



2018

BIENNIAL ENERGY REPORT

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DEPARTMENT OF
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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 HB 2343. 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. This report – based on analysis of data and information collected and compiled by the Oregon Department of Energy – provides a comprehensive review of energy resources, policies, trends, and forecasts, and what they mean for Oregon.

What You Can Expect to See in the 2018 Biennial Energy Report

The inaugural Biennial Energy Report provides foundational energy data about Oregon. It also examines the existing policy landscape and identifies a number of options for continued progress toward meeting the state’s goals in the areas of climate change, renewable energy, transportation, energy resilience, energy efficiency, and consumer protection.

As each chapter of the report discusses, Oregon is on a path toward transitioning to a cleaner, low carbon future. Looking at what this means for Oregon is a main theme throughout the report. Data and examples included in the report illustrate the effects from the state’s early and sustained investments in energy efficiency, renewable energy resources, and conservation. These efforts have positioned Oregon to successfully tackle today’s energy challenges, which are driven by growing demand from consumers for cleaner energy, forecasted population growth, and emerging technologies.

The report begins by looking at **energy by the numbers**—detailed information on Oregon’s overall and sector-based energy use, energy production and generation, energy expenditures, and the strategies Oregon has employed to meet growing energy demand. This chapter also provides background information on Oregon’s foundational energy policies and regulatory framework.

The **climate change** chapter presents an overview of current literature on strategies to reach deep decarbonization, with consideration of policy design issues such as timing, costs and benefits, equity and environmental justice concerns, and environmental tradeoffs. This section delivers an overview of greenhouse gas emissions mitigation options and opportunities across Oregon’s energy sectors.

Oregon’s renewable energy capacity has grown over the years. The **renewable energy** chapter looks at how and why this has happened: the policies supporting renewable energy, the growing demand for cleaner electricity, plus the substantial reductions in the costs of renewable energy technologies. The chapter also identifies a number of challenges and opportunities as Oregon integrates more variable renewable electricity onto the grid. It ends with a case study on solar energy.

The fourth chapter, on **transportation**, focuses on fuel use and emissions of fuels used in light-duty vehicles—passenger cars, pickup trucks, and SUVs. This segment of road users represents the bulk of Oregon’s transportation-related fuel costs and is the highest emitter of greenhouse gases in the transportation sector. The chapter begins with an overview of national and state trends, looks at policies and strategies at work in the state to meet Oregon’s GHG reduction goals, and discusses the



adoption of electric vehicles in Oregon.

With the prospect of a major earthquake and tsunami in Oregon, the state is working to prepare and build resilient energy systems. The fifth chapter explores what activities are currently underway to improve the **resilience** of Oregon's energy sector when facing extreme or disruptive events. It also considers what more can be done to prepare, with a particular focus on improving community energy resilience. The chapter also touches on how energy resilience factors into climate change policy discussions.

Energy efficiency has been the cornerstone of Oregon energy policy for decades. The sixth chapter discusses policies that promote **energy efficiency** in Oregon, how efficiency is acquired through programs and incentives, and specifically how Oregon is performing in our energy efficiency activities. While accounting for the success Oregon has had in this field, the chapter also looks forward and discusses actions Oregon can take to achieve further energy efficiency.

The seventh chapter takes on some of the most important energy issues facing Oregonians: **energy burden**, **consumer protection**, and **equity**. This chapter explores the effects on residential consumers, especially those who are most vulnerable, when faced with a rapidly changing energy sector, and uncertainties about what these changes may bring. In the energy world, consumer protection has been around for almost a century, but challenges persist for energy-burdened customers. As energy-related policies and programs evolve, there is increasing interest in securing more equitable outcomes for all Oregonians.

Energy Report Highlights

- Key Takeaways — each chapter contains key takeaways that capture the essence of the information being provided
- Energy Sector and Use Information — chapter one provides energy sector profiles, including a section for 2016 energy consumption and energy expenditures
- County-Specific Information — chapter one delivers a county-by-county look at how Oregonians heat their homes
- Oregon GHG Emissions Data — includes 2040 GHG targets for Oregon metropolitan areas, passenger vehicle emissions, and other relevant information

The Biennial Energy Report contains several recommendations in the closing pages. The recommendations are a reflection of the work conducted by the Oregon Department of Energy and informed by our many stakeholders, as well as our state and regional partners. The report organizes recommendations around four key themes: gaps in data, addressing equity and energy burden, planning for the future, and assessing the need for state engagement and investment.

