

A photograph of a wind turbine in a field, with other turbines visible in the distance under a cloudy sky. The image is split into two vertical panels: the left panel shows the turbine and field, and the right panel is a solid teal color containing text.

# 2022

# BIENNIAL ENERGY REPORT

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# 2022 BIENNIAL ENERGY REPORT

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## Executive Summary

In 2017, the Oregon Department of Energy, recognizing that the energy world has changed dramatically since the 1970s, introduced House Bill 2343 to the Legislature. The bill charged the department with developing a new Biennial Energy Report to inform local, state, regional, and federal energy policy development and energy planning and investments. The Oregon Department of Energy released reports in 2018 and 2020, which are available online: <https://www.oregon.gov/energy/Data-and-Reports/Pages/Biennial-Energy-Report.aspx>. This 2022 report – based on analysis of data and information collected and compiled by the Oregon Department of Energy – provides data and information on key energy resources, policies, trends, and forecasts, and what they mean for Oregon.

### What You Can Expect to See in the 2022 Biennial Energy Report

The 2022 report is divided into several sections, walking through how Oregon is on the path to a cleaner, low-carbon future. Data and examples included in the report illustrate the many considerations and investments in new energy resources, system-wide planning, and responsible management. These efforts have positioned Oregon to successfully tackle today's energy challenges and needs, which are driven by a changing energy landscape bolstered by new statewide clean energy policies – and by Oregonians embracing cleaner energy, economic innovation, and emerging technologies.

The report begins by looking at **Energy by the Numbers** – detailed information on how energy flows through Oregon, from production and imports to use and exports, the state's overall and sector-based energy use, energy production and generation, energy expenditures, and the strategies Oregon has employed to meet growing energy needs.

Next up is a snapshot of the **Timeline of Energy History in Oregon**. This year, the Oregon Department of Energy developed the timeline into an online, interactive tool that provides an insightful and informative journey through Oregon's energy history and present. Photos, videos, and audio clips accompany the timeline events. View the history timeline online: <https://energyinfo.oregon.gov/timeline>

The **Resource and Technology Reviews** section covers the spectrum of traditional and innovative energy resources and technologies, from the basics about electricity generation to energy efficient building technologies and transportation fuels. The topics covered are some of the foundational elements of energy's landscape.

The **Energy 101** section aims to help readers understand the basics about how energy systems are planned and managed, along with innovative actions within communities and sectors. This information is meant to provide a foundation for those new to energy and those who are already steeped in the sector. Topics this year range from safety and resilience to resource planning and actions addressing climate change.

The final section includes more detailed **Policy Briefs** that dive into how Oregon could accelerate the transition to a clean energy future, a case study on the Oregon Clean Energy Opportunity Campaign that helped the state pass bold new clean energy policies and targets, workforce and supply chain challenges, and more. The primary purpose of the report – and these policy briefs – is to inform energy policy development, energy planning and energy investments, and to identify opportunities to further Oregon’s energy policies.

The Biennial Energy Report wraps up with an overarching **Recommendation** that emerged as we analyzed the numbers, reviewed and researched existing and new technologies, and explored clean energy policies: *Oregon would benefit from a strong statewide energy strategy to align policy development, regulations, financial investments, and technical assistance.* A strong strategy, if done right, would optimize pathways to meet our clean energy goals, prioritize equity, balance tradeoffs, maximize benefits and minimize harms, and ultimately be used to make informed decisions and take action.

ODOE looks forward to sharing this report with Oregonians across the state to share lessons learned and hear feedback about what the agency should focus on over the next two years – and beyond.

The Biennial Energy Report may be found in its entirety at

<https://energyinfo.oregon.gov/ber>

or

<https://www.oregon.gov/energy/Data-and-Reports/Pages/Biennial-Energy-Report.aspx>

The Department of Energy welcomes comments, questions, and requests for presentations or webinars on report topics. Visit <https://odoe.powerappsportals.us/en-US/ber-comment/>.



In my first *State of the State* address after being sworn in as Governor in 2015, I remarked that Oregon’s way of life was being threatened by climate change. Six years later, the need to address the climate crisis is even more urgent. Our state has been ravaged in recent years by damaging floods, record ice storms, extreme heat waves, and devastating wildfires. Instead of these events feeling unexpected or unusual, they now feel like the new normal.

