

GOAL 13: ENERGY CONSERVATION BACKGROUND REPORT

PURPOSE: To conserve energy, reduce waste and increase self-sufficiency.

HISTORICAL PERSPECTIVE

The longstanding energy conservation policies for Clatsop County, since at least 1980, have focused on renewable energy, minimizing energy consumption, and encouraging recycling and other efficiencies.

The Clatsop County Goal 5 Resource Inventory directs readers to Goal 13 – Energy Conservation, for a list of energy sources. When Goal 13 was originally adopted in 1980, the following energy sources were identified in Clatsop County:

- **Hydroelectric:** Supplied primarily by the Bonneville Power Administration. Small quantities of power are also distributed by the Western Oregon Electric Co-op, Tillamook Public Utilities District, and the Clatskanie Public Utilities District.
- **Natural Gas:** Supplied by Northwest Natural since 1965.
- **Oil:** Oil products are refined in the Puget Sound area and piped into the state via the Olympic pipeline.
- **Coal:** Supplied to the state via rail and truck.
- **Wood:** It was anticipated that wood slash and mill wastes, in combination with municipal wastes, would be in demand as an energy source, as well as for gasohol and wood pellets. Wood was predicted to “easily provide energy for perhaps one-third to a half of the future population” of Clatsop County.
- **Nuclear Power:** A plant siting study in 1975 identified a 400-acre site in Brownsmead for a possible nuclear power plant. The citizen advisory committees have recommended that this language be removed from the Clatsop County Comprehensive Plan.
- **Solar:** The use of large-scale solar farms was predicted to occur by 2000.
- **Wind:** Generation of power by wind was not expected to be developed in the near future due to the lack of technology to store the power. A 1983 ODOE study identified six sites in Clatsop County for possible wind generation projects:
 - Clatsop Spit
 - Columbia River Jetty
 - Fort Stevens
 - Astoria Weather Bureau
 - Astoria WBAB (Port of Astoria Airport)

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- Wickiup Ridge
- **Biomass:** The background report states that many “technical and social improvements are needed to reduce air pollution problems, problems with collection and handling, and slash burning practices. If some barriers are removed, it can be expected that full utilization of the energy available through biomass could be accomplished within the next twenty years.”
- **Tides and Waves:** The study concluded that while enough energy might be harnessed to be important to places like islands, there would not be enough energy trapped to operate cities under the technology present at the time.

CURRENT CONDITIONS

ENFORCEABLE POLICIES

Because Clatsop County is a partnering jurisdiction in the Oregon Coastal Zone Management Program, all proposed state and federal projects must be consistent with the County’s comprehensive plan and implementing ordinances. In order to be considered “enforceable”, policies, standards and regulations ***must***:

- Include mandatory language such as “will”, “must” or “shall”
- Contain a clear standard
- Not be pre-empted by federal law
- Not regulate federal agencies, lands, or waters
- Not discriminate against a particular coastal user or federal agency
- Not hinder the national interest objectives of the Coastal Zone Management Act
- Not incorporate other policies or requirements by reference

Because many energy projects are permitted through either federal and/or state agencies, it is imperative that the policies in Clatsop County’s Comprehensive Plan be considered “enforceable” under the requirements of the Coastal Zone Management Act. Drafting and adopting enforceable policies ensures that large-scale energy projects are consistent with the values and goals identified by community members and that those voices will be represented at the planning table.

RENEWABLE ENERGY SITING

Clatsop County residents rely on dependable, affordable energy to meet their basic needs. Finding suitable locations for energy development can be challenging. Environmental impacts need to be considered. Some energy projects need large expanses of land, which can impact farming, forestry, and wildlife habitat. Cost is also an issue. The further an energy project is from transmission lines, the more expensive it is to build. The Oregon Department of Energy identifies the following renewable energy resources within the state:

