

UTILITIES INVENTORY

8

appendix



CONTENTS

Introduction	1
Electricity	1
Existing Conditions.....	2
Capacity Needs	5
Community Solar.....	6
Propane and Natural Gas	7
Telecommunications (Data & Voice)	7
Data & Telephone – Fiber Optic.....	7
Telephone – Voice over Internet Protocol (VoIP)	8
Wireless – Fixed Wireless.....	8
Wireless – Cellular	8
Telephone – Plain Old Telephone Service (POTS)	9
Internet & Cable Services	10
Communication Sites and Facilities	10

FIGURES

Figure 1	OPALCO Electrical Facilities (2019).....	4
----------	--	---

TABLES

Table 1	Capacity of OPALCO Electric Facilities (2025).....	3
Table 2	2025 OPALCO Accounts	5

APPENDIX 8. UTILITIES INVENTORY AND EXISTING CONDITIONS

Introduction

The Utilities Inventory and Existing Conditions is an appendix to the San Juan County (SJC) Comprehensive Plan (Plan) Utilities Element. This document provides an inventory of utility services in San Juan County, including electricity, telecommunications, internet and cable, and communication sites and facilities. In San Juan County, private service providers supply utilities to customers. This inventory includes the providers, general locations and capacities of existing utilities where applicable. Planning for utilities aids SJC in ensuring adequate services are provided to different areas of the County, particularly as the County population increases.

Electricity

San Juan County relies on electricity generated primarily in the Pacific Northwest and transmitted to the San Juan Islands by the Bonneville Power Administration (BPA) and Puget Power. The BPA was created by Congress in 1937 to act as an agent to market power from Bonneville Dam. BPA has been designated to market power from the 29 additional federal dams located within the Northwest. The BPA does not build or own dams or power plants, but does operate the nation's largest network of long-distance high-voltage transmission lines. The BPA electricity is sold to the Orcas Power and Light Company (OPALCO) at BPA's points of delivery on Decatur Island and Lopez Island. OPALCO is the sole electric service provider in San Juan County.

OPALCO is a member-owned, private, non-profit Rural Utility Services (RUS) Cooperative that provides local electric service to its members in San Juan County. OPALCO was formed in 1937 and currently maintains offices in Eastsound, Friday Harbor, and on Lopez Island with headquarters in Eastsound. OPALCO is an electric distribution utility distributing power via submarine cables to members on twenty islands. OPALCO prioritizes energy delivery that is safe, reliable, affordable, clean, and sustainable.

Existing Conditions

According to OPALCO, existing electric utility facilities in San Juan County have adequate capacity to serve existing loads. OPALCO maintains a comprehensive Integrated Resource Plan to expand capacity as load growth occurs. Table 1 below lists the location and capacities in million volt-amperes (MVA) of each substation in OPALCO's transmission network.

Table 1
Capacity of OPALCO Electric Facilities (2025)

Location	Island	Base Capacity (MVA)	Max Capacity (MVA)
Shaw	Shaw	5	5
Orcas	Orcas	12	12
Eastsound	Orcas	12	16
Olga	Orcas	7.5	7.5
Lopez	Lopez	12	16
Lopez Backup	Lopez	12	16
Blakely	Blakely	2.5	2.5
Decatur	Decatur	2.5	2.5
Roche Harbor	San Juan	12	16
Friday Harbor	San Juan	28	37.3
Gravel Pit	San Juan	12	20

Source: OPALCO 2025

Figure 1
OPALCO Electrical Facilities (2025)

OPALCO Islands Served



Table 2 below lists the number of service accounts by island for 2025.

Table 2
2025 OPALCO Accounts

Island	Number of Services
Armitage	1
Bell	1
Big Double	3
Blakely	164
Brown	47
Canoe	6
Center	142
Charles	2
Crane	53
Decatur	301
Henry	94
Little Double	1
Lopez	2,572
Obstruction	37
Orcas	4,831
Pearl	41
Reef Point	1
San Juan	6,631
Shaw	280
Speiden	11
Total	15,219

Source: OPALCO 2025

Capacity Needs

An analysis of capacity development necessary to meet future demand is contained in OPALCO's 20-year long-range plan. OPALCO periodically updates its Integrated Resource Plan (IRP), which projects County electric load based on the Comprehensive Plan population projections, as well as state and federal climate action policy and programs. With the recent update to the Comprehensive Plan's population projections, OPALCO is updating the IRP, which will be released in early 2026, incorporating load forecasting through 2045. The IRP will serve as the basis for an updated Long-Range Plan (LRP) and Capital Work Plans (CWP), which will be updated in 2026. IRPs and LRPs use a 20-year planning horizon. CWPs use a 4-year planning horizon and are reviewed and updated annually. These capital-planning programs are referenced here for future comprehensive planning purposes.

