



OREGON
DEPARTMENT OF
ENERGY

2020 Biennial Energy Report

A Brief Introduction

House Interim Committee on Energy and Environment
Director Janine Benner
December 18, 2020



OREGON DEPARTMENT OF ENERGY

Leading Oregon to a safe, equitable, clean, and sustainable energy future.

Our Mission

The Oregon Department of Energy helps Oregonians make informed decisions and maintain a resilient and affordable energy system. We advance solutions to shape an equitable clean energy transition, protect the environment and public health, and responsibly balance energy needs and impacts for current and future generations.

What We Do

On behalf of Oregonians across the state, the Oregon Department of Energy achieves its mission by providing:

- A Central Repository of Energy Data, Information, and Analysis
- A Venue for Problem-Solving Oregon's Energy Challenges
- Energy Education and Technical Assistance
- Regulation and Oversight
- Energy Programs and Activities

2020 BIENNIAL ENERGY REPORT

Goal of the Report

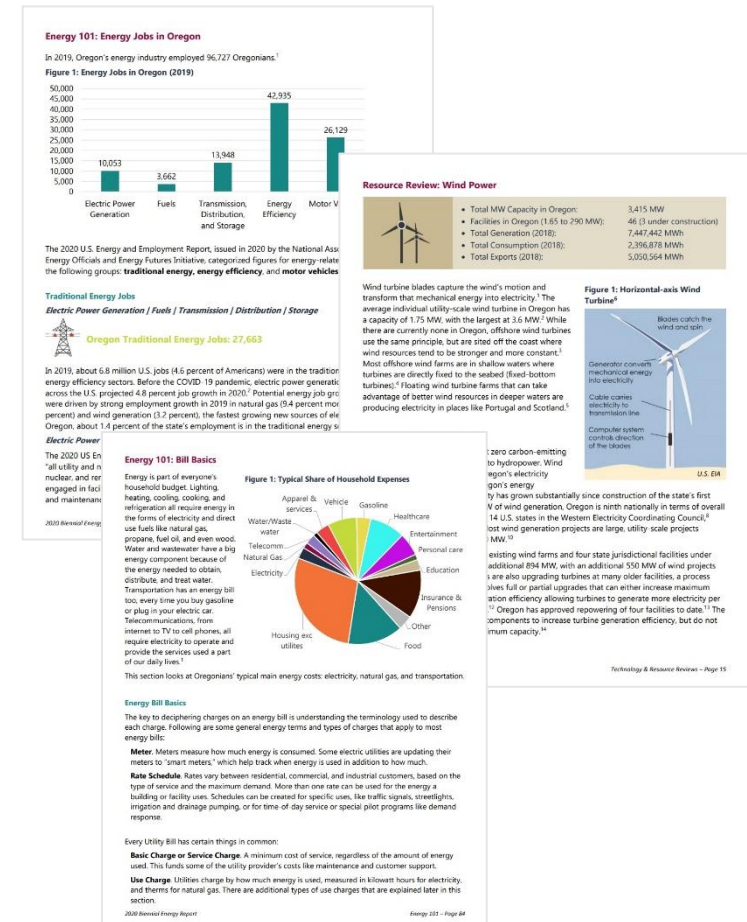
Pursuant to ORS 469.059, provide a comprehensive review of energy resources, policies, trends, and forecasts, and what they mean for Oregon.

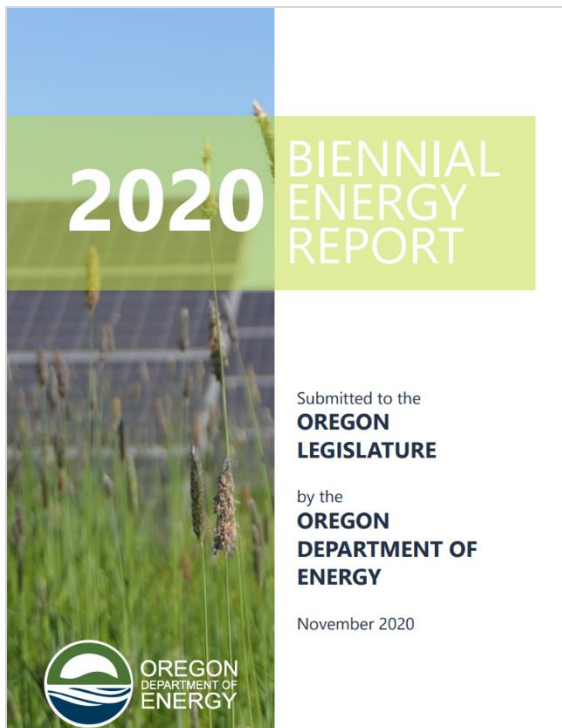
Scoping the Report

Shaped by a data-driven process, equity considerations, and input from stakeholders and the public.