- Solar

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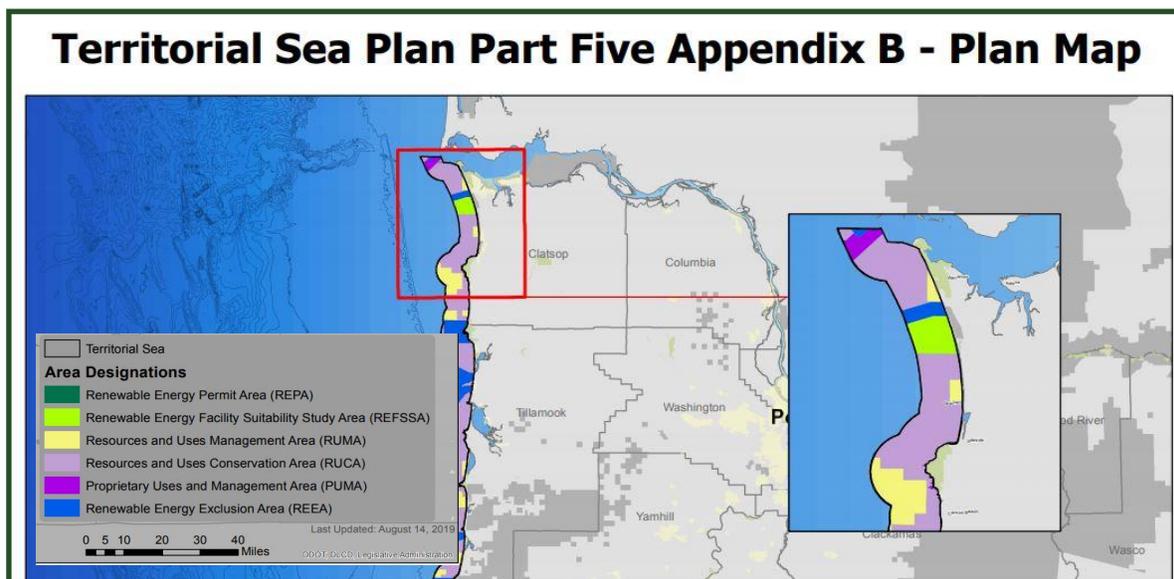
- Wind
- Hydropower
- Bioenergy
- Geothermal
- Marine
- Renewable Fuels
- Hydrogen

OAR 660-033-0130(37) and (38) provide standards for wind and solar energy siting on agricultural land. The rules are intended to direct energy development to lands that have limited value to wildlife and farming. During discussions with the citizen advisory committees, several potential wind and solar generation sites were considered, including the Clatsop Plains, Clatsop Ridge and Camp Rilea.

OCEAN ENERGY

In Oregon, ocean energy is considered a renewable energy resource with the potential to reduce the human need of fossil fuels, such as coal or gas. Ocean energy facilities may promote the use of energy from wind, wave, current, or thermal, which may reduce the environmental impact of fossil fuels.

Part Five of the Oregon Territorial Sea Plan describes the process for making decisions about the development of renewable energy facilities within Oregon's Territorial Sea. The plan specifies the areas where new development may occur. The requirements of Part Five are intended to protect areas of important marine resources from the potential adverse effects of



renewable energy facilities. The requirements address all phases of development including siting, development, operation, and removal from service. The Plan also identifies locations for development that may reduce damaging impacts to coastal communities and existing ocean

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resource users. If new facilities are developed in a responsible and appropriate manner, and in agreement with state and federal requirements, renewable ocean energy may help preserve Oregon's natural resources and enhance quality of life.

OREGON RENEWABLE ENERGY SITING ASSESSMENT (ORESAS)

In 2019, the Oregon Department of Energy (ODOE) partnered with DLCD and the Oregon Institute for Natural Resources (INR) on a grant application to the U.S. Department of Defense for the study and assessment of renewable energy and transmission development in Oregon. Continued renewable energy development is anticipated in the coming decades, which will require analysis in order to balance natural resource, land use, environmental impacts, noise concerns, and cultural issues through processes at all levels of government.

DLCD, along with ODOE, will be identify high potential renewable energy production areas that are feasible for development and that overlap with military training and operations areas. These agencies will also review and assess the current development and siting procedures of local, state, and federal governments. Upon conclusion, a renewable energy siting mapping tool will be developed by INR with information gathered over the course of the project.

