APPENDIX H

Federal and State Efforts on Climate Change
Appendix H: Federal and State Efforts on Climate Change

Updated: November 2008

Federal Highway Administration and state DOTs are involved in a wide variety of efforts related to climate change. This appendix summarizes some of the activities that FHWA and ODOT are pursuing related to climate change.

**FHWA ACTIVITIES**

FHWA supports transportation and climate change research and disseminates the results, provides technical assistance to stakeholders, and coordinates its activities within U.S. DOT and with other Federal agencies. Click on the links below for more information.

- Technical Assistance
- Outreach/Education
- Intra-agency and Interagency Coordination
- Ongoing/Current Research

**Technical Assistance**

- **Modeling Assistance** – The FHWA Resource Center Air Quality Technical Services Team can provide assistance with the use of existing and new models and tools to analyze GHG emissions, including a workshop on EPA’s MOVES Model. For more information and contacts please refer to the FHWA Resource Center Air Quality Team web site at: [http://www.fhwa.dot.gov/resourcecenter/teams/airquality/index.cfm](http://www.fhwa.dot.gov/resourcecenter/teams/airquality/index.cfm).

**Outreach/Education:**

- **American Association of State Highway and Transportation Officials (AASHTO) Center for Environmental Excellence Climate Change Webinars** – FHWA is partnering with AASHTO’s Center for Environmental Excellence to conduct a series of webinars on Climate Change in 2009. For more information, contact Becky Luples (Rebecca.Luples@dot.gov or 202-366-7808).

- **DOT Transportation and Climate Change Clearinghouse** is a "one-stop" source of information for the transportation community on transportation and climate change issues. For more information, contact Diane Turchetta (Diane.Turchetta@dot.gov or 202-493-0158) or Kathy Daniel (Kathy.Daniel@dot.gov or 202-366-6276).

- **Summary Report: FHWA/AASHTO Peer Workshop on Climate Change Adaptation (December 2008)** – FHWA, in partnership with AASHTO, conducted a Peer Exchange on Climate Change Adaptation in Washington, DC. The peer exchange was an opportunity for senior representatives of selected State DOTs to share...
experiences and learn from one another regarding adaptation issues. For more information, contact Rob Ritter (Robert.Ritter@dot.gov or 202-493-2139).

- **Transportation and Climate Change News** is a monthly newsletter that provides transportation stakeholders with up-to-date information on transportation and climate change milestones. For more information, contact Becky Lupes (Rebecca.Lupes@dot.gov or 202-366-7808).

**Intra-agency and Interagency Coordination:**

- **FHWA Working Group on Adaptation of Transportation Infrastructure to Climate Change Effects** – FHWA has formed an internal working group to begin coordinating, leading and implementing agency activities on adaptation to address the various program, policy and technical challenges that the impacts of climate change will present to the transportation industry. For more information, contact Mike Culp (Michael.Culp@dot.gov or 202-366-9229).

- **Interagency Working Group on Transportation, Land Use, and Climate Change** – The Working Group, which is comprised of over 10 Federal agencies, was formed as a result of an interagency meeting of senior managers hosted by FHWA’s Office of Planning, Environment, and Realty in June 2008. The senior managers explored partnership opportunities to address GHG emissions from transportation sources. A staff working group is expanding the discussion to include how GHGs can be reduced through better land use planning and travel demand management that would result in lower VMT. FHWA hosted a second senior manager meeting in December 2008. For more information, contact Diane Turchetta (Diane.Turchetta@dot.gov or 202-493-0158).

- **USDOT Center for Climate Change and Environmental Forecasting** – FHWA is a member of this multi-modal effort to research and evaluate transportation strategies to reduce GHGs and to prepare for the potential effects of climate change on transportation systems.