Designing the Report

Shorter briefs on a wider variety of energy topics, tear-away style. Themes cross sections for general 101 or technology reviews and deeper-dive policy briefs.





energyinfo.oregon.gov/ber

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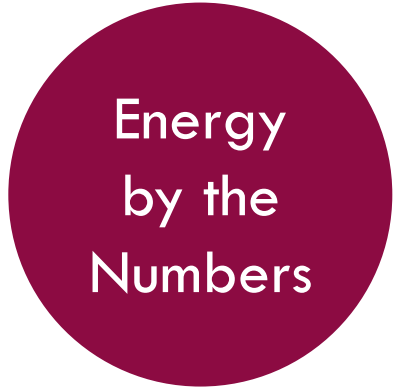
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Conclusion

About the Report





Oregon’s overall and sector-based energy use, energy production and generation, and energy expenditures.

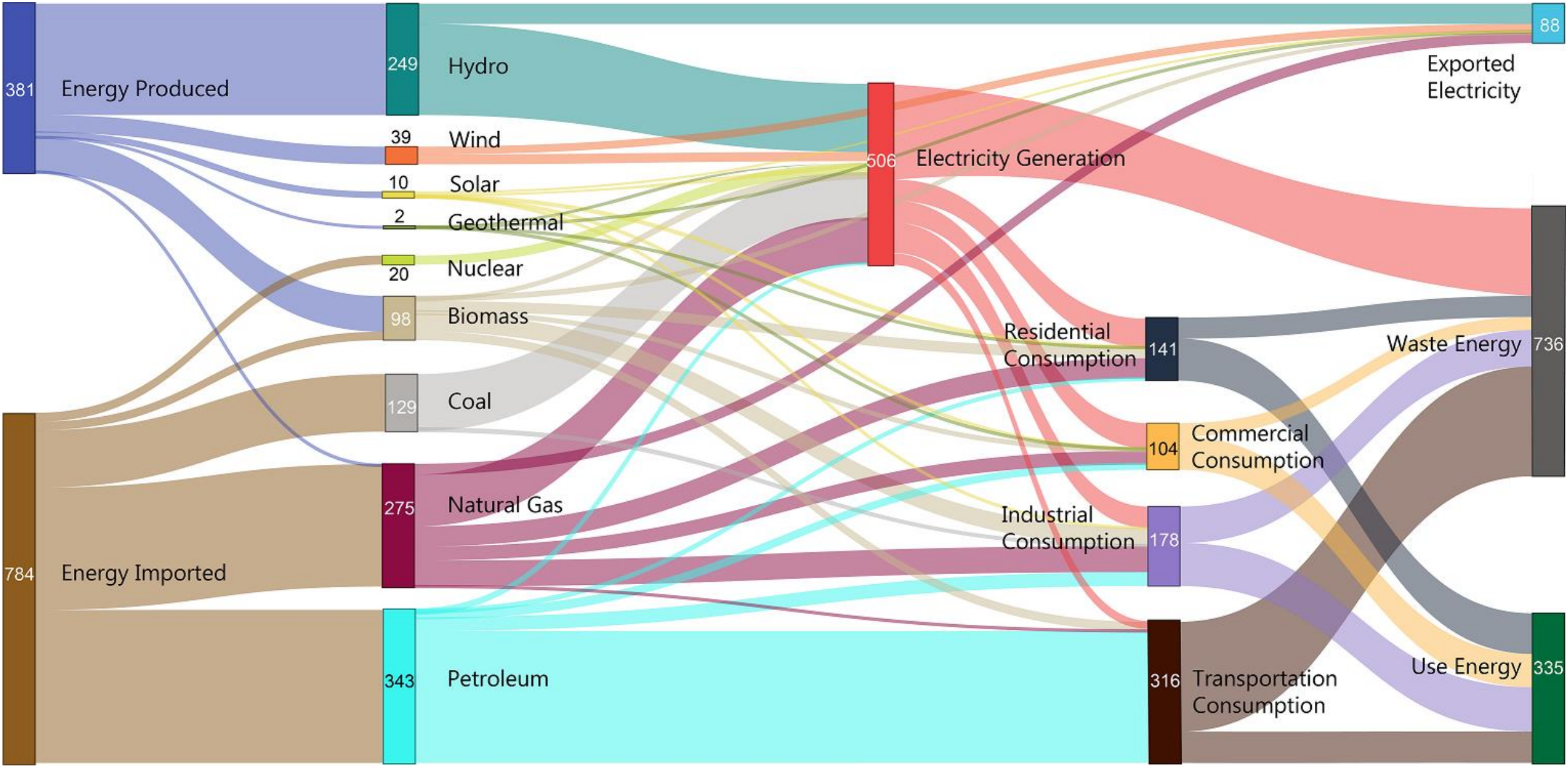
Data and metrics track how Oregon produces, purchases, and uses various types of energy.

