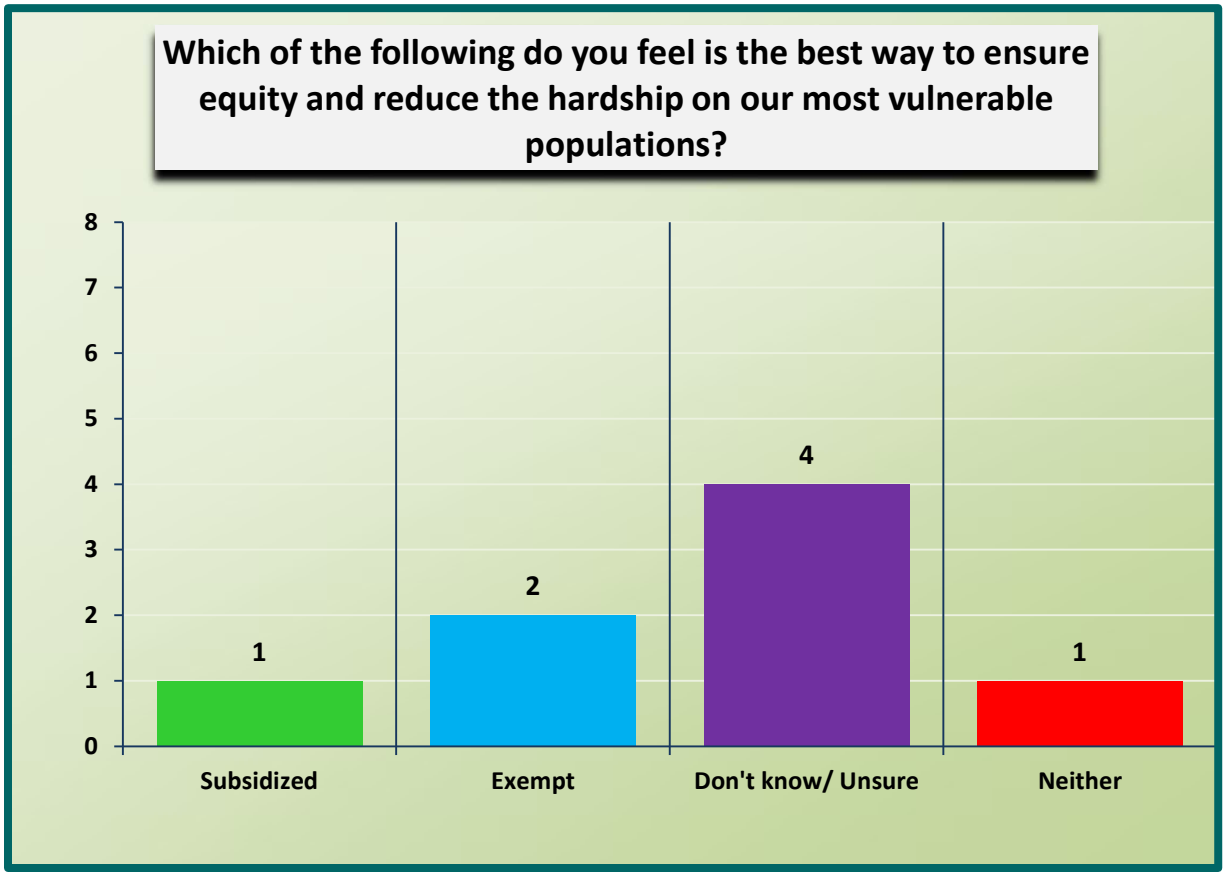
RESPONDENT	RESPONSE
Allied People Offering Year-Round Outreach (APOYO)	Transportation could be very helpful. The system should be expanded, better hours and better routes.
Ellensburg DEI Commission	Currently rate class that tries to deal with low income, when we talk about equity, that does not necessarily deal with low income. Define parameters of equity.
Friends in Service to Humanity (FISH)	Anything they can do to reduce the cost to seniors.
HopeSource	Contracting with us is very helpful with weatherizing, offer discounted rate programs is very helpful, especially for those who qualify. Also, solar incentives on a multi-family project is extremely helpful.
Kittitas County Habitat for Humanity	Enhance utility billing system is most helpful. Their transit system is least helpful, it really needs an overhaul.
Kittitas County Veterans Coalition	We are a small town, rural, and we are most helpful to each other. I'm the head of the veteran coalition, and it would be great if the city would pay a utility bill for just 1 month. Most organizations are willing to help but PSE won't even talk to us. Offered programs in the state are not available in our small town. Why not? They offer free light bulbs at Home Depot in other areas, but not in Ellensburg. Why not?
Kittitas Early Learning Coalition	I don't know what they are doing. I have no feedback.
WorkSource Kittitas County	Least helpful are the programs to help low income, because you don't advertise them, or make it easy to apply for them.

10). Do you have any feedback on what the City is considering? Which will be most helpful to vulnerable populations?

RESPONDENT	RESPONSE
Allied People Offering Year-Round Outreach (APOYO)	I have not heard what the City is considering, therefore I can't answer with any pertinent answers.
Ellensburg DEI Commission	Utility advisory committee advisory rate increase for the next 3 months, trying to figure out how to implement that, and what we were planning is not legal. In a couple of weeks meeting to discuss with council and present strategy that is legal.
Friends in Service to Humanity (FISH)	It is concerning to me to hear the council woman explaining how they are thinking about reducing the use of natural gas and the increase toward use of electricity. I think that demanded increase for electricity will certainly increase the fee for electric, and that doesn't make sense.
HopeSource	I think the biggest thing the city can do is looking for ways to expand discount rates for programs, based on income and energy usage. The vulnerable usually has the heavy burden of utility rate usage and the least ability to pay bills. They need big discounts.
Kittitas County Habitat for Humanity	I have no idea, no opinion
Kittitas County Veterans Coalition	Immediate relief on utility cost and bills to prevent homelessness.
Kittitas Early Learning Coalition	Anything that will help decrease the bill, but don't waste money on stuff, like giving away pencils or magnets. Tell the people about the smart thermostat and how, if they install it, it will reduce their bill. Window replacement, these are real things people can do, if there are incentives. I hear companies talking about window replacements, is something that is authorized by the government and are there incentives that go along with that? If so, let the people know, or is this just a company that is advertising and trying to get business?
WorkSource Kittitas County	Increasing the cost of utilities will really hurt the low-income community.

11). Recognizing that some households cannot afford utility rate increases, which of the following do you feel is the best way to ensure equity and reduce the hardship on our most vulnerable populations?

RESPONSE	TIMES MENTIONED
They be exempt from rate increase, thereby reducing the total funds generated and the intended impact of the rate increase	2
They be subsidized by higher income households to maintain the total funds generated and the intended impact of the rate increase	1
Don't know/ Unsure	**4**
Neither/ do not adjust rates	1
TOTAL	**8**



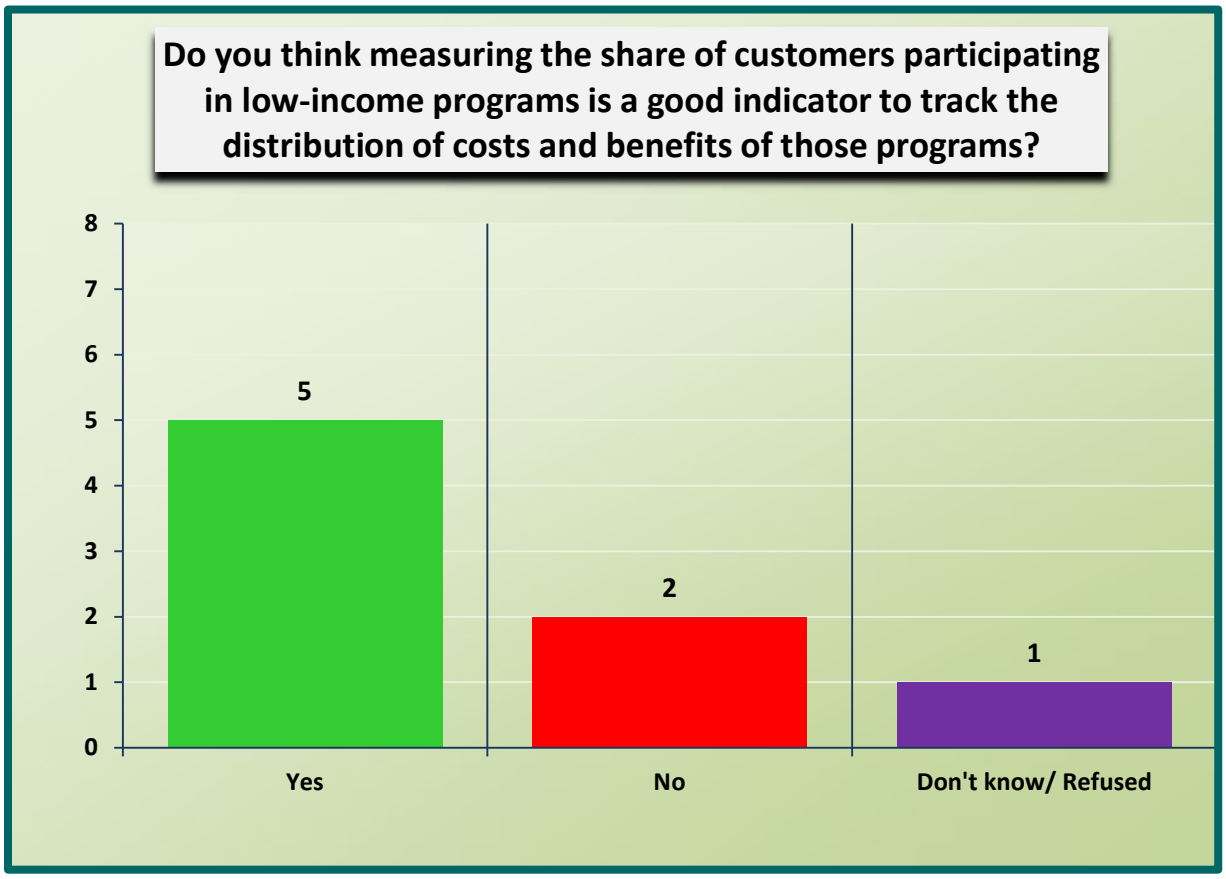
(Question 11 continued, "Which of the following do you feel is the best way to ensure equity and reduce the hardship on our most vulnerable populations?")

RESPONSES

RESPONDENT	RESPONSE	COMMENT
Allied People Offering Year-Round Outreach (APOYO)	They be exempt from rate increase, thereby reducing the total funds generated and the intended impact of the rate increase	I don't think it will work because of adverse socioeconomic values, but it might be worth a try. I would put it to a vote.
Ellensburg DEI Commission	N/A	This is hard one, just having the rate class, which is already being subsided, and we have to pay for all the expenses we have, and the only way we do that are the rates, we might end up with subsidizing.
Friends in Service to Humanity (FISH)	N/A	Given those two options only, those who could pay more should, but the city should do more to subsidize these with a hardship. They say they are poor, but nothing seems to justify that statement. The city could do more, we provide groceries for 40% of the seniors, and 20% to the City of Ellensburg, and I think it's a catch 22.
HopeSource	They be subsidized by higher income households	B is my choice. For every rate increase, exclude low income, figure out how much you discount and then figure how to pay.
Kittitas County Habitat for Humanity	They be exempt from rate increase, thereby reducing the total funds generated and the intended impact of the rate increase	I do believe one of the reasons we have a housing problem is most lower income families are being priced out of housing. Make it more equitable. I will go for option A, however at the same time, if we go for lower rate, focus on saving energy.
Kittitas County Veterans Coalition	N/A	I have no feeling either way.
Kittitas Early Learning Coalition	N/A	The city has to get a grant to cover the difference, or the city will have to raise rates for everyone which might become a motivator. The city has to provide the same program for everyone.
WorkSource Kittitas County	Neither	Leave the rates alone.

12). Do you think measuring the share of customers participating in low-income programs is a good indicator to track the distribution of costs and benefits of those programs?

RESPONSE	TIMES MENTIONED
Yes	**5**
No	2
Don't know/ Refused	1
TOTAL	**8**



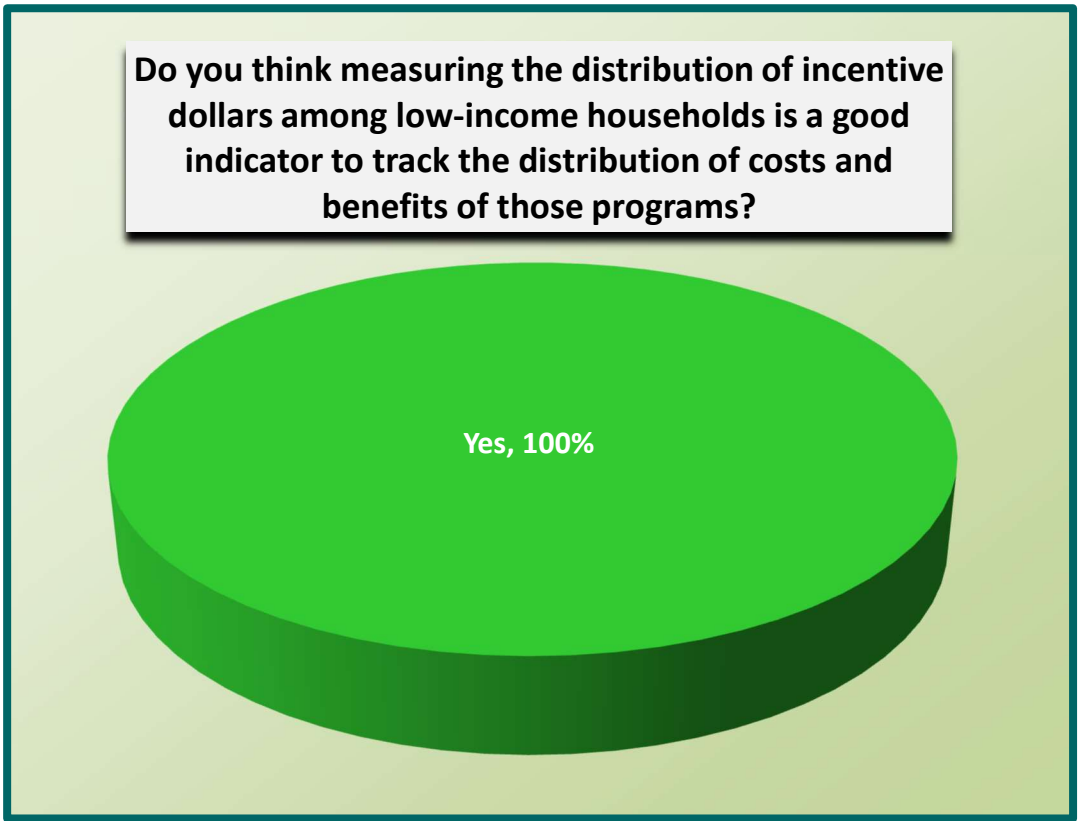
(Question 12 continued, "Do you think measuring the share of customers participating in low-income programs is a good indicator to track the distribution of costs and benefits of those programs?")

RESPONSES

RESPONDENT	RESPONSE	COMMENT
Allied People Offering Year-Round Outreach (APOYO)	Yes	Maybe.
Ellensburg DEI Commission	Yes	Could be.
Friends in Service to Humanity (FISH)	Yes	---
HopeSource	Yes	---
Kittitas County Habitat for Humanity	No	Tracking all household's energy use in comparison to their efficiency in order to reduce energy is the measure they should be looking at, focus on the whole, I believe, not just one piece of it.
Kittitas County Veterans Coalition	Yes	I think distribution of incentive dollars going to vulnerable populations, such as low-income households would be great for my population and veterans.
Kittitas Early Learning Coalition	Don't know/ Refused	I don't know.
WorkSource Kittitas County	No	Not enough people will know enough about the program to participate.

13). Do you think measuring the distribution of incentive dollars among low-income households is a good indicator to track the distribution of costs and benefits of those programs?

RESPONSE	TIMES MENTIONED	PERCENTAGES
Yes	**8**	**100%**
No	0	0.0%
TOTAL	**8**	**100%**



(Question 13 continued, "Do you think measuring the distribution of incentive dollars among low-income households is a good indicator to track the distribution of costs and benefits of those programs?")

RESPONSES

RESPONDENT	RESPONSE	COMMENT
Allied People Offering Year-Round Outreach (APOYO)	Yes	---
Ellensburg DEI Commission	Yes	---
Friends in Service to Humanity (FISH)	Yes	---
HopeSource	Yes	---
Kittitas County Habitat for Humanity	Yes	If your measure of incentive dollars, make sense.
Kittitas County Veterans Coalition	Yes	---
Kittitas Early Learning Coalition	Yes	---
WorkSource Kittitas County	Yes	I think.

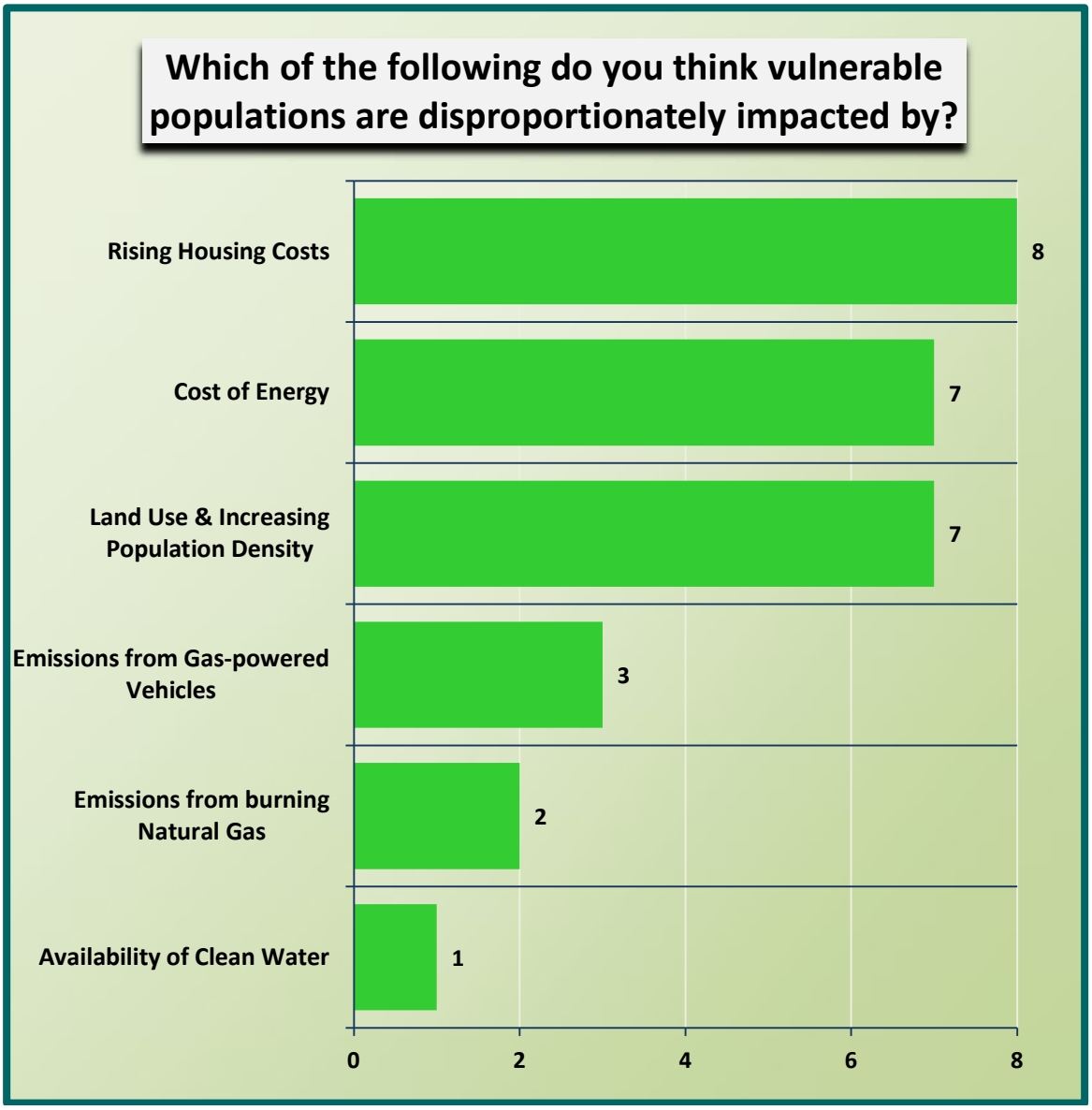
14). What other indicators do you think the City should use to measure the equity of its actions?

