CHAPTER 8: RECOMMENDATIONS

As shown in each chapter of this report, Oregon's energy sector is in transition. This creates challenges and opportunities for policy makers, regulators, energy leaders, and ultimately every Oregonian.

The state's early investment in energy efficiency, clean energy resources, and conservation has positioned Oregon well to begin tackling today's challenges, which are fueled by a growing demand from consumers for cleaner energy, forecasted population growth, and emerging technologies.

The Oregon Department of Energy's first comprehensive look at energy policies, trends, and forecasting came soon after the agency's creation in 1975.

This early version of a biennial energy plan was aptly titled *Transition* – accurately describing an energy sector in flux after a fuel crisis. Fast forward 43 years, and the agency has developed a new, comprehensive Biennial Energy Report. Our new report is modernized, yet still captures some of the same drivers and challenges the energy sector experienced in the 1970s – plus new ones, like resilience and climate change.

As shown in each chapter of this report, Oregon is still in transition. This creates challenges and opportunities for policy makers, regulators, energy leaders, and ultimately every Oregonian. The state's early investment in energy efficiency, clean energy resources, and conservation has positioned Oregon well to begin tackling today's challenges, which are fueled by a growing demand from consumers for cleaner energy, forecasted population growth, and emerging technologies.

The Biennial Energy Report frames Oregon's existing policies and programs in the areas of climate change, renewable energy, transportation, energy resilience, energy efficiency, and protecting residential consumers. A main theme running throughout the report is what it means for Oregon to transition to a low-carbon economy. The October 2018 Intergovernmental Panel on Climate Change (IPCC) report underscored the importance of putting Oregon on a path to decarbonization. The IPCC reports on the effects of global warming of 1.5 degrees Celsius, and stresses the need for action to avoid the most serious economic, environmental, and social damages from climate change. Achieving Oregon's energy and climate goals – while protecting consumers – will take collaboration among state agencies, policy makers, state and local governments, and private sector business and industry leaders from across the state.

The report acknowledges many areas where the state will need to increase efforts to reduce or mitigate greenhouse gas emissions. One area is the transportation sector, which is responsible for the greatest share of greenhouse gas emissions in Oregon. Our efforts to make vehicles and transportation fuels cleaner are being overshadowed by an increase in both population and total vehicle miles traveled. With the adoption of the Statewide Transportation Strategy in 2018, Oregon has a long-term vision for reducing transportation-related GHG emissions, and has identified several specific strategies to achieve that vision. But time is of the essence. One key approach addressed in this report is the electrification of light-duty vehicles – passenger cars, pickup trucks, and SUVs. In addition to reducing GHG emissions, electric vehicles can increase Oregon's energy independence, reduce costs for consumers, and leverage our increasingly clean and renewable electric grid as their fuel source.

The report examines current and emerging technologies in Oregon and across the West, which are helping modernize the state's energy systems and take us down the path of decarbonization. More recent technologies and additional uses for these technologies are coming – such as wave energy, renewable

natural gas, solar energy, energy storage, power-to-gas, and electric vehicles that have the ability to store excess energy and send it back to our electric grid when needed. These and other advancements yet unimagined will speed our transition to a low carbon economy and reduce the cost of the transition.

Finally, and perhaps most importantly, this report recognizes that all Oregonians can and should benefit from a clean energy future. A key focus of the Biennial Energy Report is to inform local, state, regional, and federal energy and climate policy development. As the energy sector works to decarbonize and modernize, we must understand how all consumers – especially those often left behind, including communities of color, low-income families, older adults, and others – can benefit from the transition to a low-carbon economy.

Recommendations

The recommendations in this report are a reflection of the work conducted by the Oregon Department of Energy, and informed by our many stakeholders, including our state and regional partners. The report organizes our 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.

Data Gaps

In drafting this report, ODOE identified a number of areas where additional data would better inform the public and lawmakers. As the central repository within state government for the collection of data on energy resources, we will work to fill these gaps, starting by more closely collaborating with state and regional entities. Better information will make for better planning, enable more thorough and accurate economic analyses, and ensure we can achieve more equitable outcomes.

Recommendations

Increase collaboration among state agencies to strengthen data-gathering capabilities and provide additional comprehensive state-specific information. Many parts of this report incorporate national and regional datasets that provide a foundation for understanding our energy landscape. However, some of these datasets can only provide general estimates for the state or are missing data specific to Oregon.

