Attachment F

Utilities Element

Part 2 – Technical Information

City of Tumwater 2025 Comprehensive Plan

Balancing Nature and Community: Tumwater's Path to Sustainable Growth

DRAFT VERSION MAY 5, 2025

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Ordinance No. O2025-0XX

CITY OF TUMWATER

Utilities Element

Part 2 – Technical Information

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Abbreviations Used in Document

RCW – Revised Code of Washington

1. Introduction

A. Background

The Utilities Element ensures that utility services provided by private suppliers are consistent with Tumwater's Comprehensive Plan and support the community's anticipated growth and development over the 20-year planning period.

The Utilities Element supports the Land Use Element of the Comprehensive Plan by ensuring that the policies for provision of efficient and sustainable utilities to serve anticipated growth and development are consistent with the Land Use Element, which establishes the overall growth strategy for Tumwater and its urban growth area. Expansion of utility systems and services follows growth and the demand for reliable services.

The Utilities Element aligns and is consistent with the Climate Element.

Goals and policies within this Element address private utilities such as:

- Natural gas
- Electricity
- Telephone
- Utility pipelines
- Cable television
- Wireless
- Broadband internet

Services that are provided by Tumwater or other public agencies such as water, wastewater, and waste management services are addressed in the Lands for Public Purposes Element.

As required by the Growth Management Act, the Utilities Element must include an inventory of the general location of all existing and proposed utility facilities and a description of the current capacity and the expected future capacity of each utility. This Element identifies ways of improving the quality of these services and includes policies that ensure utilities are coordinated with land use. Staff worked with private utility suppliers to anticipate future needs and areas of growth.

Tumwater will implement these policies through its franchise and master use agreements with the utilities and through the land use permit process.

Appendix A: *Foundational Documents* provides a list of the plans that provide the foundation for this element of the Comprehensive Plan.

The Utilities Plan incorporates a number of new issues as part of this update:

- Mitigating for the impacts of climate change.
- Supporting the development of infrastructure to enable the widespread integration of renewable energy sources and energy storage.
- Responding to rapidly changing technology and consumer needs, while maintaining a system of aging infrastructure.
- Creating resiliency to impacts of climate change and reliability of services.

B. How to Read this Part of the Element

Part 2 of the Utilities Element consists of the following chapters.

- **Chapter 1 – Introduction:** Discusses the State requirements for the Element and background.
- **Chapter 2 – Utilities Regulations**: Identifies the major pieces of legislation and organizations that are most prominent in the utilities sector.
- **Chapter 3 – Natural Gas**: Provides a summary of the private natural gas systems in Tumwater and a discussion of expected demand.
- **Chapter 4 – Electricity**: Provides a summary of the private electricity systems in Tumwater and a discussion of expected demand.
- **Chapter 5 – Natural Gas and Fuel Pipelines**: Provides a summary of the private natural gas and fuel pipelines in Tumwater.
- **Chapter 6 – Telecommunications**: Provides a summary of the telecommunications systems in Tumwater and a discussion of expected demand.
- **Appendix A – Foundational Documents**: Provides a list of the documents used to create the Utilities Element's Technical Summary.
- **Appendix B – Private Utility Contact Information –**Provides a list of the contact information for private utilities in Tumwater that was used in the development of the Utilities Element.

2. Utilities Regulations

Both public and private agencies are involved with regulation, coordination, production, delivery, and supply of services. This chapter identifies the major pieces of legislation and organizations that are most prominent in the utilities sector.

A. Federal Regulation

The Federal Energy Regulatory Commission is an independent commission working with the U.S. Department of Energy. The commission regulates the interstate transmission of natural gas, oil, and electricity, as well as licensing natural gas and hydropower generation projects.

The Federal Communications Commission regulates communication utilities in each cellular geographic service area, and in Tumwater and its urban growth area, there are several commission licensed providers. An independent U.S. government agency overseen by Congress, the commission is the United States' primary authority for communications laws, regulation, and technological innovation.

B. State Regulation

1) Utilities and Transportation Commission

The primary regulatory agency for most private utilities in the State is the Washington Utilities and Transportation Commission which was established by Title 80 RCW. The commission ensures that services of regulated companies are safe, available, dependable, and fairly priced. The commission regulates the rates, services, facilities, and practices of investor-owned electric utilities, telecommunications companies, natural gas and water companies, solid waste collection companies, and pipeline companies, among other things. The commission does not regulate the rates of broadband services, cellular, cable, or Internet service.