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Oregon's Energy Flow



Numbers are in trillions of British thermal units (Btus) 6

History Timeline

The timeline of Oregon's energy history is meant to serve as a useful reference for readers as they review sections of the Energy Report, especially for energy data over time.



Portland during the early morning hours of pumping when gas was limited to five gallons per car on a first-come, first served basis, courtesy of David Falconer/EPA/US National Archives. (1973)



This section is intended to help the reader understand the first part of the energy story: how energy is produced, used, and transformed.

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Energy Facility Siting & Permitting

New energy projects in Oregon are typically proposed and developed by utilities or independent developers. The federal government also owns and operates large scale energy projects in Oregon. For example, the Bonneville Power Administration, a federal government agency, owns and operates much of the high-voltage electric transmission system in Oregon and other neighboring states; and the U.S. Army Corps of Engineers and U.S. Bureau of Reclamation own and operate hydroelectric dams on the Columbia River. The state of Oregon regulates the siting of certain energy projects, but does not own or operate energy projects.

Siting vs. Permitting

Siting: refers to the location, or site, of proposed energy facilities, and typically refers to the process by which those locations are selected.

Permitting: refers to the process for a facility to obtain permits that demonstrate compliance with laws and regulations to construct and operate an energy facility.



Codes & Standards

Codes and standards deliver energy efficiency at low cost. In 2019, 30 percent of the cumulative energy savings in the Pacific Northwest came from codes and standards. Additionally, from 2000-2018, 11 percent of regional savings came from market transformation efforts by the Northwest Energy Efficiency Alliance (NEEA) – work that directly leads to updates of codes and standards.

Figure 1: Status of State Energy Code Adoption for Residential Buildings¹⁰

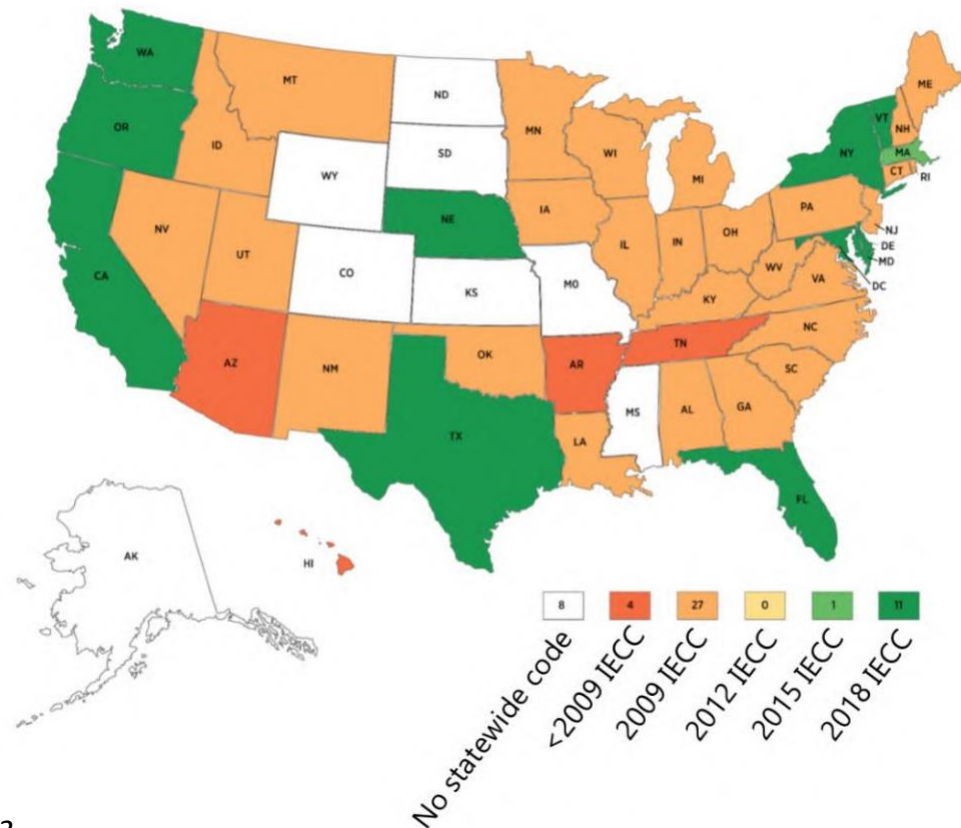
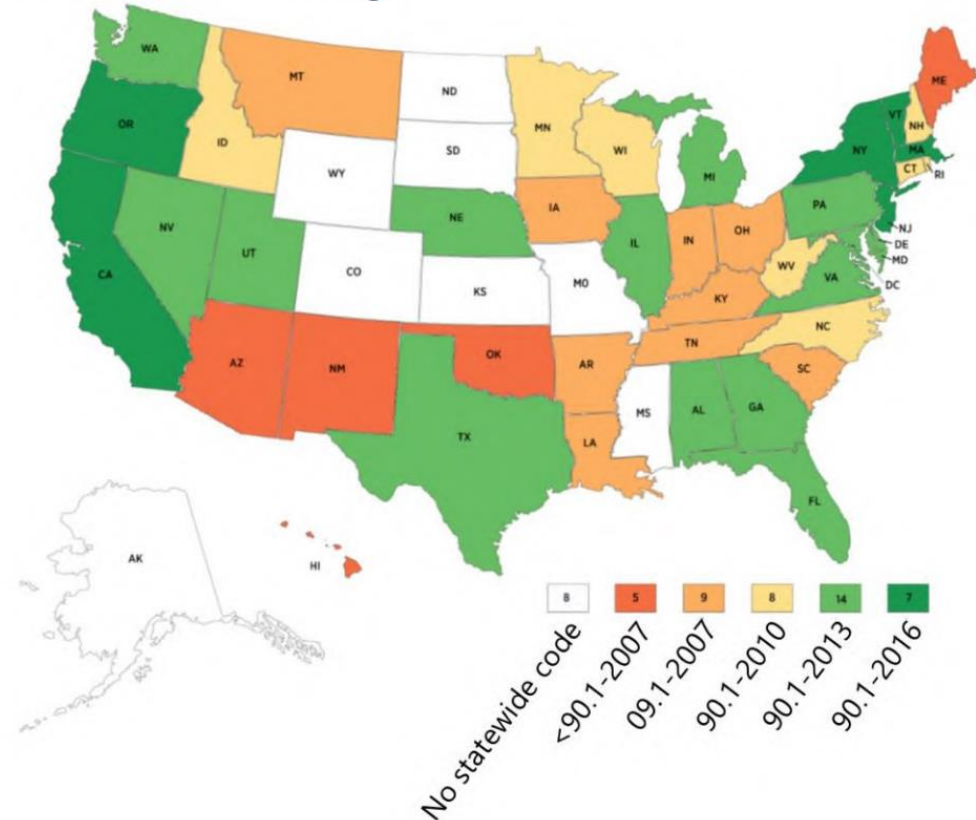