Share and collaborate on data analysis to leverage complementary tasks and datasets. Within the state, there are a variety of organizations and agencies that collect, analyze, and report energy and energy-related information. These entities often have distinct objectives, expressed through unique statutory authorizations and organizational mandates. Partnering will improve collection and analysis and create efficiencies, while ensuring statutory requirements are met.

Build capacity and understanding of complex and varied data systems that exist in the state, with the goal of

identifying gaps for data collection and areas where additional analysis will benefit the energy sector.

Foster new relationships between public, private, government, and community organizations to explore opportunities for data sharing and advanced analytics, and use of this information to better inform stakeholders and decision-making bodies.

Addressing Equity and Energy Burden

As the energy sector in Oregon continues to transition – due to legislative and executive branch actions, regulations, maturing markets and changes in consumer preferences, new technology, international pressures, and climate change – the state must do more to address issues of equity and energy burden. The same communities that are energy burdened are also on the frontlines of climate change. Energy costs affect people differently based on income levels, demographics, and geographic locations. Energy policies should take into account their effects on all Oregonians, both in terms of their burdens and benefits.

Recommendations

Improve data collection and analysis. Given the uncertainties surrounding what the rapidly transitioning energy sector may mean for consumers, it is important that equity considerations are understood more broadly. The state would benefit from a better understanding of the benefits to and burdens of electricity, heating, and transportation options and programs on all Oregon consumers. Demographic, income, public health, energy impacts, and energy cost data will better inform program and policies to achieve more equitable outcomes.

Design policies with all Oregonians in mind. In designing incentives for electric vehicles and programs for community solar, lawmakers acknowledged the additional difficulties faced by low-income consumers who want to benefit from clean energy incentives or programs. The legislature provided additional assistance to enable better access to these clean energy technologies (such as an additional rebate for purchasing or leasing an electric vehicle). As other polices are pursued, similar considerations may be warranted. More granular data and analysis on the energy burden and transportation options for low-income and rural Oregonians will help inform these considerations.

Improve engagement with Oregon communities. Any energy-related planning done at the state level should involve intentional engagement with all potentially affected communities, as well as a comprehensive analysis of potential impacts. Including these communities in the process early can lead to energy-related decisions and outcomes with a more equitable distribution of benefits and burdens.

> "Early, continuous, and meaningful public participation for all potentially affected communities will result in a more inclusive consideration of a broader range of perspectives, leading to more equitable and sustainable decision-making and reducing the likelihood of disproportionate impacts."
>
> – State of Oregon Environmental Justice Task Force Handbook[1]

Planning for the Future

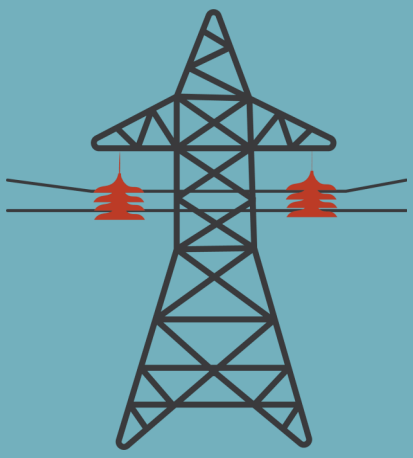
This report identifies many paths and key components of strategies designed to accelerate Oregon's move toward decarbonizing the economy, reducing GHG emissions in the transportation sector, increasing renewable energy resources and energy efficiency, protecting Oregon consumers, and improving the state's energy resilience. It builds on reports and recommendations from other agencies, the private sector, academia, and advocacy organizations that present options to address these challenges. Recognizing that the state has limited resources, Oregon should work collaboratively with partners, including the private sector, and local and regional entities to identify the optimal combination of these options to achieve state goals in the most cost-effective way. Due to the level of urgency facing the state on many of these challenges, this planning must be done concurrently with and build upon existing policies and programs.

Recommendations

Analyze and evaluate the cost-effectiveness of strategies to inform energy planners and policymakers on how to leverage and combine strategies to create the most cost-effective pathway. The renewable energy chapter of this report highlights a number of options to integrate increasingly higher percentages of variable renewable electricity into the grid, including flexible supply, flexible demand, energy storage, distributed energy resources, and participation in larger electricity markets. An analysis should look at how to ensure the value of integration benefits are being appropriately compensated with the right price signals. It could also inventory and assess the cost-effectiveness of existing programs and policies.