RESPONDENT	RESPONSE
Allied People Offering Year-Round Outreach (APOYO)	Hire someone to speak Spanish and has contacts in the community and someone who could contact these people with instructions, incentives and education.
Ellensburg DEI Commission	I don't know.
Friends in Service to Humanity (FISH)	I really do not have an opinion.
HopeSource	Rate of participation of population and distribution of dollars and which is the bigger saving overall. Winterizing a home cost about $20K for one house, does the cost of the upgrade create a bigger savings overall.
Kittitas County Habitat for Humanity	If their goal is to transition to clean, and if their sub goal is to provide income, track all the lower income to reduce energy cost alongside of working on equity.
Kittitas County Veterans Coalition	City should be looking at the insulation and efficiency of various units, making sure they are easy to heat or cool. That should be reflected in the building code, making sure new homes are built with emphasis on needing less cooling or heating and perhaps more insulation. Emphasis should also be on rental properties, making sure the owner of the building is doing he/she can to maximize efficiency.
Kittitas Early Learning Coalition	I don't know. They could do it by address, but that is not always a good indicator, because just because it's a big house, doesn't mean that house has money. I'm not sure what you're asking exactly, or measure by income.
WorkSource Kittitas County	I think the city should talk to other cities, find out about the programs they are offering, programs that offer energy assistance, and see what they offer, what is working for them, in addition to our own.

15). Thinking about the vulnerable populations you defined earlier, do you think they are disproportionately impacted by any of the following than the general population, and if so, why?

RESPONSE*	TIMES MENTIONED
Rising Housing Costs	**8**
Cost of Energy	7
Land Use & Increasing Population Density	7
Emissions from Gas-powered Vehicles	3
Emissions from burning Natural Gas	2
Availability of Clean Water	1

**8 responded to this question*
Question allowed for more than one response



(Question 15 continued, "Thinking about the vulnerable populations you defined earlier, do you think they are disproportionately impacted by any of the following than the general population, and if so, why?")

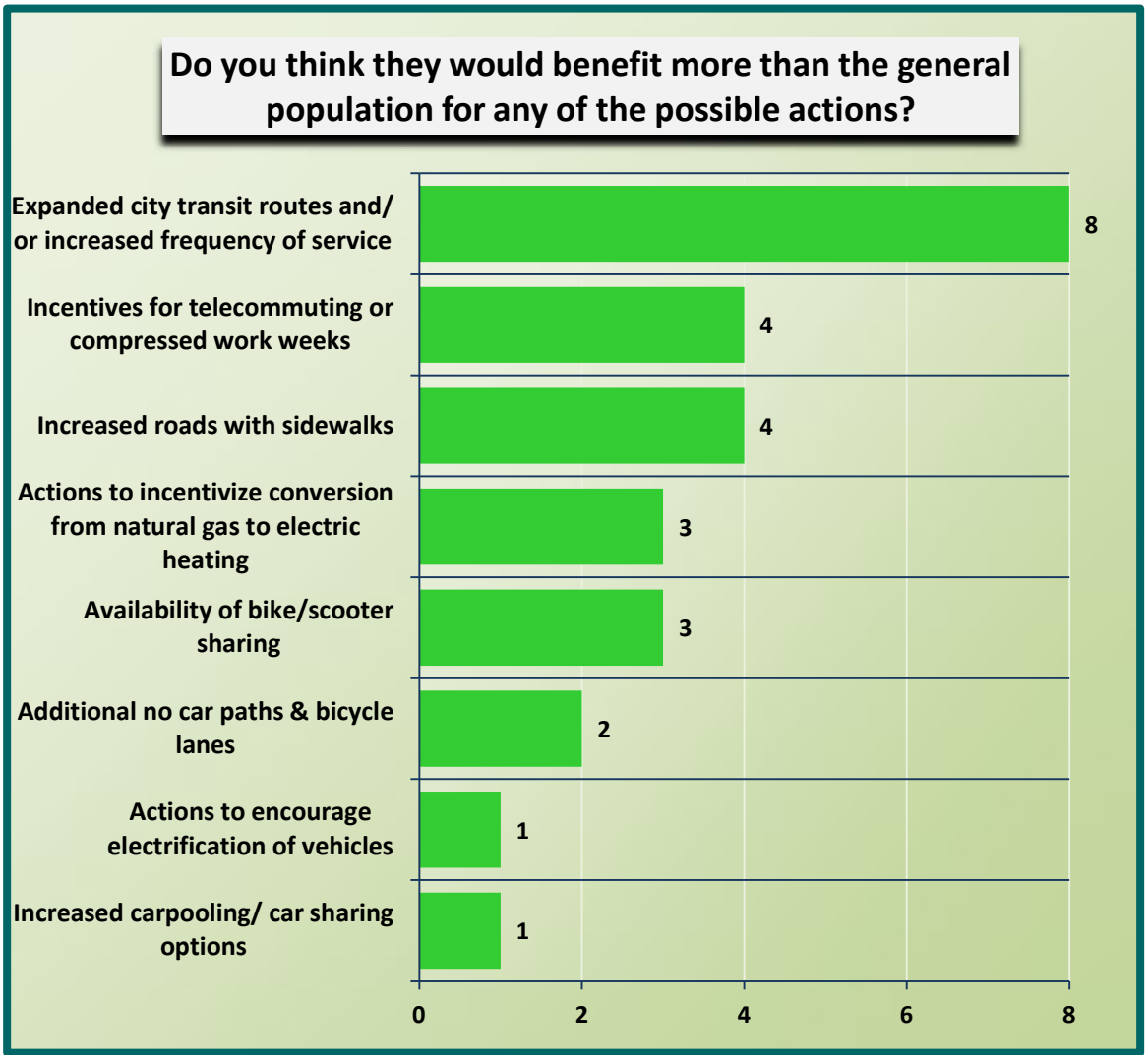
RESPONSES

RESPONDENT	RESPONSE
Allied People Offering Year-Round Outreach (APOYO)	• Land Use & Increasing Population Density • Availability of Clean Water - *lower income tastes not clean* • Cost of Energy • Emissions from burning Natural Gas • Emissions from Gas-powered Vehicles large trucks • Rising Housing Costs
Ellensburg DEI Commission	• Land Use & Increasing Population Density • Cost of Energy • Emissions from burning Natural Gas • Emissions from Gas-powered Vehicles • Rising Housing Costs
Friends in Service to Humanity (FISH)	• Land Use & Increasing Population Density • Emissions from Gas-powered Vehicles • Rising Housing Costs
HopeSource	• Land Use & Increasing Population Density • Cost of Energy • Rising Housing Costs
Kittitas County Habitat for Humanity	• Cost of Energy • Rising Housing Costs
Kittitas County Veterans Coalition	• Land Use & Increasing Population Density – the more dense the population, the harder it is to find housing a veteran can afford. • Cost of Energy – the veteran is already dealing with the high cost of utilities. • Rising Housing Costs – housing and rentals have doubled because of increased population.
Kittitas Early Learning Coalition	• Land Use & Increasing Population Density • Cost of Energy • Rising Housing Costs
WorkSource Kittitas County	• Land Use & Increasing Population Density • Cost of Energy • Rising Housing Costs

16). Thinking about the vulnerable populations you defined earlier, do you think they would benefit more than the general population for any of the possible actions below, and if so, why?

RESPONSE*	TIMES MENTIONED
Expanded city transit routes and/ or increased frequency of service	**8**
Incentives for telecommuting or compressed work weeks	4
Increased roads with sidewalks	4
Actions to incentivize conversion from natural gas to electric heating	3
Availability of bike/scooter sharing	3
Additional no car paths & bicycle lanes	2
Actions to encourage electrification of vehicles	1
Increased carpooling/ car sharing options	1

**8 responded to this question*
Question allowed for more than one response



(Question 16 continued, "Thinking about the vulnerable populations you defined earlier, do you think they would benefit more than the general population for any of the possible actions below, and if so, why?")

RESPONSES

RESPONDENT	RESPONSE
Allied People Offering Year-Round Outreach (APOYO)	• Expanded city transit routes and/or increased frequency of service • Increased roads with sidewalks • Availability of bike/scooter sharing
Ellensburg DEI Commission	• Expanded city transit routes and/or increased frequency of service • Additional no car paths & bicycle lanes • Increased roads with sidewalks • Availability of bike/scooter sharing • Actions to incentivize conversion from natural gas to electric heating • Actions to encourage electrification of vehicles
Friends in Service to Humanity (FISH)	• Expanded city transit routes and/or increased frequency of service • Incentives for telecommuting or compressed work weeks
HopeSource	• Expanded city transit routes and/or increased frequency of service • Additional no car paths & bicycle lanes • Increased roads with sidewalks • Availability of bike/scooter sharing • Incentives for telecommuting or compressed work weeks
Kittitas County Habitat for Humanity	• Expanded city transit routes and/or increased frequency of service • Increased roads with sidewalks • Incentives for telecommuting or compressed work weeks • Actions to incentivize conversion from natural gas to electric heating
Kittitas County Veterans Coalition	• Expanded city transit routes and/or increased frequency of service *They could spend less on gas for their own vehicle, and still have the ability to move about to appointments.*
Kittitas Early Learning Coalition	• Expanded city transit routes and/or increased frequency of service • Increased carpooling/car sharing options - designated parking carpool • Actions to incentivize conversion from natural gas to electric heating
WorkSource Kittitas County	• Expanded city transit routes and/or increased frequency of service • Incentives for telecommuting or compressed work weeks

17). Sustainability presumes that resources are finite and should be used conservatively and wisely. As the City plans mindful actions and investments to minimize negative impacts on our shared resources – both natural and fiscal - what else should the City consider relative to protecting their most vulnerable community members?

RESPONDENT	RESPONSE
Allied People Offering Year-Round Outreach (APOYO)	Reducing energy use, trying to minimize usage, would and should require communication with people in their language. Information through education.
Ellensburg DEI Commission	I'm not sure I could answer that.
Friends in Service to Humanity (FISH)	I don't really have a comment. It is something I am not familiar with, have no expertise in, therefore I cannot comment.
HopeSource	We know that the vulnerable population have a higher energy burden; higher energy usage because of old housing structures which are inefficient, bad windows, no or little insulation. We must continue to take in account that we now need higher income to meet same need which are higher than before. We will need strategies to address that, at state level, moving from gas to electric, which may meet goals to CETA, and depending on the conversion cost, moving from gas to electricity may increase utility bills substantially, and that must be a consideration, even if we pay the whole conversion. There must be different conversations to provide services, verify income for people going on low income and energy audits, there are a variety of many different programs, and Hope Source is a key partner for making that happen.
Kittitas County Habitat for Humanity	They should be considering affordable permanent housing, and looking into a European model where they are smaller, more condensed row housing. They are smaller, more energy efficient, an offer to provide more affordable housing.
Kittitas County Veterans Coalition	Consider using the wind farms more efficiently and effectively and help with the utility bills for the veterans, like lower rates for the veterans.
Kittitas Early Learning Coalition	Do SIMPLE programs, start with smart thermostats, go with that, and don't' take on so much, go with one thing at a time.
WorkSource Kittitas County	Modernization isn't always best for the low-income people who can't afford things as they are right now, and changes will just keep putting more pressure on these people and keep raising costs to the city for more benefits. Also, having individuals with a slightly higher income pay more, is only going to push more people into poverty by making them pay more to make up for the others.

APPENDIX J: CLEAN BUILDINGS PERFORMANCE STANDARD ANALYSIS

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For the Life of
Your Building

Facility Benchmarking
City of Ellensburg

CLEAN BUILDINGS PERFORMANCE STANDARD

ELLENSBURG, WA

JANUARY 9, 2024

McKinstry
For The Life Of Your Building

Table of Contents

Benchmarking Overview

1. Introduction

Buildings are the most rapidly growing source of greenhouse gas emissions in Washington state. The buildings sector is the state's second-biggest carbon polluter behind transportation. The solution to cutting building emissions lies in energy efficiency – the fastest, cheapest way to cut carbon emissions and other harmful pollution.

In an effort to reduce the climate impacts of greenhouse gas pollution, Washington state has committed to reducing emissions by 95% by 2050. As part of this, Washington State developed the Clean Buildings Performance Standard (CBPS) which was signed into law on May 7, 2019 and kick started on October 13, 2021. This law requires large commercial buildings to meet building-specific energy performance targets, specifically an Energy Use Intensity (EUI) target.

The original standard applies to commercial non-residential building greater than 50,000 square feet in floor area, known as Tier 1 buildings. Buildings will be required to maintain compliance with the EUI target and report again every 5 years. There are some exemptions to the law including but not limited to: sovereign nation owned, manufacturing, and agricultural buildings.

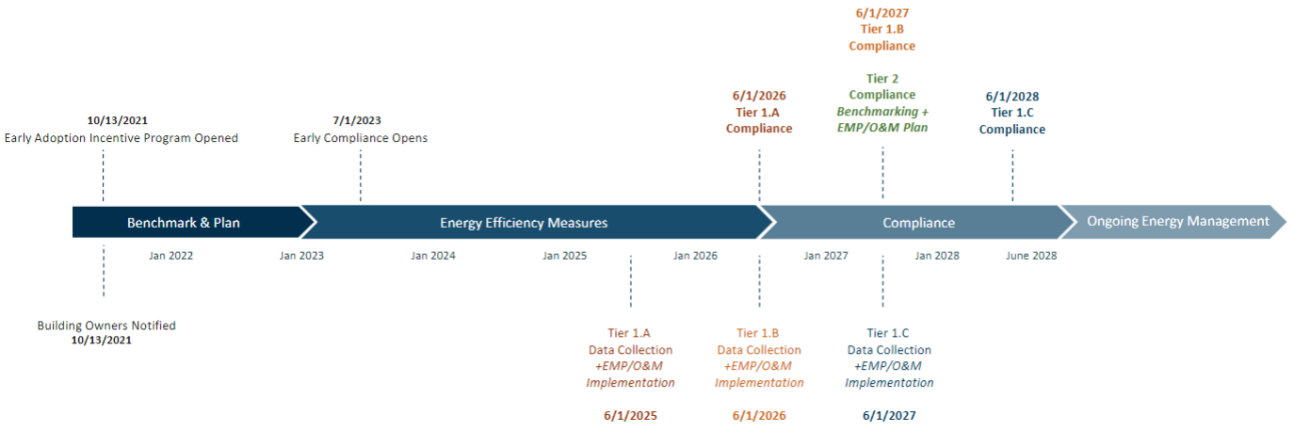
In March 2022 the Expansion Law was signed which requires all commercial buildings that are 20,000 – 50,000 square feet to benchmark their energy performance in ENERGY STAR Portfolio Manager by 2027. The Expansion Law also includes all multi-family residential buildings greater than 20,000 square feet. These buildings are called Tier 2 buildings and they are not required to meet a performance target but must benchmark their energy use and develop both an Energy Management Plan (EMP) and an Operations & Maintenance Plan (O&M).

The first mandatory compliance dates based on gross floor area are:

- **Tier 1.A**: June 1, 2026, for all buildings greater than 220,000 SF
- **Tier 1.B**: June 1, 2027, for all buildings between 90,001 – 220,000 SF
- **Tier 1.C**: June 1, 2028, for all buildings between 50,000 – 90,000 SF
- **Tier 2:** June 1, 2027, for all buildings 20,000-50,000 SF *(plus multi-family residential)*
    - **Benchmarking, EMP, and O&M Plan only**

Non-compliance carries a financial penalty that will be administered every compliance cycle. For Tier 1 buildings, the penalty is $5,000 + $1/SF/year until compliance is achieved (or 18 months, whichever comes first) per compliance period. The compliance cycle is 5 years. The penalty for non-compliance for Tier 2 buildings is $0.30/SF.

1.1. TIMELINE



2. Scope of Work

This project covered the following items for the 13 buildings identified in the project proposal:

- A utility data analysis was performed.
- Space use types were evaluated and reported per HB1257 guidelines.
- Hours of Operation for each space use type were evaluated and documented.
- The building specific EUI target was calculated per CBPS requirements by a Qualified Person i.e., McKinstry (required per WAC 194-50).
- A comprehensive roadmap to compliance was developed and is covered under Next Steps.