BONNEVILLE POWER ADMINISTRATION

The Bonneville Power Administration (BPA), was created in 1937 as a temporary agency with a limited mission: to market and distribute electricity from the Bonneville Dam on the Columbia River. Throughout the 1940s through the 1960s, Congress authorized BPA to oversee and deliver power from more federal dams on the Columbia River and its tributaries.

Today, BPA provides about one-third of the power consumed in the Pacific Northwest. This power is supplied by 31 hydroelectric dams administered by BPA. In Clatsop County, almost all power is supplied by BPA through Pacific Power. Small amounts of electricity in the County are sold and distributed by the Western Oregon Electric Co-op, the Tillamook Public Utility District, and the Clatskanie Public Utilities District.

Congressional mandates in the 1980s pushed the agency towards energy conservation and the restoration of fish runs that had been decimated by the dams. Today, one of BPA's mandates is to prioritize habitat monitoring and restoration projects throughout the Columbia River.

The BPA is a primary funder for restoration projects in the Columbia River and contracts with the Columbia River Estuary Task Force (CREST) to oversee large-scale restoration projects.

The SAFE-funded (Select Area Fisheries Enhancement) portion of Clatsop County Fisheries is a collaborative program that includes both Washington and Oregon's Departments of Fish and Wildlife and Clatsop County Fisheries. It receives funding from the Bonneville Power Administration as off-sight mitigation for the effects of dams and water withdrawals on the Columbia River and its tributaries.

The program is part of the Northwest Power and Conservation Council's Fish and Wildlife

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Program. Of the \$1.8 million annual SAFE budget, Clatsop County Fisheries receives roughly \$400,000 per year.

PUBLIC TRANSPORTATION

The Sunset Empire Transportation District (SETD) operates several public transit bus routes within the County and provides connector service to both Tillamook and Columbia counties. In April 2020, SETD proposed using funding from the Statewide Transportation Improvement Fund to purchase its first electric bus. However, ongoing worker shortages and capacity restrictions due to the coronavirus pandemic have necessitated revisions to SETD's operating plans. In September 2021, SETD released new schedules that permanently suspended Routes 13, 17, 21 and the Seaside Streetcar.

RECYCLING

Recology operates a recycling program in Clatsop County, providing opportunities to dispose of recyclable materials without placing them in a landfill. However, in recent years, China, one of the major importers of recyclable materials, has ceased allowing many materials from being imported. This has led, in some cases, to more recyclable materials being placed in landfills.

RENEWABLE ENERGY PROJECTS IN CLATSOP COUNTY

Wind Generation

On October 13, 2020, the Clatsop County Planning Commission approved a meteorological testing tower for property located on Nicolai Ridge. The tower, which will be operated by WPD Wind Projects, Inc., will be used to test wind generation potential in the eastern portion of the County in order to determine whether future wind turbine development should occur in that area. The tower, which received building permits at the end of 2020, will be in place for up to one year while testing occurs. If WPD Wind Projects, Inc., determines that there is sufficient wind generation power, new permits and approvals, including approval from the Oregon Department of Energy, would be required.

Solar

While one would not typically associate Clatsop County with solar energy, there are several installations within Clatsop County, per information from the Oregon Department of Energy. In 1999, there were no photovoltaic projects with the county. In 2009 there were four installations. However, by 2019, the last year for which data is available, there were over 40 recorded projects. The majority of these installations are for residential purposes, with some commercial installations scattered throughout Astoria and the coastline. There are no utility-level solar projects within Clatsop County.

Liquefied Natural Gas

In the past, two liquefied natural gas (LNG) plants have been proposed in Clatsop County—one at Bradwood and one in Hammond. Both plants generated controversy and division

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throughout the community. Neither plant succeeded in obtaining approvals in Clatsop County. A similar proposal in Coos Bay (Jordan Cove LNG) and a methanol refinery in Kalama, WA, have also recently been denied. Port Westward, in adjacent Columbia County, Oregon, a proposed renewable diesel production facility capable of processing up to 50,000 barrels per day of renewable biomass feedstocks, is currently under review by ODOE.