**Ongoing/Current Research:**

- **Carbon Sequestration Pilot Program** – FHWA has selected the New Mexico and Minnesota DOTs for a pilot program related to climate change. The goals of the program are 1) to develop successful strategies for sequestering carbon on rights-of-way and other lands managed by State DOTs through focused native vegetation management; 2) to determine whether revenue can be generated from the sale of “carbon credits” developed from these projects; and 3) to determine whether FHWA should pursue a national-level effort and provide relevant decision support tools to state DOTs. In addition, the NMDOT has undertaken research to collect information necessary for a protocol (i.e., accounting tool) that can be used for offset projects to quantify tons of carbon reduced. The pilot is scheduled for completion in 2013. For more information, contact Steve Earsom (Steve.Earsom@dot.gov or 202-366-2851).

- **Evaluate How Land Use, Transportation Infrastructure, and Policy Changes Affect Travel Activity and GHG Emissions** – The objective of this research is to develop analysis tools that will allow planners and policy makers in small to medium metropolitan areas evaluate how land use, transportation infrastructure, and policy changes affect travel activity and GHG emissions. The work is expected to be completed in the early to mid 2010 timeframe. For more information contact Supin Yoder (Supin.Yoder@dot.gov or 708-283-3554).

- **Reducing Energy Usage through Transportation Planning for Megaregions** – This research will produce tools to help transportation planners reduce the transportation
system's energy consumption. Transportation and land use will be considered as a system with respect to energy consumption. The research will identify and refine organizational tools that can build planning capacity and enable planners from numerous MPOs to plan as a unit – a megaregion – and will produce a sketch planning computer tool to help planners implement the capacity-building and megaregion tools. The research results will help create a roadmap for implementing strategies to reduce transportation's energy demand on a megaregion scale. For more information, contact Rob Kafalenos (Robert.Kafalenos@dot.gov or 202-366-2079).

- **Sustainability Evaluation and Planning Guidance for Transportation Systems** – This research will focus on how to incorporate sustainability in transportation planning to address challenges facing the nation's transportation infrastructure including nonrenewable fuel depletion and the resulting energy insecurity, GHG emissions, global climate change, local air quality, fatalities and injuries, congestion, noise pollution, low mobility, ecosystem damage and lack of equity. For more information, contact Diane Turchetta (Diane.Turchetta@dot.gov or 202-493-0158).

- **Transportation’s Impact on Climate Change and Solutions** – Report to Congress – The Energy Independence and Security Act of 2008, signed into law in December 2007, mandates that the US DOT produce a report to Congress on transportation's impact on climate change and solutions for reducing this impact. The study is also to consider co-benefits of fuel savings and air quality improvement. The report is to be completed in coordination with the US EPA and the US Global Change Research Program. FHWA is providing resources and technical expertise to the US DOT Climate Change Center in order to complete the report. For more information, contact Rob Kafalenos (Robert.Kafalenos@dot.gov or 202-366-2079) or John Davies (JohnG.Davies@dot.gov 202-366-6039).

- **Travel Demand and Climate Change** – Developing Effective Policy Approaches for Slowing VMT Growth – Through research and dialogue with pivotal stakeholders this project will help determine the extent to which new energy/GHG performance goals may complement or conflict with fundamental transportation system performance and inform the development of effective policy frameworks for slowing VMT growth and reducing GHG emissions. For more information, contact Diane Turchetta (Diane.Turchetta@dot.gov or 202-493-0158).

**ODOT ACTIVITIES**

**INTRODUCTION**

Climate change mitigation encompasses activities devised to reduce the emission of greenhouse gases and thereby limit associated climate change. Climate change adaptation includes actions that would be implemented to respond to the effects of climate change. In its recent background document on climate change and transportation, the Federal Highway Administration listed the four primary climate change mitigation strategies to reduce greenhouse gas emissions from transportation. They are: (1) vehicle technology, (2) low carbon fuels, (3) vehicle miles traveled, and (4) systems efficiencies. The first two strategies are not directly affected by most ODOT activities. The second two mitigation strategies, however, can be directly affected by ODOT, and along with adaptation strategies characterize the majority of the efforts discussed in this document.

The purpose of this paper is to provide a quick topical listing of ODOT’s current climate change efforts to brief both internal parties (managers and staff groups) and external
stakeholders interested in the issue. Following this introduction, the paper is organized into three major subgroups of climate change efforts:

- Internal and external efforts which are process-related,
- Efforts related to ODOT’s internal operations,
- Efforts related to the external transportation system.