The commission defines electricity and standard telephone utilities as critical services that must be provided upon demand. To fulfill public service obligations, these utility providers must plan to extend or add to their facilities when needed. Natural gas is considered a utility of convenience. The commission prohibits utility providers from passing the cost of new construction onto the existing rate base.

As part of its mission to protect consumers, the commission maintains a call center for customer complaints at 1-888-333-9882 and coordinates the 811 Call Before You Dig line, a free service for locating utilities on public or private property that anyone can use.

2) Clean Energy Acts

Starting in 2019, the State Legislature has passed a set of bills setting an ambitious, multi-decade agenda that changes how electric and natural gas utilities acquire resources and provide energy services to state businesses and consumers.

Commented [BM1]: Washington-2021-State-Energy-Strategy-December-2020.pdf | Powered by Box

Engrossed Second Substitute Senate Bill 5116 is known as the Clean Energy Transformation Act. Under the act, all electric utilities must generate 100 percent of their power from renewable or zero carbon resources. This also includes requirements for an equitable distribution of the benefits of clean energy and reductions in burdens of vulnerable populations and impacted communities. Utility providers must demonstrate progress in making energy assistance available to low-income households.

In 2024 the State passed a bill to reduce the use of natural gas. House Bill 1589 incentivizes customers and pressures utility companies to move away from fossil fuels. Under state law, Puget Sound Energy must generate 80 percent of its energy from renewable energy sources by 2030 and 100 percent by 2045.

The act also contains provisions to safeguard consumers and prevent electric bills from rapidly increasing as a result of utilities' transition into clean energy sources. The Washington Utilities and Transportation Commission will review and monitor utilities' financial plans through an established rate case process.

These acts of legislation will shape Tumwater's future and change the way the community receives energy and utility services.

Commented [ES3]: Controversial clean energy law takes effect in Washington • Washington State Standard

Commented [ES2]: New Washington state law does not 'ban' natural gas, does discourage use | king5.com

C. City Franchise Agreements

Franchise agreements are a non-exclusive right to occupy the public right-of-way.

Several private service providers are available in the community that provide television, cable, internet, and telephone services. Some companies lease underground broadband infrastructure conduit from Tumwater.

3. Natural Gas

Natural gas is a fossil fuel used to create heat. In a home, natural gas creates heat through furnaces, boilers, and space heaters. The gas is burned, creating energy. Residential, commercial, industrial uses may use natural gas for space heating, water heating, and cooling.

Puget Sound Energy serves all municipalities within Thurston, King, Pierce, Lewis, Snohomish, and Kittitas Counties. Tumwater has seen a 29 percent increase in natural gas usage amongst all sectors since 2016, though gas usage went down from 2022-2023.

How natural gas is distributed is explained in Chapter 5.

A. Systems Analysis

The Utilities and Transportation Commission requires Puget Sound Energy to maintain and serve natural gas based on demand. Extension of service is based on request and the results of a market analysis to determine if revenues from an extension will offset the cost of construction. Puget Sound Energy installs natural gas service to anyone who requests it. This keeps the existing ratepayers from financing improvements in other areas and limits service delivery of natural gas to new areas.

Natural gas is a private utility and Puget Sound Energy addresses gas infrastructure needs within the system in accordance with regulatory requirements and operating practices outlined in their Integrated Resource Plans. Over the next decade, Puget Sound Energy states they plan to modernize their natural gas system and focus on pipeline safety statewide.

According to the Puget Sound Energy rate department, the average house (using natural gas for both heat and hot water) consumes about 1,000 therms per year. Ten therms are equal to approximately one "mcf" (thousand cubic feet) of gas so 1,000 therms per house equals approximately 100,000 cubic feet of gas per household per year.

B. Supply

Natural Gas is supplied by pipelines. More information on how gas is supplied, and the general locations can be found in Chapter 5- Natural Gas and Fuel Pipelines.

C. Natural Gas Usage

Property owners in Tumwater used natural gas to create over 8.6 million therms of heat energy in 2023. Residential uses consumed more natural gas than commercial or industrial uses.