What is different? How we are responding. We’ve adopted landmark clean fuels legislation to improve air quality and reduce Oregon’s carbon footprint. I issued executive orders to bolster electric vehicle adoption and improve energy efficiency in our built environment, and to direct state agencies to take actions to reduce and regulate harmful greenhouse gas emissions. In 2021, Oregon passed legislation that requires our largest electric utilities to provide 100 percent clean electricity to their customers by 2040. In 2022, Oregon’s Climate Protection Program set a declining limit on greenhouse gas emissions from fossil fuels used throughout Oregon – which will reduce emissions over time while containing costs and promoting equity among Oregon’s diverse communities.

We’re already seeing results. Today, Oregon has more than 50,000 electric vehicles on our roads and our electricity mix is getting cleaner. The Oregon Global Warming Commission announced that thanks to Oregon’s bold new policies, our 2035 greenhouse gas reduction goal is now within reach.

While we’re on a better path, there is still much work to be done. As you’ll see in the pages of this Oregon Department of Energy report, the transportation and energy sectors remain the largest contributors to the state’s greenhouse gas emissions – but they are also evolving. New opportunities and technologies are emerging that could boost renewable electricity running through our transmission lines and reshape how Oregonians travel and move goods across the state.

I hope my successor in the Governor’s office, my colleagues in the State Legislature, and my fellow Oregonians use this report – and the ODOE professionals who developed it – to better understand Oregon’s current energy profile, outlook, and potential future. I encourage you to dive into the resource and technology reviews, energy 101s, and policy briefs on topics like energy storage, backup power, transportation fuels, energy efficiency, and more. Assess opportunities for Oregon’s agricultural sector and review what drives energy costs for consumers.

Each of us can make a difference in meeting Oregon’s climate goals. I encourage you to use the information in this report to make smart energy decisions for your home or business and for our state. Let’s continue to move forward and forge a better path for the next generation of Oregonians. There is no time to waste.



Governor Kate Brown



Two years ago, when the Oregon Department of Energy last published this report, we featured a new energy history timeline to illustrate how historical events have shaped Oregon's energy landscape – and how Oregon's energy landscape has shaped history. As a former history major, it was my favorite addition to the report. In introducing the timeline in 2020, we asked, "What will be added by the time we publish the *2022 Biennial Energy Report*?"



As it turns out, a lot. The last two years have brought significant changes to energy in Oregon. The state's only coal-fired power plant was demolished. We celebrated reaching more than 50,000 electric vehicles on Oregon's roads – a 50-fold increase in just over a decade. ODOE launched new financial incentive programs for community renewable energy projects and energy efficient wildfire recovery. Portland General Electric's Wheatridge facilities – a first-of-its-kind set of energy facilities combining solar, wind, and battery storage – began operating in Morrow and Umatilla counties. Boardman-to-Hemingway, a 300-mile, 500-kilovolt transmission line, was approved by the Energy Facility Siting Council. NW Natural began pursuing contracts with renewable natural gas producers to add to the company's supply. The Oregon Department of Environmental Quality's Climate Protection Program launched, which sets a declining limit/cap on greenhouse gas emissions from fossil fuels used throughout the state. The Oregon Legislature passed House Bill 2021, a landmark bill that not only set one of the fastest timelines for emissions-free electricity in the country (100 percent clean by 2040 for most of the state's electricity), but also centers communities of color and rural, coastal, and low-income communities in the transition to clean energy.

There is no doubt that we are making history and moving toward a clean energy future. In July, the Oregon Global Warming Commission shared a new analysis that shows the state's greenhouse gas reduction goal is within reach, thanks to the state's bold energy and climate change policy advances. If Oregon successfully implements our policies, like HB 2021 and the Climate Protection Program, we could reach our goal of reducing emissions to at least 45 percent below 1990 levels by 2035.