Following the three sections in the body of the paper are two appendices that list policy mandates related to internal operations and policy mandates related to the transportation system.

INTERNAL AND EXTERNAL PROCESS-RELATED EFFORTS

- ODOT has a Sustainability Program Manager, who reports to ODOT’s Chief of Staff and interacts regularly with ODOT’s Director, the Governor’s Sustainability Advisor, and the Oregon Sustainability Board. Climate change is one of many topics within the scope of ODOT’s Sustainability Program.
- ODOT has a Sustainability Council, comprised of mid- to senior-level managers representing a variety of functional and geographic backgrounds. The Council provides high-level direction, approves and monitors sustainability work items, and recommends policy and practice changes to ODOT’s Director.
- ODOT has a Climate Change Executive Group comprised of senior executive staff, the purpose of which is to provide overall direction within ODOT regarding the interrelationship of greenhouse gas production, global climate change, and the planning and operation of Oregon’s transportation systems. This group provides a forum for discussion as to the work and activities of other internal committees and the impacts it has on the agency and their responsibilities.
- ODOT has a Climate Change Technical Advisory Committee, the purpose of which is to develop an understanding of the implications of climate change initiatives to the agency and its work. Its purpose also includes providing credible technical advice regarding the interrelationship of greenhouse gas production, global climate change, and the planning and operation of Oregon’s transportation systems, as well as the potential impacts of climate change on transportation infrastructure.
- ODOT representatives participate in a number of key groups:
  - Governor’s Climate Change Integration Group (CCIG) – through completion of the Group’s final report to the Governor, provided staff support, gave transportation and ODOT perspective, and reviewed report drafts.
  - Western Climate Initiative (WCI) – attend meetings and provide input.
  - Department of Environmental Quality Mandatory Greenhouse Gas Reporting Rulemaking – give transportation and ODOT perspective, member of the mobile source subcommittee.
  - The Governor’s Transportation Committees, including the Vision Committee and the Environmental Working Group – attended meetings and provided input leading toward the Transportation Vision Committee Report to Governor Ted Kulongoski (November 2008) and Governor Kulongoski’s Jobs and Transportation Act legislative proposal for the 2009 Legislature.
  - The Oregon Global Warming Commission (OGWC) – attend meetings and provide input.
The Transportation and Land Use Committee (T and LUC) of the OGWC – provide staff support, attend meetings, and provide input.

The Modeling Subcommittee of the T and LUC – provide staff support, attend meetings, and have individuals who participate as full technical members.

The Big Look Task Force – attend meetings and provide input.

ODOT is a member of the Oregon Natural Step Network, the Columbia Willamette Clean Cities Coalition, and was a major sponsor of the Oregon Environmental Council 2008 Forum for Business and Environment.

INTERNAL OPERATIONS EFFORTS

ODOT undertakes annual reporting of its own greenhouse gas emissions to the Department of Administrative Services (DAS) and the Governor’s Office:

ODOT actively participated in the State of Oregon Greenhouse Gas Tracking interagency team (along with the Department of Environmental Quality, the Oregon Department of Energy, the Oregon University System, and the Department of Administrative Services) to develop the methodology for agencies to track their own emissions.

Three sources are included: building energy use, fleet fuel use, and solid waste generation.

Internal processes are being updated to enable more accurate and efficient data tracking and reporting.

ODOT’s Facilities Section is a leader in state government:

All new major facilities throughout the state are built to Leadership in Energy and Environmental Design (LEED) green building Silver standards at a minimum.

The Request for Proposals for the Transportation Building renovation targets LEED Gold as the desired level. This is justified by a cost-benefit study which showed that when lifecycle impacts are considered, a high-performance, environmentally friendly renovation of the Transportation Building would save about $90 million over 20 years (compared to a market-rate renovation).

ODOT is actively working to meet the Governor’s energy goals through conservation measures and initiatives such as lighting switch-outs.