Figure 2: Status of State Energy Code Adoption for Commercial Buildings¹⁰



Resource & Technology Reviews

The reviews in this section cover the spectrum of traditional to innovative – and demonstrate the breadth of technology that is integral to the production and management of our energy system.

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Resource and Technology Reviews

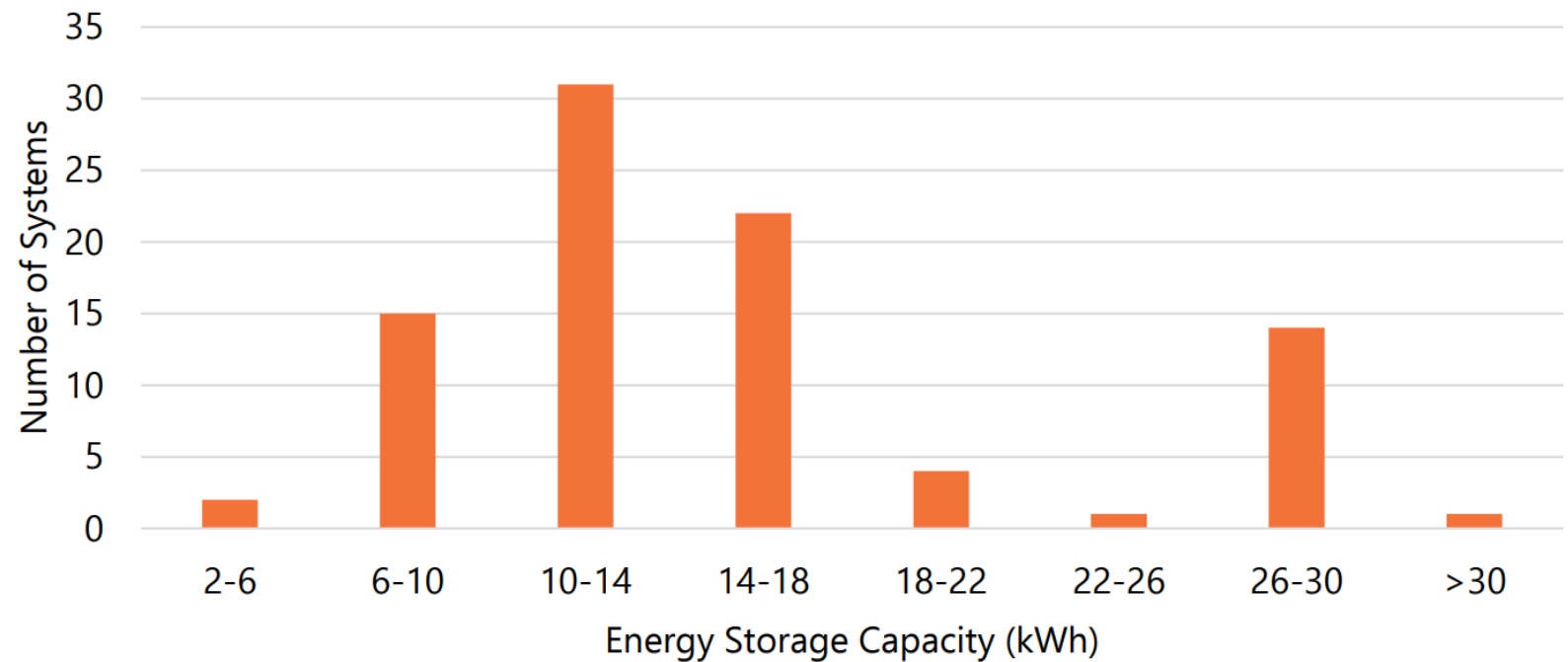
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Residential Energy Storage



