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TAKING CHARGE

Developing an Effective Climate and Energy Governance Framework for Oregon

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The Green Energy Institute

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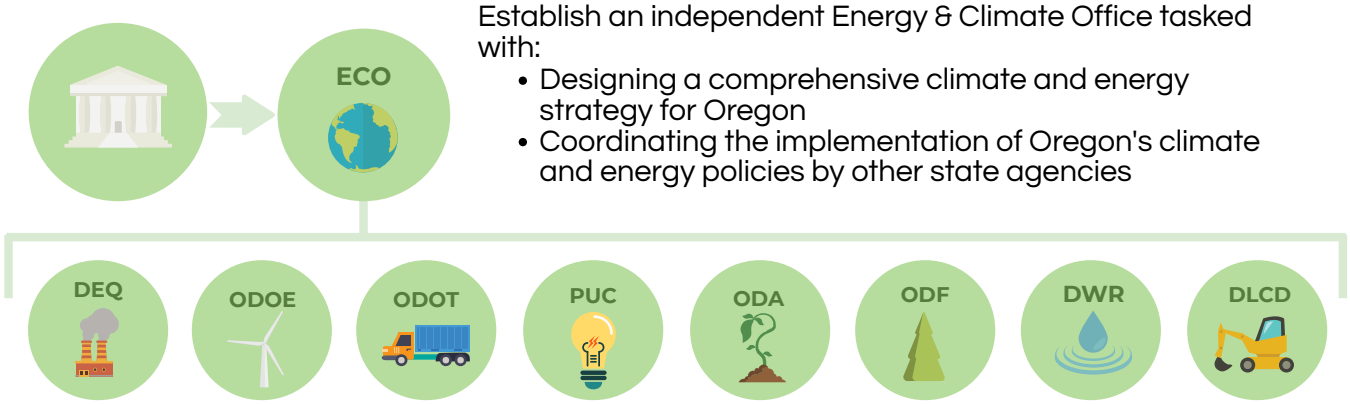
DEVELOPING AN EFFECTIVE ENERGY & CLIMATE GOVERNANCE FRAMEWORK FOR OREGON

STEP 1 ESTABLISH A STATE ENERGY & CLIMATE OFFICE



Establish an independent Energy & Climate Office tasked with:

- Designing a comprehensive climate and energy strategy for Oregon
- Coordinating the implementation of Oregon's climate and energy policies by other state agencies

STEP 2 CREATE A STRATEGIC ENERGY & CLIMATE PLAN

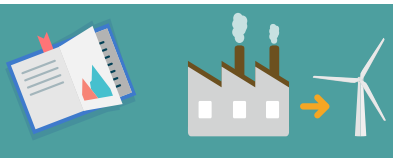
Direct the Energy & Climate Office to:

- Evaluate pathways to reduce greenhouse gas emissions from each sector and decarbonize the electricity sector
- Create a strategic energy and climate plan that identifies pathways with the greatest potential to meet or exceed Oregon's 2050 climate targets while providing the greatest benefits to Oregonians

Review data and best available science

Assess pathways for reducing emissions

Create strategic plan for implementing pathways



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STEP 3 ENACT AND IMPLEMENT ENERGY & CLIMATE LAWS AND POLICIES

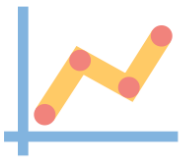
The Energy & Climate Office proposes policies that conform to the pathways identified in the strategic plan

The Legislature adopts laws that conform to the Energy & Climate Office's recommendations

State agencies adopt rules and regulations that conform to the Energy & Climate Office's recommendations

The Energy & Climate Office oversees and coordinates agency implementation of energy and climate laws and policies

STEP 4 MONITOR PROGRESS AND REVISE STRATEGIES AS NEEDED



The Energy & Climate Office collects and reviews data and other information to monitor Oregon's progress in achieving its climate targets.

If the Energy & Climate Office determines that existing laws and policies are failing to achieve projected emissions reductions, or the implementation of existing laws and policies is reducing their effectiveness, the Energy & Climate Office will recommend necessary changes.

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DEVELOPING AN EFFECTIVE CLIMATE AND ENERGY GOVERNANCE FRAMEWORK FOR OREGON

PART A

UNDERSTANDING OREGON'S EXISTING CLIMATE AND ENERGY GOVERNANCE SYSTEM

UNDERSTANDING OREGON'S EXISTING CLIMATE AND ENERGY GOVERNANCE SYSTEM

Oregon's Existing Objectives and Progress

- Oregon has a non-binding goal to reduce statewide greenhouse gas emissions 75% below 1990 levels by 2050
  - Oregon is not on track to meet this goal under its current emissions trajectory
  - Oregon does not have a comprehensive strategy to meet its emissions goal
- Oregon's two investor-owned electric utilities must obtain at least 50% of electricity from renewable resources by 2040
  - Utilities are on track to meet near-term renewable goals
  - The utilities' future compliance strategies involve building renewable resources in other states – Oregon's ratepayers will pay for the renewable resources, but other states will receive the jobs, tax base, and local environmental benefits
- Oregon does not have a goal or a data-backed strategy for transitioning to a 100% renewable energy system

Oregon Does Not Have a Strategic Climate and Energy Plan

- Oregon does not have a comprehensive long-term strategy to meet long-term climate or energy goals
- Oregon's ad hoc, stakeholder-driven planning processes have not created a comprehensive strategy
  - Oregon's 10-year Energy Action Plan has not been implemented in many ways, has too short of a horizon, and will not result in significant emissions reductions
  - Oregon's Sustainable Transportation Strategy does not aim to meet the state's greenhouse gas emissions goals
  - The Oregon Global Warming Commission's plans provide long-term strategies, but they have not led to comprehensive or strategic action on an economy-wide level

Oregon Lacks Effective Institutional Climate and Energy Leadership

- Oregon does not have an agency charged with leading statewide climate or energy policy, and the missions of Oregon's existing state agencies are too limited to enable effective regulatory action to address climate change
- The Oregon Global Warming Commission (OGWC), which plays an important role in developing climate mitigation strategies, has no direct funding, no authority, and no permanent staff
- The OGWC depends on volunteer commissioners, many of whom have fiduciary duties to private companies, to recommend climate policies
- Oregon has at least 10 state agencies and many local agencies with overlapping and sometimes competing climate and energy responsibilities
- Much of Oregon's climate law arises from legislation that dictates and constrains agency actions, rather than regulations promulgated by expert agencies. This dynamic makes Oregon climate law difficult to adjust and adapt to changing circumstances.
- Oregon climate and energy policymaking is piecemeal and opportunistic, rather than strategic and deliberative

Oregon Does Not Monitor or Collect Data Regarding the Effectiveness of Many State Climate and Energy Policies

- Many of Oregon's climate laws and policies do not require regular monitoring and reporting, and those that do often use varying accounting and tracking methodologies
- Oregon's climate and energy expenditures are not adequately tracked or monitored for effectiveness
- Many economic incentive programs do not have clear objectives or metrics for monitoring success
- Oregon has rescinded funding that provided essential support for climate- friendly investment and retained other funding mechanisms that achieve very little
- Oregon's funding strategies have created unsustainable periods of growth and stagnation

Oregon Can Do Much Better With a Strategic Plan and Effective Governance System

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DEVELOPING AN EFFECTIVE CLIMATE AND ENERGY GOVERNANCE FRAMEWORK FOR OREGON

PART B

AN EFFECTIVE CLIMATE AND ENERGY GOVERNANCE FRAMEWORK FOR OREGON

AN EFFECTIVE CLIMATE & ENERGY GOVERNANCE FRAMEWORK FOR OREGON

Oregon is well positioned to be a national leader in climate and energy policy. The state possesses an informed electorate with the public will to address climate change, motivated legislative and executive branches, and a clean energy economy that is poised to thrive under an ambitious yet stable policy framework. Oregon has attempted to establish an effective climate policy framework: in 2007, Oregon established statewide goals to reduce greenhouse gas emissions by 75% below 1990 levels and subsequently enacted several laws and policies to reduce greenhouse gas emissions. Despite these efforts, however, Oregon is not on track to meet its climate goals. Various factors contribute to Oregon's shortfalls, but it is clear that fragmented climate governance has impeded the state's progress.