ODOT’s Fleet Section is a leader in state government:

In Fiscal Year 2007, 13 percent of the diesel fuels ODOT purchased were B20 biodiesel. In October 2007, the amount had increased to 22 percent, and ODOT is on track to meet the Governor’s goal of 25 percent by July 2010.

Prioritizing hybrids and more efficient sedans over SUVs.

Switching out truck and message board lights to LEDs to save energy and limit truck idling.

Beginning a project to convert an older Toyota Prius to a plug-in electric vehicle, aiming for 100 mpg.

Testing idle reduction technology on some of its heavy equipment.
- ODOT strives to reduce energy consumption by its highway lighting systems:
  - ODOT’s Region 1 annual electric bill was over $1.2 million, of which 50 percent came from signals and flashers. Region 1 has retrofitted 95 percent of its signals and flashers with power-saving LEDs, resulting in energy consumption reductions equivalent to the annual power needed for over 140 Oregon homes. This has saved ODOT $110,000 per year on its electric bill.
- ODOT encourages alternative employee commute practices:
  - ODOT and/or DAS provide free transit passes to employees who work more than half time and more than six months a year at Region 1 headquarters in Portland and all employees who work within the Salem Capitol Mall area.
  - Employees who work outside Region 1 headquarters or the Capitol Mall but within mass transit districts have the ability to purchase transit passes on a pre-tax basis via payroll deduction.
  - ODOT encourages participation in the Bike Commute Challenge, a competition between businesses to increase bicycle use.
  - ODOT Policy PER 18 (Telecommuting) endorses telecommuting as a work option for selected employees; the policy states that “when appropriately applied, such practice can benefit both the Department and the employee in improved employee performance, enhanced employee morale, reduced commuting miles, and reduced air pollution and traffic congestion.” ODOT’s Virtual Private Network allows employees access to their files and email from home and other remote locations.
  - ODOT employs technology solutions such as video conferencing, teleconferencing, and web casts (I-link) to allow employees to participate remotely in meetings and conferences and avoid excessive travel.
  - Inside ODOT articles promote ways to save fuel and other resources during work-related travel and employee commutes.
- Conservation and Alternative Resource Teams (CART) are small “green teams” of interested employees at major ODOT offices who help educate employees about work-related conservation efforts such as recycling, energy saving, and commuting options. CART members have their supervisor’s approval to spend a few hours a month on CART activities.

EXTERNAL TRANSPORTATION SYSTEM EFFORTS

Land Use and Planning

- ODOT provides financial and technical support to local governments and Metropolitan Planning Organizations in the development of plans under the Transportation Planning Rule (TPR) and Statewide Planning Goal 12. Oregon’s TPR requires reduced reliance on Single Occupant Vehicles (SOV) and local actions encouraging the development and use of reasonable alternatives such as transit and ridesharing. Statewide Planning Goal 12 requires that transportation systems, to the fullest extent possible, should be planned to use existing facilities and rights-of-way provided that such use is not inconsistent with the environmental, energy, land use, economic, or social policies of the state.
- The 2006 Oregon Transportation Plan (OTP) lays the policy foundation for addressing climate change. The OTP has seven broad goals, one of which is focused on sustainability. The sustainability goal has policy statements relating to
environmental responsibility, energy, and creation of communities. Specific strategies are listed under each policy, some of which relate directly to climate change. In addition, climate change is discussed as one of the major challenges for the state’s transportation systems.

- The Oregon Highway Plan (establishes long-range policies and investment strategies for the State Highway System), written in 1999 and amended as recently as January 2006, includes goals, policies, and actions associated with Land Use and Transportation Policies, Travel Alternatives, and Environmental Resources among others. Climate change is addressed through the associated goals and policies about Access Management, Transportation Demand Management (TDM), and actions that protect Air Quality.

- The Transportation and Growth Management (TGM) Program supports community efforts to expand transportation choices for people. By linking land use and transportation planning, TGM works in partnership with local governments to create vibrant, livable places in which people can walk, bike, take transit, or drive where they want to go.

- ODOT’s Transportation Planning Analysis Unit is developing the GreenSTEP model, a planning tool to estimate greenhouse gas emissions from the surface portions of the transportation sector and to assist in determining how the transportation sector can meet the statewide emissions targets in future years.