Detailed analyses have been and will be conducted by OPALCO based on planned land use. Planned construction of electric utility facilities serving local load areas is based on existing and projected load rather than time (years). Utilities determine the need for expanded or new electric utility regional transmission network facilities on the basis of established planning standards that define required system performance under specified conditions including load and generation levels, equipment outages, weather, and equipment ratings. As the electric load within San Juan County grows due to an increase in customers and demand, OPALCO will need to add new electrical facilities to increase the capacity of its distribution, generation, and storage systems.

OPALCO is required to provide reliable electricity to all San Juan County members. The Comprehensive Plan projects a population increase of 5,226 people between 2020 and 2045, which, coupled with electrification intended to reduce greenhouse gas emissions, translates to an estimated 360 million kWh by 2045. This is a 30–50% increase in electricity consumption in the County—demand that OPALCO is required to plan for and meet.

Rising demand and mainland transmission constraints present service challenges, and OPALCO and the County need to plan for local renewable energy generation and storage. The two Bonneville Power Administration (BPA) submarine cables that supply the County from the mainland are both nearing their design capacity and approaching the end of their service life. There is no new hydroelectricity on the mainland to meet the rapidly increasing demand, and new mainland renewable energy projects are not being approved quickly enough to meet projected needs. Local peak energy demand is projected to exceed the

mainland submarine cable limit in the early 2030s. Additionally, during mainland energy shortages and outages, mainland energy prices will increase.

OPALCO's analysis shows that it will not be able to meet local energy demand from mainland sources. Local micro-grids are needed to meet new load and reduce the impact of mainland energy price increases and outages. Microgrids will produce clean local energy, offsetting greenhouse gas (GHG) emissions, and supporting the electrification of transportation and heating, which together account for about 80% of County GHG emissions. Given the aging transmission infrastructure and projected load growth, developing local renewable energy resources is essential to maintain reliability and fulfill OPALCO's ability to serve its members. Renewable energy projects will need to be sited, permitted, and developed to meet demand.

Community Solar

OPALCO operates a 500 KW solar array located on 3.6 acres at the Decatur Substation. This is OPALCO's first Community Solar Project – a program where members offset a portion of their energy use and electric bill via credits by buying shares of a solar array OPALCO operates. Decatur Community Solar began operating in July 2018 and is expected to produce approximately 570,000 kWh/year. More solar projects may be a part of OPALCO's effort to become more energy independent from mainland energy sources.

San Juan Islands Conservation District and OPALCO promote solar energy projects in the County in partnership with the Bonneville Environmental Foundation and local solar installers. The Community Solar for Our Schools program provided solar array installations to generate power for public schools on Orcas, San Juan, Lopez and Shaw islands.

Propane and Natural Gas

Propane is an important energy source in San Juan County. Natural gas is not available in the County, contributing to the reliance on propane. Propane in San Juan County is provided by private suppliers, including Inter-Island Propane and San Juan Propane. Inter-Island Propane is located in Friday Harbor and on Lopez Island. They currently provide barge service to Orcas, Shaw, and to the outer islands by request. Inter-Island propane has been permitted to build and operate a new facility in Eastsound. San Juan Propane is located in Friday Harbor, Eastsound, and Island Center on Lopez Island. San Juan County's involvement with propane extends only to land use issues. Safe delivery of propane from ports is a priority.