"Governance" refers to the state's laws and policies, combined with the administrative structures and systems to implement them. Although Oregon has several climate laws and policies, its administrative systems are lacking. Moreover, Oregon lacks a clear strategy to meet its greenhouse gas goals or an organizational structure that provides clear leadership, continuous oversight, the ability to adapt to changing circumstances, and clear channels of communication between various agencies and to the public.

Several models exist in other states and countries that could help inform Oregon's own establishment of an effective climate governance system. Some rely on strong, centralized leadership from the executive branch, some rely on collaborative leadership between the executive and legislative branches, and still others have the legislature playing a leading role. Regardless of the exact contours, the most effective governance models have similar features, including clear end goals, sustained and responsive leadership, scientifically supported pathways for emissions reductions, strategic plans and targeted policies to implement the reduction pathways, effective inter-agency coordination, and productive stakeholder involvement.

The Green Energy Institute has identified several climate and energy governance models that Oregon could employ to design effective policies, coordinate regulatory action, and put Oregon on a path to achieve its long-term climate and energy goals.

Climate and Energy Governance Models:

- Preferred Model: Establish an Independent Energy & Climate Office
- Alternative 1: Restructure the Oregon Department of Energy
- Alternative 2: Establish an Energy & Climate Board
- Alternative 3: Independent Evaluation
- Alternative 4: Restructure the Oregon Global Warming Commission
- Alternative 5: The Climate Advisor Model
- Alternative 6: The Governor's Climate Advisor Model

OPTIMAL ENERGY & CLIMATE GOVERNANCE FRAMEWORK FOR OREGON

Key Steps Towards Creating an Effective Energy and Climate Governance Framework:

1. Adopt binding climate and energy mandates
2. Establish a permanent Energy & Climate Office to develop strategies to achieve mandates
3. Direct the Energy & Climate Office to a develop strategic plan for achieving Oregon's climate and energy mandates
4. Authorize the Energy & Climate Office to design policies for achieving mandates and oversee the implementation of these policies by state agencies
5. Direct the Energy & Climate Office to monitor Oregon's progress in achieving mandates and to revise strategies when necessary

STEP ONE: Adopt Ambitious and Binding Climate and Energy Requirements

- Mandate binding reductions in greenhouse gas emissions by at least 80% below 1990 levels by 2050
- Eliminate all fossil fuels from Oregon's energy (electricity, heat, and transportation) systems by 2050

STEP TWO: Establish a Permanent Energy & Climate Office to Design and Direct Oregon's Energy and Climate Strategy

- The Energy & Climate Office is an independent umbrella agency tasked with designing a comprehensive climate and energy strategy and implementation policies for Oregon
- The Energy & Climate Office receives adequate funding and has a stable structure and staff resources
- The Energy & Climate Office has sufficient authority to direct and coordinate implementation of Oregon's climate strategy by other agencies, commissions, and councils

STEP THREE: Direct the Energy & Climate Office to Create a Strategic Energy & Climate Plan for Oregon

- The strategic plan will evaluate pathways for each sector to reduce greenhouse gases and for the energy system to decarbonize
- The strategic plan will select pathways that have the greatest likelihood to meet or go beyond Oregon's 2050 requirements and provide the greatest benefits to Oregonians
- The Energy & Climate Office will engage experts and consultants in developing a data-supported strategic plan

STEP FOUR: Enact and Implement Economy-Wide and Sector-Specific Laws and Policies to Achieve the 2050 Climate and Energy Requirements

- The Energy & Climate Office will propose a set of laws and policies to conform to the selected pathways of the strategic plan
- The Legislature will adopt new laws and revise existing laws to conform to the Energy & Climate Office's recommendations
- State agencies will adopt new rules and revise existing rules to conform to the Energy & Climate Office's recommendations
- The Energy & Climate Office will oversee and facilitate coordination between agencies to ensure streamlined and effective implementation of Oregon's 2050 requirements

STEP FIVE: Direct the Energy & Climate Office to Monitor Oregon's Progress and Revise Strategies as Necessary

- The Energy & Climate Office will gather data, review compliance reports, prepare analyses, and compile other information to assess Oregon's ongoing progress in meeting its requirements
- Where information indicates Oregon's policies require adjustments, the Energy & Climate Office will identify and recommend necessary changes, following adaptive management protocols

CLIMATE & ENERGY GOVERNANCE FRAMEWORK PREFERRED MODEL: ESTABLISH AN OREGON ENERGY & CLIMATE OFFICE

To best enable Oregon to meet its long-term climate and energy objectives, the state should establish a new, independent agency—an Oregon Energy & Climate Office—to design and direct Oregon's climate and energy planning and policy framework. The state would direct this independent umbrella agency to engage in long-term strategic planning, design effective climate and energy strategies for Oregon, and coordinate the implementation of these strategies by other state agencies.

Mission and Directives:

- **Primary Directives:**
  - Develop and update long-term strategic climate and energy plan
  - Develop and coordinate Oregon's climate and energy policies
  - Monitor progress in achieving climate and energy objectives and revise strategies as needed
- **Agency Oversight:** The Energy & Climate Office would oversee and coordinate activities within other state agencies and organizations responsible for implementing Oregon's climate and energy policies. The Office would also provide technical support for state agencies implementing climate and energy policies.
- **Federal and Regional Coordination:** The Energy & Climate Office would communicate with relevant federal and regional organizations and coordinate planning and implementation activities, where feasible.
- **Authority:** The Energy & Climate Office would not have direct regulatory authority or responsibility over regulated entities within the private sector.

Structure:

- **Director:** Full-time salaried position, appointed by the governor with the advice and consent of the legislature. The director should have substantial policy expertise and administrative experience.
- **Staff:** The agency should be staffed by approximately ten full-time employees. Existing employees at other state agencies with climate and energy expertise should be transitioned into the new Office.
- **Expert Consultation:** The Energy & Climate Office's work should be supplemented by consultancies and contracts with experts from the public and private sectors.

Estimated Funding Needs:

- **Estimated Annual Budget:** $2 million
  - Annual Operating Budget: $1.5 million
  - Expert Contract Budget: $500,000

Benefits of the Energy & Climate Office Model:

- A new, independent umbrella agency with a clear mission and specific objectives has the greatest potential to develop Oregon's comprehensive strategy and coordinate efforts of other agencies.
- The model increases efficiencies within other agencies by eliminating redundancies and streamlining policy implementation.
- The model enables the creation and implementation of a consistent, predictable policy framework.

Weaknesses of the Energy & Climate Office Model:

- Creating a new agency could cause potential disruption during the transition period.
- The Energy & Climate Office requires approval and support from legislative and executive branches.
- It may be difficult to secure funding for a new agency, although most funding would come from reorganization of existing agencies.

CLIMATE & ENERGY GOVERNANCE FRAMEWORK ALTERNATIVE 1: RESTRUCTURING THE OREGON DEPARTMENT OF ENERGY

As an alternative to establishing a new climate and energy-focused agency, the Oregon legislature could restructure the Oregon Department of Energy (ODOE) and direct the agency to design and direct the state's climate and energy planning and policy framework. Under this model, the legislature would direct ODOE to engage in long-term strategic planning, to design effective climate and energy strategies for Oregon, and to coordinate the implementation of these strategies by other state agencies. To implement this alternative governance model, the legislature must increase the scope of ODOE's current energy-focused mission to include addressing climate change as a primary objective. In addition, the legislature must give ODOE authority to oversee the activities of other regulatory agencies that are responsible for implementing Oregon's climate and energy policies. Restructuring ODOE in this manner would require shifting some of ODOE's existing responsibilities to other agencies. For example, the state could transfer Oregon's energy tax credit and loan programs to the Department of Revenue and the Business Development Department.

Mission and Directives:

- **Primary Directives:**
  - Develop and update long-term strategic climate and energy plan
  - Develop and coordinate Oregon's climate and energy policies
  - Monitor state progress in achieving climate and energy objectives and revise strategies as needed
- **Coordination and Oversight:** ODOE would oversee, provide technical support, and coordinate activities within other state agencies responsible for implementing Oregon's climate and energy policies, such as the Department of Environmental Quality, the Public Utility Commission, and the Department of Transportation.
- **Authority:** ODOE would not have direct regulatory authority or responsibility over regulated entities within the private sector.