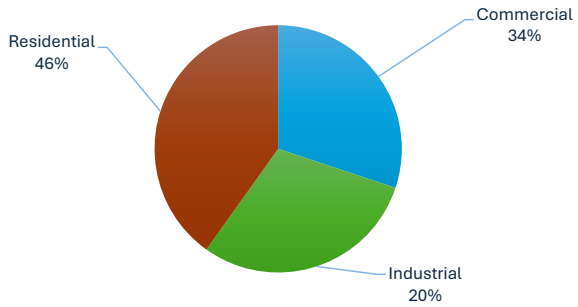
Commented [ES4]: HB 1589

Commented [ES5]: PSE | 2023 IRP

Commented [ES6]: PSE Clean Energy Planning

Commented [ES7]: Energy News

Figure U-1. Natural Gas Usage by Sector in Tumwater, 2023.



Source: Puget Sound Energy.
Notes: 2023 total natural gas usage was 8,616,398 Therms.

D. Demand

Puget Sound Energy does not have any major projects planned in Tumwater at this time, but new projects can be developed in the future at any time due to:

1. New or replacement of existing facilities to increased capacity requirements due to new building construction and conversion from alternate fuels.
2. Main replacement to facilitate improved maintenance of facilities.
3. Replacement or relocation of facilities due to municipal and state projects.

Statewide Puget Sound Energy plans to:

1. Build or upgrade seven gate or limit stations and 16 district regulator stations supplied by the Northwest Pipeline. These upgrades will increase capacity by handling more load.
2. Add about 24 miles of high-pressure main and 23 miles of intermediate-pressure main as demand grows in our service area.
3. Adress aging infrastructure and do ongoing maintenance.

These projects will help ensure reliable service and meet future demand for customers within Tumwater.

4. Electricity

The electricity that Puget Sound Energy delivers to customers is generated from hydroelectric dams, coal, natural gas, wind, and to a much smaller degree from nuclear, and other sources such as solar, biomass landfill gas, petroleum, and waste.

Residential customers are Puget Sound Energy's largest customer class, with approximately 88 percent share of electric customers in 2024. There is an expected growth rate of 1.1 percent per year over the next 20 years. Commercial customers are the second largest customer class and are expected to grow at an annual rate of 1.3 percent per year over the next 20 years. By 2045 there will be an estimated 1.57 million customers.

Puget Sound Energy builds, operates, and maintains an extensive electrical system consisting of generating plants, transmission lines, substations, and distribution systems.

The Bonneville Power Administration, a power-marketing agency of the U.S. Federal Government, owns and operates the principal high voltage bulk transmission lines serving the Puget Sound region that cross Tumwater. Puget Sound Energy relies on Bonneville Power Administration for bulk transmission services of power generated by federal hydro dams and Energy Northwest generators.

Puget Sound Energy is the largest utility producer of renewable energy in the state and has goals to reduce emissions from electric operations to be net zero by 2030 and beyond net zero carbon energy company by 2045.

A. Regulatory Context

The policies of the Western Electricity Coordinating Council and Northwest Power and Conservation Council coordinate Puget Sound Energy and the Bonneville Power Administration activities. The Federal Energy Regulatory Commission and the Washington Utilities and Transportation Commission provide regulation for the system. The role and structure of the Washington Utilities and Transportation Commission, which regulates all utilities, is described in Chapter 2. Organizations and regulations that are specific to electricity supply are described below.

1) Western Electricity Coordinating Council

Western Electricity Coordinating Council is responsible for coordinating electricity supply across the western United States. It covers all of the United States west of the Rockies and parts of Mexico and Canada. Its primary function is to coordinate wheeling of power between the regions and to provide safeguards in the national grid so that a power disturbance in one part of the country will not leave another region without power.

2) Northwest Power Pool

Northwest Power Pool is an integrated system of generating resources and transmission facilities owned by Northwest Utilities. The pool was formed in 1942 to coordinate sales and interchange of power within the region. Puget Sound Energy is a member of the Northwest Power Pool.

3) Northwest Power and Conservation Council

The Council was authorized by Congress in 1980 in the Northwest Power Act, giving the states of Idaho, Montana, Oregon, and Washington a greater voice in how we plan our energy future and protect our fish and wildlife resources.

The Council's primary responsibilities, along with developing a fish and wildlife program, is to create a 20-year, least-cost power plan for the Pacific Northwest and update it at least every five years. The plan includes an electricity demand forecast, electricity and natural gas price forecasts, an assessment of the cost of effective energy efficiency that can be acquired over the term of the plan, and a least-cost generating resources portfolio. The plan informs Bonneville's resource decision-making to meet its customers' electricity load requirements.