- Peak Power Capacity in Oregon: 670 kW
- Facilities in Oregon: 291
- Maximum Stored Energy in Oregon: 1,440 kWh
- Range of Sizes: 2.4 to 46 kWh

Figure 1: Range of Residential Battery Sizes in Oregon (2018-2020)



As of September 2020, the Oregon Department of Energy’s Oregon Solar + Storage Rebate Program has provided rebates for 11 residential battery systems paired with solar.

Small Modular Reactors



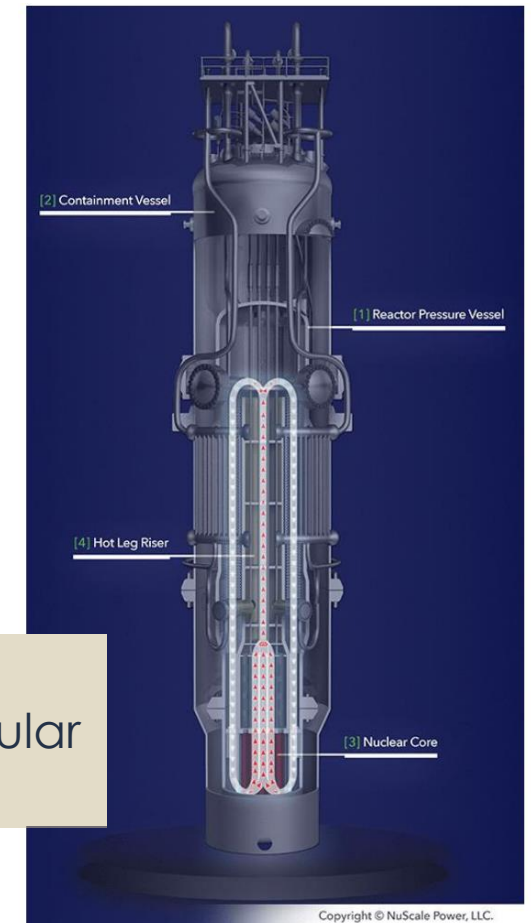
- Total Capacity and Facilities in Oregon: 0
- Range of Potential Sizes: 60 – 250 MW per module

Oregon-based NuScale developed the first modular reactor to receive design approval by the U.S. Nuclear Regulatory Commission.

While there are small, traditional nuclear reactors operating in the world, there are no new-generation SMRs yet in operation. The International Atomic Energy Agency reports that of the 50 or more designs being pursued, there are “four SMRs in advanced stages of construction in Argentina, China and Russia, and several existing and newcomer nuclear energy countries are conducting SMR research and development.”

Oregon has statutory barriers to siting nuclear power plants in the state. One barrier: Oregon voters would have to approve any nuclear facility.

Design Illustration of
NuScale Power Modular
Reactor



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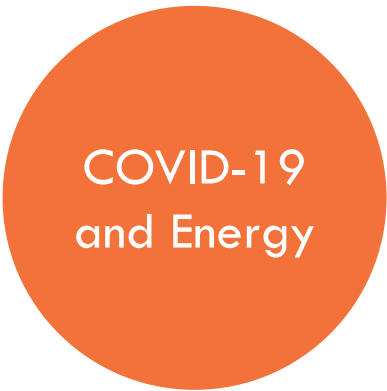
Policy Briefs

This section provides deeper-dive insights on emerging energy trends, opportunities, and barriers in the energy sector.

