

Oregon Strategy for Greenhouse Gas Reductions

Governor's Advisory Group On Global Warming



State of Oregon, December 2004

Governor's Advisory Group On Global Warming

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State of Oregon, December 2004

Oregon Strategy for Greenhouse Gas Emissions
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www.oregon.gov/ENERGY/GBLWRM/Strategy.shtml

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Table of Contents

Executive Summary	i
The Governor’s Advisory Group on Global Warming	vii

PART ONE

1. Introduction	3
2. Vision: Oregon Acts on Global Warming	6
2.1 Oregon’s “Fair Share” of Global Greenhouse Gas Emissions Reductions	6
2.2 Principles	7
2.3 Goals, Strategies and Implementation	8
2.4 An “Investment-Based” Solutions Strategy	13
2.5 The Economics of Addressing Global Warming: Costs, Investments and Opportunities	16
2.6 Partners	24
3. Context	27
3.1 A Primer on Global Warming	27
3.2 Costs and Consequences to Oregon of a “Business As Usual” Strategy	35
3.3 Mitigation and Adaptation	39

PART TWO

1. Introduction to Recommended Actions	43
Criteria and Categories	45
Estimated Reductions from Implementing Actions	46
2. Recommended Actions	48
Integrating Actions (IA)	48
Energy Efficiency (EE)	55
Electric Generation and Supply (GEN)	66
Transportation (TRAN)	75
Biological Sequestration (BIOSEQ)	91
Materials Use, Recovery and Waste Disposal (MW)	99
State Government Operations (GOV)	114
3. Conclusion and Next Steps	117

APPENDICES

- A. Advisory Group Members and Biographies
- B. Inventory and Forecast of Oregon’s Greenhouse Gas Emissions
- C. Scientific Consensus Statement on the Likely Impacts of Climate Change on the Pacific Northwest
- D. Briefing Paper: Materials and Greenhouse Gases
- E. Executive Summary of West Coast Governors’ Global Warming Initiative “Staff Recommendations to the Governors”
- F. Glossary of Energy and Global Warming Terms

Executive Summary

Global warming is not just another environmental issue.

It's not "just another issue," period.

Absent decisive actions across the globe of the sort proposed in this report, the warming already underway is expected to lead to changes in the earth's physical and biological systems that would be extremely adverse to human beings, their communities, economies and cultures. These are changes that we would have unintentionally brought upon ourselves, but that are also in our power to reverse. Our failure to return atmospheric accumulations of greenhouse gases (GHG) back to levels that will sustain historic climate patterns may lead to an Earth that is dramatically altered and far less habitable within only a few generations.

The impacts of such changes on Oregon citizens, businesses and environmental values are likely to be extensive and destructive. Coastal and river flooding, snowpack declines, lower summer river flows, impacts to farm and forest productivity, energy cost increases, public health effects, and increased pressures on many fish and wildlife species are some of the effects anticipated by scientists at Oregon and Washington universities.

The means to arrest and reverse these effects are at hand or within technological reach. Many of them carry co-benefits that would justify acting on them without the impetus of global warming: positive economic returns on dollars invested in energy efficiency, energy price stability, and healthier air and water. Others will cost us something up front for insurance against the deeply disruptive and costly effects that we can expect absent any action. The earlier we take many of these actions, the less drastic they will have to be to achieve the same emissions reduction result.

The Governor's Advisory Group on Global Warming developed this *Oregon Strategy for Greenhouse Gas Reduction*.¹ Governor Ted Kulongoski appointed the Advisory Group early in 2004 to perform this task. This Strategy, if implemented, will complement the agenda of the West Coast Governors' Global Warming Initiative undertaken by the governors of California, Oregon and Washington to address greenhouse gas emissions at a state and regional level.

The Problem

Several thousand of the earth's scientists worked together on the Intergovernmental Panel on Climate Change to review the exhaustive evidence and describe the plausible range of outcomes. They agree that global warming caused by greenhouse gas pollution from human activities represents a profoundly serious threat to human civilization and to even the most robust and insulated natural ecosystems. Their comments are echoed in the *Scientific Consensus Statement on the Likely Impacts of Climate Change on the Pacific Northwest* prepared by scientists at Oregon and Washington universities in the fall of 2004 following a thorough regional review of the science (Appendix C).

¹ The Advisory Group and its 2004 process are described in greater detail below.