4) Western Interstate Energy Board

The Western Interstate Energy Board was created by the Western Interstate Nuclear Compact. It is an organization of governors and premiers of the eleven western states and three western Canadian provinces. The Board's purpose is to provide the instruments and framework for cooperative state efforts to enhance the economy of the West and contribute to the well-being of the region's people. Most of the Board's work is conducted through its three committees:

1. The High-Level Radioactive Waste Committee works with the U.S. Department of Energy to develop a safe and publicly acceptable system for transporting spent nuclear fuel and high-level radioactive waste under the Nuclear Waste Policy Act.
2. The Energy Minerals Reclamation Committee works to improve the administration of the Surface Mining Control and Reclamation Act in coal producing states.
3. The Committee on Regional Electric Power Cooperation works with the Western Conference of Public Service Commissioners to improve the efficiency of the western electric power system.

B. System Analysis

Commented [ES8]: 12_EPR23_AppC_Final.pdf

Puget Sound Energy is the electrical service provider for Tumwater. In Thurston County, Puget Sound Energy serves approximately 140,877 total electrical customers as of 2023. Puget Sound Energy is required to provide services to customers who apply and can be suitably furnished with available electricity.

C. Electricity Generation, Transmission, & Distribution

1) Generation

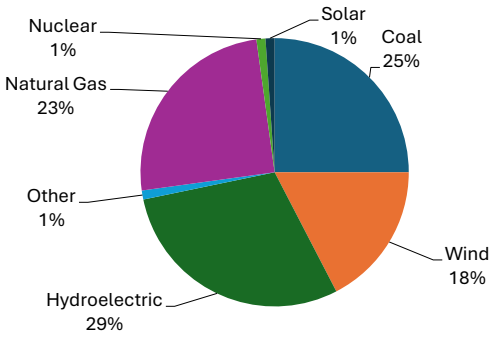
The first tier of Puget Sound Energy's electrical supply system is generation. Hydroelectric plants generate a sizable proportion of the electricity consumed in the Pacific Northwest. Much of the power comes from dams on the Columbia River to the east of the Cascades. Puget Sound Energy owns or has long term operating contracts on:

- 13 Hydroelectric plants.
- 3 Wind farms.
- 4 Solar resources.
- 2 Coal fired plants.
- 9 Natural gas-fired plants.
- 1 Battery Storage System.

Commented [ES9]: PSE | Electric Thermal Power

Puget Sound Energy's two remaining coal fired sources will be shut down by 2025 to meet clean air standards, regulations, and goals in Washington and Montana. As shown in Figure U-2 shows the breakdown of the sources of electrical power generation in Tumwater.

Figure U-2. Sources of Electrical Power Generation in Tumwater, 2023.



Source: Puget Sound Energy.

2) Solar data

Tumwater is a SolSmart Silver designated community and is committed to going solar. Staff have created a streamlined permitting process so residents can quickly have solar panels installed on homes or at businesses. There are at least 270 solar energy systems installed citywide, six of which are commercial.

3) Transmission

The transmission system is the second tier in the electricity supply system. Puget Sound Energy's transmission system covers Thurston County and Tumwater. It is a grid, which provides a link between Bonneville Power Administration's Bulk Transmission System, the powerful transmission lines that feed energy from generating sources, to the smaller local feeder system, which

connects with customers throughout the service area.

Tumwater is included in a Puget Sound Energy service area, which also covers Thurston County. There is one power generation station in Centralia near the sub-area that feeds electricity into Puget Sound Energy's transmission system. Other sources of power outside this subarea flow through three transmission stations in Thurston County.

The distribution system is the third and final tier in the electricity supply system. Power is supplied from the transmission system into the Tumwater's local feeder system at five distribution sub-stations, three of which are located in the Tumwater and its urban growth area. The remaining two are located in Olympia and its urban growth area.

D. Demand

1) Local Level

Currently, Puget Sound Energy does not have any anticipated projects for the Tumwater. Unlike some other private utilities, providers of electricity such as Puget Sound Energy must provide electricity upon demand and in accordance with State and Utilities and Transportation Commission requirements. To meet service obligations, Puget Sound Energy extends or adds to its electric facilities when needed to keep up with demand. Puget Sound Energy owns, operates, and maintains all electric transmission and distribution substations, as well as the electrical transmission and distribution lines within Tumwater. Projects across Thurston County could help increase service capacity for new and existing Tumwater customers.