Benchmarking

3. Analysis

3.1. EUI_T CALCULATION

The energy use intensity target (EUI_T) calculations are below:

Space Use Type	Climate Zone	Base EUIt	Wkly Op Hours	Op Hours Factor	Build Year Factor	Final EUIt
Swimming Pool						
City Pool	5B Cool Dry	78.0	51 to 167	1.10	1.00	85.8
Office: Government Office						
City Hall	5B Cool Dry	69.0	50 or Less	0.80	1.00	55.2
Public services: Library						
Library/Hal Holmes	5B Cool Dry	59.0	50 or Less	0.60	1.00	35.4
Public services: Other						
Animal Shelter	5B Cool Dry	69.0	168	1.30	1.00	89.7
Public services: Police Station						
Police Department	5B Cool Dry	68.0	168	1.10	1.00	74.8
Public services: Social/Meeting Hall						
Adult Activity Center	5B Cool Dry	52.0	50 or Less	0.60	1.00	31.2
Youth Center	5B Cool Dry	52.0	50 or Less	0.60	1.00	31.2
Services: Vehicle Service						
City Mechanic Shop	5B Cool Dry	64.0	50 or Less	0.80	1.00	51.2
City Shop/Warehouse Buildings	5B Cool Dry	64.0	50 or Less	0.80	1.00	51.2

3.2. BUILDING EUI GAP ANALYSIS

The building energy use intensity (EUI) gap analysis calculations are below:

Building	WN EUI	EUIT	EUIΔ Over Target[1]	Gross Floor Area [ft^2]	Compliance Deadline
Police Department	48.0	74.8	0.0	23,669	**Cohort 4: 6/1/28**
City Hall	108.0	55.2	52.8	23,700	**Cohort 4: 6/1/28**
City Shop/Warehouse Buildings	80.0	51.2	28.8	35,761	**Cohort 4: 6/1/28**
Library/Hal Holmes	50.0	33.8	16.2	27,925	**Cohort 4: 6/1/28**
Animal Shelter	112.0	89.7	22.3	3,400	**N/A**
City Pool	323.0	85.8	237.2	17,430	**N/A**
City Mechanic Shop	98.0	51.2	46.8	3,090	**N/A**
Adult Activity Center	67.0	31.2	35.8	3,580	**N/A**
Youth Center	68.0	31.2	36.8	6,120	**N/A**

1. Tier II buildings are not required to meet EUIt.

3.3. FUEL SOURCES

The Ellensburg facilities are serviced by:

- City of Ellensburg – Electricity & Natural Gas

3.4. RESULTS

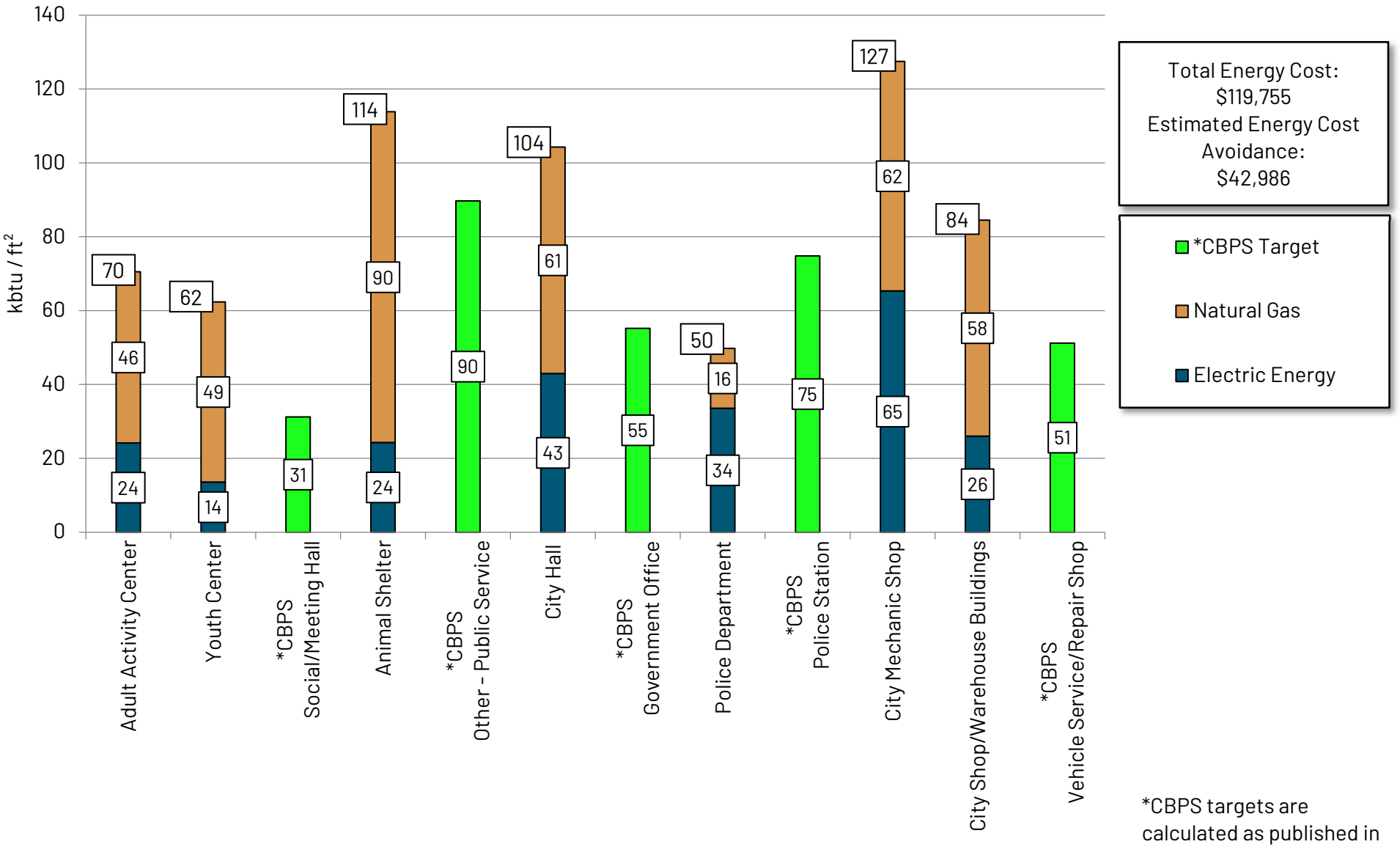
3.4.1. Tier I Buildings

None of the City of Ellensburg facilities included in this report are considered Tier I.

3.4.2. Tier II Buildings

Several City of Ellensburg Tier II facilities exceed the recommended EUIt as listed by CBPS. Tier II facilities are not required to meet targets. Of the Tier II facilities, eight exceed recommended targets. These facilities are; the City Hall, City Shops, Library, Hal Holmes, Animal Shelter, City Pool. Only the Police Department is meeting recommended target.

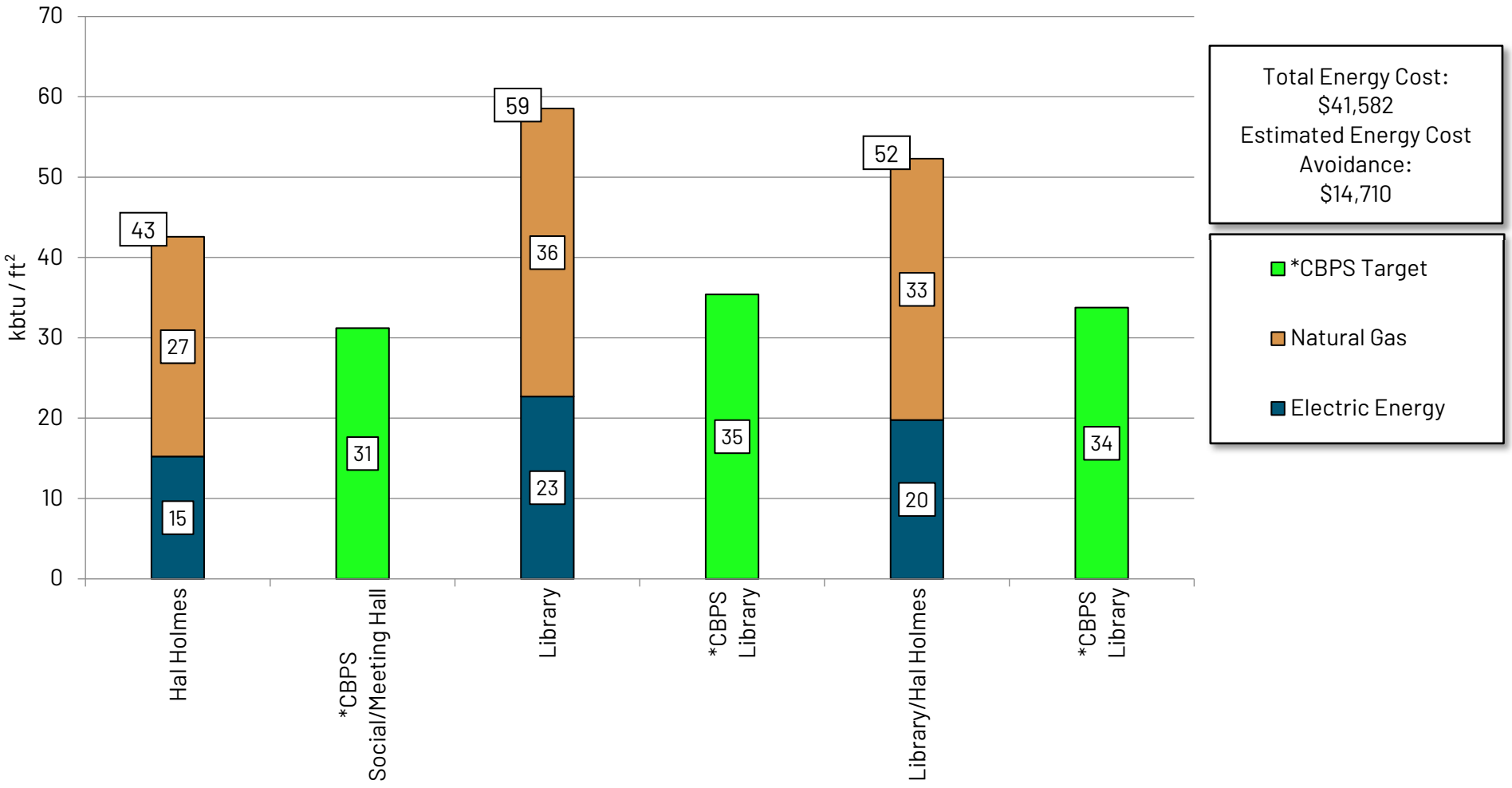
City of Ellensburg Utility Analysis
Base - Annual Energy Use per ft^2



*CBPS targets are calculated as published in CR-103P on 10/30/2020.

The EUIs displayed in this chart are based on all utility data received and may not match EUIs as shown in building specific UDAs which are based on 36-months of data.

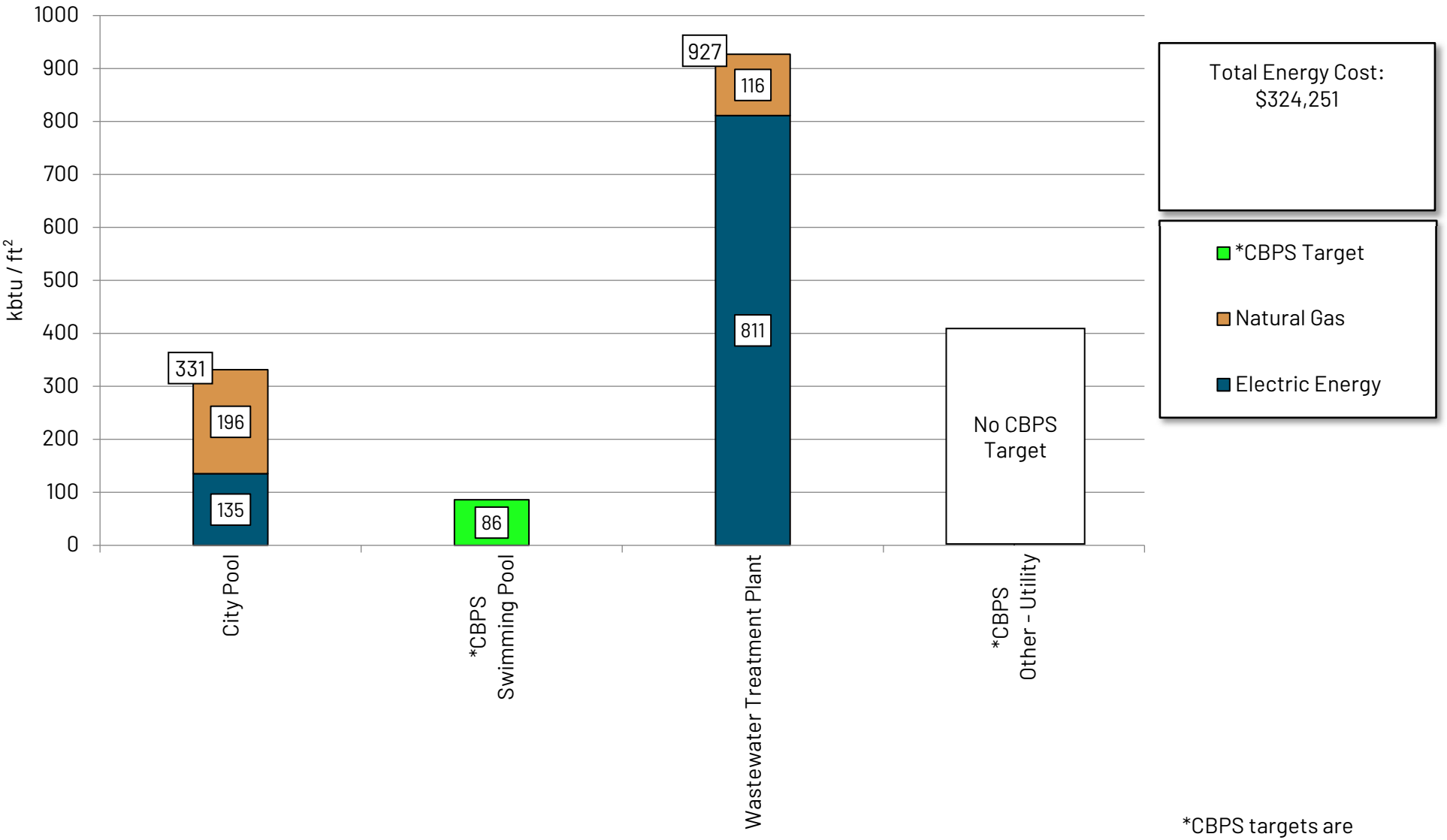
City of Ellensburg Utility Analysis
Library - Annual Energy Use per ft^2



*CBPS targets are calculated as published in CR-103P on 10/30/2020.

The EUIs displayed in this chart are based on all utility data received and may not match EUIs as shown in building specific UDAs which are based on 36-months of data.

City of Ellensburg Utility Analysis
High - Annual Energy Use per ft^2



*CBPS targets are calculated as published in CR-103P on 10/30/2020.

The EUIs displayed in this chart are based on all utility data received and may not match EUIs as shown in building specific UDAs which are based on 36-months of data.

UTILITY DATA ANALYSIS
CITY OF ELLENSBURG - POLICE DEPARTMENT

Building Information			
Project	City of Ellensburg	Building Area	23,669 ft²
Building	Police Department		
Service Add.	100 N Pearl St, Ellensburg, WA 98926		
Primary Space Type	Police Station		
Electric	City of Ellensburg: E30510 E11209		
Natural Gas	City of Ellensburg: GT4966685 G17352732 G9914457		

Energy Information		
Year 1:	January 2020 to December 2020	
	EUI: 51.2 kBtu/ft²	Cost: $0.89 / ft²
Year 2:	January 2021 to December 2021	
	EUI: 45.6 kBtu/ft²	Cost: $0.98 / ft²
Year 3:	January 2022 to December 2022	
	EUI: 49.1 kBtu/ft²	Cost: $1.02 / ft²
Average:	**January 2020 to December 2022**	
	EUI: 48.6 kBtu/ft²	**Cost: $0.96 / ft²**
	WNEUI: 48 kBtu/ft²	**CBPS EUIt: 74.8 kBtu/ft²**

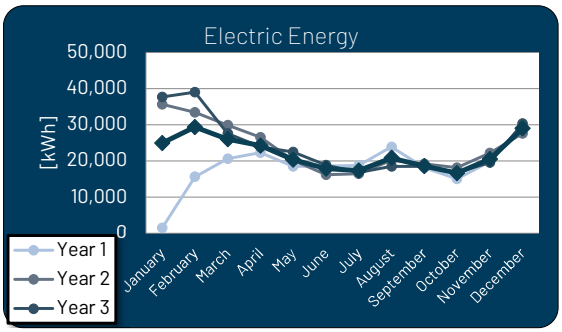
Historical Utility Data

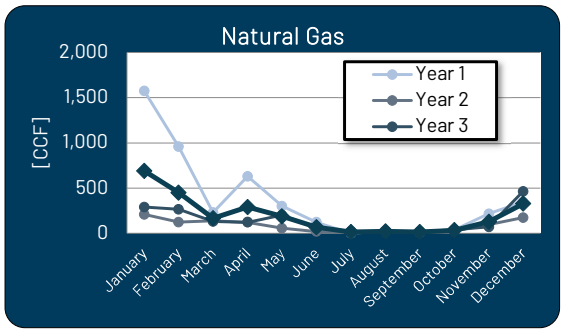
Period	Electric Energy [kWh]	No Demand Metered [kW]	Total Electric Cost [$$$]	Natural Gas [CCF]	Natural Gas Cost [$$$]	Total Energy [kBTU]	Total Cost [$$$]	Energy Use Index [kBTU / ft²]	Cost Index [$$$ / ft²]
Jan-20	1,440		$159.40	1,573	$1,169.09	166,817	$1,328.49	7.05	$0.06
Feb-20	15,600		$1,164.67	957	$834.64	151,720	$1,999.31	6.41	$0.08
Mar-20	20,640		$1,505.58	229	$288.83	93,959	$1,794.41	3.97	$0.08
Apr-20	22,320		$1,642.24	630	$639.50	140,963	$2,281.74	5.96	$0.10
May-20	18,480		$1,345.39	301	$274.83	94,063	$1,620.22	3.97	$0.07
Jun-20	18,600		$1,371.00	121	$206.99	75,956	$1,577.99	3.21	$0.07
Jul-20	18,720		$1,376.88		$140.87	63,873	$1,517.75	2.70	$0.06
Aug-20	23,880		$1,743.42	23	$167.20	83,821	$1,910.62	3.54	$0.08
Sep-20	18,120		$1,332.66	7	$139.98	62,495	$1,472.64	2.64	$0.06
Oct-20	15,000		$1,117.97	34	$160.09	54,638	$1,278.06	2.31	$0.05
Nov-20	19,800		$1,456.99	215	$270.88	89,643	$1,727.87	3.79	$0.07
Dec-20	29,040		$2,092.69	347	$370.31	134,778	$2,463.00	5.69	$0.10
Jan-21	35,640		$2,564.38	207	$302.30	142,909	$2,866.68	6.04	$0.12
Feb-21	33,480		$2,399.25	124	$213.52	126,950	$2,612.77	5.36	$0.11
Mar-21	29,880		$2,148.69	136	$212.19	115,982	$2,360.88	4.90	$0.10
Apr-21	26,520		$1,922.23	121	$226.34	102,931	$2,148.57	4.35	$0.09
May-21	20,160		$1,482.05	57	$187.69	74,604	$1,669.74	3.15	$0.07
Jun-21	16,200		$1,199.03	19	$149.97	57,234	$1,349.00	2.42	$0.06
Jul-21	16,440		$1,218.19	17	$153.20	57,830	$1,371.39	2.44	$0.06
Aug-21	20,160		$1,482.05	21	$167.66	70,923	$1,649.71	3.00	$0.07
Sep-21	19,200		$1,410.29	17	$154.55	67,247	$1,564.84	2.84	$0.07
Oct-21	18,120		$1,335.12	26	$162.61	64,454	$1,497.73	2.72	$0.06
Nov-21	22,200		$1,621.56	94	$241.55	85,468	$1,863.11	3.61	$0.08
Dec-21	27,600		$1,994.93	173	$281.67	111,970	$2,276.60	4.73	$0.10
Jan-22	37,680		$2,703.90	291	$399.42	158,476	$3,103.32	6.70	$0.13
Feb-22	39,000		$2,788.37	265	$355.34	160,348	$3,143.71	6.77	$0.13
Mar-22	27,600		$1,987.54	131	$216.83	107,620	$2,204.37	4.55	$0.09
Apr-22	23,880		$1,738.49	121	$226.47	93,923	$1,964.96	3.97	$0.08
May-22	22,440		$1,638.26	202	$322.24	97,390	$1,960.50	4.11	$0.08
Jun-22	18,840		$1,385.23	55	$186.60	69,944	$1,571.83	2.96	$0.07
Jul-22	16,800		$1,243.25	19	$157.05	59,281	$1,400.30	2.50	$0.06
Aug-22	18,480		$1,362.65	21	$167.64	65,191	$1,530.29	2.75	$0.06
Sep-22	18,480		$1,362.65	16	$161.25	64,657	$1,523.90	2.73	$0.06
Oct-22	16,800		$1,248.19	38	$193.06	61,243	$1,441.25	2.59	$0.06
Nov-22	19,560		$1,432.89	71	$203.69	74,052	$1,636.58	3.13	$0.07
Dec-22	30,310		$2,181.14	461	$591.66	150,887	$2,772.79	6.37	$0.12

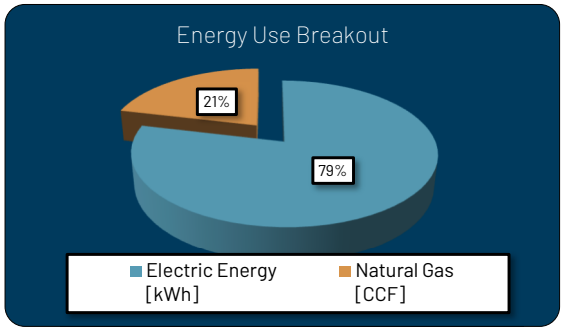
Annual Average Consumption and Cost									
Year	Electric Energy [kWh]	Total Electric Cost [$$$]	Blended Rate [$$$ / kWh]	Natural Gas [CCF]	Natural Gas Cost [$$$]	Total Energy [MMBTU]	Total Cost [$$$]	Energy Use Index [kBTU / ft²]	Cost Index [$$$ / ft²]
Year 1	221,640	$16,309	$0.0736	4,436	$4,663	1,213	$20,972	51.2	$0.89
Year 2	285,600	$20,778	$0.0728	1,011	$2,453	1,078	$23,231	45.6	$0.98
Year 3	289,870	$21,073	$0.0727	1,691	$3,181	1,163	$24,254	49.1	$1.02
Average	**265,703**	**$19,386**	**$0.0730**	**2,379**	**$3,433**	**1,151**	**22,819**	**48.6**	**$0.96**