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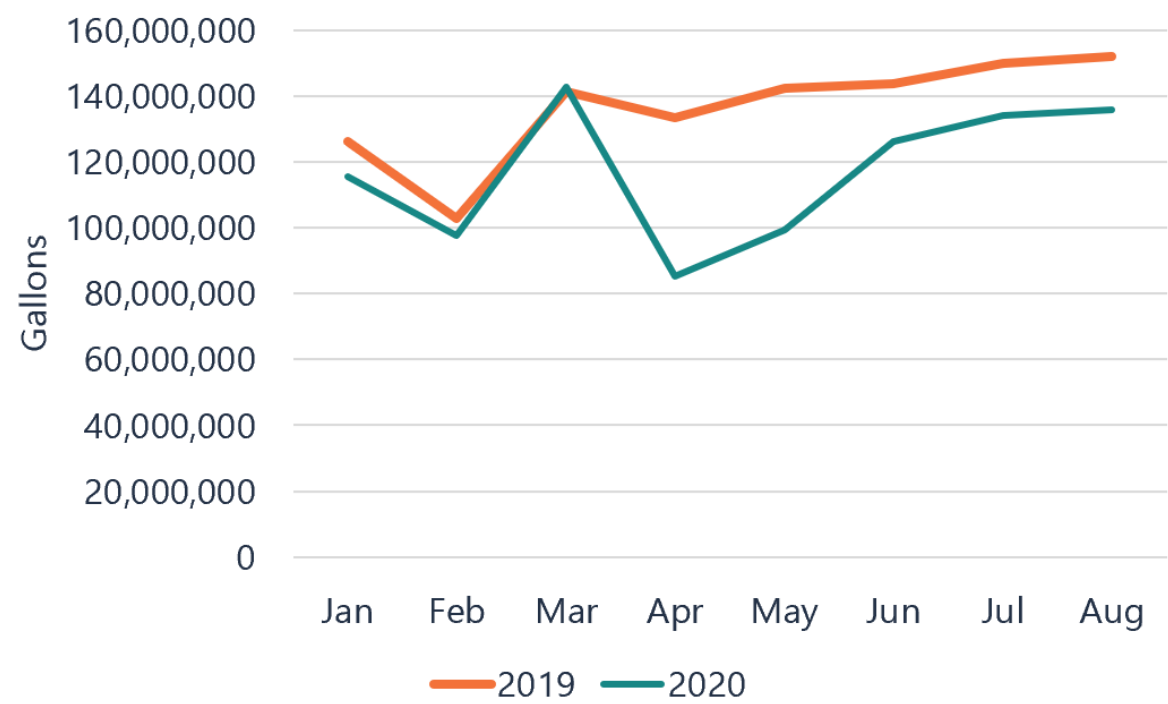
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The COVID-19 pandemic has affected the energy sector in many ways, both around the world and in Oregon. Because of COVID-19 we saw energy consumption behavior change quickly. For example, the U.S. Energy Information Administration (EIA) reported that total national energy consumption in April 2020 was 14 percent lower than in April 2019, the lowest monthly energy consumption since 1989 and the largest year-over-year decrease since EIA began tracking this data in 1973.

Figure 2: Oregon Gasoline Consumption
(2019 Compared to 2020 January – August)¹⁴



Some Oregon utilities have taken action in the wake of the COVID-19 outbreak:

- Waiving fees for disconnections and reconnections.
- Waiving the accrual and collection of late payment fees, interest, and penalties.
- Increasing the duration and flexibility for payment arrangements to pay off past due balances.
- Creating new relief funds offering bill credits to customers who have lost income due to the pandemic.
- Assisting business customers in applying for federal COVID-19 aid.
- Relaxing eligibility conditions for equal payment plans.
- Refunding security deposits or applying them to utility bills.
- Easing paperwork requirements to qualify for energy assistance programs and medical certification.

Equity & Renewable Energy

Oregon has been a leader in development of renewable energy for many years. Customer-owned or on-site renewables can provide individual financial benefits, societal benefits associated with clean energy production, and economic development associated with jobs to install systems. However, access and benefits of on-site renewable energy systems have not been enjoyed by all Oregonians.

Figure 1: Annual Count and Average Cost of PV installations in the Residential Energy Tax Credit Program