Continue participation in the ongoing dialogue around the creation of a regional independent system operator (ISO) in which Oregon's electric utilities could participate. Planning should consider how Oregon links with other jurisdictions in order to leverage cooperation, but do so in a way that protects Oregon's interests. For example, as Oregon discusses creating a cap-and-trade program, policymakers are considering linkage with California, Quebec, and other jurisdictions that have programs in place.

REGIONAL ELECTRICITY MARKETS



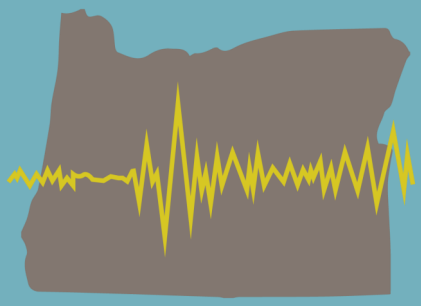
Oregon Governor Kate Brown, responding to an opportunity for stakeholder feedback to California in 2016 on the topic of expanding the CAISO, offered her support for a well-designed regional ISO that "could deliver substantial benefits to [Oregonians] . . . through a more integrated electricity grid."[2] Brown also stated "It is important that the governance of the regional system operator be independent and represent all the states whose jurisdictions are impacted … [because] only with independent representation can we be guaranteed that the benefits will be adequately distributed amongst the participating states."[2]

A regional ISO that represents the interests of all participating states in its operation of the transmission system and of wholesale power markets could significantly lower the cost of integrating more renewable energy across the western grid. Specifically, a regional ISO could help to do this by: 1) allowing for a wider market for the current oversupply of renewable energy at times; 2) lowering prices for renewable energy; 3) reducing the need for expensive storage solutions; and 4) using a wider geographic spread of renewable generation to reduce resource adequacy concerns. There are also costs and risks associated with a regional ISO, and Oregon should continue to work with California and other western states, as well as stakeholders in Oregon, in determining the costs, benefits, and appropriate next steps.

Plan ahead to adapt and prepare communities and infrastructure for the effects of climate change and natural disasters. Even if the state is successful in our decarbonization efforts, some impacts of climate change and natural disasters are inevitable. Undertaking a comprehensive vulnerability and risk assessment of the state's energy infrastructure is a first step in improving the resilience of our energy systems. The assessment should address two core components: an identification of critical energy infrastructure assets, inclusive of the electric, natural gas, and liquid fuels sectors; and a detailed assessment of the vulnerabilities and risks to that infrastructure from all hazards, including a Cascadia Subduction Zone earthquake, climate change, and cyber or physical attacks.

Look at opportunities to encourage and amplify efforts of local, regional, and Tribal governments to develop their own action plans that fit within and inform a statewide strategy. It should also take into account regional and demographic differences in benefits, as well as burdens of actions. For example, the charging infrastructure necessary to support electric vehicle adoption in Oregon's cities will look different from and involve different policy considerations than in rural Oregon.

COMMUNITY ENERGY RESILIENCE



As part of our adaptation efforts, the state should create a community energy resilience vision. A collaborative process to define a vision and implement key actions could bring together and engage a diverse group of stakeholders to:

- Raise awareness of location-specific risks to energy infrastructure, particularly in communities with limited capacity to prepare for or respond to threats.
- Identify critical interdependencies within specific communities between the energy sector and public infrastructure.
- Provide technical assistance, in coordination with local energy providers, to help identify and evaluate community energy resilience and climate adaptation options (e.g., relocating or hardening infrastructure, or deploying distributed energy resources at critical public buildings) for energy systems over which they have influence or control.
- Develop a framework to help communities evaluate the costs and benefits of investments in community energy resilience or climate adaptation solutions, including the potential value of benefits from these investments during routine conditions.
- Through engagement with stakeholders, develop a community energy resilience vision for the state that include specific goals designed to improve the resilience of energy systems within individual counties, municipalities, or communities.
- Develop a framework to empower counties, municipalities, or communities to prioritize community energy resilience and climate adaptation solutions.
- Identify needs of counties, municipalities, or communities for additional technical or financial assistance. Evaluate whether new legislative or regulatory mechanisms may be necessary to fund investments in community energy resilience and climate adaptation solutions.

Improve collaboration among state agencies. As described in this report, numerous state agencies are working on energy issues. Many are already collaborating to implement Governor Kate Brown's recent executive orders on electric vehicles and energy efficient buildings. Each agency brings unique mission statements, areas of expertise, constituencies, statutory authority, and data to the table. Collaboration can leverage agency resources and strengths, and reduce duplication of efforts to help the state make progress on our goals in the most efficient manner. For example, in order to address transportation greenhouse gas emissions, ODOT has put forward the Statewide Transportation Strategy, drawing on the expertise of DEQ, DLCD, and ODOE. These four agencies should continue coordinating their efforts to advance and build upon the strategies highlighted in the STS.