Average Monthly Utility Cost and Weather Data					
Month	Electric Energy [$$$]	Natural Gas [$$$]	Total [$$$]	Heating Degree Days	Cooling Degree Days
January	$1,809	$624	$2,433	917	0
February	$2,117	$468	$2,585	714	0
March	$1,881	$239	$2,120	569	0
April	$1,768	$364	$2,132	401	1
May	$1,489	$262	$1,750	195	19
June	$1,318	$181	$1,500	49	168
July	$1,279	$150	$1,430	1	398
August	$1,529	$168	$1,697	1	360
September	$1,369	$152	$1,520	35	128
October	$1,234	$172	$1,406	278	20
November	$1,504	$239	$1,743	715	0
December	$2,090	$415	$2,504	1,013	0
Total	**$19,386**	**$3,433**	**$22,819**	**4,889**	**1,093**

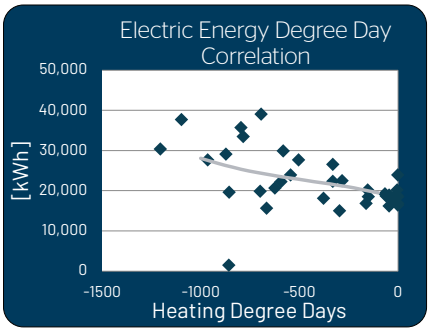
Pct. of Total	85%	15%

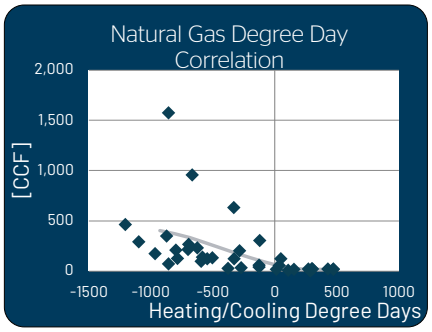


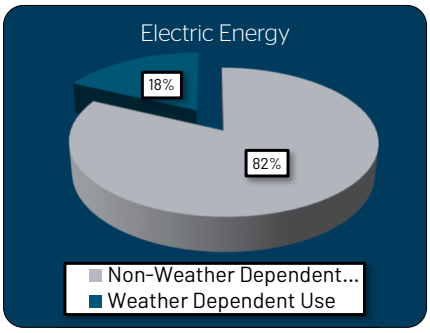


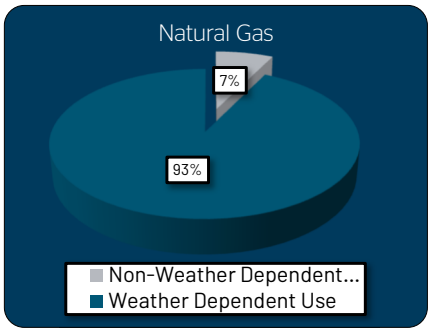


Weather Dependency Analysis					
Energy Type	Best Fit Strategy	Trendline Formula	Intercept vs. CDD / HDD	R^2	Explanation
Electric Energy [kWh]	3° Polynomial	$y=0.00x^3 + -0.01x^2 + -14.00x + 18,174$	18,179	0.245	$R^2 < 0.50$: Suggest monthly Electric Energy cannot be reasonably predicted based on weather severity, i.e. no correlation between weather and Electric Energy.
Natural Gas [CCF]	3° Polynomial	$y=0.00x^3 + 0.00x^2 + -0.29x + 63$	14	0.237	$R^2 < 0.50$: Suggest monthly Natural Gas cannot be reasonably predicted based on weather severity, i.e. no correlation between weather and Natural Gas.









Utility Analysis by Daniel R. Funke, PE version INW 24.01.03

UTILITY DATA ANALYSIS
CITY OF ELLENSBURG - CITY HALL

Building Information			
Project	City of Ellensburg	Building Area	23,700 ft²
Building	City Hall		
Service Add.	501 N Anderson St, Ellensburg, WA 98926		
Primary Space Type	Government Office		
Electric	City of Ellensburg: E10638		
Natural Gas	City of Ellensburg: G9541708		

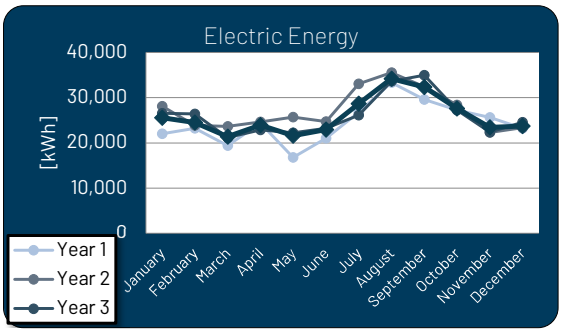
Energy Information		
Year 1:	January 2020 to December 2020	
EUI: 105.7 kBtu/ft²	Cost: $1.35 / ft²	
Year 2:	January 2021 to December 2021	
EUI: 111.3 kBtu/ft²	Cost: $1.51 / ft²	
Year 3:	January 2022 to December 2022	
EUI: 110.9 kBtu/ft²	Cost: $1.56 / ft²	
Average:	**January 2020 to December 2022**	
EUI: 109.3 kBtu/ft²	**Cost: $1.47 / ft²**	
WNEUI: 108 kBtu/ft²	**CBPS EUIt: 55.2 kBtu/ft²**	

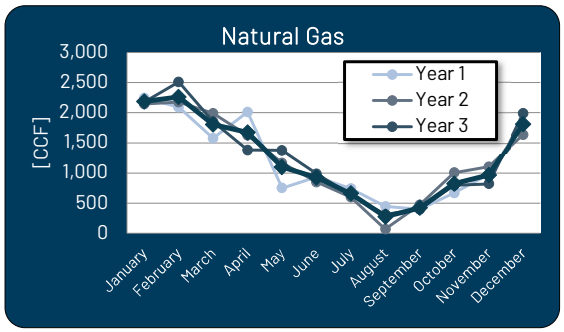
Historical Utility Data

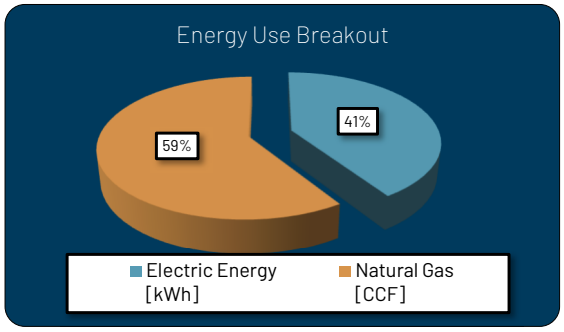
Period	Electric Energy [kWh]	No Demand Metered [kW]	Total Electric Cost [$$$]	Natural Gas [CCF]	Natural Gas Cost [$$$]	Total Energy [kBTU]	Total Cost [$$$]	Energy Use Index [kBTU / ft²]	Cost Index [$$$ / ft²]
Jan-20	22,000		$1,607.64	2,245	$1,630.55	306,075	$3,238.19	12.91	$0.14
Feb-20	23,240		$1,696.41	2,094	$1,610.76	294,767	$3,307.17	12.44	$0.14
Mar-20	19,400		$1,419.28	1,575	$1,190.29	228,260	$2,609.57	9.63	$0.11
Apr-20	24,360		$1,784.23	2,014	$1,648.77	290,357	$3,433.00	12.25	$0.14
May-20	16,760		$1,225.68	751	$486.68	134,463	$1,712.36	5.67	$0.07
Jun-20	21,000		$1,538.04	932	$581.55	167,555	$2,119.59	7.07	$0.09
Jul-20	26,760		$1,936.47	743	$516.36	167,760	$2,452.83	7.08	$0.10
Aug-20	33,320		$2,400.44	443	$354.76	159,273	$2,755.20	6.72	$0.12
Sep-20	29,600		$2,131.67	397	$340.91	141,847	$2,472.58	5.99	$0.10
Oct-20	27,240		$1,969.87	667	$502.60	161,577	$2,472.47	6.82	$0.10
Nov-20	25,600		$1,860.67	976	$661.53	187,778	$2,522.20	7.92	$0.11
Dec-20	23,240		$1,689.01	1,799	$1,321.82	264,412	$3,010.83	11.16	$0.13
Jan-21	28,120		$2,040.99	2,144	$1,589.91	316,563	$3,630.90	13.36	$0.15
Feb-21	23,840		$1,728.30	2,174	$1,558.04	305,047	$3,286.34	12.87	$0.14
Mar-21	23,640		$1,714.38	1,993	$1,295.28	285,739	$3,009.66	12.06	$0.13
Apr-21	24,640		$1,791.38	1,623	$1,196.65	251,078	$2,988.03	10.59	$0.13
May-21	25,680		$1,866.24	1,168	$886.14	207,807	$2,752.38	8.77	$0.12
Jun-21	24,680		$1,789.24	848	$721.89	171,467	$2,511.13	7.23	$0.11
Jul-21	33,080		$2,376.34	598	$557.01	174,403	$2,933.35	7.36	$0.12
Aug-21	35,560		$2,553.89	65	$166.92	128,019	$2,720.81	5.40	$0.11
Sep-21	32,440		$2,331.79	471	$502.98	159,151	$2,834.77	6.72	$0.12
Oct-21	28,400		$2,050.61	1,005	$966.61	200,315	$3,017.22	8.45	$0.13
Nov-21	22,320		$1,629.91	1,104	$1,224.32	189,757	$2,854.23	8.01	$0.12
Dec-21	23,360		$1,699.83	1,635	$1,482.05	247,946	$3,181.88	10.46	$0.13
Jan-22	26,560		$1,929.95	2,176	$1,940.75	314,533	$3,870.70	13.27	$0.16
Feb-22	26,400		$1,911.41	2,510	$2,148.63	348,356	$4,060.04	14.70	$0.17
Mar-22	21,120		$1,536.53	1,851	$1,412.24	262,529	$2,948.77	11.08	$0.12
Apr-22	22,840		$1,666.10	1,378	$1,048.34	219,726	$2,714.44	9.27	$0.11
May-22	22,240		$1,624.34	1,376	$1,300.50	217,473	$2,924.84	9.18	$0.12
Jun-22	23,200		$1,688.69	985	$930.31	180,515	$2,619.00	7.62	$0.11
Jul-22	26,120		$1,891.92	639	$665.62	154,875	$2,557.54	6.53	$0.11
Aug-22	33,640		$2,417.78	311	$437.24	146,782	$2,855.02	6.19	$0.12
Sep-22	34,960		$2,509.66	396	$524.75	160,032	$3,034.41	6.75	$0.13
Oct-22	27,240		$1,974.81	795	$1,002.41	174,748	$2,977.22	7.37	$0.13
Nov-22	22,360		$1,627.77	820	$892.82	160,670	$2,520.59	6.78	$0.11
Dec-22	24,581		$1,782.40	1,991	$2,074.18	288,707	$3,856.58	12.18	$0.16

Annual Average Consumption and Cost									
Year	Electric Energy [kWh]	Total Electric Cost [$$$]	Blended Rate [$$$ / kWh]	Natural Gas [CCF]	Natural Gas Cost [$$$]	Total Energy [MMBTU]	Total Cost [$$$]	Energy Use Index [kBTU / ft²]	Cost Index [$$$ / ft²]
Year 1	292,520	$21,259	$0.0727	14,636	$10,847	2,504	$32,106	105.7	$1.35
Year 2	325,760	$23,573	$0.0724	14,828	$12,148	2,637	$35,721	111.3	$1.51
Year 3	311,261	$22,561	$0.0725	15,228	$14,378	2,629	$36,939	110.9	$1.56
Average	**309,847**	**$22,465**	**$0.0725**	**14,897**	**$12,457**	**2,590**	**34,922**	**109.3**	**$1.47**

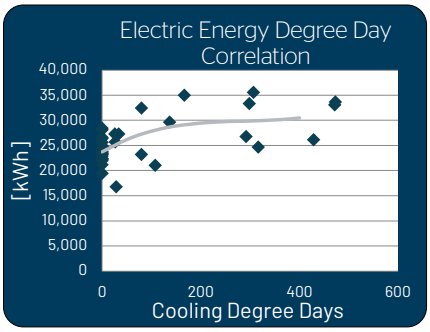
Average Monthly Utility Cost and Weather Data					
Month	Electric Energy [$$$]	Natural Gas [$$$]	Total [$$$]	Heating Degree Days	Cooling Degree Days
January	$1,860	$1,720	$3,580	917	0
February	$1,779	$1,772	$3,551	714	0
March	$1,557	$1,299	$2,856	569	0
April	$1,747	$1,298	$3,045	401	1
May	$1,572	$891	$2,463	195	19
June	$1,672	$745	$2,417	49	168
July	$2,068	$580	$2,648	1	398
August	$2,457	$320	$2,777	1	360
September	$2,324	$456	$2,781	35	128
October	$1,998	$824	$2,822	278	20
November	$1,706	$926	$2,632	715	0
December	$1,724	$1,626	$3,350	1,013	0
Total	**$22,465**	**$12,457**	**$34,922**	**4,889**	**1,093**
Pct. of Total	64%	36%			

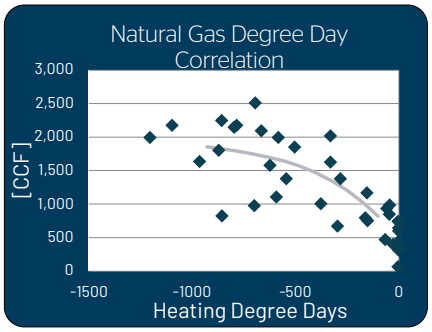


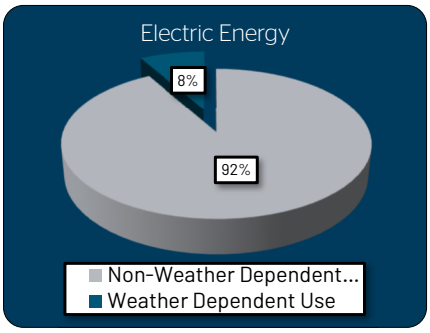


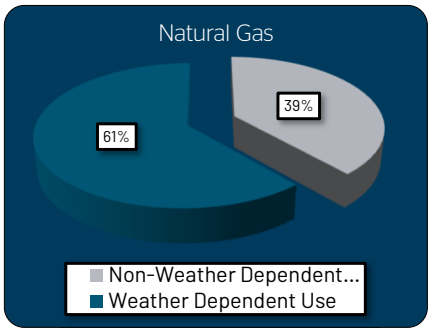


Weather Dependency Analysis					
Energy Type	Best Fit Strategy	Trendline Formula	Intercept vs. CDD / HDD	R^2	Explanation
Electric Energy [kWh]	3° Polynomial	$y=0.00x^3 + -0.19x^2 + 58.46x + 23,704$	23,704	0.404	$R^2 < 0.50$: Suggest monthly Electric Energy cannot be reasonably predicted based on weather severity, i.e. no correlation between weather and Electric Energy.
Natural Gas [CCF]	3° Polynomial	$y=0.00x^3 + 0.00x^2 + -3.78x + 477$	478	0.670	$R^2 < 0.75$: Suggest monthly Natural Gas cannot be significantly be predicted based on weather severity, i.e. low correlation between weather and Natural Gas.









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UTILITY DATA ANALYSIS
CITY OF ELLENSBURG - CITY SHOP/WAREHOUSE BUILDINGS

Building Information			
Project	City of Ellensburg	Building Area	35,761 ft²
Building	City Shop/Warehouse Buildings		
Service Add.	607 S Industrial Way, Ellensburg, WA 98926		
Primary Space Type	Vehicle Service/Repair Shop		
Electric	City of Ellensburg: E27062 E29602 E30713		
Natural Gas	City of Ellensburg: G15316839 G14993244 G62069		

Energy Information		
Year 1:	January 2020 to December 2020	
	EUI: 77.5 kBtu/ft²	Cost: $1.11 / ft²
Year 2:	January 2021 to December 2021	
	EUI: 79.5 kBtu/ft²	Cost: $1.16 / ft²
Year 3:	January 2022 to December 2022	
	EUI: 88.5 kBtu/ft²	Cost: $1.29 / ft²
Average:	**January 2020 to December 2022**	
	EUI: 81.9 kBtu/ft²	**Cost: $1.19 / ft²**
	WNEUI: 80 kBtu/ft²	**CBPS EUIt: 51.2 kBtu/ft²**

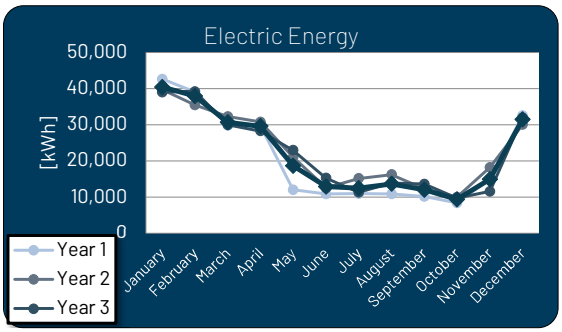
Historical Utility Data

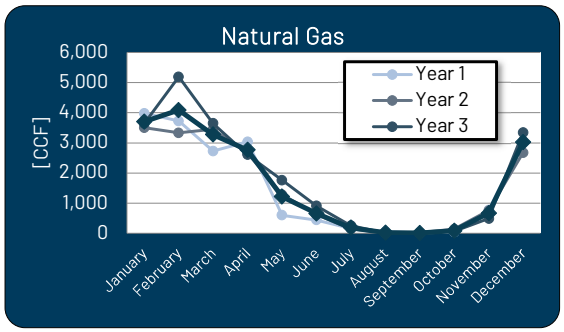
Period	Electric Energy [kWh]	No Demand Metered [kW]	Total Electric Cost [$$$]	Natural Gas [CCF]	Natural Gas Cost [$$$]	Total Energy [kBTU]	Total Cost [$$$]	Energy Use Index [kBTU / ft²]	Cost Index [$$$ / ft²]
Jan-20	42,670		$3,625.75	3,976	$2,875.00	554,720	$6,500.75	15.51	$0.18
Feb-20	39,116		$3,338.93	3,731	$2,857.12	517,384	$6,196.05	14.47	$0.17
Mar-20	29,788		$2,625.56	2,728	$2,055.33	382,348	$4,680.89	10.69	$0.13
Apr-20	29,748		$2,839.79	3,039	$2,512.26	414,213	$5,352.05	11.58	$0.15
May-20	12,019		$1,280.37	597	$459.29	102,440	$1,739.66	2.86	$0.05
Jun-20	10,837		$1,336.20	438	$404.21	82,046	$1,740.41	2.29	$0.05
Jul-20	10,965		$1,384.57	153	$281.93	53,156	$1,666.50	1.49	$0.05
Aug-20	10,877		$1,378.42	49	$221.02	42,154	$1,599.44	1.18	$0.04
Sep-20	10,181		$1,280.68	3	$183.83	35,046	$1,464.51	0.98	$0.04
Oct-20	8,395		$1,205.70	44	$226.11	33,171	$1,431.81	0.93	$0.04
Nov-20	14,955		$1,642.51	769	$620.78	130,157	$2,263.29	3.64	$0.06
Dec-20	32,562		$2,882.80	3,059	$2,244.12	425,873	$5,126.92	11.91	$0.14
Jan-21	39,729		$3,376.64	3,499	$2,599.18	495,602	$5,975.82	13.86	$0.17
Feb-21	35,521		$3,054.16	3,336	$2,406.25	464,472	$5,460.41	12.99	$0.15
Mar-21	32,265		$2,797.98	3,452	$2,237.08	465,299	$5,035.06	13.01	$0.14
Apr-21	30,789		$2,769.26	2,650	$1,958.51	377,737	$4,727.77	10.56	$0.13
May-21	21,045		$2,066.37	1,283	$1,037.95	203,826	$3,104.32	5.70	$0.09
Jun-21	12,543		$1,445.07	616	$627.32	106,183	$2,072.39	2.97	$0.06
Jul-21	15,172		$1,677.36	148	$308.98	66,996	$1,986.34	1.87	$0.06
Aug-21	16,225		$1,730.89	3	$190.86	55,668	$1,921.75	1.56	$0.05
Sep-21	12,302		$1,477.62	19	$216.34	43,930	$1,693.96	1.23	$0.05
Oct-21	9,992		$1,287.20	132	$300.51	47,676	$1,587.71	1.33	$0.04
Nov-21	18,227		$1,850.54	752	$941.81	139,571	$2,792.35	3.90	$0.08
Dec-21	30,032		$2,711.62	2,671	$2,425.65	377,315	$5,137.27	10.55	$0.14
Jan-22	39,002		$3,321.11	3,645	$3,250.53	508,145	$6,571.64	14.21	$0.18
Feb-22	39,239		$3,322.81	5,193	$4,400.52	668,243	$7,723.33	18.69	$0.22
Mar-22	29,970		$2,633.33	3,647	$2,751.14	477,534	$5,384.47	13.35	$0.15
Apr-22	28,263		$2,608.22	2,606	$1,955.35	364,591	$4,563.57	10.20	$0.13
May-22	22,952		$2,179.40	1,760	$1,706.16	259,416	$3,885.56	7.25	$0.11
Jun-22	15,255		$1,638.76	905	$936.73	145,175	$2,575.49	4.06	$0.07
Jul-22	11,305		$1,423.00	250	$419.11	64,298	$1,842.11	1.80	$0.05
Aug-22	13,893		$1,548.89	12	$194.74	48,638	$1,743.63	1.36	$0.05
Sep-22	13,618		$1,588.91	3	$210.23	46,773	$1,799.14	1.31	$0.05
Oct-22	9,694		$1,276.36	64	$259.99	39,662	$1,536.35	1.11	$0.04
Nov-22	11,577		$1,377.84	486	$646.68	89,510	$2,024.52	2.50	$0.06
Dec-22	31,966		$2,826.22	3,348	$3,487.64	453,619	$6,313.86	12.68	$0.18