Structure:

- **Director:** Retain existing full-time salaried director position.
- **Staff:** Retain ODOE's existing staff, but revise staff roles and responsibilities to reflect new climate and energy-focused mission and enable agency to carry out new directives. Potentially hire new staff with necessary expertise.

Estimated Funding Needs:

- **Budget:** Retain ODOE's existing operating budget to cover staffing and operational resources.
- **Funding:** Retain ODOE's existing funding mechanisms to eliminate need for General Fund revenues.

Benefits of ODOE Model:

- Relatively easy to implement due to existing agency structure and funding mechanisms
- Retains existing institutional knowledge and expertise
- Does not require General Fund revenues

Weaknesses of ODOE Model:

- Potential difficulties adapting existing agency functions and personnel responsibilities to implement new directives and achieve new objectives
- Potential for interagency conflict resulting from ODOE oversight over existing agencies

CLIMATE & ENERGY GOVERNANCE FRAMEWORK ALTERNATIVE 2: ESTABLISH AN ENERGY & CLIMATE BOARD

The Oregon Legislature's Joint Interim Committee on Department of Energy Oversight's Draft Report recommended that the Oregon legislature establish a seven-member Energy and Climate Board to oversee a restructured Oregon Department of Energy (ODOE). Under this model, ODOE would be responsible for developing and coordinating implementation of Oregon's climate and energy policy framework, and the Energy & Climate Board would be responsible for overseeing ODOE's work and monitoring Oregon's progress toward achieving its long-term energy and climate objectives. For this model to function effectively, the legislature must increase the scope of ODOE's mission to establish addressing climate change as a primary purpose of the agency.

Mission and Directives:

- Oversee ODOE's preparation of a strategic energy and climate plan
- Oversee and support ODOE's implementation of climate and energy-focused directives
- Monitor state progress in achieving climate and energy objectives
- Promote transparency and accountability within ODOE
- Provide a public forum for assessing the implementation of Oregon's climate and energy policies and the state's progress in achieving its long-term objectives
- No direct regulatory authority over public or private sector

Structure:

- **Energy & Climate Board:** Seven members appointed by the Governor and confirmed by the senate. All Board members must have energy expertise and must not be affiliated with a regulated entity.

Estimated Funding Needs:

- **Estimated Budget:** $200,000 per biennium for nominal annual payment for boardmembers' time, travel expenses, communications and outreach materials, and expert consultation where needed

Benefits of the Energy & Climate Board Model:

- Promotes transparency and accountability within ODOE
- Increases public participation in Oregon's climate and energy planning and policymaking processes

Weaknesses of Energy & Climate Board Model:

- Potential for outside influence to impede ODOE efforts to design and oversee an effective climate and energy policy framework
- Volunteer or nominally compensated board members may lack the time and resources to provide meaningful direction to ODOE or effectively oversee the agency's activities
- Increased risk of political influence over activities of agency experts

CLIMATE & ENERGY GOVERNANCE FRAMEWORK ALTERNATIVE 3: INDEPENDENT EVALUATION

As an alternative to establishing a new umbrella Energy & Climate Office to develop and oversee Oregon's climate and energy policy framework, the Oregon Legislature could commission an independent evaluation of Oregon's climate and energy governance framework. The legislature would direct the independent evaluator to issue recommendations for restructuring Oregon's climate and energy frameworks. The independent evaluator would have no more than 12 months to complete its assessment and issue recommendations to the legislature.

Mission and Directives:

- **Primary Directives:** Conduct a comprehensive evaluation of Oregon's climate and energy policies and governance systems and issue recommendations for restructuring Oregon's governance framework.
    - *Evaluation:* Identify agency expertise and gaps; identify staffing resources within each agency; identify overlaps and/or redundancies between agency employees; identify constraints to communication or coordination between agencies; identify policy gaps that prevent effective implementation of climate and energy policies or constrain Oregon's ability to achieve its long-term climate and energy objectives.
    - *Recommendations:* Develop strategies for restructuring Oregon's climate and energy agencies; recommend an optimal climate and energy governance model for Oregon; estimate funding requirements for new governance framework.

Structure:

- **Independent Contractor**: Contract with an independent expert consultant that has expertise in public administration and energy governance
- **Timeframe:** Evaluation completed within 12 months
- **Reporting:** Present evaluation and recommendations to legislature

Estimated Funding Needs:

- **Contract Estimate:** $500,000 for 12 months

Benefits of the Independent Evaluation Model:

- Provides opportunity for thorough, comprehensive review of existing policy and governance frameworks
- Independent evaluation reduces risk of political influence over findings or recommendations

Weaknesses of the Independent Evaluation Model:

- Delays action for at least 12 months
- Risk of legislative inaction or refusal to implement evaluator's recommendations

CLIMATE & ENERGY GOVERNANCE FRAMEWORK ALTERNATIVE 4: RESTRUCTURING THE OREGON GLOBAL WARMING COMMISSION

The Oregon Global Warming Commission (OGWC) has the potential to coordinate Oregon's climate and energy policy framework. However, the OGWC's current structure, lack of funding, and lack of regulatory authority constrain its ability to make a meaningful impact. As an alternative to creating an independent Climate Office, the Oregon legislature could restructure the OGWC, provide funding for a permanent, full-time director, and grant the OGWC authority to design climate and energy policies, engage in strategic long-term planning, and coordinate implementation of Oregon's climate and energy policy framework.

Mission and Directives:

- Develop and coordinate Oregon's climate and energy policy framework and prepare a long-term strategic climate and energy plan for the state
- Oversee and coordinate activities within state agencies responsible for implementing Oregon's climate and energy policies
- Communicate with elected officials and the public and provide a forum for political and public input
- No direct regulatory authority over regulated entities

Commission Structure:

- **OGWC Chair:** Salaried, full-time employee of the Oregon Department of Energy
- **Commission Membership:**
  - State agency directors retain membership in the restructured OGWC
  - Eliminate private sector membership in restructured OGWC
- **Staffing:** Relevant state agencies provide staff resources as needed for specific projects or project components
- **Expert Consultation:** The OGWC's work should be supplemented by consultancies and contracts with experts from the public and private sectors as needed.

Estimated Funding Needs:

- **Estimated Annual Operating Budget:** $250,000
- **Annual expert contract budget:** $300,000
- **Total Annual Budget:** $550,000

Benefits of the OGWC Model:

- Retains existing institutional knowledge and experience addressing climate change through long-term planning and monitoring state progress toward reaching climate goals
- Minimal disruption to existing governance structures

Weaknesses of the OGWC Model:

- Potential difficulties adapting existing OGWC functions and responsibilities to implement new mandatory directives and achieve new objectives
- Potential for interagency conflict resulting from OGWC oversight over existing agencies
- May lack sufficient staffing and resources to effectively carry out directives

CLIMATE & ENERGY GOVERNANCE FRAMEWORK ALTERNATIVE 5: THE CLIMATE ADVISOR MODEL

As an alternative to establishing an independent Energy & Climate Office, Oregon could create an independent climate advisor that would report to both the legislature and the governor. The climate advisor would provide regular climate and energy policy analyses and recommendations to the legislature and the governor and communicate and coordinate with agency staff, elected officials, and members of the public. However, the Climate Advisor would have no supervisory or regulatory authority.

Mission and Directives:

- Provide climate and energy policy recommendations, analysis, and coordination
- Engage in communication and coordination with other agencies responsible for implementing climate and energy policies
- Communicate with elected officials and the public
- No direct supervision over other agencies, no direct rulemaking responsibility, and no regulatory authority over regulated entities

Structure:

- **Climate Advisor:** Full-time funded position with climate and energy policy expertise
- **Staffing:** One to two support staff to provide additional research and analytical support to the Climate Advisor. Staff positions represent new hires, because the Climate Advisor will not displace responsibilities of other state agencies.
- **Expert Consultation:** The Climate Advisor's work should be supplemented by consultancies and contracts with experts from the public and private sectors as needed.