2) Regional Level

As the use of coal is phased out and more people are going electric; the region will need produce sources to meet the power demand. Over the next 20 years, the Northwest Power and Conservation Council forecasts the demand for electricity will be driven by many factors including economic growth, climate change, regional demographics, and expanding applications of electricity to reduce the use of fossil fuels. The council also predicts a quickly growing electric load in the transportation sector and for data centers. There will be a growth in renewable generation, the region will need to rethink how system capacity needs are measured and how and what resources can accomplish those needs.

3) State Level

Programs to ensure a reliable and economic power system can be found in Puget Sound Energy's *2021 Integrated Resource Plan,* which forecasts conservation resources and supply-side resources to meet the growing needs of Puget Sound Energy customers over the next 20 years. Energy delivery system infrastructure planning is done on a ten-year basis, and those plans are updated continually as conditions, technologies, and customer behavior change. Although the IRP is not specific to Thurston County, Puget Sound Energy anticipates future

improvements will benefit their service network region wide.

a) *Transmission*

Puget Sound Energy anticipates building over 104 miles of new transmission lines (100 kV and above) and upgrading over 122 miles of existing transmission lines. In addition, Puget Sound Energy anticipates needing to add up to three 230 kV bulk power substations across their service area. These planned improvements do not include transmission needed to support the broader region or improvements needed as a result of providing interconnections for large generation resources.

b) *Distribution*

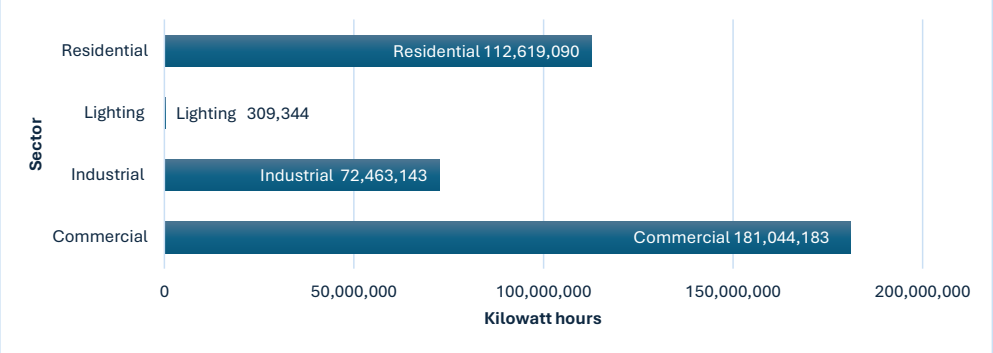
Puget Sound Energy anticipates the need to build approximately six to eight new distribution substations to serve load as the existing substation capacity is exceeded and another two to four new substations to serve specific point loads. They anticipate upgrading approximately three existing substations to replace aging infrastructure and adding additional capacity to serve local load growth. Puget Sound Energy will continue to work on improving the reliability of its worst performing circuits and installing smart ready equipment for increasing the resiliency of the grid.

c) *Ongoing Maintenance*

Puget Sound Energy anticipates the replacement of several major substation components because of ongoing inspection and diagnostics. Puget Sound Energy anticipates the replacement of its current aging and obsolete Automated Meter Reading communication system as well as its electric customer meters with Advanced Metering Infrastructure technology to enable smart grid enhancements and customer offerings in the future.

Commented [ES10]: 2022-2.pdf

Figure U-3. Electricity Usage by Sector in Kilowatt-hours, Thurston County, 2023.[1]



Source: Puget Sound Energy.

[1] Puget Sound Energy, Energy Use Table, September 9, 2024

5. Natural Gas and Fuel Pipelines

Commented [ES11]: NPMS – Home (dot.gov)

Two major natural gas and fuel pipelines pass within the Tumwater and its urban growth area:

- Olympic Pipeline (2.8 miles long located within Tumwater)
- Williams Northwest Pipeline (2.5 miles long located within Tumwater)

A. Olympic Pipeline

The Olympic Pipeline spur was used to carry liquid fuels from Olympic Pipelines' main north-south pipeline east of Tumwater to a bulk storage tank facility at the corner of Linderson Way and Tumwater Boulevard. The lease for that bulk storage facility has lapsed and the facility has been removed. The spur pipeline and easement remain in place but is currently inactive. No plans are currently on file to relocate the bulk storage facility or reactivate this pipeline spur.

B. Williams Northwest Pipeline

The Williams Northwest Company pipeline conveys natural gas from Williams Northwest Company Pipeline main north-south pipeline east of Tumwater to the Satsop Business Park in Grays Harbor County. This pipeline consists of two parallel 16-inch diameter gas pipelines located within a right of way that pass through the southern portion of Tumwater and its urban growth area. This pipeline is active, and no further expansion of this pipeline is planned at this time.