The Biennial Energy Report may be found in its entirety at

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

or

www.oregon.gov/energy/Data-and-Reports/Pages/Reports-to-the-Legislature.aspx

The Department of Energy welcomes your comments and questions. Please contact our agency at askenergy@oregon.gov.



About a year ago, the Oregon Department of Energy asked what we thought was a fairly simple question: what would you like to see in a new Biennial Energy Report for the state? We figured we'd get some interesting feedback, but we underestimated just how varied and rich those suggestions would be.

Between an online survey, in-person meetings, and informal conversations, we heard from more than 250 people across the state. Oregonians wanted information and research and, above all, answers to all sorts of questions, from relatively straight-forward inquiries about how much renewable energy we have in the state to more complicated questions such as what resource is being used to produce electricity at a given time of day.

We weren't able to follow up on every suggestion we received, but we certainly tried, which is why this first report is not exactly a quick read. The fact is, energy is complex and often complicated, and it's interconnected to so much that matters across our state — from land use and air quality to how we get to work or whether we can afford to pay our bills. It's inextricable from some of the biggest issues facing our state: climate change, emergency preparedness, a strong economy. Once we started pulling one thread, we just kept going.

We also found while putting this report together that it's hard to write about energy in Oregon without feeling proud about our state. When it comes to energy and climate leadership, Oregon punches above our weight. We've developed home-grown renewable energy resources and are moving the state beyond coal-fired electricity. We've invested in energy efficiency that delivers countless returns — from avoiding the need for new power plants to more comfortable and efficient homes. We're leaders on reducing greenhouse gas emissions, supporting adoption of electric vehicles, and encouraging energy innovations and emerging technologies.

And that's just part of the story we're telling in 2018.



One thing that really stood out as we explored the suggestions we received from stakeholders is that Oregon's energy story today is very much a product of decisions made in years past. And that reminds us that the decisions we make over the next few years will not only inform future energy reports, they will also influence Oregonians' lives for decades — for a generation or more.



So when this report comes around again in two years, we want to be able to tell a new story about energy in Oregon and about the progress we've made on the state's most pressing energy and climate issues. As proud as we are of Oregon's energy accomplishments today, it's incumbent upon us to help shape what our state looks like tomorrow - where we work together to find the appropriate policies, plans, and actions that address the serious challenges ahead, and where we continue to make meaningful steps toward a clean energy future.

We also acknowledge that while this report answers a lot of questions, it probably raises even more. We hope Oregonians will reach out and provide feedback on this report and ideas for the next edition.

For now, Oregon decision-makers need comprehensive data and information to draw on as they weigh options for addressing various energy and climate issues and developing leading-edge policy. Hopefully, the statistics and deep dives into diverse energy topics included in this inaugural Biennial Energy Report support thoughtful and deliberate planning and, ultimately, continued climate and energy leadership across the state.

Janine Benner
Director, Oregon Department of Energy



About the Report

In 2017, the Oregon Legislature charged the Oregon Department of Energy with developing a comprehensive energy report to inform local, state, regional, and federal energy policy development and energy planning and investments, and to identify opportunities to further energy policies in our state. Our goal is to summarize and analyze Oregon's current energy resources while exploring energy topics important to people across the state. As we see in the news every day, energy is a fast-moving topic. This inaugural Biennial Energy Report is intended to help Oregonians keep up with trends, impacts, and changes in the energy sector and—more importantly—understand what those changes mean for our state.

About the Oregon Department of Energy

Our mission: leading Oregon to a safe, clean, and sustainable energy future

At the Oregon Department of Energy, we're dedicated to keeping our state on the leading edge of energy efficiency, renewable energy, and energy resilience. Our focus is on reliable, accessible energy for every Oregonian, and on safe, secure energy systems with diverse resources that can withstand change, including emergencies. As we support efforts to meet our most pressing challenges, including climate change, we're committed to meaningful, effective energy systems and policy that reflect Oregonians' needs and values.



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