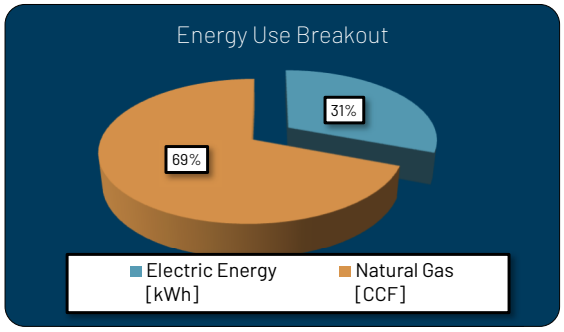
Annual Average Consumption and Cost									
Year	Electric Energy [kWh]	Total Electric Cost [$$$]	Blended Rate [$$$ / kWh]	Natural Gas [CCF]	Natural Gas Cost [$$$]	Total Energy [MMBTU]	Total Cost [$$$]	Energy Use Index [kBTU / ft^2]	Cost Index [$$$ / ft^2]
Year 1	252,113	$24,821	$0.0985	18,586	$14,941	2,773	$39,762	77.5	$1.11
Year 2	273,842	$26,245	$0.0958	18,561	$15,250	2,844	$41,495	79.5	$1.16
Year 3	266,734	$25,745	$0.0965	21,919	$20,219	3,166	$45,964	88.5	$1.29
Average	**264,230**	**$25,604**	**$0.0969**	**19,689**	**$16,803**	**2,928**	**42,407**	**81.9**	**$1.19**

Average Monthly Utility Cost and Weather Data					
Month	Electric Energy [$$$]	Natural Gas [$$$]	Total [$$$]	Heating Degree Days	Cooling Degree Days
January	$3,441	$2,908	$6,349	917	0
February	$3,239	$3,221	$6,460	714	0
March	$2,686	$2,348	$5,033	569	0
April	$2,739	$2,142	$4,881	401	1
May	$1,842	$1,068	$2,910	195	19
June	$1,473	$656	$2,129	49	168
July	$1,495	$337	$1,832	1	398
August	$1,553	$202	$1,755	1	360
September	$1,449	$203	$1,653	35	128
October	$1,256	$262	$1,519	278	20
November	$1,624	$736	$2,360	715	0
December	$2,807	$2,719	$5,526	1,013	0
Total	**$25,604**	**$16,803**	**$42,407**	**4,889**	**1,093**

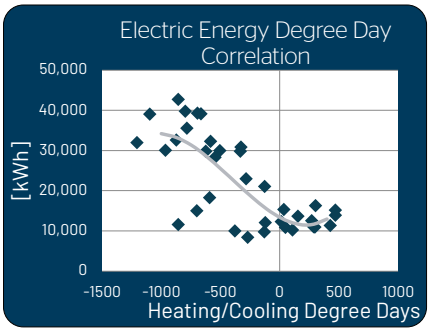
Pct. of Total	60%	40%

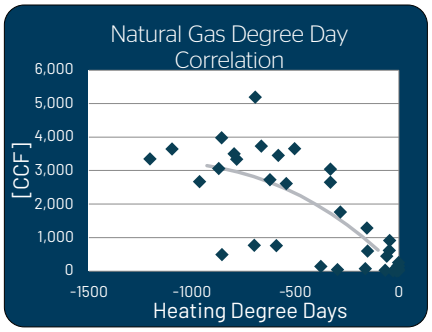


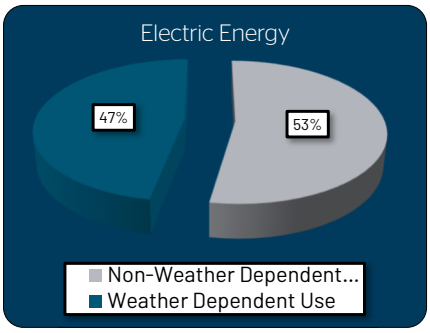


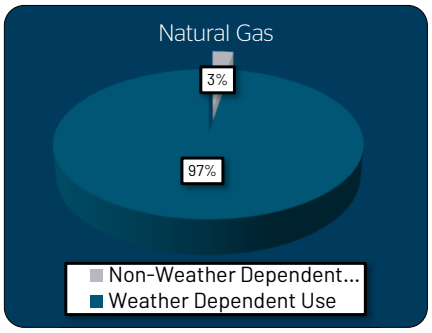


Weather Dependency Analysis					
Energy Type	Best Fit Strategy	Trendline Formula	Intercept vs. CDD / HDD	R^2	Explanation
Electric Energy [kWh]	3° Polynomial	$y=0.00x^3 + 0.03x^2 + -16.10x + 13,387$	11,619	0.585	$R^2 < 0.75$: Suggest monthly Electric Energy cannot be significantly be predicted based on weather severity, i.e. low correlation between weather and Electric Energy.
Natural Gas [CCF]	3° Polynomial	$y=0.00x^3 + 0.00x^2 + -6.23x + 41$	43	0.602	$R^2 < 0.75$: Suggest monthly Natural Gas cannot be significantly be predicted based on weather severity, i.e. low correlation between weather and Natural Gas.









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UTILITY DATA ANALYSIS
CITY OF ELLENSBURG - LIBRARY/HAL HOLMES

Building Information			
Project	City of Ellensburg	Building Area	27,925 ft²
Building	Library/Hal Holmes		
Service Add.	209 N Ruby St, Ellensburg, WA 98926		
Primary Space Type	Library		
Electric	City of Ellensburg: E30541LHH E10284LHH		
Natural Gas	City of Ellensburg: G16383647LHH G15286849LHH		

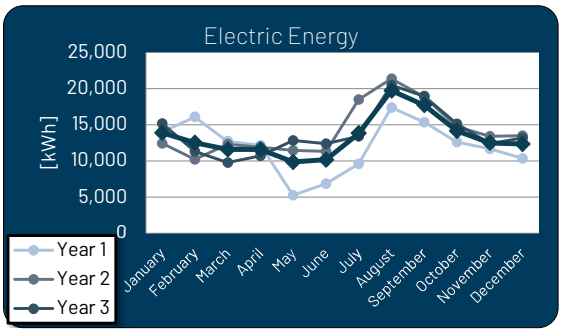
Energy Information		
Year 1:	January 2020 to December 2020	
	EUI: 48.6 kBtu/ft²	Cost: $0.66 / ft²
Year 2:	January 2021 to December 2021	
	EUI: 50.4 kBtu/ft²	Cost: $0.73 / ft²
Year 3:	January 2022 to December 2022	
	EUI: 56.2 kBtu/ft²	Cost: $0.81 / ft²
Average:	**January 2020 to December 2022**	
	EUI: 51.7 kBtu/ft²	**Cost: $0.73 / ft²**
	WNEUI: 50 kBtu/ft²	**CBPS EUIt: 33.8 kBtu/ft²**

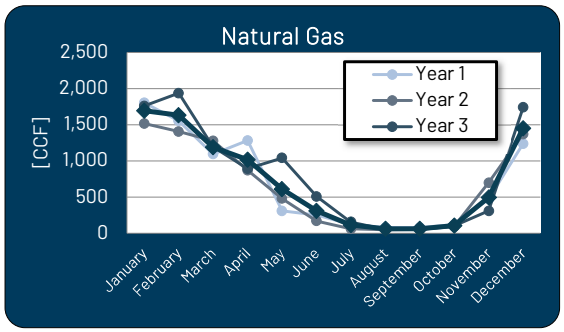
Historical Utility Data

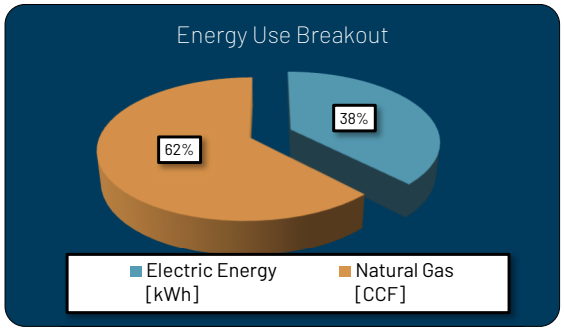
Period	Electric Energy [kWh]	No Demand Metered [kW]	Total Electric Cost [$$$]	Natural Gas [CCF]	Natural Gas Cost [$$$]	Total Energy [kBTU]	Total Cost [$$$]	Energy Use Index [kBTU / ft²]	Cost Index [$$$ / ft²]
Jan-20	14,040		$1,130.07	1,803	$1,302.72	233,433	$2,432.79	8.36	$0.09
Feb-20	16,080		$1,276.98	1,555	$1,196.99	214,874	$2,473.97	7.69	$0.09
Mar-20	12,720		$1,023.39	1,095	$833.29	156,076	$1,856.68	5.59	$0.07
Apr-20	12,160		$1,023.88	1,284	$1,068.03	173,614	$2,091.91	6.22	$0.07
May-20	5,240		$483.07	308	$227.68	49,572	$710.75	1.78	$0.03
Jun-20	6,840		$628.95	252	$209.47	49,269	$838.42	1.76	$0.03
Jul-20	9,600		$816.10	123	$155.71	45,412	$971.81	1.63	$0.03
Aug-20	17,400		$1,373.78	80	$130.36	67,601	$1,504.14	2.42	$0.05
Sep-20	15,360		$1,212.07	80	$128.43	60,640	$1,340.50	2.17	$0.05
Oct-20	12,600		$1,024.90	117	$157.20	55,031	$1,182.10	1.97	$0.04
Nov-20	11,680		$970.75	474	$351.04	88,627	$1,321.79	3.17	$0.05
Dec-20	10,360		$864.08	1,238	$917.05	162,739	$1,781.13	5.83	$0.06
Jan-21	12,440		$1,033.51	1,515	$1,128.34	198,339	$2,161.85	7.10	$0.08
Feb-21	10,200		$848.00	1,407	$1,019.92	179,583	$1,867.92	6.43	$0.07
Mar-21	12,320		$995.56	1,279	$842.60	173,645	$1,838.16	6.22	$0.07
Apr-21	11,920		$982.51	870	$667.15	130,194	$1,649.66	4.66	$0.06
May-21	11,440		$954.04	479	$401.70	88,322	$1,355.74	3.16	$0.05
Jun-21	11,320		$930.89	169	$203.85	56,014	$1,134.74	2.01	$0.04
Jul-21	18,480		$1,434.15	60	$133.95	69,228	$1,568.10	2.48	$0.06
Aug-21	21,360		$1,644.48	47	$123.72	77,717	$1,768.20	2.78	$0.06
Sep-21	18,840		$1,459.20	52	$132.39	69,633	$1,591.59	2.49	$0.06
Oct-21	14,720		$1,172.45	93	$163.53	59,794	$1,335.98	2.14	$0.05
Nov-21	13,400		$1,085.52	700	$788.90	117,751	$1,874.42	4.22	$0.07
Dec-21	13,480		$1,086.15	1,370	$1,231.26	186,967	$2,317.41	6.70	$0.08
Jan-22	15,160		$1,217.87	1,762	$1,564.76	233,036	$2,782.63	8.35	$0.10
Feb-22	11,320		$935.81	1,936	$1,654.85	237,838	$2,590.66	8.52	$0.09
Mar-22	9,760		$812.45	1,196	$923.42	156,370	$1,735.87	5.60	$0.06
Apr-22	10,720		$898.99	894	$692.67	128,569	$1,591.66	4.60	$0.06
May-22	12,840		$1,046.54	1,042	$984.02	151,032	$2,030.56	5.41	$0.07
Jun-22	12,400		$1,010.98	507	$504.46	94,479	$1,515.44	3.38	$0.05
Jul-22	13,400		$1,080.58	156	$225.19	61,773	$1,305.77	2.21	$0.05
Aug-22	20,480		$1,580.76	52	$136.58	75,229	$1,717.34	2.69	$0.06
Sep-22	18,960		$1,470.03	54	$147.60	70,248	$1,617.63	2.52	$0.06
Oct-22	15,120		$1,210.17	101	$197.53	61,982	$1,407.70	2.22	$0.05
Nov-22	12,400		$1,006.06	309	$377.08	74,105	$1,383.14	2.65	$0.05
Dec-22	13,200		$1,061.88	1,741	$1,799.52	224,184	$2,861.40	8.03	$0.10

Annual Average Consumption and Cost									
Year	Electric Energy [kWh]	Total Electric Cost [$$$]	Blended Rate [$$$ / kWh]	Natural Gas [CCF]	Natural Gas Cost [$$$]	Total Energy [MMBTU]	Total Cost [$$$]	Energy Use Index [kBTU / ft²]	Cost Index [$$$ / ft²]
Year 1	144,080	$11,828	$0.0821	8,409	$6,678	1,357	$18,506	48.6	$0.66
Year 2	169,920	$13,626	$0.0802	8,041	$6,837	1,407	$20,464	50.4	$0.73
Year 3	165,760	$13,332	$0.0804	9,750	$9,208	1,569	$22,540	56.2	$0.81
Average	**159,920**	**$12,929**	**$0.0809**	**8,733**	**$7,574**	**1,444**	**20,503**	**51.7**	**$0.73**

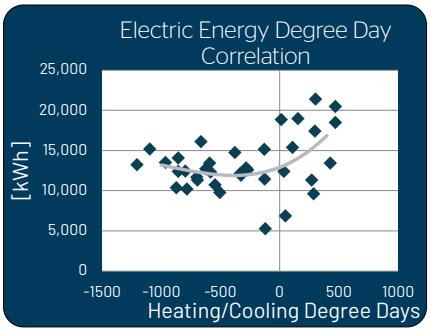
Average Monthly Utility Cost and Weather Data					
Month	Electric Energy [$$$]	Natural Gas [$$$]	Total [$$$]	Heating Degree Days	Cooling Degree Days
January	$1,127	$1,332	$2,459	917	0
February	$1,020	$1,291	$2,311	714	0
March	$944	$866	$1,810	569	0
April	$968	$809	$1,778	401	1
May	$828	$538	$1,366	195	19
June	$857	$306	$1,163	49	168
July	$1,110	$172	$1,282	1	398
August	$1,533	$130	$1,663	1	360
September	$1,380	$136	$1,517	35	128
October	$1,136	$173	$1,309	278	20
November	$1,021	$506	$1,526	715	0
December	$1,004	$1,316	$2,320	1,013	0
Total	**$12,929**	**$7,574**	**$20,503**	**4,889**	**1,093**
Pct. of Total	63%	37%			

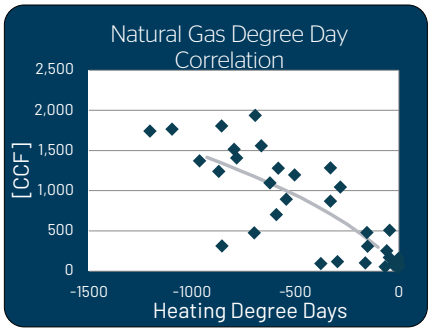


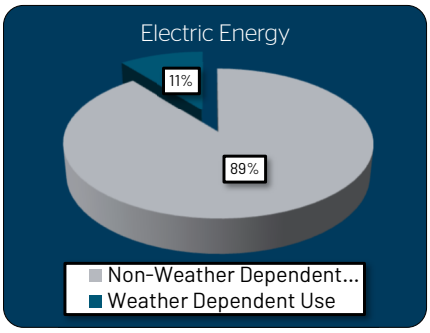


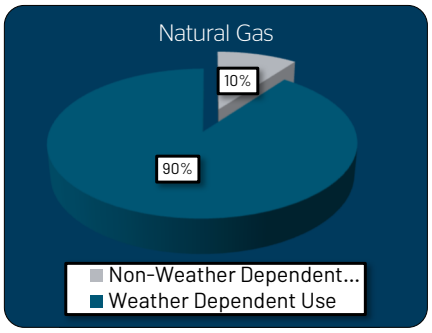


Weather Dependency Analysis					
Energy Type	Best Fit Strategy	Trendline Formula	Intercept vs. CDD / HDD	R^2	Explanation
Electric Energy [kWh]	3° Polynomial	$y=0.00x^3 + 0.01x^2 + 5.70x + 12{,}911$	11,911	0.246	$R^2 < 0.50$: Suggest monthly Electric Energy cannot be reasonably predicted based on weather severity, i.e. no correlation between weather and Electric Energy.
Natural Gas [CCF]	3° Polynomial	$y=0.00x^3 + 0.00x^2 + -2.40x + 73$	74	0.688	$R^2 < 0.75$: Suggest monthly Natural Gas cannot be significantly be predicted based on weather severity, i.e. low correlation between weather and Natural Gas.