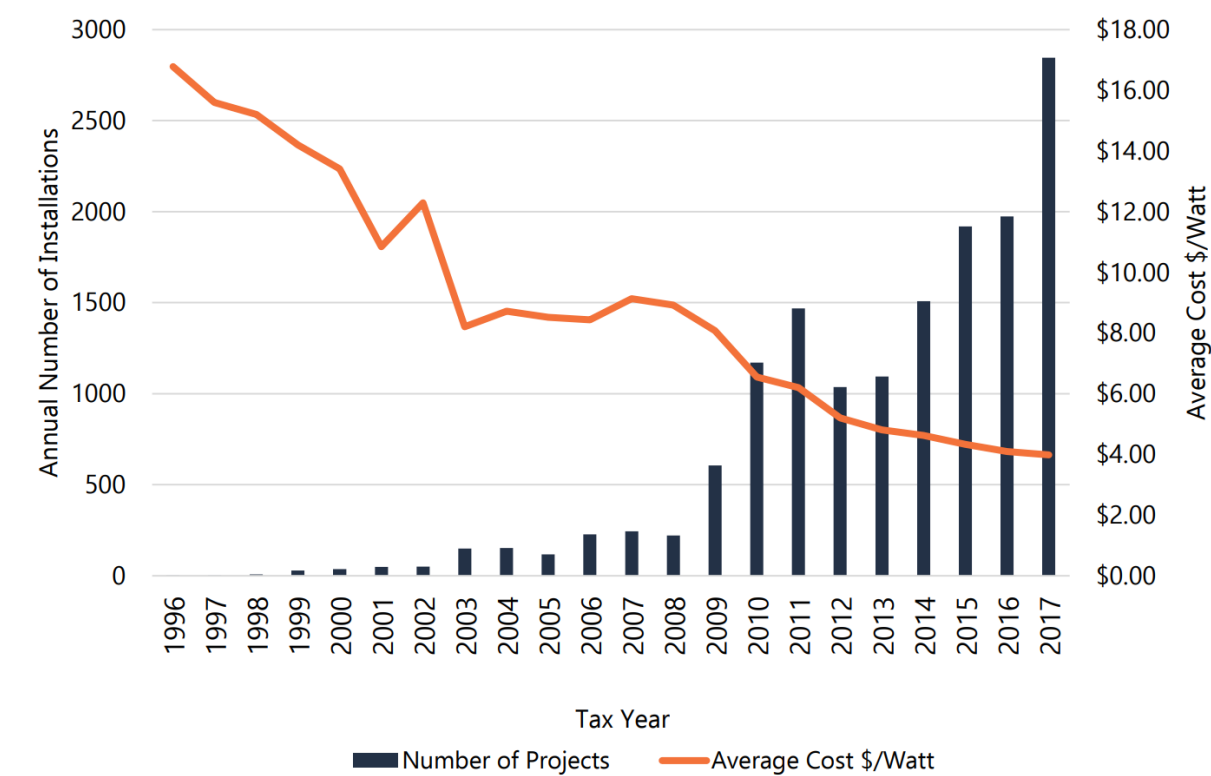
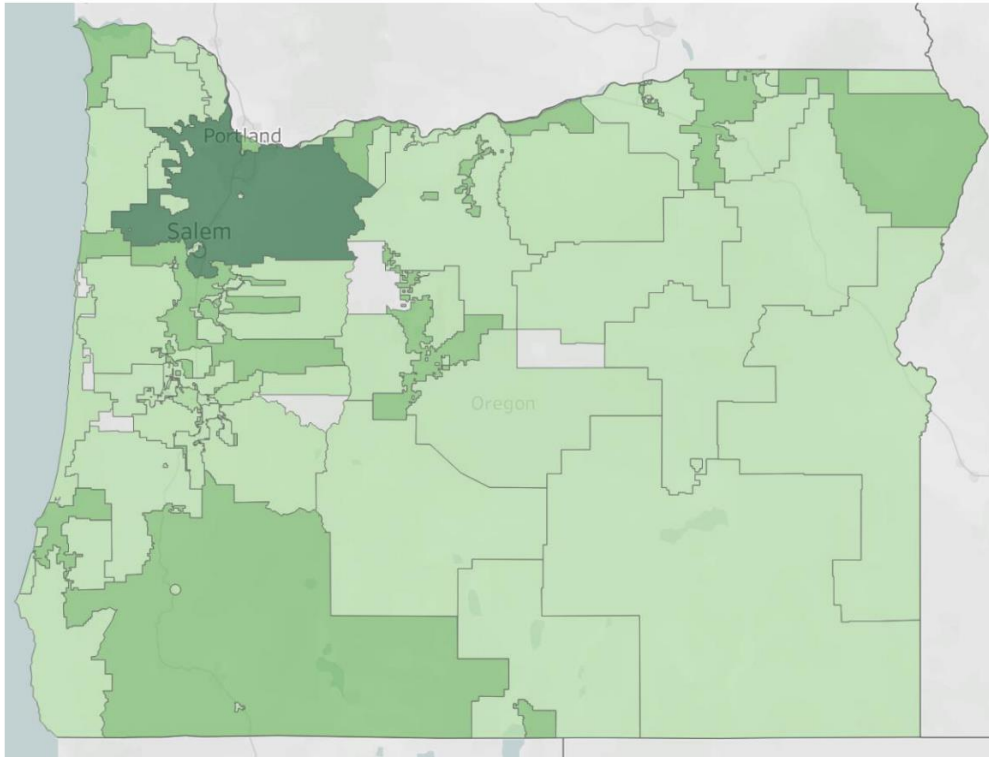