Oregon Choices

As Oregonians and Americans, we clearly have choices about how we will respond to the warming of our planet. We can choose a “business as usual” path of contributing ever-increasing greenhouse gas emissions to already high atmospheric concentrations. But if we choose “business as usual,” we leave a legacy for our children and grandchildren of a changing global climate that threatens human habitation and biological ecosystems. The costs to adapt to and remedy these changes will be much higher than they would be if we act today.

Alternately, we can adopt the goals and the set of actions recommended in this report to arrest and reverse Oregon’s contribution to these global warming trends. In doing so, we will set ourselves on a path to reduce emissions over time and stabilize the global climate conditions we bequeath to our children.

Goals

The Advisory Group believes that setting goals for Oregon, expressed together with actions that can plausibly meet those goals over time, gives purpose and structure to the task of reducing greenhouse gas emissions. The Advisory Group proposes the following new goals:

1. By 2010, arrest the growth of Oregon’s greenhouse gas emissions (including, but not limited to CO₂) and begin to reduce them, making measurable progress toward meeting the existing benchmark for CO₂ of not exceeding 1990 levels.
2. By 2020, achieve a 10 percent reduction below 1990 greenhouse gas levels.
3. By 2050, achieve a “climate stabilization” emissions level at least 75 percent below 1990 levels.

The goals offer a pathway to climate stabilization that requires vigorous action, but also allows time for necessary individual and business adjustments.

Economic Investments and Opportunities

In any discussion of addressing global warming, it’s easy to get trapped in the underbrush of near-term costs and to miss the forest of rational economic calculation of long-term savings. In some cases those near-term costs are going to be higher, but often the costs will be matched by the returns that Oregon families and businesses will see directly.²

The economic dimension of dealing with climate change can be stated as a series of “costs,” but it can also be stated in a more affirmative way. Many actions proposed in this report carry price tags, but they are generally in the nature of investments that can generate net economic returns to us over time. Most are investments we are experienced in making, from improving the efficiency of our homes, farms, factories and appliances to developing non-polluting new energy sources such as wind, solar, agricultural biomass and other renewable resources. These should remind us of our long investment in hydroelectricity.

² The effects of global warming on Oregonians and the costs we will bear in adapting to climate change are not just a function of what we do in one state. They also depend on the degree to which our leadership and actions are matched by leadership and actions across the country and around the globe.

Near-term costs are further offset by helping Oregon businesses stay *competitive* in a world moving to greenhouse gas limits. Costs of recommended actions should also be measured against the *economic opportunities* that will open for Oregon businesses that develop goods and services for sale to a world in the market for low greenhouse gas solutions.

Other costs are similar to buying insurance policies against events that would otherwise cost far more to cope with. Avoiding the potentially destructive storms, floods and forest fires that are projected to accompany global warming would likely be less costly than the repairs we would need to make following such events. These measures will bring the same welcome returns that past investments in flood control have earned.

We believe there will be many economic opportunities for companies and communities that rise to the challenge by developing the practices and technology products that our trading partners in other states and countries also will need to cope. We have ample experience in Oregon with this outcome. Many companies here have built prosperous business lines in energy efficiency products and consulting practices, in developing renewable energy technologies and adapting the power system for optimal use. We believe Oregon's entrepreneurs, supported by Oregon's academic and technical capabilities, can prosper by positioning themselves at the leading edge of change.

Principles and Strategies

The set of principles the Advisory Group used to guide its efforts placed primary emphasis on real, measurable and meaningful reductions in the state's greenhouse gas emissions. The Advisory Group also emphasized the need to focus first on the most cost-effective actions and those that create investment and entrepreneurial opportunities. We agreed we would not take actions that could impair reliability in our electrical and other energy supply systems, and we believe that many of our recommendations will actually enhance this quality.

The principles create the right direction and focus for Oregon. The Strategy further articulates four broad strategies that complement the principles:

1. Invest in energy, land use and materials efficiency.
2. Replace greenhouse gas-emitting energy resources with cleaner technologies.
3. Increase biological sequestration (farm and forest carbon capture and storage).
4. Promote and support education, research and technology development.