Ocean Energy Facilities

Marine energy encompasses both wave power – i.e., power from surface waves – and tidal power, which is obtained from the kinetic energy of large bodies of moving water. Oregon’s coast has among the best marine energy resources in the world, making it an ideal location for developing marine energy.

While there are no marine energy projects yet in commercial operation in Oregon, two test sites have been approved:

- “ North Energy Test Site (two nautical miles offshore, north of Newport)
- “ South Energy Test Site / PacWave (five nautical miles offshore, between Newport and Waldport)

There is the potential that this technology will be located off the Clatsop Coast in the future. As noted on the map included with in the Territorial Sea Plan, Part 5, there are areas off the coast of Clatsop County that would be eligible for the siting of potential projects. While these facilities would be located offshore, there would be on-shore infrastructure with land use impacts.

FUTURE CONDITIONS

NEW TECHNOLOGIES

Zero Emission Vehicles

Zero Emission Vehicles (ZEVs) such as electric vehicles or hydrogen fuel cell vehicles, drive without emitting greenhouse gases. ZEVs include battery-operated vehicles, electric/hybrid vehicles and hydrogen fuel cell vehicles. Electric vehicles require charging station infrastructure. The source of the electric for these vehicles has an impact on air and water quality. In Clatsop County, the Oregon Department of Energy (ODOE) has identified 165 ZEVs, including 93 battery electric vehicles and 72 plug-in hybrid vehicles. Information from ODOE indicates there are 20 electric vehicle charging stations in Clatsop County.

Cross-Laminated Timber

(CLT) is an emergency wood product with applications in both residential and non-residential buildings. CLT has been touted as a replacement for steel and concrete, which generate large quantities of greenhouse gases in the course of their production. Proponents cite carbon that is

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sequestered by the trees and captured in the timber as a way to off-set greenhouse gasses. Conversely, warmer temperatures, increased risk from invasive species and increased fire risk due to climate change may impact wood harvest capabilities. Increased harvest activities may also harm ecosystems and impact water quality.

Alternative Fuels

Oregon imports all of its petroleum, which leaves the state vulnerable to changes in pricing and disruptions in the event of a natural disaster or fuel shortage. Alternative fuels produced in-state can help reduce those effects.

Alternative fuels may also typically produce fewer greenhouse gas emissions than traditional petroleum-based fuels.

Alternative fuels include:

- Ethanol
- Electricity
- Biofuels
- Renewable Diesel
- Compressed Natural Gas
- Renewable Natural Gas
- Liquified Natural Gas
- Liquified Petroleum Gas
- Hydrogen
- Hybrid or dual fuel

CLIMATE CHANGE

On March 10, 2020, Governor Brown issued Executive Order 20-04, directing state agencies to take actions to reduce and regulate greenhouse gas emissions. The executive order establishes new science-based emissions reduction goals for Oregon. The executive order directs certain state agencies to take specific actions to reduce emissions and mitigate the impacts of climate change; and provides overarching direction to state agencies to exercise their statutory authority to help achieve Oregon’s climate goals.

In February 2021, the Department of Land Conservation and Development (DLCD), in coordination with 24 other state agencies, will present its 2021 [Climate Change Framework](#) to the Legislature. A companion piece, published by the Oregon Climate Change Research Institute in February 2020, identifies increased risks due to climate change for Clatsop County. This study projects higher chances of drought periods, heavy rains, flooding, wildfire, loss of wetland ecosystems, increased ocean temperatures and chemistry changes, changes to average daily temperatures, increased heat waves, and increased coastal hazards such as erosion.

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This study notes that Oregon’s average temperature warmed at a rate of 2.2°F per century from 1895-2015. In Clatsop County, average temperature is projected to warm between 0.9°-3.5°F by 2039. Corresponding, the number of hot days (90° or warmer) will increase between 0.6-0.8 days by 2039 and the number of warm nights (65°F or greater) will increase between 0.2-0.3 days by 2039. In June 2020, Clatsop County, and much of the Pacific Northwest experienced a once-in-a-thousand-year “heat dome”. This oppressive heat mass, which lasted for a day in western Clatsop County and for several days to the east, resulted in damage to vegetation and death in humans.