Assessing the Need for State Engagement and Investment

State incentives have played an important role in Oregon's GHG reduction, economic development, energy efficiency, and clean energy progress. The costs of clean energy technologies – from batteries to solar panels to electric vehicles – have come down dramatically in recent years. In light of these market forces, it is important for the state to look at the effect this has on our policies and programs and on the outcomes we hope to achieve. Once the desired outcomes and the policy pathways for achieving them are determined, the state should decide the best ways to assist consumers and businesses in achieving those outcomes. This support could come in the form of financial incentives, mandates, voluntary programs, technical assistance, and reductions of soft costs by evaluating and streamlining market barriers.

Recommendations

Support local activities. Numerous local, regional, and Tribal efforts are underway across the state to create and implement climate change, clean energy, and energy resilience plans. The state should assess the role those activities play in achieving state goals and determine how best to support those efforts – which could include creating complimentary policies or programs, offering technical assistance, or providing financial incentives.

Assess and identify market failures that warrant policy intervention. Achieving Oregon's climate and energy goals will involve advancements in the areas of renewable energy resources, energy efficiency, and sustainable transportation. Some progress in these areas will continue to be driven by market forces, but state support in the form of incentives might still be necessary. An assessment that identifies the market failures that warrant policy intervention would help the state determine where to put our limited resources. This assessment should include how specific incentives would achieve specific outcomes, such as GHG reduction, energy independence, economic development, and equity, and should acknowledge that the desired outcome must drive the design of the incentive. For example, an incentive designed to achieve the greatest renewable energy capacity may look different from one designed to promote individual energy independence and resilience.

Electric Vehicle Adoption

The state currently offers incentives for the purchase of electric vehicles to offset the high upfront costs that can be a barrier to EV adoption. The state should evaluate whether additional financial support is necessary to ensure sufficient options for all EV charging platforms to meet the needs of EV drivers, to ensure accessibility in urban environments where people may not have access to at-home or workplace charging, and in rural environments where people need access to charging stations to be able to travel longer distances more frequently.

Renewable Natural Gas

In September, ODOE released an inventory of all potential sources of biogas and renewable natural gas (RNG) available in Oregon. The report found that the gross technical potential for RNG production from anaerobic digestion and thermal gasification technology combined could replace up to 20 percent of Oregon's total yearly use of natural gas. Working with a stakeholder advisory committee, ODOE also identified financial, technical, market, policy, and regulatory barriers to developing and using biogas and RNG as an energy source that can help Oregon reduce greenhouse gas emissions and improve air quality. One of the recommendations included in the report was to explore financial incentives to help drive the nascent industry forward.

Consider whether to explore methods to assign a value to benefits not traditionally incorporated in cost-effectiveness models. Policymakers, utilities, and consumers are increasingly recognizing the multiple benefits associated with reducing GHG emissions, increasing energy efficiency, investing in renewable energy, supporting sustainable transportation, and focusing on equity and resilience. Cleaner air, improved health outcomes, less reliance on imported energy, reduced energy burden, livability, and safer communities, for example, are benefits of many of the policies and strategies explored in this report. But it can sometimes be hard to quantify the value of these outcomes. Incorporating these benefits when making energy decisions could result in different outcomes. For example, putting a price on carbon can make carbon-free resources such as hydropower and wind even more competitive with fossil fuels. It could also add a new value consideration for energy efficiency that would make it more cost-effective and enable the expansion of energy efficiency efforts.

It is our hope that the information in this report, including recommendations regarding data gaps, equity, planning, and state support, will provide Oregon policymakers and the public with the tools they need to work with the Oregon Department of Energy to lead our state to a safe, clean, and sustainable energy future.

Cited References

1. State of Oregon Environmental Justice Handbook. January 2016. https://www.oregon.gov/gov/policy/environment/environmental_justice/Documents/2016%20Oregon%20EJTF%20Handbook%20Final.pdf
2. Brown, Kate. "Governor Kate Brown Letter 7-11-16 Regarding Support of RSO." California Energy Commission, Docket 16-RGO-01. July 11, 2016. https://efiling.energy.ca.gov/GetDocument.aspx?tn=212260