- ODOT is a key participant in the Oregon Modeling Steering Committee (OMSC) formed to improve the state-of-the-practice and promote state-of-the-art land use-transportation modeling in the state of Oregon and serve as a consensus forum and support group to coordinate the land use-transportation modeling efforts of federal, state, regional, and local agencies. The OMSC serves as a technical resource and peer reviewer of land use and transportation planning tools developed for greenhouse gas emission analysis.

**Multimodal System**

- ODOT’s Public Transit Division assists communities with the development of alternative transportation options, including rideshare programs, park and ride lots, telecommuting programs, and information and incentive programs to encourage the use of alternatives to driving alone in SOVs:
  - In 2005, ODOT worked with local jurisdictions to conduct individualized marketing pilot projects in Portland, Salem/Keizer, Eugene, and Bend. The program called TravelSmart uses innovative, individualized marketing to encourage environmentally friendly ways to travel.
  - In February 2006, ODOT, Metro, TriMet, the City of Vancouver, and other public and private partners launched the Drive Less/Save More Campaign in February 2006. The Drive Less/Save More Campaign seeks to reduce single-person car trips by promoting travel options like public transit, car pooling, biking, and walking, and encouraging drivers to trip chain or combine multiple errands into single trips.
  - ODOT Region 2 sponsors the Commuter Solutions Group in Lane County, a partnership with Lane Transit District to offer transportation options programs to the region’s businesses, organizations, and educational institutions for their employees, staff, and students.
- ODOT is a key sponsoring agency for the Central Oregon Commute Options program, including the Central Oregon Rideshare and Transportation Demand Management Program.

- ODOT Regions dedicate a portion of their federal funds available as part of their Statewide Transportation Improvement Program requests for funding capital investments in transit.

- In 2004, ODOT Public Transit Division used flexible federal funds to initiate a small program to assist urban transit providers to replace older mass transit vehicles. The program started with $1 million annually and has been increased to $2 million annually, replacing roughly eight large buses each year.

- ODOT encourages public transit providers to use alternative fuels where possible. Some providers are increasing the amount of biofuels they use, as well as experimenting with improved engines and hybrid options in their fleets.

- ODOT Public Transit Division has used increases in federal funds for rural and intercity bus service to fund new or expanded service in Welches, Sandy, Yamhill County, Curry County, Linn County, Hood River, The Dalles, Columbia County, and other areas of Oregon.

- ODOT Transit Division and Rail Division have collaborated to improve and increase bus/rail connections. Service and schedules have been coordinated to connect additional Amtrak choices in Portland. Currently, ODOT is testing productivity for weekend express bus/rail connections for Eugene and University of Oregon students.

- ODOT Transit Division and the Governor's Office collaborated in the “Governor’s Commute Challenge.” The 2008 summer activity challenging State Capital Mall employees to reduce drive-alone trips and save greenhouse gas emissions resulted in a 19 percent reduction in drive-alone commute trips and an estimated 593,000 pounds of carbon dioxide saved by Capital Mall employees from June 1 to August 29 (surpassing the Governor’s goal of 500,000 pounds by 19 percent). ODOT was the August winner in the challenge among large agencies for number of employees committing to replace drive-alone commute trips and pounds of carbon dioxide emissions reduced.

- The ODOT Rail Division represents and advocates for customers of railroads, both passenger and freight, to ensure a safe, efficient, and reliable rail transportation system. ODOT supports Amtrak rail service from Eugene to Portland, increasing to five trains and four Amtrak Thruway bus-to-train connections per day.

- The ODOT Bicycle and Pedestrian Program provides direction to ODOT in establishing pedestrian and bicycle facilities on state highways and provides support to local governments, governmental and non-governmental organizations, and private citizens in planning, designing, and constructing pedestrian and bicycle facilities.

- The Transportation Enhancements program pays for millions of dollars of sidewalk and streetscape improvements, bicycle lanes, and multi-use pathways projects each year.