Estimated Funding Needs:

- **Estimated Annual Operating Budget:** $450,000
- **Annual expert contract budget:** $300,000
- **Total Annual Budget:** $750,000

Benefits of the Climate Advisor Model:

- Ability to inform and influence executive and legislative action
- Dedicated "expert" to respond to inquiries by elected officials and relevant agencies
- Independence from existing agencies and government offices can help promote objectivity

Weaknesses of the Climate Advisor Model:

- Lack of authority to create, implement, or enforce binding climate and energy policies
- Inability to effectively coordinate agency action
- May be subject to multiple demands on time or used on an only sporadic and unpredictable basis, raising concerns about cost efficacy of a Climate Advisor

CLIMATE & ENERGY GOVERNANCE FRAMEWORK ALTERNATIVE 6: THE GOVERNOR'S CLIMATE ADVISOR MODEL

As an alternative to establishing an independent Energy & Climate Office, Oregon could create a new climate advisor position to provide climate and energy policy analyses and recommendations to the Governor. The Governor's Climate Advisor would also communicate and coordinate with the Governor's other policy advisors, agency staff, and members of the public. However, the Governor's Climate Advisor would have no supervisory or regulatory authority.

Mission and Directives:

- Provide Governor with climate and energy policy analyses, recommendations, and coordination.
- Communicate and coordinate with the governor's energy, transportation, and natural resources policy advisors
- Communicate with elected officials and the public
- No direct supervision over other agencies, no direct rulemaking responsibility, and no regulatory authority over regulated entities

Structure:

- **Climate Advisor:** Full-time funded position with climate and energy policy expertise
- **Staffing:** One to two support staff within Governor's office to provide additional research and analytical support to the Climate Advisor.

Estimated Funding Needs:

- **Estimated Annual Budget:** $200,000

Benefits of the Governor's Climate Advisor Model:

- Ability to inform and influence executive branch action
- Ability to coordinate with other advisors to the Governor, including the existing energy, natural resources and economic advisors

Weaknesses of the Governor's Climate Advisor Model:

- Lack of authority to create, implement, or enforce binding climate and energy policies
- Inability to effectively coordinate agency action
- Little impact over legislative decision-making processes
- May be redundant to other existing advisors

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DEVELOPING AN EFFECTIVE CLIMATE AND ENERGY GOVERNANCE FRAMEWORK FOR OREGON

PART C

EFFECTIVE CLIMATE AND ENERGY GOVERNANCE:

THE DANISH MODEL

EFFECTIVE CLIMATE AND ENERGY GOVERNANCE: THE DANISH MODEL

Overview

Since the 1970s, Denmark has been engaged in innovative policymaking aimed at ensuring energy security and, more recently, transitioning its energy system away from fossil fuels. Denmark's initial energy policies were developed in response to the 1970s energy crises—like the United States, Denmark had become heavily dependent upon oil imports, and it faced energy shortages and price shocks due to the 1970s oil embargoes. To avoid future risks, Denmark initially undertook a series of actions to increase its domestic energy resources, which included both fossil fuels and renewable resources. From 1976 until the early 2000s, Denmark enacted a series of policies aimed at incrementally changing its energy system. Some of these changes were substantial—for example, Denmark undertook electricity restructuring in the 1990s and it enacted a carbon tax in 2003—but they did not involve efforts to completely transform the country's energy sector. By the 2000s, however, Denmark began to shift its policy approach away from incremental policies and towards comprehensive reform. Specifically, in 2005, Denmark's Transport and Energy Ministry developed *Energy Strategy 2025*, the government's strategy for addressing climate change, increasing renewable energy and energy efficiency, and improving energy markets. Two years later, the Ministry issued a more progressive policy, *A Visionary Danish Energy Strategy 2025*. Finally, in 2011, Denmark's newly formed Climate and Energy Ministry issued *Energy Strategy 2050*, which aims to eliminate fossil fuels and transition to all renewable energy by 2050. These strategies have been codified through legislation passed by the Danish Parliament. Key details of the Danish energy strategies and laws follow.

The 2007 *Visionary Danish Energy Strategy* established a forward-looking plan for Denmark to wean itself away from fossil fuels and to expand its renewable energy usage. In 2007, Denmark relied on fossil fuels for 85% of its energy needs. To reduce this reliance, the Energy Strategy aimed to reduce fossil fuel use by at least 15%, stabilize energy demand so that overall energy consumption would be 15% below business-as-usual projections, and increase renewable energy to provide 30% of Denmark's consumption. The strategy then outlined a set of specific initiatives the government would pursue to achieve these goals. Notably, the strategy expressly called for increased financial and other support for research and technology development, both to enable Denmark to effectively transition to renewable resources and to allow its companies to "enjoy global commercial success in the long term." Finally, the strategy was subject to review and revision every four years.

In 2008, the Danish Parliament codified many of the objectives of the *Visionary Danish Energy Strategy* when it passed the *Danish Energy Agreement for 2008-2011*. The agreement included energy efficiency and renewable energy targets, funding for research and technology development, and reform of some of Denmark's previous subsidies and other policies.

In 2011, the newly formed Climate and Energy Ministry released the second strategic plan for Denmark, *Energy Strategy 2050*. This strategy set much more ambitious targets, including elimination of fossil fuels from Denmark's energy consumption. To achieve this goal, the 2050 energy strategy increased energy efficiency requirements for buildings, prohibited new fossil-fueled boilers in buildings, aimed to phase out coal plants and existing oil-fired boilers by 2030,

and established a goal of obtaining 100% of Denmark's energy from renewable sources by 2050, with 100% of electricity and heat supply coming from renewables by 2035 (leaving only transportation dependent on fossil resources through 2050). As with its 2007 strategy, the ministry also recommended substantial support for and investment in research, development, demonstration, and innovation, particularly for those areas considered Danish strongholds (e.g., wind energy technology design and deployment).

As it did in 2008, the Danish Parliament supported the recommendations of the energy strategy when it enacted the *Danish Energy Agreement for 2012-2020*. The agreement aims to further increase energy efficiency, have renewable resources provide 35% of all energy by 2020, and ensure that wind energy provides at least 50% of Denmark's total electricity consumption by 2020. The energy agreement then identifies specific policy goals for different components of the energy sector (including heat and transportation). These goals include the development of a comprehensive strategy for smart grid deployment. Finally, the energy agreement maintains funding for research and development for technologies with commercial growth potential. Under the agreement, funding for Denmark's energy programs will come from a variety of sources, including ratepayer fees, taxes, and cost savings due to lower energy consumption.

Since the passage of the 2012 energy agreement, Danish agencies have played the leading role in developing strategies to implement its broad objectives. The Danish Energy Agency sits at the helm of energy planning. It prepares scenario analyses to ensure that Denmark can meet its ambitious goals while maintaining reliable electricity, heating, and transportation systems. The Danish Energy Agency also determines optimal locations for renewable facility siting, helps implement Denmark's progressive district heating strategies, oversees energy efficiency requirements, administers subsidies, and helps coordinate efforts of the other key Denmark agencies involved in climate and energy policy.

In 2014, Denmark adopted the Danish Climate Change Act, which established "an overall strategic framework for Denmark's national climate policy for the purpose of progressing to a low-carbon society by 2050." The Act established a goal of transitioning the Danish economy off of fossil fuels by 2050. To achieve this goal, the Act established a Danish Council on Climate Change; directed the Minister of Climate and Energy to submit a Climate Policy Report to the Danish Parliament on an annual basis; and directed the Climate and Energy Ministry to adopt updated national greenhouse gas reduction targets every five years.

The Danish Council on Climate Change is an independent group of experts that advises the Danish government on cost-effective strategies to transition to a low-carbon economy. The Climate Change Act directed the Council on Climate Change to: 1) evaluate Denmark's progress in implementing national and international climate commitments, 2) analyze and identify strategies for reducing GHG emissions and transitioning to a low-carbon society by 2050, 3) make recommendations to help shape the country's climate policies, and 4) consult with stakeholders and contribute to the public debate. The Council consists of a chairman and six additional members that are appointed to serve four-year terms by the Minister of Climate and Energy. The Council conducts independent analyses and provides professional recommendations on actions to reduce Denmark's greenhouse gas emissions.