UTILITY DATA ANALYSIS
CITY OF ELLENSBURG - ANIMAL SHELTER

Building Information			
Project	City of Ellensburg	Building Area	3,400 ft²
Building	Animal Shelter		
Service Add.	1007 S Industrial Way, Ellensburg, WA 98926		
Primary Space Type	Other - Public Service		
Electric	City of Ellensburg: E31143		
Natural Gas	City of Ellensburg: G71524		

Energy Information		
Year 1:	January 2020 to December 2020	
	EUI: 124.1 kBtu/ft²	Cost: $1.51 / ft²
Year 2:	January 2021 to December 2021	
	EUI: 93.6 kBtu/ft²	Cost: $1.29 / ft²
Year 3:	January 2022 to December 2022	
	EUI: 127.9 kBtu/ft²	Cost: $1.63 / ft²
Average:	**January 2020 to December 2022**	
	EUI: 115.2 kBtu/ft²	**Cost: $1.48 / ft²**
	WNEUI: 112 kBtu/ft²	**CBPS EUIt: 89.7 kBtu/ft²**

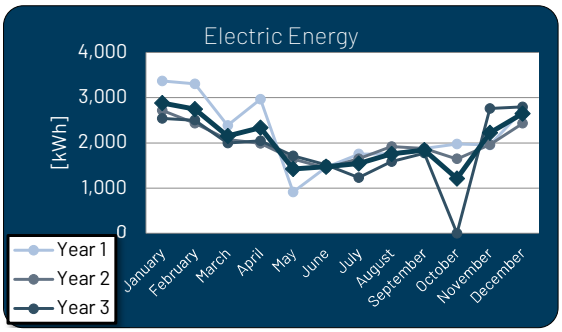
Historical Utility Data

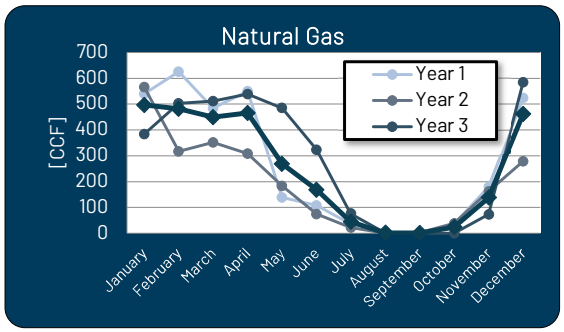
Period	Electric Energy [kWh]	No Demand Metered [kW]	Total Electric Cost [$$$]	Natural Gas [CCF]	Natural Gas Cost [$$$]	Total Energy [kBTU]	Total Cost [$$$]	Energy Use Index [kBTU / ft²]	Cost Index [$$$ / ft²]
Jan-20	3,372		$318.53	540	$381.11	67,071	$699.64	19.73	$0.21
Feb-20	3,305		$306.47	626	$464.61	75,692	$771.08	22.26	$0.23
Mar-20	2,388		$235.24	484	$349.62	57,951	$584.86	17.04	$0.17
Apr-20	2,969		$305.27	550	$432.30	66,725	$737.57	19.63	$0.22
May-20	910		$117.59	139	$87.47	17,408	$205.06	5.12	$0.06
Jun-20	1,458		$172.99	108	$71.49	16,088	$244.48	4.73	$0.07
Jul-20	1,752		$200.85	36	$37.66	9,682	$238.51	2.85	$0.07
Aug-20	1,766		$199.35	4	$20.04	6,437	$219.39	1.89	$0.06
Sep-20	1,878		$202.22		$16.73	6,408	$218.95	1.88	$0.06
Oct-20	1,973		$216.23	34	$37.95	10,230	$254.18	3.01	$0.07
Nov-20	1,951		$209.76	179	$117.96	25,076	$327.72	7.38	$0.10
Dec-20	2,722		$268.36	524	$368.46	63,207	$636.82	18.59	$0.19
Jan-21	2,716		$263.00	566	$407.28	67,508	$670.28	19.86	$0.20
Feb-21	2,434		$243.38	317	$228.06	40,924	$471.44	12.04	$0.14
Mar-21	2,075		$213.46	352	$226.34	43,301	$439.80	12.74	$0.13
Apr-21	1,988		$217.27	308	$222.75	38,476	$440.02	11.32	$0.13
May-21	1,643		$188.32	183	$138.49	24,437	$326.81	7.19	$0.10
Jun-21	1,443		$171.94	74	$70.22	12,538	$242.16	3.69	$0.07
Jul-21	1,648		$193.61	22	$34.53	7,887	$228.14	2.32	$0.07
Aug-21	1,916		$207.32		$17.31	6,537	$224.63	1.92	$0.07
Sep-21	1,873		$209.27	2	$20.08	6,596	$229.35	1.94	$0.07
Oct-21	1,645		$188.46	38	$49.60	9,523	$238.06	2.80	$0.07
Nov-21	1,961		$208.00	162	$180.40	23,361	$388.40	6.87	$0.11
Dec-21	2,431		$248.11	279	$250.84	37,004	$498.95	10.88	$0.15
Jan-22	2,544		$251.03	384	$339.91	48,194	$590.94	14.17	$0.17
Feb-22	2,502		$248.11	503	$425.30	60,296	$673.41	17.73	$0.20
Mar-22	1,997		$208.03	512	$377.70	59,499	$585.73	17.50	$0.17
Apr-22	2,046		$223.77	539	$380.61	62,444	$604.38	18.37	$0.18
May-22	1,714		$190.80	485	$436.72	55,755	$627.52	16.40	$0.18
Jun-22	1,513		$176.81	323	$286.08	38,399	$462.89	11.29	$0.14
Jul-22	1,229		$166.91	76	$83.47	12,014	$250.38	3.53	$0.07
Aug-22	1,587		$191.83	1	$19.89	5,518	$211.72	1.62	$0.06
Sep-22	1,773		$194.91		$16.73	6,049	$211.64	1.78	$0.06
Oct-22									
Nov-22	2,762		$337.72	73	$109.88	16,936	$447.60	4.98	$0.13
Dec-22	2,798		$271.08	585	$592.75	69,693	$863.84	20.50	$0.25

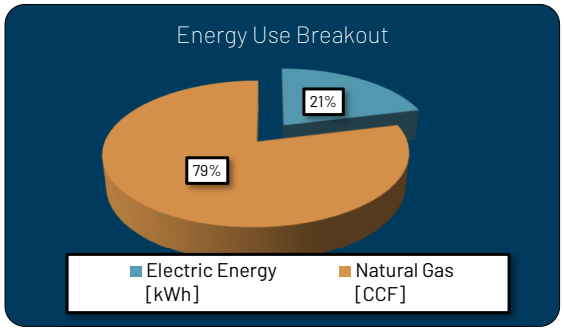
Annual Average Consumption and Cost									
Year	Electric Energy [kWh]	Total Electric Cost [$$$]	Blended Rate [$$$ / kWh]	Natural Gas [CCF]	Natural Gas Cost [$$$]	Total Energy [MMBTU]	Total Cost [$$$]	Energy Use Index [kBTU / ft²]	Cost Index [$$$ / ft²]
Year 1	26,444	$2,753	$0.1041	3,224	$2,385	422	$5,138	124.1	$1.51
Year 2	23,773	$2,552	$0.1074	2,303	$1,846	318	$4,398	93.6	$1.29
Year 3	22,465	$2,461	$0.1095	3,481	$3,069	435	$5,530	127.9	$1.63
Average	**24,227**	**$2,589**	**$0.1070**	**3,003**	**$2,433**	**392**	**5,022**	**115.2**	**$1.48**

Average Monthly Utility Cost and Weather Data					
Month	Electric Energy [$$$]	Natural Gas [$$$]	Total [$$$]	Heating Degree Days	Cooling Degree Days
January	$278	$376	$654	917	0
February	$266	$373	$639	714	0
March	$219	$318	$537	569	0
April	$249	$345	$594	401	1
May	$166	$221	$386	195	19
June	$174	$143	$317	49	168
July	$187	$52	$239	1	398
August	$200	$19	$219	1	360
September	$202	$18	$220	35	128
October	$135	$29	$164	278	20
November	$252	$136	$388	715	0
December	$263	$404	$667	1,013	0
Total	**$2,589**	**$2,433**	**$5,022**	**4,889**	**1,093**

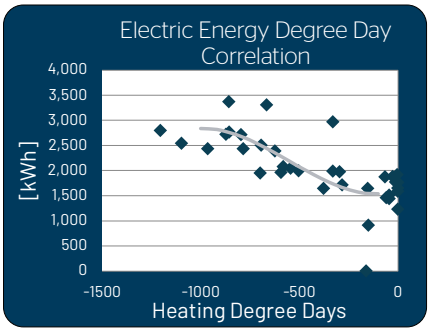
Pct. of Total	52%	48%

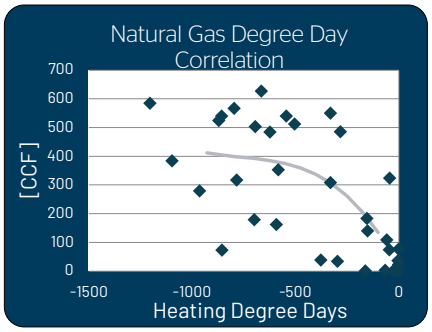


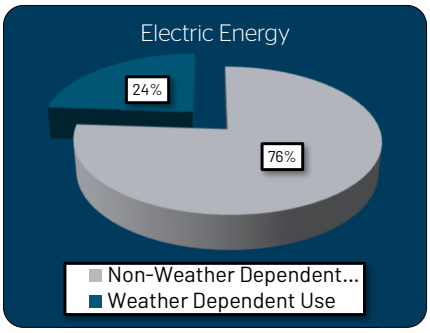


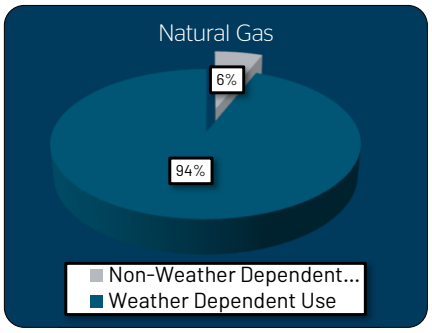


Weather Dependency Analysis					
Energy Type	Best Fit Strategy	Trendline Formula	Intercept vs. CDD / HDD	R^2	Explanation
Electric Energy [kWh]	3° Polynomial	$y=0.00x^3 + 0.01x^2 + 1.31x + 1,607$	1,536	0.545	$R^2 < 0.75$: Suggest monthly Electric Energy cannot be significantly be predicted based on weather severity, i.e. low correlation between weather and Electric Energy.
Natural Gas [CCF]	3° Polynomial	$y=0.00x^3 + 0.00x^2 + -1.37x + 15$	15	0.540	$R^2 < 0.75$: Suggest monthly Natural Gas cannot be significantly be predicted based on weather severity, i.e. low correlation between weather and Natural Gas.









UTILITY DATA ANALYSIS
CITY OF ELLENSBURG - CITY POOL

Building Information			
Project	City of Ellensburg	Building Area	17,430 ft²
Building	City Pool		
Service Add.	815 E 6th Ave, Ellensburg, WA 98926		
Primary Space Type	Swimming Pool		
Electric	City of Ellensburg: E11211		
Natural Gas	City of Ellensburg: G1050863 G16748531 G22697952		

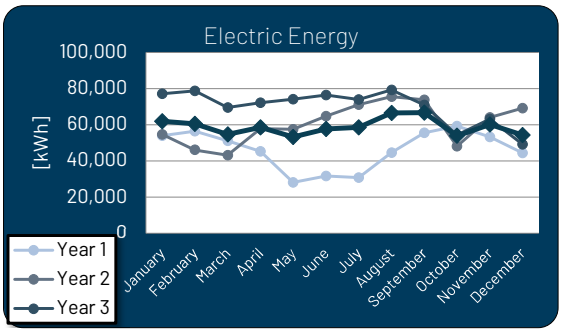
Energy Information		
Year 1:	January 2020 to December 2020	
EUI: 308.0 kBtu/ft²	Cost: $3.59 / ft²	
Year 2:	January 2021 to December 2021	
EUI: 314.3 kBtu/ft²	Cost: $4.30 / ft²	
Year 3:	January 2022 to December 2022	
EUI: 349.1 kBtu/ft²	Cost: $5.09 / ft²	
Average:	**January 2020 to December 2022**	
EUI: 323.8 kBtu/ft²	**Cost: $4.33 / ft²**	
WNEUI: 323 kBtu/ft²	**CBPS EUIt: 85.8 kBtu/ft²**	

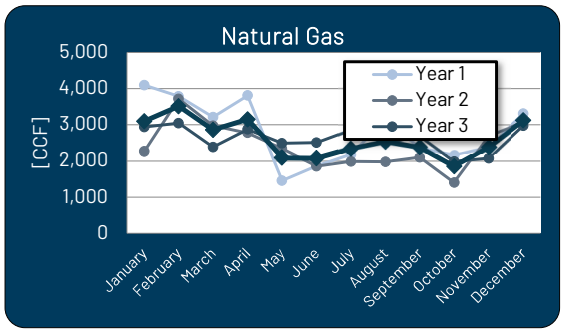
Historical Utility Data

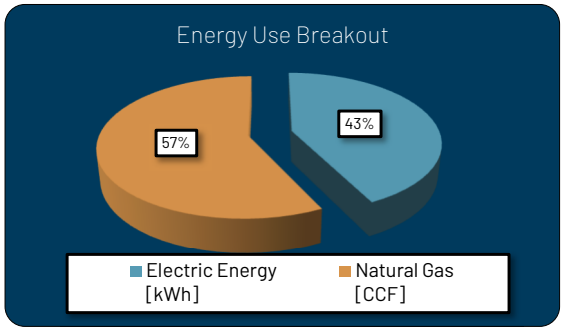
Period	Electric Energy [kWh]	No Demand Metered [kW]	Total Electric Cost [$$$]	Natural Gas [CCF]	Natural Gas Cost [$$$]	Total Energy [kBTU]	Total Cost [$$$]	Energy Use Index [kBTU / ft²]	Cost Index [$$$ / ft²]
Jan-20	54,000		$3,834.84	4,095	$2,900.90	605,624	$6,735.74	34.75	$0.39
Feb-20	56,480		$4,009.92	3,791	$2,850.88	582,804	$6,860.80	33.44	$0.39
Mar-20	51,200		$3,632.56	3,211	$2,343.74	505,106	$5,976.30	28.98	$0.34
Apr-20	45,360		$3,245.83	3,810	$3,022.67	546,817	$6,268.50	31.37	$0.36
May-20	28,080		$2,013.55	1,458	$887.72	245,837	$2,901.27	14.10	$0.17
Jun-20	31,680		$2,281.37	1,868	$1,083.44	300,309	$3,364.81	17.23	$0.19
Jul-20	30,720		$2,212.08	2,188	$1,316.87	329,962	$3,528.95	18.93	$0.20
Aug-20	44,640		$3,188.31	3,131	$1,829.85	474,492	$5,018.16	27.22	$0.29
Sep-20	55,520		$3,935.70	2,368	$1,519.90	433,101	$5,455.60	24.85	$0.31
Oct-20	59,200		$4,194.29	2,165	$1,391.48	424,769	$5,585.77	24.37	$0.32
Nov-20	53,280		$3,787.20	2,392	$1,485.98	427,928	$5,273.18	24.55	$0.30
Dec-20	44,400		$3,161.75	3,313	$2,363.14	492,401	$5,524.89	28.25	$0.32
Jan-21	54,720		$3,892.35	2,261	$1,698.70	419,362	$5,591.05	24.06	$0.32
Feb-21	46,080		$3,276.21	3,716	$2,611.39	539,601	$5,887.60	30.96	$0.34
Mar-21	43,120		$3,070.19	2,974	$1,907.37	453,150	$4,977.56	26.00	$0.29
Apr-21	57,920		$4,107.67	2,773	$1,989.46	482,965	$6,097.13	27.71	$0.35
May-21	57,520		$4,082.30	2,334	$1,686.45	436,427	$5,768.75	25.04	$0.33
Jun-21	64,800		$4,581.59	1,860	$1,480.63	412,492	$6,062.22	23.67	$0.35
Jul-21	71,120		$5,023.92	1,989	$1,603.10	447,330	$6,627.02	25.66	$0.38
Aug-21	75,520		$5,335.10	1,982	$1,794.72	461,622	$7,129.82	26.48	$0.41
Sep-21	73,760		$5,207.67	2,102	$1,858.53	467,965	$7,066.20	26.85	$0.41
Oct-21	48,080		$3,420.34	1,402	$1,332.10	308,315	$4,752.44	17.69	$0.27
Nov-21	64,000		$4,530.84	2,701	$2,865.02	496,301	$7,395.86	28.47	$0.42
Dec-21	69,200		$4,890.29	3,071	$2,708.21	552,116	$7,598.50	31.68	$0.44
Jan-22	77,200		$5,454.49	2,935	$2,606.56	565,418	$8,061.05	32.44	$0.46
Feb-22	78,800		$5,558.45	3,041	$2,607.52	581,785	$8,165.97	33.38	$0.47
Mar-22	69,520		$4,905.17	2,378	$1,810.69	481,898	$6,715.86	27.65	$0.39
Apr-22	72,240		$5,104.34	2,871	$2,080.87	541,909	$7,185.21	31.09	$0.41
May-22	74,160		$5,237.98	2,483	$2,286.36	508,535	$7,524.34	29.18	$0.43
Jun-22	76,480		$5,396.98	2,507	$2,226.75	518,920	$7,623.73	29.77	$0.44
Jul-22	74,000		$5,224.37	2,850	$2,570.89	545,753	$7,795.26	31.31	$0.45
Aug-22	79,280		$5,594.33	2,510	$2,785.86	528,782	$8,380.19	30.34	$0.48
Sep-22	70,960		$5,015.26	2,685	$2,872.43	518,402	$7,887.69	29.74	$0.45
Oct-22	54,320		$3,859.58	1,993	$2,371.30	390,420	$6,230.88	22.40	$0.36
Nov-22	63,200		$4,470.23	2,078	$2,122.67	429,465	$6,592.90	24.64	$0.38
Dec-22	49,161		$3,493.21	2,972	$3,068.41	473,550	$6,561.62	27.17	$0.38

Annual Average Consumption and Cost									
Year	Electric Energy [kWh]	Total Electric Cost [$$$]	Blended Rate [$$$ / kWh]	Natural Gas [CCF]	Natural Gas Cost [$$$]	Total Energy [MMBTU]	Total Cost [$$$]	Energy Use Index [kBTU / ft²]	Cost Index [$$$ / ft²]
Year 1	554,560	$39,497	$0.0712	33,790	$22,997	5,369	$62,494	308.0	$3.59
Year 2	725,840	$51,418	$0.0708	29,165	$23,536	5,478	$74,954	314.3	$4.30
Year 3	839,321	$59,314	$0.0707	31,303	$29,410	6,085	$88,725	349.1	$5.09
Average	**706,574**	**$50,077**	**$0.0709**	**31,419**	**$25,314**	**5,644**	**75,391**	**323.8**	**$4.33**

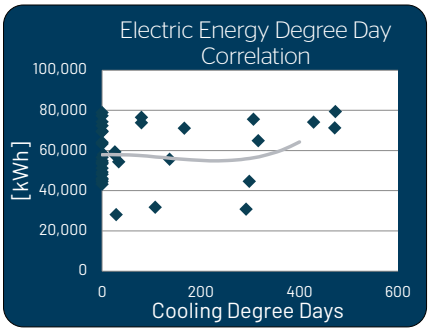
Average Monthly Utility Cost and Weather Data					
Month	Electric Energy [$$$]	Natural Gas [$$$]	Total [$$$]	Heating Degree Days	Cooling Degree Days
January	$4,394	$2,402	$6,796	917	0
February	$4,282	$2,690	$6,971	714	0
March	$3,869	$2,021	$5,890	569	0
April	$4,153	$2,364	$6,517	401	1
May	$3,778	$1,620	$5,398	195	19
June	$4,087	$1,597	$5,684	49	168
July	$4,153	$1,830	$5,984	1	398
August	$4,706	$2,137	$6,843	1	360
September	$4,720	$2,084	$6,803	35	128
October	$3,825	$1,698	$5,523	278	20
November	$4,263	$2,158	$6,421	715	0
December	$3,848	$2,713	$6,562	1,013	0
Total	**$50,077**	**$25,314**	**$75,391**	**4,889**	**1,093**
Pct. of Total	66%	34%			

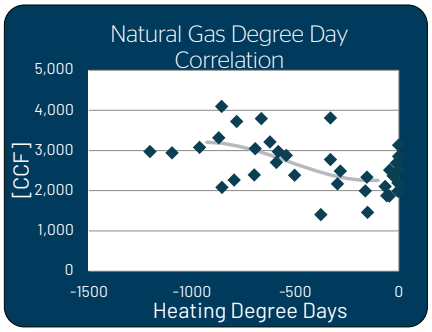


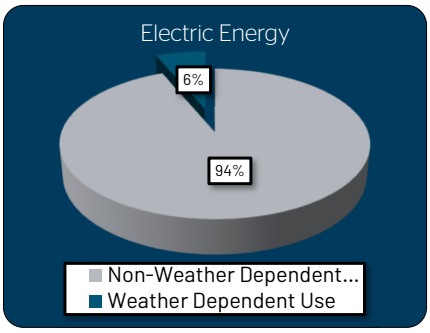


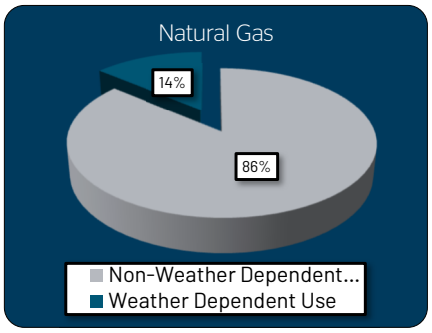


Weather Dependency Analysis					
Energy Type	Best Fit Strategy	Trendline Formula	Intercept vs. CDD / HDD	R^2	Explanation
Electric Energy [kWh]	3° Polynomial	$y=0.00x^3 + -0.26x^2 + 11.33x + 57,847$	55,153	0.117	$R^2 < 0.50$: Suggest monthly Electric Energy cannot be reasonably predicted based on weather severity, i.e. no correlation between weather and Electric Energy.
Natural Gas [CCF]	3° Polynomial	$y=0.00x^3 + 0.01x^2 + 1.47x + 2,347$	2,256	0.296	$R^2 < 0.50$: Suggest monthly Natural Gas cannot be reasonably predicted based on weather severity, i.e. no correlation between weather and Natural Gas.