C. Puget Sound Energy Natural Gas Pipelines

Puget Sound Energy maintains an extensive network of pipelines that distribute natural gas to customers throughout Tumwater.

The Williams Northwest Company supplies natural gas to Puget Sound Energy through four gate stations in the Olympia area.

1. Olympia Gate Station is located at Flying Carpet and Fir Tree. This gate station also serves the Cities of Olympia and Lacey.
2. Olympia Town Border Station is located at 42nd and Boulevard. This station also serves the Cities of Olympia and Lacey.
3. Littlerock Gate Station is located at 90th Lane SW and Littlerock Road.
4. Black Lake Gate Station is located at Delphi and 62nd Avenue SW.

Other additional gas facilities serving the City of Tumwater include the following:

- A six-inch gas main from Olympia Gate to the Capitol, serving about 5,000 residential customers.
- A four-inch West Olympia Main from Black Lake to Evergreen College serving about 1,600 residential customers.

- A four-inch main from Littlerock to Tumwater serving about 1,600 residential customers.

6. Telecommunication

The telecommunications industry continues to undergo large advances in technology. Cellular and optical fiber technology have changed the way telecommunications services are delivered. The telecommunications industry is expected to undergo significant changes in the coming years, driven by advancements in artificial intelligence, 5G, 6G, and other technologies while focusing on sustainability and ensuring infrastructure can support advancements and more customers.

A. Broadband

Broadband is a high speed internet connection that can be delivered through a variety of technologies, including cable, fiber-optic cable, digital subscriber line, and mobile wireless. A lack of broadband connectivity can increasingly have a negative impact on social and economic development by excluding those who lack broadband access. It is becoming an increasingly important utility since more educational, occupational, health care, public safety, communication, and entertainment opportunities are dependent on this service.

In Tumwater, nine service providers offer broadband connections over a variety of methods to both residences and businesses. CenturyLink and Xfinity are the leading providers in Tumwater. According to BroadbandNow, an organization that assesses broadband access, currently 51.9 percent of Tumwater has access to CenturyLink's digital subscriber lines, 98.2 percent has access to Xfinity services.

B. Digital Subscriber Line

Digital subscriber lines use existing telephone lines to connect to the internet, similar to dial-up, but still allows for simultaneous phone and internet usage.

C. Cable

Cable uses existing television cables to connect to the internet without interfering with the television signals.

D. Wireless

Wireless internet connections are broadcast over the airways via a ground station provider to antennas. This method requires a clear line of sight between the antenna and the ground station making it susceptible to weather conditions. Wireless is a method of communication that uses radio waves, light, or other methods to transmit data without wires. Wireless technology has become a key part of modern computing, allowing for more flexible and convenient interactions with devices.

Commented [ES12]: Thurston county pud broadband assessment

Commented [ES13]: 14 Best Olympia, WA Internet Service Providers (Up to 2,000 Mbps) (broadbandnow.com)

E. Satellite

Satellite internet is a form of wireless internet that uses satellites to connect to the internet. In the future, satellite communication is expected to play a crucial role in providing widespread, high-speed internet access, especially in remote areas, by utilizing large constellations of small satellites in low Earth orbit, bridging the digital divide and offering reliable connectivity even in disaster situations; with advancements in technology allowing for faster speeds, lower latency, and more efficient use of spectrum.

Satellites receive and send signals to ground station satellites, whether it is a dish that connects to a modem or router, or a larger ground station that connects to fiber optic cables and internet.

F. Mobile

Most phones, tablets, and smart devices access the internet using the cellular phone network. Cellular networks use radio waves to enable wireless communication between devices through a network of cell towers.

G. Fiber Optic

Fiber optic technology uses thin glass fibers to convert electrical data signals into light for faster and more reliable connections. Fiber optic cables are less likely to experience outages and are more resistant to severe weather conditions compared to other types of cables. Tumwater has some fiber conduits and is currently planning how to best use these assets.

Many providers of digital subscriber line, cable, or satellite phone and television services use the same infrastructure to provide internet services.