Denmark's comprehensive efforts have produced significant outcomes, environmentally and economically. In 2015, the *Danish Energy and Climate Policy Outlook*—an energy forecast that projects energy and climate outcomes for 2025 based on the assumption that Denmark would pass no new policies after 2015—projected that Denmark would obtain 40% of its total energy consumption from renewable resources by 2020. Of this, 80-85% of electricity would come from renewables (with wind power alone providing 53-59%) and 65% of district heating would come from renewable resources. Coal and natural gas usage would drop by more than 30% compared to 2010 levels. However, oil use for the transportation sector would not fall absent additional policies. Even so, the outlook predicts that Danish greenhouse gas emissions would be about 40% below 1990 levels by 2020.

In addition to these environmental benefits, Denmark's efforts have yielded and are projected to continue to yield many economic and technological benefits, according to *The Energy Year*, an annual report summarizing the outcomes of Denmark's energy research programs. Since 2010, public funding for research, development, and demonstration (RD&D) has totaled about 1 billion Danish Krone (DKK), or $143 million. In 2014 alone, however, Danish exports of energy technology totaled 74.4 billion DKK. Since 2002, Denmark's exports of green energy technology have increased steadily and have comprised approximately half of Denmark's energy technology exports since 2009. These exports account for 12% of total Danish exports and are major contributors to Denmark's strong economy. In addition, Danish investment in research and development has allowed Danish universities and companies to attract and retain top talent. Denmark is a leader in transmission management technology, district-heating technology, and has begun to establish itself as a leader in electric transportation planning.

Key Features of Denmark's Climate and Energy Governance System

Denmark's climate and energy governance system includes several important structural and substantive components that have made it a model for other states. These include:

Targets

- Long-term climate change targets (80% reduction by 2050, 100% renewable energy) that are treated as binding by agencies and the Parliament
- Binding interim climate change and energy targets (40% reduction of greenhouse gases from 1990 levels by 2020; 35% renewable energy total by 2020, and 50% wind power for electricity by 2020)

Leadership and Coordination

- The Danish "Energy Consensus" since at least 2008 (arguably earlier) recognizes the need to transition away from fossil fuels and toward renewables
- A designated lead agency (Danish Energy Agency) has the responsibility, authority, funding, and staff to coordinate and direct Denmark's climate and energy strategy
- Coordination occurs between different ministries (e.g., Climate and Energy Ministry and Transportation and Building Ministry) and agencies within the ministries

Strategic Planning that Guides Policies

- The Danish Energy Strategy 2050 created an ambitious and comprehensive strategy for Denmark to transition away from fossil fuels and towards renewables. Denmark's energy strategies are:
    - Developed by experts who work in Denmark's expert agencies;
    - Drafted with input from local governments, industries, non-governmental organizations, and the public;
    - Updated every 4 years; and
    - Used to inform legislation and guide specific policymaking
- Legislation, regulations, and policies derive from the recommendations in the Energy Strategy

Data-Based Adaptability and Policy Certainty

- Routine data collection and monitoring evaluate policy effectiveness, and
- Agencies and policymakers alter programs and policies based on data and monitoring, with adequate notice to market participants

How Denmark's and Oregon's Climate and Energy Governance Differ

Denmark	Oregon
Targets • Binding, long-term climate targets: 80% reduction by 2050; 100% renewable energy • Binding interim targets: GHGs 40% below 1990 levels by 2020; 35% renewable energy by 2020; 50% wind power by 2020	**Targets** • Non-binding climate change goal: 75% reduction below 1990 levels by 2050 • RPS: 27% by 2025, and 50% by 2040 for investor-owned utilities
Leadership and Coordination • Energy consensus since at least 2008 • Designated lead agency with authority and resources to coordinate and direct the energy transition strategy • Coordination between Danish Energy Agency and other relevant agencies	**Leadership and Coordination** • Inconsistent attention to climate and energy goals at the executive and legislative levels, with a focus on discrete policies rather than long-term goals • No designated lead agency to coordinate climate policy or energy transition strategy

Strategic Planning that Guides Policies
• The Energy Strategy 2050 is a comprehensive strategic plan that is:
  • Developed by experts with input from public and private stakeholders
  • Updated every 4 years
  • Used to guide Parliament's policymaking
• Legislation, regulations, and policies derive from the recommendations in the Energy Strategy
	Strategic Planning that Guides Policies
	• No comprehensive strategic plan for meeting state climate goals or achieving the energy transition
	• Sector-specific climate plans are not binding, not regularly updated, and have limited authority, impact, and scope
	• Climate and energy policies are not linked to a comprehensive long-term strategy; policymaking occurs in a piecemeal, rather than strategic, fashion

Data-based Adaptability and Policy Certainty • Routine data collection and monitoring evaluate policy effectiveness • Agencies and policymakers alter programs and policies based on data and monitoring • Annual reports on progress, expenditures, and hurdles	**Data-based Adaptability and Policy Certainty** • Many policies do not include mandatory data collection, reporting, or monitoring requirements • Policy changes are often implemented without independent analysis of how changes will affect compliance with climate goals or affect market participants
Overall Conclusions Denmark has effective climate and energy governance that includes: • Binding targets • Designated lead agency • Strategic plans that guide policy design • Routine data collection, monitoring, and evaluation of programs • Program adjustments where necessary	**Overall Conclusions** Oregon needs better climate and energy governance that includes: • Binding targets • Designated lead agency • Strategic plans that guide policy design • Routine data collection, monitoring, and evaluation of programs • Program adjustments where necessary

THE GREEN ENERGY INSTITUTE

DEVELOPING AN EFFECTIVE CLIMATE AND ENERGY GOVERNANCE FRAMEWORK FOR OREGON

PART D

EFFECTIVE CLIMATE AND ENERGY GOVERNANCE:

THE CALIFORNIA MODEL

EFFECTIVE CLIMATE AND ENERGY GOVERNANCE: THE CALIFORNIA MODEL

Overview

California has established an effective governance model for addressing climate change by reducing greenhouse gas emissions and transitioning to a renewable energy system. The state has adopted binding, ambitious greenhouse emissions reduction targets and directed a specific state agency to craft long-term strategies for achieving these targets. California has also updated its long-term targets and revised its strategies over time to increase its emissions reduction potential. As a result, the state is on track to reduce its greenhouse gas emissions to 1990 levels by 2020 and dramatically increase its renewable energy consumption by 2030.

Governor Arnold Schwarzenegger launched California's economy-wide climate change strategy in 2005 through an executive order establishing greenhouse gas reduction goals for the state. Schwarzenegger's Executive Order S-3-05 called for California to reduce its greenhouse gas (GHG) emissions to 1990 levels by 2020 and further reduce emissions by an additional 80% below 1990 levels by 2050. In addition to these emission reduction goals, Governor Schwarzenegger created a "Climate Action Team" comprised of state agency directors and tasked it with coordinating California's efforts to reduce greenhouse gas emissions. The California Environmental Protection Agency (CalEPA) was directed to oversee the Climate Action Team's work.

A year later, the California legislature adopted the California Global Warming Solutions Act of 2006 (commonly referred to by its bill number, AB 32), which established a comprehensive, long-term framework for reducing GHG emissions. AB 32 directed the California Air Resources Board (CARB), a preexisting governing board within the CalEPA, to develop a "Scoping Plan" identifying the best strategies for achieving the state's climate targets. AB 32 directed CARB to update this Scoping Plan every five years.

CARB's staff worked with climate and energy experts from other agencies, universities, think tanks, and businesses to develop its first Scoping Plan, which it released in 2008. The 2008 Scoping Plan proposed a number of strategies to reduce GHG emissions by increasing energy efficiency, transitioning to renewable energy, and reducing transportation emissions. The Plan also recommended that California establish a statewide emissions trading program.

CARB issued an updated Scoping Plan in 2014 to identify additional strategies to achieve long-term reductions in GHG emissions beyond 2020. The updated Scoping Plan aimed to ensure that California's strategic climate and energy plan kept pace with technological changes, pursued the most cost-effective mitigation policies, applied the best available climate science, and maintained the flexibility to adapt to new conditions or circumstances. With these objectives in mind, CARB identified successful policies and those that need improvement.