Telecommunications (Data & Voice)

Data & Telephone – Fiber Optic

The availability of fiber optic based services has grown extensively throughout the county in the past decade. This is meeting the growing needs of the electric grid, emergency communications, residential and business broadband via fiber to the premise and fixed wireless and cell phone service coverage. In Mid-2015, deployment of Fiber to the Home and Premise (FTTH & FTTP) began throughout the County as part of OPALCO's board decision to expand into broadband service needs for San Juan County Residents. As of 2025, approximately percent of the County (7,500 addresses) is located within a serviceable distance (500 feet or less) of existing fiber optic facilities. Of those addresses, over 3,600 are connected to fiber optic service or have fiber optic service available to connect. As demand for higher bandwidth and additional improvements are made to public infrastructure, the availability of fiber optic services will continue to grow. Currently, Rock Island Communications is the recipient and program administrator of 3 separate broadband grants (RDOF, ARPA, BEAD) which is providing over \$27M in infrastructure support to expanded service in San Juan County. The FTTP system enables homes and businesses to scale their needs up to 1Gbps (1,000 Mbps) upon initial installation with the ability to go to 10Gbps (10,000 Mbps) or even higher, as required. Fiber is considered a future-proof technology that allows for massive increases in available bandwidth for generations to come. The average monthly new connection rate is 30-40 locations. The OPALCO and Rock Island fiber infrastructure is spanning 750 plus miles, and currently growing by connecting all major islands (9 islands in San Juan County) to the essential services with access on the network to multiple exchange locations in the Seattle area for redundancy and reliability in diversity.

Telephone – Voice over Internet Protocol (VoIP)

With the increase use of data communication services, Voice over Internet Protocol (VoIP) has become the predominate method for non-wireless based voice communications around the nation, particularly for businesses. VoIP services are dependent on reliable, low-latency internet connectivity. Unlike Plain Old Telephone Service (POTS) lines, the Washington Utilities and Transportation Commission (WUTC) does not regulate VoIP.

There are various resellers of VoIP services for residents and businesses in San Jun County. Anyone with a reliable internet connection can purchase voice services from a variety of national providers. Each of these providers deliver a wide variety of services and advanced features based upon the consumer requirements.

Wireless – Fixed Wireless

In addition to deploying Fiber To The Home (FTTH) around the County, Fixed Wireless has been deployed Countywide. Fixed Wireless services areas where fiber is unavailable currently. Fixed Wireless utilizes the latest cellular technology enabling high-speed data and voice connections up to to 300 Mbps. As of March 2025, nearly 3,000 locations are served with fixed wireless broadband service. This service is recognized nationally as one of the top 10 fastest wireless services available to U.S. residents and the highest available offering in Washington State. Service via this technology provides broadband to 18 remote, non ferry-served islands, some without utility power service. With increased capacity being added regularly, this service is currently available to over 4,500 locations in San Juan County. This service has been made available through a strategic partnership the local Coop, OPALCO and its subsidiary Rock Island have made with the cellular carrier T-Mobile USA to increase access in San Juan County to the latest technology and expand coverage.

Wireless – Cellular

Personal wireless communication facilities are not classified as public utilities or essential services but are a commercial service. Nationally, the Federal Communications Commission (FCC) regulates the airwaves and the personal wireless communications industry and is responsible for issuing construction permits for transmission facilities and licenses to operate wireless systems. All major national cell phone providers have a presence in San Juan County from T-Mobile, Verizon, AT&T and Sprint to smaller service providers. Overall capacity of the network with multiple new frequency bands opening enables for higher throughput and data rates. It is expected providers will expand their capacity and coverage area over time to accommodate their respective customer base.

Local governments regulate the development of the wireless communications network by specifying where facilities can locate, applying buffering and setback requirements, etc. Federal case law from regulating facilities covered by the Federal Aviation Administration (FAA) has preempted local governments. The FAA reviews the location and height of proposed support structures to prevent interference with operations of airports and flight paths. The FAA regulates proposed towers that exceed 200 feet and smaller structures located within 20,000 feet of a major airport and 10,000 feet of a general aviation airport. The FAA does not have the authority to deny an FCC construction permit, but it can cite a proposed support structure as a hazard to navigation. (See the discussion on Airport facilities in Element II-D Transportation.) In 2014, San Juan County adopted a joint use wireless ordinance enabling the broader development of wireless infrastructure for essential public services.