- The Safe Routes to School program funds Oregon Schools and School Districts with over $3 million for education and enforcement projects designed to encourage and enable easier and healthier ways for children to walk and bike to and from school safely, reducing the need to drive.
The Congestion Mitigation and Air Quality (CMAQ) Improvement Program provides approximately $14 million per year of funds across Oregon for Transportation Demand Management (TDM), Transit, and Bicycle/Pedestrian facilities projects.

ConnectOregon is a lottery bond-based initiative to invest in air, rail, marine, and transit infrastructure to ensure Oregon's multimodal transportation system is strong, diverse, and efficient.

ConnectOregon I, approved in the 2005 legislative session, has 40 projects all of which are underway, many of which are complete. It was a significant success with even non-funded applicants praising the process. Projects included the Portland Streetcar Lowell Extension, the Lane Transit District Pioneer Parkway Bus Rapid Transit Project, the City of Bend Public Transit Operations and Maintenance Center, and the Community Connection of Northeast Oregon Multimodal Transit Consolidation and Improvement Project.

ConnectOregon II was approved by the 2007 Legislature. The Oregon Transportation Commission has recently approved the selection of projects. Selected projects for ConnectOregon II include a Columbia County Public Transit Facility, the Lane Transit District Veneta Transit Center, the Salem-Keizer Transit District Keizer Transit Center, the City of Bend Central Oregon Intermodal Transit Center, the City of Prineville Multimodal Railroad/Freight Depot, and the Union County Alice Intermodal Rail Logistics Center.

ODOT is a key partner with other public agencies in financing transit expansions in the Portland Metro area:

- ODOT allocated $7 million of federal Surface Transportation Program funds and provided right-of-way at a significant below-market value to support the expansion of TriMet light rail along the I-205 corridor.
- ODOT Financial Services is assisting with the sale of $250 million of lottery-backed bonds that will assist in capital construction of the TriMet light rail expansion, and ODOT Public Transit is administering the distribution of $20 million in lottery-backed bonds for the purchase of streetcars to enable streetcar system expansion.

Freight

- ODOT Motor Carrier's Green Light program helps truckers save time and money and reduce emissions by “preclearing” trucks so they don't have to stop at Oregon weigh stations—saving an estimated 113,000 hours and $13 million for truckers in 2006.
- TDD’s Freight Mobility Section is conducting Oregon’s first statewide freight planning effort, to ensure freight planning at local, statewide, and regional levels reflects Oregon’s sustainability as well as economic goals and strategies.
- In 2006, ODOT provided a $3 million loan to the non-profit organization Cascade Sierra Solutions (CSS) to fund heavy-duty truck efficiency and idle reduction programs that reduce fuel consumption and greenhouse gas emissions. CSS operates in the states of Washington, Oregon, and California, with a primary focus on the Interstate 5 corridor. This loan was unprecedented and ODOT worked closely with FHWA to make the money available. The loan funds the purchases of fuel-saving equipment like auxiliary power units, which CSS then leases to small truck operators.
- ODOT participated in a 2005 Oregon Solutions project to promote truck stop electrification, and a number of truck plazas in Oregon have invested in electrified
hookups. These are used to power refrigeration trucks and cab heat and air conditioning systems so that truck operators do not have to idle their diesel engines overnight.

- In light of the significant impact to the renewable energy sector and economic development in the state, ODOT accelerated decision-making processes to allow oversize vehicles on I-84 for shipping wind turbines.

**Optimizing the System**

- ODOT participated in the City of Portland’s grant from the Climate Trust to improve signal coordination on three ODOT corridors in the Portland Metro area. The retiming was completed in 2005. It was estimated that the retiming would offset more than 33,000 metric tons of CO₂ in the first year alone, with declining benefits after that. The grant paid for equipment to allow better signal coordination.

- ODOT’s Region 1 has implemented adaptive ramp metering control systems. The ramp signals are optimized to keep the freeway traffic moving as well as possible, depending on the level of congestion. This limits stopping and starting on the ramps and helps to reduce vehicular emissions and fuel consumption. Under the previous system, the meters were pre-timed and would stop vehicles on the ramps even when there was no congestion.