In 2015, Governor Jerry Brown issued an executive order calling for California to further reduce its greenhouse gas emissions by 40% below 1990 levels and obtain 50% of its electricity from renewable sources by 2030. To achieve these more stringent targets, Governor Brown's Executive Order B-30-15 directed CARB to develop a new strategic scoping plan for California. CARB will release its final "Target 2030 Scoping Plan" in 2017. The 2030 scoping plan will

evaluate various emissions reductions scenarios (also called pathways) that each emitting sector could pursue to achieve the state's 2030 goals. The plan will also consider cross-sectoral interactions between various emissions policies to ensure that agencies and participants in different sectors act holistically and cooperatively as they reduce greenhouse gas emissions.

The California legislature quickly took action to codify the climate and energy targets identified in Governor Brown's executive order. In 2015, the legislature adopted the Clean Energy and Pollution Reduction Act of 2015, which established a new Renewable Portfolio Standard mandating that 50% of the state's electricity come from renewable sources by 2030. In 2016, the California legislature adopted SB 32, which mandated that the state reduce greenhouse gas emissions 40% below 1990 levels by 2030. The legislature also adopted companion legislation, AB 197, which created a Joint Legislative Committee on Climate Change Policies to provide "ongoing, permanent oversight over the implementation of the state's climate policies" and provided additional requirements for future scoping plan updates.

California is on track to meet its near-term target of reducing greenhouse emissions to 1990 levels by 2020, in large part due to the strategies identified by CARB in its scoping plan. Recent analyses of California's climate and energy policies indicate that the state's sectoral policies have had the greatest effect in reducing statewide greenhouse gases, while California's emissions trading program acts primarily as a backstop. While California has identified shortcomings in some of its programs, it has recommended policy changes to ensure all sectors meet their 2020 and 2030 emissions reductions targets. Through these adaptive responses, California has become a model for other states in terms of climate and energy governance and effectiveness.

Key Features of California's Climate and Energy Governance System

California's climate and energy governance system includes several important structural and substantive components that have made it a model for other states. These include:

Targets

- Long-term climate change target (80% GHG emissions reduction by 2050) that is treated as binding
- Binding interim climate change and energy targets (40% reduction of greenhouse gases from 1990 levels by 2030; 50% renewable energy total by 2030)

Leadership and Coordination

- Consistency at the executive and legislative level since 2005
- A designated lead agency (CARB) with the responsibility, authority, funding, and staff to coordinate and direct California's climate change strategy
- A Climate Action Team, consisting of relevant agency directors and coordinated by CalEPA, which meets regularly to coordinate efforts

Strategic Planning that Guides Policies

- The Scoping Plans, i.e., comprehensive strategic plans, for achieving the climate change targets, which are:
    - Developed by experts who work in California's agencies and at organizations and universities with relevant expertise;
    - Drafted with input from local governments, industries, non-governmental organizations, and the public;
    - Updated every 5 years; and
    - Used to guide state policymaking
- Legislation, regulations, and policies derive from the recommendations in the Scoping Plans

Data-Based Adaptability and Policy Certainty

- Routine data collection and monitoring evaluate policy effectiveness, and
- Agencies and policymakers alter programs and policies based on data and monitoring, with adequate notice to market participants

How California's and Oregon's Climate and Energy Governance Differ

California	Oregon
Targets • Binding long-term climate change target: 80% GHG reduction by 2050 • Binding interim climate and renewable energy targets: GHGs: 40% below 1990 levels by 2030; RPS: 50% by 2030	**Targets** • Non-binding long-term climate change goal: 75% reduction below 1990 levels by 2050 • RPS: 27% by 2025, and 50% by 2040 for investor-owned utilities
Leadership and Coordination • Consistent leadership at the executive and legislative levels since 2005 • A designated lead agency (CARB) with adequate authority and resources to coordinate and direct climate strategy • Climate Action Team comprised of agency directors meets regularly to coordinate regulatory efforts	**Leadership and Coordination** • Inconsistent attention to climate and energy goals at the executive and legislative levels, with a focus on discrete policies, rather than long-term goals • No designated lead agency to coordinate climate policy or energy transition strategy • Interagency coordination is sporadic and typically on a policy-specific basis

Strategic Planning that Guides Policies
• Scoping Plans are comprehensive strategic plans for achieving the climate change targets. Plans are:
  • Developed by experts in the field
  • Drafted with input from public and private stakeholders
  • Updated every 5 years; and
  • Used to guide state policymaking
• State laws and policies derive from the recommendations in the Scoping Plan
	Strategic Planning that Guides Policies
	• No comprehensive strategic plan for meeting state climate goals or achieving the energy transition
	• Sector-specific climate plans are not binding, not regularly updated, and have limited authority, impact, and scope
	• Climate and energy policies are not linked to a comprehensive long-term strategy; policymaking occurs in a piecemeal, rather than strategic, fashion

Adaptability and Policy Certainty • Routine data collection and monitoring evaluate policy effectiveness • Agencies and policymakers alter programs and policies based on data and monitoring, with adequate notice to market participants	**Adaptability and Policy Certainty** • Many policies do not include mandatory data collection, reporting, or monitoring requirements • Policy changes are often implemented without independent analysis of how changes will affect compliance with climate goals or affect market participants
Overall Conclusions California has effective climate and energy governance that includes: • Binding targets • Designated lead agency • Strategic plans that guide policy design • Routine data collection, monitoring, and evaluation of programs • Program adjustments where necessary	**Overall Conclusions** Oregon needs better climate and energy governance that includes: • Binding targets • Designated lead agency • Strategic plans that guide policy design • Routine data collection, monitoring, and evaluation of programs • Program adjustments where necessary

THE GREEN ENERGY INSTITUTE

DEVELOPING AN EFFECTIVE CLIMATE AND ENERGY GOVERNANCE FRAMEWORK FOR OREGON

PART E

EFFECTIVE CLIMATE AND ENERGY GOVERNANCE:

THE NEW YORK MODEL

EFFECTIVE CLIMATE AND ENERGY GOVERNANCE: THE NEW YORK MODEL

Overview

New York has established an effective policy framework to address climate change and guide the transition to a clean, resilient, economical energy system. The state's policy framework incorporates ambitious climate and renewable energy targets; prioritizes long-term, comprehensive state energy planning; and explores innovative regulatory structures that incentivize energy conservation and investments in renewable energy resources.

In 2008, Governor David Patterson launched New York's efforts to address climate change through an executive order establishing a State Energy Planning Board and authorizing the creation of a State Energy Plan. In 2009, Governor Patterson expanded on these efforts by issuing another executive order that established a goal for New York to reduce statewide greenhouse gases by 80% below 1990 levels by 2050. The order also created a Climate Action Council composed of the directors of relevant New York agencies and chaired by the Director of State Operations. The order directed the Council to prepare a Climate Action Plan. The Council released an Interim Report in November 2010. Although the Council never released a final report, New York has continued to make steady progress in addressing climate change and promoting strong climate and energy governance by focusing on energy policy and planning.

Specifically, in 2009, New York adopted legislation codifying the establishment of the State Energy Planning Board. The Energy Planning Board is composed of ten heads of state agencies, three political appointees—one from the governor, one from the speaker of the assembly, and one from the head of the senate—as well as a non-voting representative from the New York Independent System Operator, the entity charged with operating New York's electricity grid and wholesale power markets. The president of the New York State Energy Research and Development Authority chairs the Energy Planning Board.

The Energy Planning Board is tasked with developing the New York State Energy Plan, which serves as the primary blueprint for the state's energy policies. The State Energy Plan must 1) provide a ten-year forecast of New York's energy supply and demand, 2) provide a projection of greenhouse gas emissions from the energy sector, and 3) analyze how the state can advance measures to reduce energy demand through increased energy efficiency and conservation, promote distributed generation, and increase renewable energy deployment.

In developing the State Energy Plan, the Energy Planning Board must consider input from relevant state agencies, market participants, regional planning councils, and public stakeholders. The Energy Planning Board is required to issue an updated State Energy Plan every four years. In addition, the Board must issue a biennial report evaluating the progress made and challenges faced by state and private actors implementing the State Energy Plan. The biennial report may also recommend new or amended policies to achieve the State Energy Plan's goals.