Recommended Actions

The Advisory Group has recommended a set of actions – some very specific, others more in the nature of shifting Oregon's long-term policy orientation – that collectively will meet our first goal of reversing the upward trend of Oregon's greenhouse gas emissions. The list of actions we choose or must take over the next fifty years is far from complete, since many needed actions and opportunities will only reveal themselves as we proceed. New, more cost-effective technologies and applications will emerge. Improved scientific understanding will open new doors.

The Strategy recommends actions in seven areas as outlined in Part Two:

- (1) Integrating Actions
- (2) Energy Efficiency
- (3) Electric Generation and Supply
- (4) Transportation
- (5) Biological Sequestration;
- (6) Materials Use, Recovery and Waste Disposal
- (7) State Government Operations

Within these areas, the Advisory Group identified two categories of actions.³

Category I: Significant Actions for Immediate State Action

These actions promise significant greenhouse gas savings, are technically feasible today and are often the most cost-effective first actions to be taken.

Category II: Other Immediate Actions

These actions make sense for Oregon to undertake immediately. In most cases the greenhouse gas savings are less significant, but costs are also proportionately lower and many actions are cost-effective now.

Accomplishing Category I actions will usually require the most concerted and disciplined effort on the part of Oregonians. Equally meaningful progress toward the proposed goals will be extremely difficult to achieve without substantially achieving most or all Category I actions.

Some of the major Category I actions include:

Integrating Actions (IA-1): Arrest the growth of and begin to reduce Oregon’s greenhouse gas emissions by 2010. Meet a goal of 10 percent below 1990 Oregon emissions levels by 2020 and at least 75 percent below 1990 levels by 2050.

Energy Efficiency (EE-1): Meet Oregon’s energy efficiency target set by the Northwest Power and Conservation Council for the next 20 years, capturing at least 960 average megawatts of electricity savings and comparable conservation of natural gas and oil.

Electric Generation and Supply (GEN-1): Increase the renewable content of electricity.

Electric Generation and Supply (GEN-2): Recommend that the Governor create a special interim task force to examine the feasibility of, and develop a design for, a load-based greenhouse gas allowance standard.

³ The Advisory Group considered Category III Actions that, for various reasons including manageability of the process, it chose to defer. As these and other possible actions are proposed, they can be developed and considered by a successor to this Advisory Group.

Transportation (TRAN-1): Convene an interim task force to recommend a proposal for the Environmental Quality Commission or the Governor and the Legislature to adopt greenhouse gas emission standards for vehicles.

Materials Use, Recovery and Waste Disposal (MW-1): Achieve the waste disposal and recovery goals already adopted by Oregon in statute.

Of the 19 Category I actions, two are constrained by law to be cost-effective. The Northwest Power and Conservation Council's 20-year energy efficiency goals (incorporated in action EE-1) must meet a test, established in federal law, of being cost-effective to the region (and in nearly all cases, to individual electricity consumers). The California state law establishing the "Pavley" auto tailpipe pollution standards (TRAN-1) requires that new cars be able to meet the twin tests of low greenhouse gas emissions and cost-effectiveness to the purchaser.

The other Category I action with the greatest potential for cost consequences is the proposed greenhouse gas allowance for electricity, gas and oil (GEN-2). Estimating the costs and benefits of this measure depends on its design, on future energy markets and costs, on technology evolution and on future regulatory actions. We can model different paths to our greenhouse gas content (also referred to as "carbon content") goal and select one that offers the greatest greenhouse gas savings at the lowest cost and risk. By relying on energy efficiency and renewable technologies that are unaffected by fossil fuel markets and price swings, compliance actions can minimize abrupt rate shocks to consumers and cost impacts that could undermine the competitiveness of Oregon businesses.

An effective design may maximize the ability to trade emissions savings and offsets with California and Washington, lowering compliance costs. The design of a greenhouse gas allowance mechanism can be made sensitive to competitive pressures on Oregon businesses if other states and countries are not pursuing parallel paths to greenhouse gas reductions.

There are also 27 Category II recommendations in Part Two. Although individually smaller, these actions add up to significant reductions. All actions combined could result in reversing the continued growth of greenhouse gas emissions generated from Oregon and set the state on a path of declining emissions. However, if we continue "business as usual," by 2025 Oregon's greenhouse gas emissions would be 61 percent higher than 1990 levels (today they are 15 percent higher). On the other hand, if we accomplish reductions from all the actions recommended in the report, our emissions would only be 7 percent higher than they were in 1990 and, trending downward, consistent with the Advisory Group's recommended 2020 goal.