Table 2: Race Distribution of 2010 RETC Census Blocks

	2010 Oregon Population Race Distribution	2010 RETC Block Group Race Distribution
White	78.46%	84.76%
Hispanic	11.75%	6.40%
Asian	3.64%	3.29%
Two or More Races	2.87%	2.76%
Black	1.70%	1.61%
American Indian and Alaska Native	1.14%	0.81%
Hawaiian / Other Pacific Islander	0.33%	0.22%
Other	0.14%	0.16%

CROSS-SECTIONAL TOPICS

Figure 2: Registered EVs by Oregon Utility Service Territory⁴



Darker shades of green = more registered EVs

Alternative Fuels and Electric Vehicles

Transportation is the largest contributor of greenhouse gas emissions in Oregon, so increasing low- and zero-emission vehicle options can help address climate change. Sections discuss the technologies, how increased adoption can affect utilities and the electric grid, and more.

- ➔ Energy 101: Where Transportation Fuels Come From
- ➔ Technology Reviews: Electric Vehicles, Charging, & Hydrogen Cars
- ➔ Policy Brief: Assessing & Managing Effects of EVs on the Grid
- ➔ Policy Brief: Using Truck Efficiency to Reduce Fuel Consumption and Emissions
- ➔ Policy Brief: Alternative Fuels Assessment for Medium- & Heavy-Duty Fleets

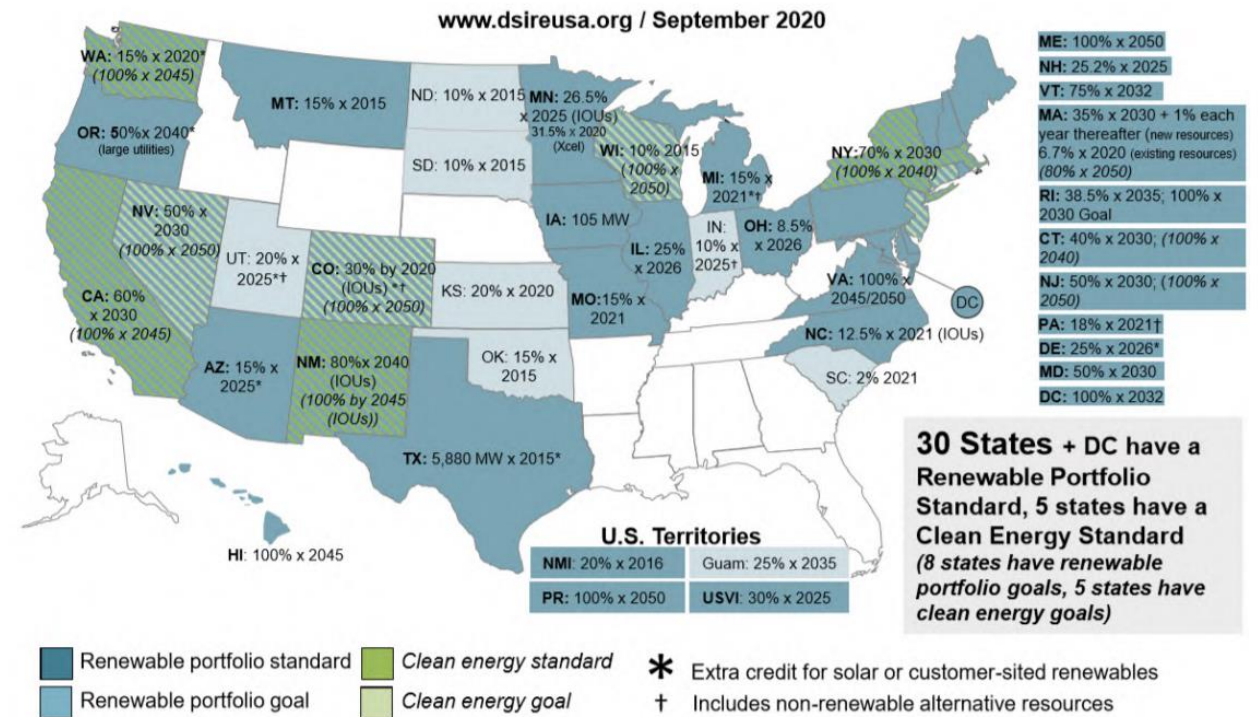
CROSS-SECTIONAL TOPICS

Resource Adequacy & Clean Energy Standards

Resource adequacy ensures there are sufficient resources available to meet electricity needs. As more coal plants head toward retirement and renewable energy facilities come online, addressing resource adequacy will become even more important.

- ➔ Energy 101: Clean & Renewable Standards
- ➔ Policy Brief: Renewable & Zero Emission Standards
- ➔ Technology Reviews: Storage, Solar, Wind, Coal
- ➔ Energy 101: Resource Adequacy
- ➔ Policy Brief: Resource Adequacy

Figure 1: Renewable and Clean Energy Standards in the United States





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Questions/Comments?

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