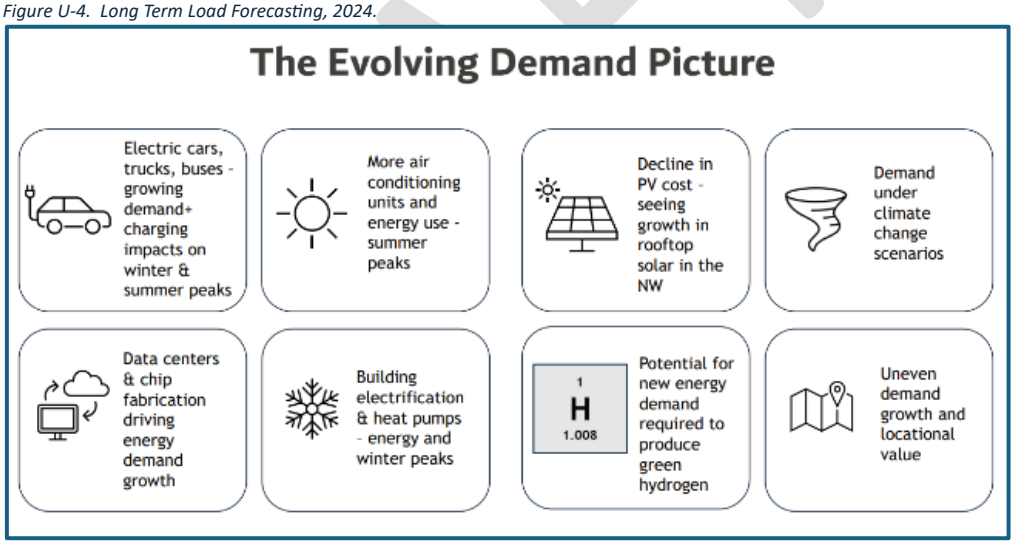
7. Meeting Future Demand

In the six-county service area of Puget Sound Energy, an inflow of more than 898,000 new residents between 2024 and 2040 is expected to increase Puget Sound Energy's electric service territory population to almost 5.33 million by 2045.

As shown in Figure U-4, the demand for electricity is expected to increase with the addition of new customers, solar and renewable energy, electric vehicles, advancements in broadband services and technology, artificial intelligence and data storage, and climate change laws.

As we transition away from generating energy from nonrenewable sources and moving towards a more electric grid, we need to plan for the creation and storage of more power. This could mean more solar energy, wind farms, nuclear energy, and sitting battery energy storage systems. The changes in how we generate energy will affect the ability to meet demand for electricity during different seasons and times of day.

Figure U-4. Long Term Load Forecasting, 2024.



Source: Northwest Power and Conservation Council.

Additionally, housing and employment is expected to grow at an average annual rate of 0.46 percent between 2024 and 2045. Manufacturing employment is expected to decline annually by 0.32 percent on average between 2024 and 2050, and local employers are expected to create about 205,681 jobs between 2024 and 2045, driven by growth in the commercial sector.

Commented [ES14]: 2024_0813_8.pdf

Commented [ES15]: 06_EPR23_Ch6_Final (2).pdf

Growth in Tumwater follows closely with growth trends in other parts of the Puget Sound Energy service area. There were 27,030 jobs in Tumwater and its urban growth area in 2017. As shown in Table U-1, over the 20-year period of the Comprehensive Plan, Tumwater is projected to add an additional 10,730 jobs for a 54 percent gain in total employment primarily in the areas of government, professional services, and retail. The biggest changes in employment occur in manufacturing, construction, and retail trade.

These projections form the basis of the utility forecast for Tumwater, helping ensure adequate services are in place and identify potential changes or adjustments needed.

Commented [ES16]: Table 7: Employment Estimates and Forecast by Jurisdiction and Sector - Google Sheets

Table U-1. Tumwater and Urban Growth Area 20-Year Population Projection.

	2020 Population[2]	2045 Population[3]	Population Increase
Tumwater	25,573	45,144	19,571
Urban Growth Area	3,134	5,532	2,398
Combined Areas	**28,707**	**50,676**	**21,969**

Source: [1] U.S. Census, 2020.
[2] The Profile, December 2024, Thurston Regional Planning Council, and the Population and Employment Forecast for Thurston County Final Report

[2] Source, U.S. Census, 2020. 2020 Population includes the Census calibrated numbers both within the City of Tumwater (25,573) and its urban growth area (3,134).
[3] Determined by multiplying housing units needed from 2020-2045 (9,192) by 2020 household size (2.39).

8. Potential Impacts Of Climate Change

There are at least two ways in which climate change can affect utility demand and availability. First, long-term changes in temperature will alter electricity demand and change precipitation patterns, river flows, and hydroelectric generation. Second, policies enacted to reduce greenhouse gases will affect future resource choices. Greenhouse gases come from burning fossil fuels for heat and energy, which in turn causes global warming.