Utility Analysis by Daniel R. Funke, PE version INW 24.01.03

UTILITY DATA ANALYSIS
CITY OF ELLENSBURG - CITY MECHANIC SHOP

Building Information			
Project	City of Ellensburg	Building Area	3,090 ft²
Building	City Mechanic Shop		
Service Add.	701 S Industrial Way, Ellensburg, WA 98926		
Primary Space Type	Vehicle Service/Repair Shop		
Electric	City of Ellensburg: E30502 E11786		
Natural Gas	City of Ellensburg: G70082 G25369020		

Energy Information		
Year 1:	January 2020 to December 2020	
EUI: 98.3 kBtu/ft²	Cost: $1.62 / ft²	
Year 2:	January 2021 to December 2021	
EUI: 95.7 kBtu/ft²	Cost: $1.59 / ft²	
Year 3:	January 2022 to December 2022	
EUI: 108.3 kBtu/ft²	Cost: $1.84 / ft²	
Average:	**January 2020 to December 2022**	
EUI: 100.8 kBtu/ft²	**Cost: $1.68 / ft²**	
WNEUI: 98 kBtu/ft²	**CBPS EUIt: 51.2 kBtu/ft²**	

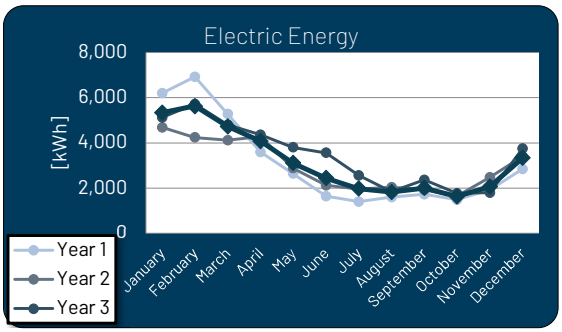
Historical Utility Data

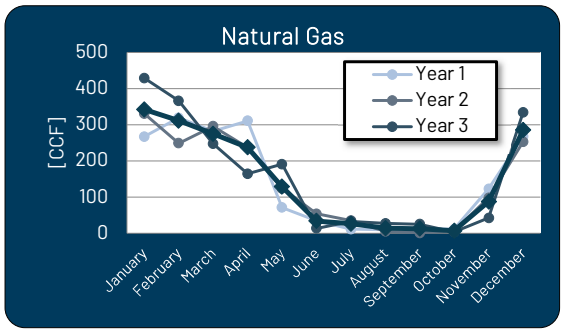
Period	Electric Energy [kWh]	No Demand Metered [kW]	Total Electric Cost [$$$]	Natural Gas [CCF]	Natural Gas Cost [$$$]	Total Energy [kBTU]	Total Cost [$$$]	Energy Use Index [kBTU / ft²]	Cost Index [$$$ / ft²]
Jan-20	6,200		$507.96	267	$208.54	48,629	$716.50	15.74	$0.23
Feb-20	6,920		$560.54	319	$258.15	56,436	$818.69	18.26	$0.26
Mar-20	5,280		$436.53	282	$220.32	47,033	$656.85	15.22	$0.21
Apr-20	3,600		$339.33	311	$266.14	44,285	$605.47	14.33	$0.20
May-20	2,640		$242.92	71	$60.75	16,314	$303.67	5.28	$0.10
Jun-20	1,640		$190.58	34	$46.32	9,094	$236.90	2.94	$0.08
Jul-20	1,400		$171.41	11	$34.08	5,909	$205.49	1.91	$0.07
Aug-20	1,600		$192.73	9	$35.84	6,385	$228.57	2.07	$0.07
Sep-20	1,720		$191.22	12	$34.27	7,103	$225.49	2.30	$0.07
Oct-20	1,480		$176.98	11	$34.47	6,182	$211.45	2.00	$0.07
Nov-20	1,920		$212.54	123	$99.19	19,208	$311.73	6.22	$0.10
Dec-20	2,840		$269.17	268	$208.14	37,267	$477.31	12.06	$0.15
Jan-21	4,680		$409.57	331	$260.00	50,028	$669.57	16.19	$0.22
Feb-21	4,240		$364.14	249	$191.64	40,089	$555.78	12.97	$0.18
Mar-21	4,120		$355.79	296	$201.53	44,516	$557.32	14.41	$0.18
Apr-21	4,280		$374.33	237	$187.44	38,991	$561.77	12.62	$0.18
May-21	2,880		$279.36	124	$112.15	22,586	$391.51	7.31	$0.13
Jun-21	2,120		$219.06	54	$66.39	12,790	$285.45	4.14	$0.09
Jul-21	1,960		$210.39	35	$53.77	10,289	$264.16	3.33	$0.09
Aug-21	2,040		$220.89	5	$34.25	7,475	$255.14	2.42	$0.08
Sep-21	1,920		$207.60	1	$28.99	6,654	$236.59	2.15	$0.08
Oct-21	1,640		$188.11	6	$33.29	6,213	$221.40	2.01	$0.07
Nov-21	2,480		$249.05	98	$128.69	18,546	$377.74	6.00	$0.12
Dec-21	3,400		$310.61	253	$234.12	37,635	$544.73	12.18	$0.18
Jan-22	5,120		$437.72	429	$396.52	61,618	$834.24	19.94	$0.27
Feb-22	5,720		$472.08	367	$329.47	57,249	$801.55	18.53	$0.26
Mar-22	4,800		$400.66	248	$203.09	41,901	$603.75	13.56	$0.20
Apr-22	4,360		$379.90	165	$146.10	31,813	$526.00	10.30	$0.17
May-22	3,800		$340.92	191	$200.14	32,624	$541.06	10.56	$0.18
Jun-22	3,560		$321.75	14	$15.96	13,545	$337.71	4.38	$0.11
Jul-22	2,560		$252.15	33	$56.23	12,130	$308.38	3.93	$0.10
Aug-22	1,840		$204.50	27	$57.82	9,056	$262.32	2.93	$0.08
Sep-22	2,360		$240.70	25	$54.30	10,625	$295.00	3.44	$0.10
Oct-22	1,760		$201.41	3	$33.43	6,314	$234.84	2.04	$0.08
Nov-22	1,800		$196.79	42	$67.14	10,463	$263.93	3.39	$0.09
Dec-22	3,755		$332.92	335	$357.75	47,266	$690.68	15.30	$0.22

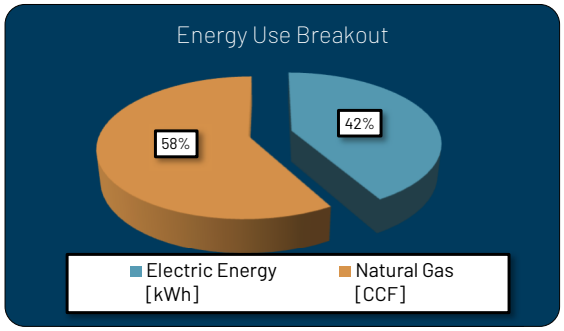
Annual Average Consumption and Cost									
Year	Electric Energy [kWh]	Total Electric Cost [$$$]	Blended Rate [$$$ / kWh]	Natural Gas [CCF]	Natural Gas Cost [$$$]	Total Energy [MMBTU]	Total Cost [$$$]	Energy Use Index [kBTU / ft²]	Cost Index [$$$ / ft²]
Year 1	37,240	$3,492	$0.0938	1,718	$1,506	304	$4,998	98.3	$1.62
Year 2	35,760	$3,389	$0.0948	1,689	$1,532	296	$4,921	95.7	$1.59
Year 3	41,435	$3,782	$0.0913	1,878	$1,918	335	$5,699	108.3	$1.84
Average	**38,145**	**$3,554**	**$0.0933**	**1,762**	**$1,652**	**311**	**5,206**	**100.8**	**$1.68**

Average Monthly Utility Cost and Weather Data					
Month	Electric Energy [$$$]	Natural Gas [$$$]	Total [$$$]	Heating Degree Days	Cooling Degree Days
January	$452	$288	$740	917	0
February	$466	$260	$725	714	0
March	$398	$208	$606	569	0
April	$365	$200	$564	401	1
May	$288	$124	$412	195	19
June	$244	$43	$287	49	168
July	$211	$48	$259	1	398
August	$206	$43	$249	1	360
September	$213	$39	$252	35	128
October	$189	$34	$223	278	20
November	$219	$98	$318	715	0
December	$304	$267	$571	1,013	0
Total	**$3,554**	**$1,652**	**$5,206**	**4,889**	**1,093**

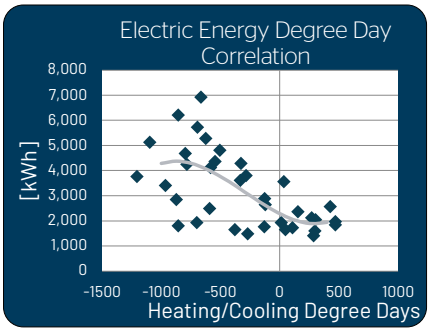
Pct. of Total	68%	32%

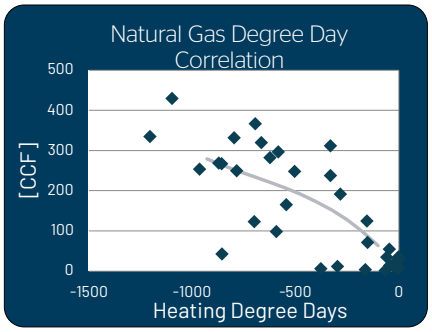


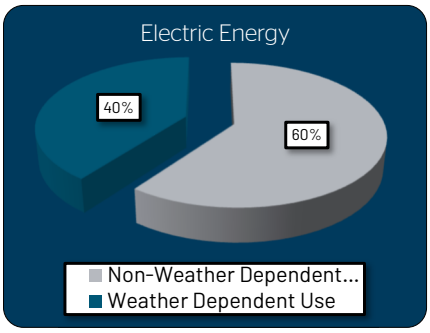


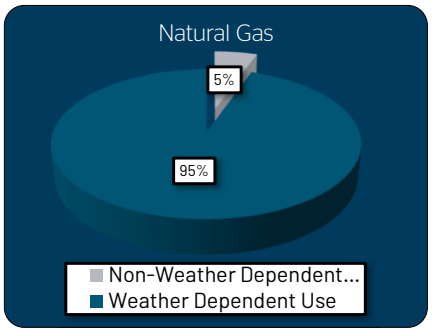


Weather Dependency Analysis					
Energy Type	Best Fit Strategy	Trendline Formula	Intercept vs. CDD / HDD	R^2	Explanation
Electric Energy [kWh]	3° Polynomial	$y=0.00x^3 + 0.00x^2 + -2.41x + 2,287$	1,914	0.414	$R^2 < 0.50$: Suggest monthly Electric Energy cannot be reasonably predicted based on weather severity, i.e. no correlation between weather and Electric Energy.
Natural Gas [CCF]	3° Polynomial	$y=0.00x^3 + 0.00x^2 + -0.62x + 8$	8	0.643	$R^2 < 0.75$: Suggest monthly Natural Gas cannot be significantly be predicted based on weather severity, i.e. low correlation between weather and Natural Gas.









Utility Analysis by Daniel R. Funke, PE version INW 24.01.03

UTILITY DATA ANALYSIS
CITY OF ELLENSBURG - ADULT ACTIVITY CENTER

Building Information			
Project	City of Ellensburg	Building Area	3,580 ft²
Building	Adult Activity Center		
Service Add.	506 S Pine St, Ellensburg, WA 98926		
Primary Space Type	Social/Meeting Hall		
Electric	City of Ellensburg: E30615		
Natural Gas	City of Ellensburg: G15316823		

Energy Information		
Year 1:	January 2020 to December 2020	
	EUI: 61.2 kBtu/ft²	Cost: $0.98 / ft²
Year 2:	January 2021 to December 2021	
	EUI: 70.2 kBtu/ft²	Cost: $1.13 / ft²
Year 3:	January 2022 to December 2022	
	EUI: 74.4 kBtu/ft²	Cost: $1.21 / ft²
Average:	**January 2020 to December 2022**	
	EUI: 68.6 kBtu/ft²	**Cost: $1.11 / ft²**
	WNEUI: 67 kBtu/ft²	**CBPS EUIt: 31.2 kBtu/ft²**

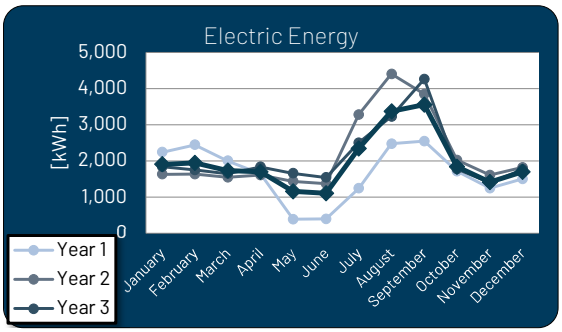
Historical Utility Data

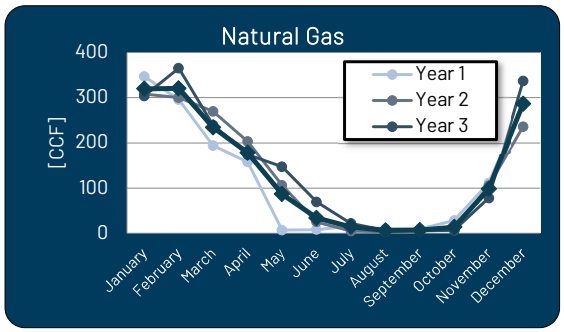
Period	Electric Energy [kWh]	No Demand Metered [kW]	Total Electric Cost [$$$]	Natural Gas [CCF]	Natural Gas Cost [$$$]	Total Energy [kBTU]	Total Cost [$$$]	Energy Use Index [kBTU / ft²]	Cost Index [$$$ / ft²]
Jan-20	2,243		$239.95	347	$251.91	43,359	$491.86	12.11	$0.14
Feb-20	2,446		$246.68	296	$229.12	38,804	$475.80	10.84	$0.13
Mar-20	2,003		$208.45	194	$149.82	26,797	$358.27	7.49	$0.10
Apr-20	1,648		$213.33	158	$140.63	21,881	$353.96	6.11	$0.10
May-20	383		$80.91	7	$16.46	2,027	$97.37	0.57	$0.03
Jun-20	399		$99.28	8	$20.79	2,185	$120.07	0.61	$0.03
Jul-20	1,241		$165.28	16	$26.99	5,881	$192.27	1.64	$0.05
Aug-20	2,474		$248.63	10	$23.27	9,470	$271.90	2.65	$0.08
Sep-20	2,547		$248.78	9	$21.99	9,616	$270.77	2.69	$0.08
Oct-20	1,716		$198.34	28	$34.51	8,736	$232.85	2.44	$0.07
Nov-20	1,248		$160.83	111	$79.73	15,680	$240.56	4.38	$0.07
Dec-20	1,506		$183.73	287	$210.16	34,671	$393.89	9.68	$0.11
Jan-21	1,632		$187.56	308	$229.52	37,262	$417.08	10.41	$0.12
Feb-21	1,635		$187.77	300	$216.76	36,449	$404.53	10.18	$0.11
Mar-21	1,547		$176.71	270	$177.38	33,061	$354.09	9.24	$0.10
Apr-21	1,612		$191.11	203	$153.10	26,389	$344.21	7.37	$0.10
May-21	1,437		$173.99	106	$87.50	15,810	$261.49	4.42	$0.07
Jun-21	1,371		$166.93	25	$34.80	7,250	$201.73	2.03	$0.06
Jul-21	3,284		$307.48	5	$22.11	11,720	$329.59	3.27	$0.09
Aug-21	4,410		$380.91	3	$19.81	15,356	$400.72	4.29	$0.11
Sep-21	3,848		$346.73	5	$22.52	13,644	$369.25	3.81	$0.10
Oct-21	2,027		$215.05	7	$23.26	7,636	$238.31	2.13	$0.07
Nov-21	1,608		$183.43	105	$122.81	16,291	$306.24	4.55	$0.09
Dec-21	1,820		$205.58	236	$215.03	30,494	$420.61	8.52	$0.12
Jan-22	1,841		$202.10	304	$272.70	37,563	$474.80	10.49	$0.13
Feb-22	1,749		$195.70	365	$313.36	43,526	$509.06	12.16	$0.14
Mar-22	1,650		$183.88	239	$184.93	30,223	$368.81	8.44	$0.10
Apr-22	1,835		$209.09	174	$135.76	24,166	$344.85	6.75	$0.10
May-22	1,659		$186.98	147	$144.03	20,787	$331.01	5.81	$0.09
Jun-22	1,543		$178.90	69	$74.26	12,365	$253.16	3.45	$0.07
Jul-22	2,507		$255.86	22	$37.69	10,818	$293.55	3.02	$0.08
Aug-22	3,233		$296.53	6	$23.07	11,648	$319.60	3.25	$0.09
Sep-22	4,267		$378.35	6	$25.11	15,176	$403.46	4.24	$0.11
Oct-22	1,779		$197.79	6	$24.02	6,687	$221.81	1.87	$0.06
Nov-22	1,394		$168.53	78	$91.29	12,783	$259.82	3.57	$0.07
Dec-22	1,764		$199.15	337	$350.27	40,673	$549.43	11.36	$0.15