In addition to drafting the State Energy Plan, the Energy Planning Board is tasked with identifying policies and programs to further cost-effective energy efficiency and energy conservation activities and delegating project implementation to appropriate state agencies. The

Board has authority to adopt rules and regulations to carry out its directives. The Board also has authority to subpoena people and documents, conduct hearings, and represent itself in legal disputes.

In 2014, Governor Andrew Cuomo launched Reforming the Energy Vision (REV), a new signature energy policy for New York. The REV established ambitious climate and energy goals for New York, which include targets to reduce greenhouse gas emissions by 40% below 1990 levels, have renewable energy resources provide 50% of the electricity consumed in New York, and reduce building energy consumption by 23% below 2012 levels, all by 2030. The REV's objective is to restructure the utility regulatory model within the state of New York and create a regulatory system designed to facilitate innovation through the free market. Under the regulatory structure presented in the REV, regulators are encouraged to implement price signals to reward investments in sustainable, efficient energy resources and enable utilities to earn returns by advancing markets in energy efficiency and distributed energy resources. The REV's vision is bold and transformative and builds upon the planning, communication, and coordination provided by New York's energy planning process.

In 2015, New York released an updated State Energy Plan that provides a comprehensive roadmap for achieving the objectives outlined in the REV. The 2015 State Energy Plan contains over 40 distinct programs designed to facilitate a transition to a clean energy economy. Additionally, the State Energy Plan outlines a strategy to reduce reliance on state subsidies and incentives for renewable energy investments, which are funded through ratepayer surcharges, auction revenues from the Regional Greenhouse Gas Initiative, and other public revenue sources. The 2015 State Energy Plan thus introduces a strategy to incentivize private sector capital investments through mechanisms such as a ten-year, $5 billion Clean Energy Fund to support renewable energy development in the state. New York projects that the 2015 State Energy Plan's initiatives and the REV operating together will ultimately put the state on a trajectory to meet the REV's 2030 climate and energy targets, which will put the state on a path to reduce its greenhouse gas emissions by 80% below 1990 levels by 2050.

Key Features of New York's Climate and Energy Governance System

New York's climate and energy governance system includes several important structural and substantive components that have made it a model for other states. These include:

Targets

- Long-term climate change targets (80% reduction by 2050) that are treated as binding
- Mid-range targets of 50% electricity generation from renewables by 2030
- 40% reduction in greenhouse gas emissions below 1990 levels by 2030

Leadership and Coordination

- Initial climate leadership through the Climate Action Council, chaired by the Director of State Operations
- Energy leadership through the New York State Energy Planning Board, which coordinates the actions of other agencies and entities
- A bold vision to address the underlying structural impediments to a clean energy future
- A commitment to comprehensive planning

Strategic Planning that Guides Policies

- The New York State Energy Plan is a comprehensive strategic plan for achieving the climate change and clean energy targets, which are:
    - Developed with input from relevant agencies, the public, and with intrastate and regional considerations in mind
    - Designed to leverage private investment and the innovative forces of the free market while maintaining a strong role for the state
    - Updated every four years, with progress reports released every two years

Data-Based Adaptability and Policy Certainty

- Routine information collection and monitoring evaluate policy effectiveness, and
- Agencies and policymakers update programs and policies based on input from affected entities, with adequate notice to market participants

How New York's and Oregon's Climate and Energy Governance Differ

New York	Oregon
Targets • Binding long-term climate change target: 80% reduction by 2050 • Binding interim climate targets: 1990 levels by 2020; 40% reduction by 2030	**Targets** • Non-binding climate change goal: 75% reduction below 1990 levels by 2050 • RPS: 27% by 2025, and 50% by 2040 for investor-owned utilities
Leadership and Coordination • The Energy Planning Board is the designated lead agency for energy planning and policymaking • The Energy Planning Board has authority to coordinate agency action to achieve climate and energy objectives • Demonstrated climate leadership from the executive branch since 2008	**Leadership and Coordination** • Inconsistent attention to climate and energy goals at the executive and legislative levels, with a focus on discrete policies rather than long-term goals • No designated lead agency to coordinate climate policy or energy transition strategy

Strategic Planning that Guides Policies
• The New York State Energy Plan provides a comprehensive strategy that:
  • Guides and coordinates actions of all state agencies
  • Incorporates input from agencies and state and regional stakeholders
  • Must be updated every four years
  • Provides a roadmap for achieving state climate and energy targets
	Strategic Planning that Guides Policies
	• No comprehensive strategic plan for meeting state climate goals or achieving the energy transition
	• Sector-specific climate plans are not binding, not regularly updated, and have limited authority, impact, and scope
	• Climate and energy policies are not linked to a comprehensive long-term strategy; policymaking occurs in a piecemeal, rather than strategic, fashion

Data-based Adaptability and Policy Certainty
• Robust energy planning process that includes:
  • Routine information collection through industry reporting requirements
  • Biennial energy planning updates
  • Ten-year energy forecasts updated every four years
	Data-based Adaptability and Policy Certainty
	• Many policies do not include mandatory data collection, reporting, or monitoring requirements
	• Policy changes are often implemented without independent analysis of how changes will affect compliance with climate goals or affect market participants

Overall Conclusions New York has effective climate and energy governance that includes: • Binding targets • Designated lead board of agency directors • Strategic plans that guide regulatory action • Program adjustments based on lessons learned from previous efforts	**Overall Conclusions** Oregon needs better climate and energy governance that includes: • Binding targets • Designated lead agency • Strategic plans that guide policy design • Routine data collection, monitoring, and evaluation of programs • Program adjustments where necessary

THE GREEN ENERGY INSTITUTE

DEVELOPING AN EFFECTIVE CLIMATE AND ENERGY GOVERNANCE FRAMEWORK FOR OREGON

PART F

EFFECTIVE CLIMATE AND ENERGY GOVERNANCE:

THE HAWAII MODEL

EFFECTIVE CLIMATE AND ENERGY GOVERNANCE: THE HAWAII MODEL

Overview

Hawaii is the most fossil fuel-dependent state in the nation. Because the state is not connected to the interstate electric grid, the Hawaiian Islands must satisfy all of their electricity demands with in-state generation, which relies heavily on imported diesel fuel. In 2008, the state decided to launch an initiative to transform its energy sector and transition from a fossil fuel-dependent state to a renewable energy leader. As a result of the Hawaii Clean Energy Initiative, the state has adopted the most ambitious clean energy targets in the nation. Hawaii is currently committed to transition to a 100% renewable energy system by 2045.

In 2008, Hawaii and the federal Department of Energy (DOE) launched the Hawaii Clean Energy Initiative (HCEI), a unique federal-state-private collaboration aiming to guide Hawaii in transforming its energy sector. This initiative was officially established through a Memorandum of Understanding (MOU) between Hawaii and DOE that recognized the need to transition Hawaii to a clean energy economy and dramatically reduce the state's dependence on imported fossil fuels. The MOU identified a need to fundamentally transform the "financial, regulatory, legal, and institutional systems that govern energy planning and delivery" in Hawaii. To achieve these objectives, the 2008 MOU identified five key goals:

- "To define the structural transformation that will need to occur to transition the State to a clean energy economy;
- To demonstrate and foster innovation in the use of clean energy technologies, financing methodologies, and enabling policies designed to accelerate social, economic and political acceptance of a clean energy economy;
- To create opportunities at all levels of society that ensure widespread distribution of the benefits resulting from the transition to a clean, sustainable energy state;
- To establish an "open source" learning model for others seeking to achieve similar goals;
- To build a workforce with crosscutting skills to enable and support a clean energy economy."

Through the MOU, Hawaii and DOE agreed to establish working groups to identify and analyze opportunities for improvement, potential barriers to progress, and specific "financial, regulatory, and policy activities" to pursue. Energy Performance Working Groups would assess end-use efficiency, electricity generation, energy delivery, and transportation. Cross-Cutting Issue Working Groups would assess technology integration, sustainable funding and financing mechanisms, and policy and regulatory solutions. Hawaii and the DOE also agreed to take several actions to engage the public and other major stakeholders in the process.

In October 2008, Hawaii, its electric utilities, and the Division of Consumer Advocacy (Hawaii's public utility regulatory agency) signed a landmark Energy Agreement establishing a goal to generate 70% of Hawaii's electricity from renewable energy sources by 2030. The Agreement acknowledged that the transition from fossil fuels to renewable energy might be costly and expose the state to additional risks, and it recognized the need to preserve the stability of the Hawaiian electric grid and the financial integrity of its utilities.