In addition to overseeing the implementation of the recommendations, there is a next set of tasks for the Governor's next Advisory Group – further development of some of the more complex recommendations. This new group must also consider what Oregon must do to adapt to the unavoidable warming conditions from greenhouse gas emissions that have already accumulated over the past centuries.

Oregon's Role

The key to stabilizing CO₂ concentrations is limiting total world emissions for the 21st century. What should be Oregon's "share" of this global responsibility?

We are a small state, but part of a country that is the world's largest consumer of fossil fuels and emitter of greenhouse gases. Both U.S. and Oregon emissions are growing rapidly. Oregon total greenhouse gas emissions in 2000 were about 68 million metric tons of carbon dioxide equivalent.⁴ About 84 percent of Oregon's greenhouse gas pollution comes from CO₂ emissions directly. Emissions from methane, primarily from cattle and landfills, contribute 7 percent of greenhouse gas pollution; nitrous oxide emissions, primarily from agricultural practices, contribute about 6 percent to the state's greenhouse gas pollution. Manufactured halocarbons, which include hydrofluorocarbons, perfluorocarbons and suflurhexafluoride, account for the remaining 3 percent.

We recognize that Oregon's contribution to both the problem and its solution is a small part of the whole. We can't succeed without complementary activity on the part of states and nations whose emissions dwarf our own.

Fortunately, many countries that have ratified the Kyoto Protocol and other U.S. states are embarking on their responsibilities in parallel with Oregon. For example, the agreement reached among the three governors of Oregon, Washington and California, who joined to form the West Coast Governors' Initiative on Global Warming, means the West Coast states will proceed in parallel and sometimes joint efforts. We also have other partners in the six New England states and five eastern Canadian Provinces that form the Conference of New England Governors and Eastern Canadian Premiers, who have committed to a regional "Climate Change Action Plan." In addition, Connecticut, Delaware, Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island and Vermont are designing a regional cap-and-trade system for carbon dioxide emission from power plants. Many of these states and Kyoto-signing countries are also our trading partners, so we may also be preserving access to these markets for Oregon's businesses.

The Advisory Group has made its recommendations based on detailed technical and policy analysis and a broad range of comments from citizens, businesses, academic institutions and other organizations. Now we must decide, as an Advisory Group, a Governor and a State, whether we are prepared to adopt the meaningful carbon reduction goals proposed and the actions that will be required to meet those goals. There couldn't be more of Oregon's future riding on the outcome.

⁴ As a reference, Oregonians emitted almost 17 metric tons of CO₂ per capita, compared to a world wide average of about 4 metric tones. On this basis, Oregon is producing about four times its "share."

The Governor's Advisory Group on Global Warming

The Advisory Group is made up of citizens and public officials who were asked by Governor Kulongoski to serve for the limited duration necessary to draft a Global Warming Strategy. The Group's citizen members include representatives of the business community that both deliver and use energy, farmers, environmentalists, scientists and others (a list of members is included in Appendix A).

Individual members of the Group may have conflicts of interest with respect to many of the actions it considered. Such conflicts are inescapable given that the subject matter (energy production and consumption, transportation, waste generation and management, etc.) is integral to the lives and businesses of all Oregonians. Moreover, the Governor wanted citizens who would understand the science and the economic and technical issues involved, and who would be sensitive to the impacts to Oregonians of the actions being considered. State agencies (such as the Department of Environmental Quality) that are directed by independent state commissions (e.g., the Environmental Quality Commission) participated as ex officio members and any recommended actions are subject to subsequent commission policy determinations.

After reviewing public comments, the Advisory Group met to incorporate changes where appropriate and decide on final recommendations to the Governor and other appropriate parties. The Advisory Group reached consensus on the strategies and actions it chose to recommend and adopted these final recommendations unanimously.

Some recommendations emerged as state administrative actions, while others will still need legislative approval. Where there are fiscal or workload effects on state agencies, the Governor and agency heads will determine where these recommendations fit into priorities. The Advisory Group expects that more complex actions will require their own task forces to work out details for legislative consideration.

This report offers final recommendations to the Governor, to state agencies having statutory authority and to Oregonians generally. The Group is advisory only, and its recommendations will take effect only if state and local governments, private businesses and other organizations believe they merit adoption.

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