Telephone – Plain Old Telephone Service (POTS)

Lumen (formerly CenturyLink), based in Monroe, Louisiana, is the primary provider of POTS (Plain Old Telephone Service), to approximately 10,000 residential and business customers in the County. The number of locations decreases as consumers discontinue landline service or port their number over to VoIP providers, such as Rock Island Communications, a subsidiary of OPALCO. In addition, Lumen (formerly CenturyLink) Lumen (formerly Lumen (formerly CenturyLink)) also provides digital subscriber line (DSL) service; as well as private dedicated services (i.e. Ethernet) which helps meet the needs of telecommunication customers throughout the County.

Lumen (formerly CenturyLink) provides service to the County via a fiber optic cable network that connects all the major islands to the mainland. It provides these essential services to meet the needs of telecommuters and those who run businesses from their homes. Service is currently provided to Blakely, Brown, Center, Crane, Decatur, Henry, Lopez, Obstruction, Orcas, Pearl, San Juan and Shaw Islands.

Geographic isolation and comparatively small resident populations have historically inhibited the extension of telephone service to some islands within the County, such as Stuart Island.

Internet & Cable Services

Fast, reliable Internet connection is increasingly important to economic development, health and safety, and daily life in San Juan County. Broadband Internet connection allows residents opportunities to work remotely and connect with others globally. Medical facilities and emergency services rely heavily on broadband Internet in order to provide modern, up-to-date care. The Economic Development Element of this Comprehensive Plan states the goal of “support[ing] development of reliable high-speed (100 Mbps or higher, or the current standard for urban regions of the U.S., whichever is higher) broadband infrastructure that enables the creation of jobs and improved educational opportunities for islanders, and increased competitiveness for the County.” Internet utility infrastructure comes in several forms, including fixed wireless, fiber, and cable.

Rock Island Communications provides broadband Internet via fixed wireless and fiber in San Juan County. Rock Island is a subsidiary of OPALCO, as of 2015. Rock Island purchased PogoZone and retrofitted the system to fiber in 2023-2024. The cable system on Orcas is now fully decommissioned and upgraded to fiber service. Fiber connectivity is growing rapidly, with Fixed Wireless providing service in areas awaiting fiber deployment. Cable services for Television and Internet have continued to see a significant decrease throughout the County, however Zito Media continues to cover parts of Friday Harbor. This decline has been driven by unreliable maintenance of the system, poor response times for service interruptions and the consumer move to online streaming services such as Netflix, Hulu, and Amazon as broadband services via fiber and wireless increase, in addition to increased competition from satellite providers.

Communication Sites and Facilities

Countywide, the Cooperative owned utility, Rock Island, owns and operates 40 wireless sites and manages 3 additional sites in the County on existing wireless structures which provide the essential communication coverage for 95% of San Juan County. The implementation of these sites under the joint use wireless facility has enabled the expansion of communication services to the majority of County residents, first responders and commercial users. As of May 2025, 22 of these 43 Rock Island sites house radio communication equipment for the first responder radio network. This provides radio coverage on the licensed frequencies for Sherrif, Public Works, Lopez Fire, Orcas Fire and San Juan Fire under the collective San Juan County Radio project.

Legacy tower sites exist atop Mt. Constitution on Orcas Island and are used to provide broadcast communications for backhaul, cellular, and other wireless services. As telecommunications technology and demands continue to change, service providers must retain the ability to expand existing and build new antennae and towers for operational purposes.

Mt. Constitution Sites, Inc. owns 160 acres of land within Moran State Park and leases communication towers to approximately 40 users. In all they have five towers with three primary sites ranging from 500', 400', to a 235' tower, located in the northeast corner of this property.

East of the 160-acres of private property mentioned above, the U.S. Coast Guard leases a one-acre site from the Washington State Parks and Recreation Commission (WSPRC) and operates a 100-foot tower with microwave dishes to monitor small vessels. KVOS leases a one-acre site from the WSPRC at the 2,409 summit of Mt. Constitution and operates a transmitter facility and a 150-foot tower. Washington State Department of Transportation (WSDOT) leases a one-acre site from WSPRC southwest of the KVOS site and operates two 70-foot towers. The U.S. Forest Service also leases one acre from WSPRC and operates two 70-foot towers. The University of Washington also operates a seismographic telemetry station at this site. This site may, at some point, no longer be sufficient for future forms of, or demand for, personal wireless services. The County adopted Ordinance 8-1997, which established a subarea plan and requirements for future personal wireless communication service facilities through Chapter 16.80 of the San Juan County Code.