Through the Energy Agreement, Hawaii and its electric utilities committed to work together to reduce electricity demand, increase energy efficiency, improve monitoring practices, and transform the state's major utility from "a traditional sales-based company to an energy services provider." To do so, the Agreement outlined specific actions for the state and utilities to take, which included decoupling the utilities' profits from their capital investments to encourage efficiency improvements and replacing the standard Integrated Resource Planning process with a "Clean Energy Scenario Planning" process.

To develop a strategy to transition its energy sector and reach its goal of 70% clean energy by 2030, Hawaii convened working groups to develop strategic implementation plans for four key sectors: end-use efficiency, electricity generation, energy delivery, and transportation. To gain input from multiple perspectives, the working groups were comprised of a broad variety of stakeholders, including local governments, private industries, non-profit organizations, trade associations, and academic institutions.

The HCEI working groups were directed to produce strategic implementation plans that would establish a foundation for future actions. The working group process initially produced a technical scenario or "wedge" analysis that evaluated the feasibility of reaching the 70% clean energy by 2030 goal, identified pathways for success, and assessed the most important policies to implement.

In 2009, Hawaii enacted Act 155, which formally codified the HCEI goal of obtaining 70% clean energy by 2030. Act 155 also revised the state's Renewable Portfolio Standard (RPS) to require the state to procure 40% renewable energy by 2030 and adopted a new energy-efficiency target calling for the state to reduce electricity consumption by 4,300 gigawatt-hours by 2030. Together, these targets were designed to achieve Hawaii's overarching goal of 70% clean energy by 2030.

In 2010, Hawaii enacted Act 73, which established a program to design, implement and administer activities to facilitate the energy transition under the HCEI. Act 73 created an Energy Security Special Fund (ESSF) to support HCEI implementation programs. Act 73 also called for the creation of implementation plans to guide the state and its counties in the transition to a clean energy economy. In addition, the Act established an Economic Development Task Force within the Hawaii Department of Business, Economic Development, and Tourism (DBEDT) to facilitate investments in renewable energy and energy efficiency projects, track and evaluate state and local clean energy policies and programs, and identify strategies to coordinate inter-agency and state and local actions. Act 73 also directed the DBEDT to submit an annual report to the legislature documenting the status and progress of the state's energy transition activities funded through the ESSF.

To guide the implementation of the HCEI, a steering committee organized the sectoral working groups' plans and stakeholder input into a single, comprehensive strategic roadmap for the state. In 2011, the steering committee released the HCEI Roadmap, which declared goals for each sector and established five- and ten-year strategies for transitioning to a clean energy system. This Roadmap incorporated feedback and perspectives from a wide variety of stakeholders.

Following the success of the initial HCEI process, in 2014 Hawaii and the DOE reaffirmed their partnership and effectively launched "HCEI 2.0." HCEI 2.0 established an Executive Management Team of state and federal regulators to oversee and coordinate Hawaii's energy transition activities. HCEI 2.0 also created a stakeholder Advisory Board comprised of representatives from local governments, utilities, the private sector, community groups, and academia. HCEI 2.0 gave the Executive Management Team and Advisory Board authority to create additional stakeholder action groups ('strike teams') and project teams ('charrettes') as needed to bring together additional stakeholders to address specific issues that may arise. Through this revamped HCEI 2.0 initiative, Hawaii committed to go beyond its original goals. Similarly to the original, the state and federal partnership aimed to establish Hawaii as a "national and international test bed" for innovations and for Hawaii to serve as a global model for the energy transition.

As a result of the HCEI process, Hawaii has made significant progress in transitioning to clean energy. In 2015, for example, the state's utilities obtained 23% of their electricity from renewable sources, far exceeding the year's RPS target of 15% renewable energy. The same year, the Hawaii legislature revised the state's RPS to require 30% renewable energy by 2020 and 100% renewable energy by 2045. The HCEI process of setting goals, developing comprehensive strategies, engaging stakeholders, and fostering collaboration and innovation may serve as a model for other states seeking to commit themselves to a clean energy future.

Key Features of Hawaii's Climate and Energy Governance System

Hawaii's climate and energy governance system includes several important structural and substantive components that have made it a model for other states. These include:

Targets

- Binding long-term clean energy targets (100% renewable energy by 2045; 4,300 GWh reduction in energy use by 2030)
- Binding interim energy targets (30% renewable energy by 2020, 40% by 2030, 70% by 2040; 1,375 GWh reduction in energy use by 2015; additional 975 GWh reduction by 2020 and again by 2025)

Leadership and Coordination

- Established long-term partnership between the federal DOE and the state
- Consistency at the executive and legislative levels since 2008
- A designated Executive Management Team to oversee and coordinate HCEI activities, and a departmental program to report progress and expenditures
- Delegation of sector-specific regulation and monitoring to appropriate expert agencies

Strategic Planning that Guides Policies

- Clear mandate informed by technical analyses and stakeholder engagement
- Structured approach to planning:
    - Identification of key sectors for change
    - Creation of sector-specific working groups, comprised of federal and state agency experts and private and public representatives
    - Development of strategic plans by working groups, used to inform later actions and additional legislation, regulations, and policies
    - Consultation with additional stakeholders and the public generally
    - Incorporation of sector-specific plans into a single comprehensive roadmap by a designated state agency

Data-Based Adaptability and Policy Certainty

- Routine data collection and monitoring to evaluate policy effectiveness
- HCEI program leaders may create a strike team, i.e., a new stakeholder working group, to assess and inform potential changes to programs and policies
- Agencies with delegated regulatory responsibilities retain authority and flexibility to adapt programs to sector-specific needs

How Hawaii's and Oregon's Climate and Energy Governance Differ

Hawaii	Oregon
Targets • Binding, long-term clean energy targets: 100% RPS by 2045; 4300 GWh EES by 2030 • Binding interim targets: 30% RPS by 2020, 40% by 2030, 70% by 2040; 1375 GWh EE by 2015; extra 975 GWh EE by 2020 & 2025	**Targets** • Non-binding climate change goal: 75% reduction below 1990 levels by 2050 • RPS: 27% by 2025, and 50% by 2040 for investor-owned utilities
Leadership and Coordination • Established long-term partnership between federal DOE and state • Consistency at the executive and legislative levels since 2008 • A designated management team to oversee and coordinate HCEI	**Leadership and Coordination** • Inconsistent attention to climate and energy goals at the executive and legislative levels, with a focus on discrete policies rather than long-term goals • No designated lead agency to coordinate climate policy or energy transition strategy
Strategic Planning that Guides Policies • Clear mandate informed by technical analyses and stakeholder engagement • Sector-specific working groups crafted strategic implementation plans to guide future action • Steering Committee combined sector-specific plans into a statewide comprehensive Roadmap establishing 5- and 10-year strategies • Planning process incorporated input from a broad variety of stakeholders	**Strategic Planning that Guides Policies** • No comprehensive strategic plan for meeting state climate goals or achieving the energy transition • Sector-specific climate plans are not binding, not regularly updated, and have limited authority, impact, and scope • Climate and energy policies are not linked to a comprehensive long-term strategy; policymaking occurs in a piecemeal, rather than strategic, fashion
Data-based Adaptability and Policy Certainty • Routine data collection and monitoring evaluate policy effectiveness • Program leaders may convene stakeholder action groups to assess arising issues • Agencies retain authority to adapt programs to meet sector-specific needs	**Data-based Adaptability and Policy Certainty** • Many policies do not require mandatory data collection, reporting, or monitoring • Policy changes are often implemented without independent analysis of how changes will affect compliance with climate goals or affect market participants
Overall Conclusions Hawaii has effective climate and energy governance that includes: • Binding targets • Designated lead management team • Strategic roadmap for statewide action • Routine data collection, monitoring, and evaluation of programs • Program adjustments where necessary	**Overall Conclusions** Oregon needs better climate and energy governance that includes: • Binding targets • Designated lead agency • Strategic plans that guide policy design • Routine data collection, monitoring, and evaluation of programs • Program adjustments where necessary