It's amazing news, but getting there won't be easy. As Oregon makes this progress, it is essential that the clean energy transition moves forward in an equitable and affordable way – a way that doesn't leave Oregonians behind. In developing the 2022 report, an overarching recommendation emerged as we analyzed the numbers, reviewed and researched existing and new technologies, and explored clean energy policies: **Oregon would benefit from a strong statewide energy strategy** to align policy development, regulations, financial investments, community needs, and technical assistance. A strong strategy, if done right, would optimize pathways and leverage local solutions to meet our clean energy goals, prioritize equity, balance tradeoffs, maximize benefits and minimize harms, and ultimately be used to make informed decisions and take action. The Oregon Department of Energy ready to collaborate and make that energy strategy a reality.

In service of our mission, we provide a venue for problem-solving Oregon’s energy challenges, and we act as a central repository for energy data, information, and analysis (or as Senator Lee Beyer once dubbed us: a Think Tank). We’re proud to serve in this role – and to produce this biennial report to help keep Oregon on the leading edge of energy policies, technologies, and trends.

Within these pages, we hope elected officials, policymakers, advocates, and other Oregonians find useful information that builds on the foundation of our past reports. Once again, we begin with Energy by the Numbers – a section that lays out trends and indicators on where we are today in Oregon’s energy landscape. Next, the energy history timeline provides important context (in a multi-media, interactive way) on how Oregon’s energy systems, actions, and policies have evolved over time. Then our collection of Energy 101s, Resource and Technology Reviews, and Policy Briefs dive into more specific topics – including safety, resilience, energy efficiency, clean energy, and more.

In addition to this 2022 report, the Oregon Department of Energy has been building a digital reference library. In 2021, we published our inaugural Biennial Zero Emission Vehicle Report, which looks at data, trends, and challenges of electric and zero emission vehicle adoption in Oregon. We’ve also published studies identifying the opportunities, challenges, and barriers of emerging energy topics: potential formation of a Regional Transmission Organization in Oregon; integration of floating offshore wind facilities into the grid; and small-scale and community-based renewable energy projects. We’ll also publish a study later this year on the potential benefits and barriers of production and use of renewable hydrogen in the state.

So dive in! We hope you use this information to engage in collaborative discussions and weigh options for addressing the energy challenges we face today – in our homes, farms, and businesses, and the way we travel. Reach out to the Oregon Department of Energy anytime to have a conversation, explore solutions, or request a workshop or presentation on an energy topic for your organization or community.

Together, we will continue forging the path to a safe, equitable, clean, and sustainable energy future.



Director Janine Benner  
Oregon Department of Energy



# Tribal Land Acknowledgement

Indigenous tribes and bands have been with the lands that we inhabit today throughout Oregon and the Northwest since time immemorial and continue to be a vibrant part of Oregon today. We would like to express our respect to the First Peoples of this land, the nine federally recognized tribes of Oregon: Burns Paiute Tribe, Confederated Tribes of Coos, Lower Umpqua & Siuslaw Indians, Confederated Tribes of Grand Ronde, Confederated Tribes of Siletz Indians, Confederated Tribes of the Umatilla Indian Reservation, Confederated Tribes of the Warm Springs Reservation, Coquille Indian Tribe, Cow Creek Band of the Umpqua Tribe of Indians, and The Klamath Tribes.

It is important that we recognize and honor the ongoing legal and spiritual relationship between the land, plants, animals, and people indigenous to this place we now call Oregon. The interconnectedness of the people, the land, and the natural environment cannot be overstated; the health of one is necessary for the health of all. We recognize the pre-existing and continued sovereignty of the nine federally recognized tribes who have ties to this place and thank them for continuing to share their traditional ecological knowledge and perspective on how we might care for one another and the land, so it can take care of us.

We commit to engaging in a respectful and successful partnership as stewards of these lands. As we are obliged by state law and policy, we will uphold government-to-government relations to advance strong governance outcomes supportive of tribal self-determination and sovereignty.

## About the Oregon Department of Energy

### 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.

### Our Values

- We listen and aspire to be inclusive and equitable in our work.
- We are ethical and conduct our work with integrity.
- We are accountable and fiscally responsible in our work and the decisions of our agency.
- We are innovative and focus on problem-solving to address the challenges and opportunities in Oregon's energy sector.
- We conduct our agency practices and processes in a transparent and fair way.

### Our Position

On behalf of Oregonians across the state, we achieve our 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

[www.oregon.gov/energy](http://www.oregon.gov/energy) | [AskEnergy@oregon.gov](mailto:AskEnergy@oregon.gov) | 800-221-8035



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