These projected changes have impacts for renewable energy sources for several reasons, including:

- Wildfires, coastal erosion and flooding may place energy infrastructure at risk
- Increased periods of drought may hamper consistent use of hydropower as water levels become unstable.
- Increasingly warmer or colder days will require more energy use to cool or heat homes and businesses.

DEMAND FOR HOUSING

In 2019, Clatsop County and the cities of Astoria, Warrenton, Gearhart, Seaside and Cannon Beach, completed a housing study to identify opportunities and weaknesses associated with housing supply in Clatsop County. That report concluded that while the County has a surplus of potentially buildable lands, certain types of housing and housing products at specific price-points are either missing from the county’s housing inventory, or are not provided in sufficient quantities.

In March 2020, the coronavirus pandemic resulted in changes worldwide that have significantly altered housing markets, including in Clatsop County. Some people choose to leave more densely populated areas and relocate to more rural areas. Others benefited from remote work options, which no longer tied workers to a specific geographic location. As a result, the median selling price of a home in Clatsop County rose from \$322,500 in November 2018 to \$502,500 in September 2021 (Source: Realtor.com). While some of these home sales will be to households that become permanent Clatsop County residents, many will be vacation homes and some of those will be used for short-term rentals.

The increase in median housing prices, coupled with a lack of long-term rental units, will result in increased pressure to increase housing stock by constructing new residential units. While Goal 14 stresses that higher intensity uses and dense development be directed to urban areas, there is, and will continue to be, a movement to increasing housing development on rural lands. Encroaching residential development has the potential to impact inventoried Goal 5 resources, including wildlife habitat, groundwater, and open spaces.

Continued pressure to direct housing and services away from urbanized areas, as required by

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Goal 14, may result in an increase in vehicle miles travelled by persons who live on rural residential lands that are located further away from employment centers, shopping, schools, medical facilities, and/or recreation centers. The costs associated with increased vehicle miles traveled are shown below.

TABLE 1: ENERGY BURDEN ON CLATSOP COUNTY HOUSEHOLDS	
% of Energy-Burdened¹ Households	23%
Average annual electricity cost	\$1,236
Average annual natural gas cost:	\$627
Average vehicle miles traveled per household	21,825
Average vehicle maintenance cost (fuel, maintenance, repairs)	\$3,500
Annual energy burden gap	\$422
Federal Poverty Level (Family of 3)	\$21,720

Source: 2020 Biennial Energy Report, Oregon Department of Energy

¹“Energy Burdened” households are those that spend more than 6% of their income on purchasing energy

TRANSPORTATION CONGESTION

As the demand for housing increases there is also a corresponding increase in the need to provide new roads to those homes. Again, while Goal 14 directs new housing development primarily to urban areas, partitioning and subdividing of rural lands continues to occur in unincorporated Clatsop County. The construction of new roads, or the expansion of existing roads, has the potential to eliminate or reduce wildlife habitat.

Alternative modes of transportation, such as walking and bicycling are more typically associated with denser urban settings or with remote hiking and mountain bike trails. Little consideration is typically given to trips in rural communities that could potentially be made without the use of a motorized vehicle. For example, installation of a connected sidewalk or bike path system in the Miles Crossing / Jeffers Gardens area could be interconnected to provide residents safe and easy access to businesses in Warrenton without the need for a vehicle or for placing another trip on state and county roads. Such design considerations can help to improve air quality, physical health and reduce traffic congestion.

TOURISM

Clatsop County has historically had a strong tourism base. Per information from Travel Oregon, in 2019 local recreationists and visitors spent \$785 million on outdoor recreation in Clatsop County. Many of those visitors are drawn by Goal 5 resources, including scenic views and sites, open spaces, and wildlife. During the ongoing pandemic, tourism has remained strong as visitors seek outdoor experiences away from crowded venues. However, because of the limited availability of public transit within the county and between adjacent counties and cities, the majority of visitors travel by vehicle to Clatsop County. This increase in traffic also corresponds to an increase in automobile and other vehicle emissions, and may not be economically affordable to all members of the community.