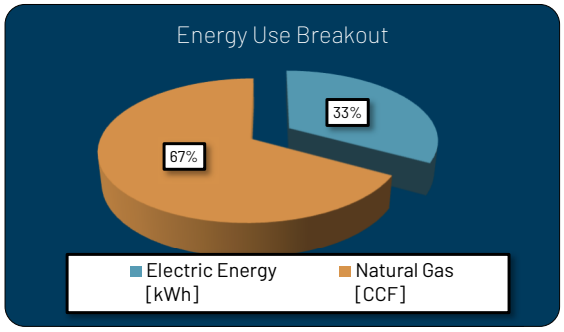
Annual Average Consumption and Cost									
Year	Electric Energy [kWh]	Total Electric Cost [$$$]	Blended Rate [$$$ / kWh]	Natural Gas [CCF]	Natural Gas Cost [$$$]	Total Energy [MMBTU]	Total Cost [$$$]	Energy Use Index [kBTU / ft²]	Cost Index [$$$ / ft²]
Year 1	19,854	$2,294	$0.1156	1,471	$1,205	219	$3,500	61.2	$0.98
Year 2	26,231	$2,723	$0.1038	1,573	$1,325	251	$4,048	70.2	$1.13
Year 3	25,221	$2,653	$0.1052	1,753	$1,676	266	$4,329	74.4	$1.21
Average	**23,769**	**$2,557**	**$0.1082**	**1,599**	**$1,402**	**246**	**3,959**	**68.6**	**$1.11**

Average Monthly Utility Cost and Weather Data					
Month	Electric Energy [$$$]	Natural Gas [$$$]	Total [$$$]	Heating Degree Days	Cooling Degree Days
January	$210	$251	$461	917	0
February	$210	$253	$463	714	0
March	$190	$171	$360	569	0
April	$205	$143	$348	401	1
May	$147	$83	$230	195	19
June	$148	$43	$192	49	168
July	$243	$29	$272	1	398
August	$309	$22	$331	1	360
September	$325	$23	$348	35	128
October	$204	$27	$231	278	20
November	$171	$98	$269	715	0
December	$196	$258	$455	1,013	0
Total	**$2,557**	**$1,402**	**$3,959**	**4,889**	**1,093**

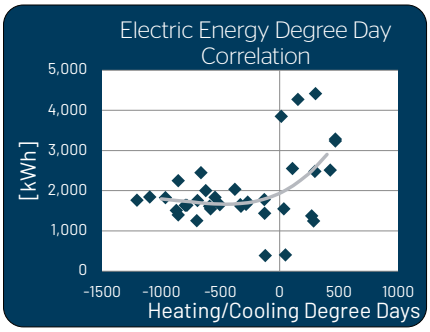
Pct. of Total	65%	35%

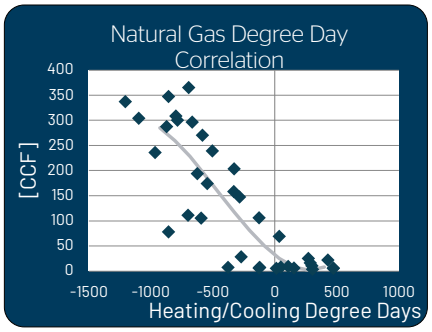


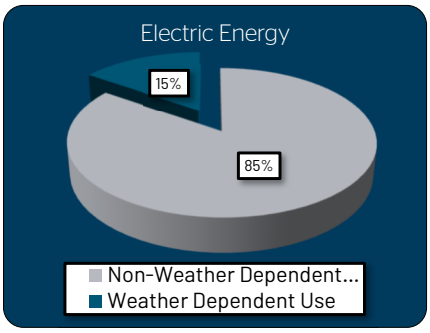


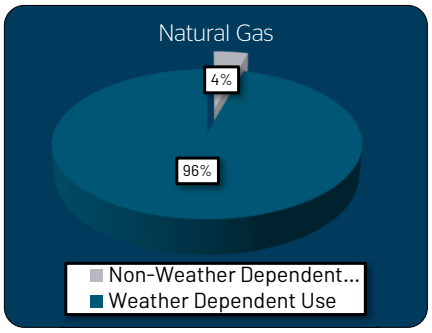


Weather Dependency Analysis					
Energy Type	Best Fit Strategy	Trendline Formula	Intercept vs. CDD / HDD	R^2	Explanation
Electric Energy [kWh]	3° Polynomial	$y=0.00x^3 + 0.00x^2 + 1.40x + 1,939$	1,678	0.247	$R^2 < 0.50$: Suggest monthly Electric Energy cannot be reasonably predicted based on weather severity, i.e. no correlation between weather and Electric Energy.
Natural Gas [CCF]	3° Polynomial	$y=0.00x^3 + 0.00x^2 + -0.20x + 32$	6	0.730	$R^2 < 0.75$: Suggest monthly Natural Gas cannot be significantly be predicted based on weather severity, i.e. low correlation between weather and Natural Gas.









UTILITY DATA ANALYSIS
CITY OF ELLENSBURG - YOUTH CENTER

Building Information			
Project	City of Ellensburg	Building Area	6,120 ft²
Building	Youth Center		
Service Add.	406 E Capitol Ave, Ellensburg, WA 98926		
Primary Space Type	Social/Meeting Hall		
Electric	City of Ellensburg: E003537 E11219		
Natural Gas	City of Ellensburg: G56841		

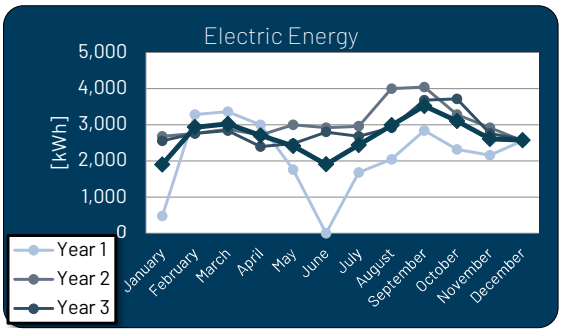
Energy Information		
Year 1:	January 2020 to December 2020	
	EUI: 65.1 kBtu/ft²	Cost: $0.82 / ft²
Year 2:	January 2021 to December 2021	
	EUI: 74.3 kBtu/ft²	Cost: $0.97 / ft²
Year 3:	January 2022 to December 2022	
	EUI: 68.0 kBtu/ft²	Cost: $0.96 / ft²
Average:	**January 2020 to December 2022**	
	EUI: 69.1 kBtu/ft²	**Cost: $0.92 / ft²**
	WNEUI: 68 kBtu/ft²	**CBPS EUIt: 31.2 kBtu/ft²**

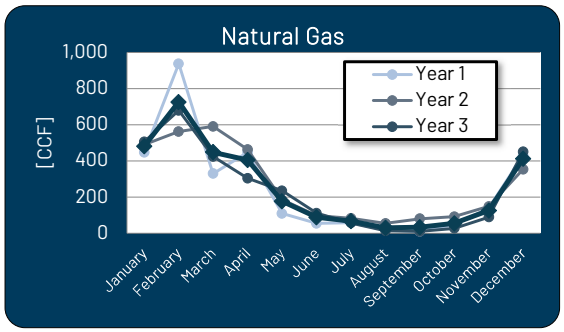
Historical Utility Data

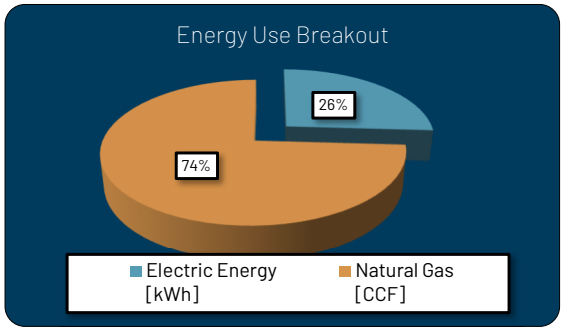
Period	Electric Energy [kWh]	No Demand Metered [kW]	Total Electric Cost [$$$]	Natural Gas [CCF]	Natural Gas Cost [$$$]	Total Energy [kBTU]	Total Cost [$$$]	Energy Use Index [kBTU / ft²]	Cost Index [$$$ / ft²]
Jan-20	472		$114.22	448	$319.52	47,710	$433.74	7.80	$0.07
Feb-20	3,280		$381.17	938	$705.16	107,712	$1,086.33	17.60	$0.18
Mar-20	3,360		$305.37	330	$243.52	45,421	$548.89	7.42	$0.09
Apr-20	3,000		$307.43	447	$355.66	56,232	$663.09	9.19	$0.11
May-20	1,760		$176.75	110	$71.87	17,324	$248.62	2.83	$0.04
Jun-20			$71.51	55	$44.62	5,660	$116.13	0.92	$0.02
Jul-20	1,680		$195.84	59	$49.92	11,803	$245.76	1.93	$0.04
Aug-20	2,040		$218.42	17	$27.03	8,710	$245.45	1.42	$0.04
Sep-20	2,840		$269.17	10	$22.58	10,719	$291.75	1.75	$0.05
Oct-20	2,320		$240.38	45	$44.26	12,546	$284.64	2.05	$0.05
Nov-20	2,160		$224.31	138	$94.91	21,570	$319.22	3.52	$0.05
Dec-20	2,560		$257.09	431	$306.34	53,085	$563.43	8.67	$0.09
Jan-21	2,680		$260.50	490	$354.92	59,565	$615.42	9.73	$0.10
Feb-21	2,760		$266.07	562	$390.95	67,247	$657.02	10.99	$0.11
Mar-21	2,880		$269.49	591	$369.06	70,640	$638.55	11.54	$0.10
Apr-21	2,720		$265.75	463	$325.54	56,923	$591.29	9.30	$0.10
May-21	3,000		$285.24	185	$139.82	29,273	$425.06	4.78	$0.07
Jun-21	2,920		$274.74	97	$86.84	19,944	$361.58	3.26	$0.06
Jul-21	2,960		$284.93	83	$79.08	18,640	$364.01	3.05	$0.06
Aug-21	4,000		$352.37	55	$63.20	19,308	$415.57	3.15	$0.07
Sep-21	4,040		$360.09	80	$83.48	22,016	$443.57	3.60	$0.07
Oct-21	3,280		$302.26	92	$95.48	20,658	$397.74	3.38	$0.06
Nov-21	2,920		$274.74	149	$167.26	25,295	$442.00	4.13	$0.07
Dec-21	2,560		$257.09	354	$313.32	45,161	$570.41	7.38	$0.09
Jan-22	2,560		$252.15	506	$442.40	60,802	$694.55	9.93	$0.11
Feb-22	2,760		$266.07	679	$568.06	79,286	$834.13	12.96	$0.14
Mar-22	2,840		$266.70	425	$316.27	53,423	$582.97	8.73	$0.10
Apr-22	2,400		$248.41	304	$222.97	39,470	$471.38	6.45	$0.08
May-22	2,480		$244.12	235	$220.23	32,643	$464.35	5.33	$0.08
Jun-22	2,800		$266.39	111	$109.29	20,976	$375.68	3.43	$0.06
Jul-22	2,680		$267.90	57	$67.36	15,009	$335.26	2.45	$0.05
Aug-22	2,920		$274.74	14	$31.51	11,404	$306.25	1.86	$0.05
Sep-22	3,680		$337.50	10	$29.16	13,585	$366.66	2.22	$0.06
Oct-22	3,720		$332.88	27	$47.53	15,471	$380.41	2.53	$0.06
Nov-22	2,760		$263.61	89	$101.81	18,575	$365.42	3.04	$0.06
Dec-22	2,594		$256.88	451	$462.61	55,254	$719.49	9.03	$0.12

Annual Average Consumption and Cost									
Year	Electric Energy [kWh]	Total Electric Cost [$$$]	Blended Rate [$$$ / kWh]	Natural Gas [CCF]	Natural Gas Cost [$$$]	Total Energy [MMBTU]	Total Cost [$$$]	Energy Use Index [kBTU / ft²]	Cost Index [$$$ / ft²]
Year 1	25,472	$2,762	$0.1084	3,028	$2,285	398	$5,047	65.1	$0.82
Year 2	36,720	$3,453	$0.0940	3,201	$2,469	455	$5,922	74.3	$0.97
Year 3	34,194	$3,277	$0.0958	2,908	$2,619	416	$5,897	68.0	$0.96
Average	**32,129**	**$3,164**	**$0.0994**	**3,046**	**$2,458**	**423**	**5,622**	**69.1**	**$0.92**

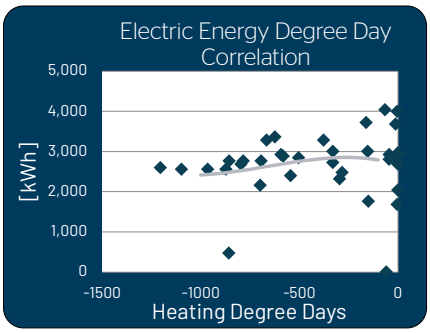
Average Monthly Utility Cost and Weather Data					
Month	Electric Energy [$$$]	Natural Gas [$$$]	Total [$$$]	Heating Degree Days	Cooling Degree Days
January	$209	$372	$581	917	0
February	$304	$555	$859	714	0
March	$281	$310	$590	569	0
April	$274	$301	$575	401	1
May	$235	$144	$379	195	19
June	$204	$80	$284	49	168
July	$250	$65	$315	1	398
August	$282	$41	$322	1	360
September	$322	$45	$367	35	128
October	$292	$62	$354	278	20
November	$254	$121	$376	715	0
December	$257	$361	$618	1,013	0
Total	**$3,164**	**$2,458**	**$5,622**	**4,889**	**1,093**
Pct. of Total	56%	44%			

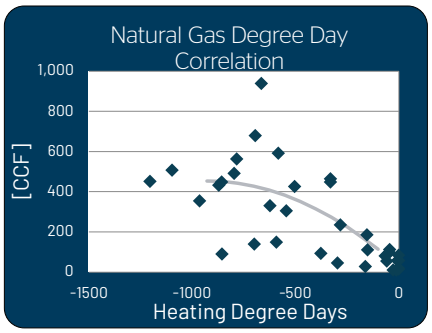


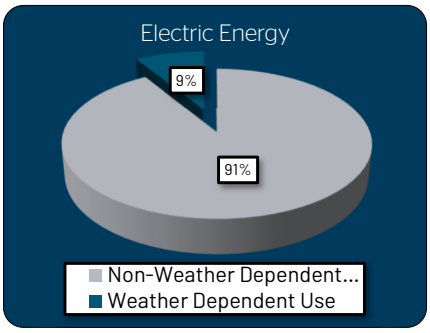


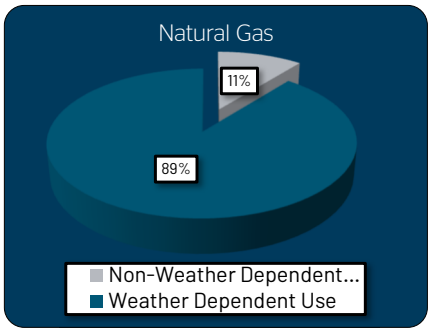


Weather Dependency Analysis					
Energy Type	Best Fit Strategy	Trendline Formula	Intercept vs. CDD / HDD	R^2	Explanation
Electric Energy [kWh]	3° Polynomial	$y=0.00x^3 + 0.00x^2 + -1.42x + 2,684$	2,443	0.027	$R^2 < 0.50$: Suggest monthly Electric Energy cannot be reasonably predicted based on weather severity, i.e. no correlation between weather and Electric Energy.
Natural Gas [CCF]	3° Polynomial	$y=0.00x^3 + 0.00x^2 + -0.91x + 27$	27	0.537	$R^2 < 0.75$: Suggest monthly Natural Gas cannot be significantly be predicted based on weather severity, i.e. low correlation between weather and Natural Gas.









4. Compliance Roadmap

4.1. CBPS COMPLIANCE REQUIREMENTS

To submit for compliance, **all** covered buildings/campuses will need:

1. A compliant ENERGY STAR Portfolio Manager profile.
2. An Energy Management Plan (EMP) in line with WAC 194-50 and ASHRAE Standard 100.
    a. Update annually with accounting and relevant activity.
3. An Operations and Maintenance (O&M) Plan in line with WAC 194-50 and ASHRAE Standard 100.
    a. This program must be active, with documented proof, for a minimum of 12 months prior to submitting for compliance.
4. 12 months of complete utility data to establish a Weather Normalized EUI data below the EUI target taken prior to the compliance date. Only Tier 1 buildings are required to reduce their EUI below their respective targets.

4.2. RECOMMENDATIONS

1. Development of an Energy Management Plan (EMP)/Operations and Maintenance (O&M) Program for **ALL** buildings.
    a. An Energy Management Plan should be designed to maximize energy efficient operations while supporting occupant comfort. It should be a tool for energy accounting as well as capital planning and will help preserve the condition of the building systems and their elements while planning a way to maintain CBPS compliance.
    b. The O&M program should be designed to support the building energy-using systems in achieving their intended energy efficiency throughout their service life. The program should contain an inventory of equipment, building systems and controls to be inspected. This should be supplemented with an equipment maintenance plan.

4.3. CBPS CLIENT COMPLIANCE PATHWAYS

4.3.1. Tier 1 Buildings

City of Ellensburg does not have any Tier 1 buildings at this time. Should they acquire any in the future, the must comply using one of the four paths described below:

1. **Energy target compliance:** implement all energy efficiency measures that will get the facility to perform at or below the EUI_T.
    a. Due date: EEM implementation would need to be completed no later than the compliance date.
2. **Investment criteria**: Complete an ASHRAE Level 2 Energy Audit with Life Cycle Cost Analysis of measures and implement an optimized bundle of all cost-effective energy efficiency measures ("cost effective" is defined by CBPS as a savings to investment ratio ≥ 1 based on a life cycle cost analysis)
    a. The EEMs must be installed and commissioned prior to the compliance date, and ongoing reporting is required until measurement and verification is completed.
    b. Note: this option can be further built out following the completion of an ASHRAE Level II Energy Audit and report
3. **Apply for an exemption** if the facility is pending demolition (demolition permit must be provided)
    a. Due date: applications for exemption must be submitted 180 days prior to the compliance date.
4. **Pay the penalty** rather than pursue compliance.
    a. CBPS section Z5.4.1.2 provides an option to pay the required fines rather than comply, which is $5,000 plus an annual amount equal to $1/GSF not to exceed a value greater than 18 months of accrued penalty.
    b. Due date: the earliest fines would be assessed 30 days after compliance is due.
    c. Note: additional fines can be assessed based on inflation or interest accrual, and other fines may be assessed for any compliance past the due date
    d. Note: this option is not recommended and should only be used if all other options have been exhausted.

Compliance path	Application due date	Compliance due date	Cost	Notes
EUI_T	N/A	**Tier 1A** : 6/1/26 **Tier 1B** : 6/1/27 **Tier 1C** : 6/1/28	Costs identified in Investment Grade Audit	Implement FIMs to reach EUI_T
Investment criteria	**Tier 1A** : 12/3/25 **Tier 1B** : 12/3/26 **Tier 1C** : 12/3/27	**Tier 1A** : 6/1/26 **Tier 1B** : 6/1/27 **Tier 1C** : 6/1/28	Simple payback identified in the Investment Grade Audit Supplemental LCCA required	Implement cost-effective FIMs
Demolition exemption	**Tier 1A** : 12/3/25 **Tier 1B** : 12/3/26 **Tier 1C** : 12/3/27	**Tier 1A** : 6/1/26 **Tier 1B** : 6/1/27 **Tier 1C** : 6/1/28	N/A	Demolition permit required
Penalty	N/A	**Tier 1A** : 7/1/26 **Tier 1B** : 7/1/27 **Tier 1C** : 7/1/28	$5,000 + $1.00/GSF for up to 18 months of non-compliance every 5 years	

4.3.2. Tier 2 Buildings

Tier 2 buildings are not required to meet an energy performance target. Tier 2 buildings are still required to benchmark their energy use and maintain accurate Energy Star Portfolio Manager profiles. Additionally, Tier 2 buildings must develop and maintain both an Energy Management Plan (EMP) and an Operations & Maintenance Plan (O&M) for CBPS compliance.