Tumwater is experiencing warmer summers, wetter and warmer fall and winters, and increased wildfire risks, impacting power and energy reliability. Lower summer streamflow can reduce summer hydropower resources and energy production. Increased wildfires could interrupt or damage power generation facilities and energy transmission and distribution infrastructure.

The summer of 2024 in the Pacific Northwest set a record for peak seasonal power demand in July, higher than the record set in the 2021 heat dome event in June. In a cold snap that hit in January 2024, the Northwest set the record for winter peak demand at 35,500 MW. These record-breaking events impact the grid and costs to the consumer.

No single sector or fuel type can provide the needed emission reductions to slow temperature increases. Limiting overall global warming requires largely phasing out coal use by 2025, reducing CO2 emissions from industry by 75–90 percent by 2050 (relative to 2010), supplying most electricity from renewables and significantly enhancing energy efficiency.

It will be critical for the private sector, public sector, and the individual to do their part to help reduce greenhouse gas emissions and use renewable energy. More information on climate change and what Tumwater is doing to address it can be found in the Climate Element, the 2023 Natural Hazard Mitigation Plan, the Thurston Climate Mitigation Plan, and the Thurston Climate Adaption Plan.

Commented [ES17]: Council briefings: NW sets summer record for peak power demand & an update on the Western Resource Adequacy Program

Commented [ES18]: NoTimeToWaste_CIG_Feb2019.pdf

Appendix A Foundational Documents

Table U-2 identifies the foundational planning documents that form the basis for the Utilities Element.

Table U-2. Foundational Documents for the Utilities Element.

Topic Index	Supporting Plans and Materials
Natural Gas	• Pipeline Safety Act, Washington State (Chapter 81.88 RCW) (2007) • Land Use Planning in Proximity to Natural Gas and Hazardous Liquid Transmission Pipelines in Washington State, Washington Utilities and Transportation Commission (2006)
Electricity	• The 2021 Northwest Power Plan, Northwest Power and Conservation Council (2021) • Ninth Northwest Conservation and Electric Power Plan, Appendix M Climate Impacts, Northwest Power and Conservation Council (2021) • State Energy Data System, U.S. Energy Information Administration (2024) • Sustainable Thurston Energy White Paper, Thurston Regional Planning Council (2011)
Puget Sound Energy (Natural Gas and Electricity Provision)	• 2021 Clean Energy Implementation Plan, Puget Sound Energy (2021) • Integrated Resource Plan, Puget Sound Energy (2023)
Telecommunications	• Broadband Feasibility Assessment Study & Outreach Summary, Thurston County Public Utility District (2022)
Comcast (Telecommunications Service Provision)	• Comcast Franchise Agreement, City of Tumwater and Comcast (2021)
General	• Land Use Element (2025) • Climate Element (2025) • County-Wide Planning Policies, Thurston County (2025) • Sustainable Thurston, Thurston Regional Planning Council (2013) • Lands for Public Purposes Element (2025) • Capital Facilities Plan (2025-2031) • Natural Hazards Mitigation Plan for the Thurston Region (2024)

Commented [ES19]: Telecommunications

Appendix B Private Utility Contact Information

Table U-3 identifies the contact information for Private Utility Providers as required by RCW 36.70A.070(4)(b).

Table U-3. Private Utility Contact Information.

Provider	Contact Information
Puget Sound Energy	Phone: 1-888-225-5773 Email: customer.care@pse.com Website: https://www.pse.com/en In case of emergency call 1-888-225-5773
Olympic Pipeline	Email: BPDamagePrevention@bp.com Website:https://www.bp.com/en_us/united-states/home/products-and-services/pipelines.html In case of Emergency call Washington (Olympic Pipeline System): 1-888-271-8880
Williams Northwest Pipeline	Phone: 1-800-945-8723 Email: media@williams.com Website: https://www.williams.com/ In case of Emergency call 1-800-972-7733
Century Link	Phone: 800-603-6000 Website: https://www.centurylink.com/home/help/contact.html
Xfinity (Comcast)	Phone: 1-888-936-4968 Website: https://www.xfinity.com/support/
Washington Utilities and Transportation Commission	Phone: 360-664-1160 Website: https://www.utc.wa.gov/contact-us
Northwest Power and Conservation Council	Phone: 800-452-5161 Email: info@nwcouncil.org Website: https://www.nwcouncil.org/