- Since 2004, ODOT has added a number of Intelligent Transportation System (ITS) technologies, including cameras, variable message signs, and highway advisory radio and weather stations to the inventory for operating the system. We have made improvements to the traveler information systems. Improvements include adding better information about public transportation options to TripCheck, delivering traveler information that is better formatted for wireless devices through our TripCheck Mobile system, and delivering traveler information to cable TV in several locations around the state. These technologies help optimize the use of the systems and ease peak demand.

**Innovative Pilot Projects**

- With direction from the legislatively mandated Road User Fee Task Force, ODOT developed an electronic mileage fee collection system that could support congestion pricing. This system, which would enable ODOT to disconnect its revenues from the consumption of fossil fuels, was tested in a year-long study that ended in March 2007 and included a congestion pricing element.

- The Oregon Solar Highway Initiative – ODOT has initiated a project to demonstrate the viability of locating solar arrays along state highway rights-of-way. The first demonstration project is located at the interchange of I-5 and I-205 and will be operational before year’s end. Funding for the project comes through a public-private partnership with Portland General Electric (see [http://www.oregon.gov/ODOT/HWY/OIPP/docs/solar_factsheet.pdf](http://www.oregon.gov/ODOT/HWY/OIPP/docs/solar_factsheet.pdf) for details on the financing). ODOT will not own the array and is not responsible for operating or maintaining it. Instead, ODOT will purchase the green power generated from the array at the same rate it would pay for grid energy—essentially getting caviar for the price of trout eggs. This is significant because, unlike other state (General Fund) agencies, ODOT cannot purchase “green tags” or renewable energy certificates in order to secure green electricity due to current interpretation of the constitutional limitations on the Highway Fund. ODOT can only get green energy by generating its own. This single installation will reduce annual carbon emissions by 38.9 metric tons of CO₂e (carbon dioxide equivalent) compared to electricity purchased from the Pacific Northwest Regional
Energy Grid. Future installations will include other ODOT properties, including roof tops, facility ground mounts, and right-of-way installations.

- ODOT Alternative Fuels Corridor—The Department is leading an effort to incubate the distribution of alternative fuels and/or solar-powered charging stations for plug-in electric hybrid vehicles along the I-5 corridor to help increase the market demand for alternative fuel vehicles by developing partnerships with the private sector and/or other public partners.

- ODOT’s Innovative Partnership Program is working with Portland General Electric and other partners on a demonstration project which will design standards for charging stations and develop a public awareness campaign to prepare for mass adoptions of plug-in cars over the next two to five years. For ODOT, the project is part of a larger effort that will investigate a variety of methods for funding, installing, and managing a network of charging stations.

The Oregon Transportation Commission approved in October eight projects to receive funding through ODOT’s Operations Innovation and Demonstration Program. The program includes $8 million for projects that demonstrated the ability to reduce congestion or improve freight mobility (see http://www.oregon.gov/ODOT/COMM/nr08102101.shtml for details on selected projects).

**Highway Construction Projects**

- The Columbia River Crossing project, located in a five-mile area between Portland, Oregon, and Vancouver, Washington, undertook an analysis of greenhouse gas impacts as part of a Cumulative Effects analysis in the Draft Environmental Impact Statement. The CRC project worked with the Washington Department of Transportation, the Federal Highway Administration, and the Federal Transit Authority to analyze potential cumulative impacts of the construction and operation of the project. A quantitative analysis was prepared for the purpose of comparing the alternatives. The DEIS also discussed potential adaptation measures to be taken to prepare for effects of climate change, such as a rise in river level.

- Various aspects of ODOT’s innovative Context Sensitive and Sustainable Solutions (CS³) approach to the OTIA III bridge program support greenhouse gas reductions:
  - The OTIA III Access/Staging Performance Standard limits truck idling to five minutes, except in extreme cold weather or when needed for other reasons.
  - The OTIA III Materials Procurement and Use Performance Standard requires contractors to use ultra-low sulfur fuel, bio-diesel, or EPA-verified fuel additives in vehicles and equipment where possible and available, or a minimum of highway grade fuel where alternative fuels are not possible.

**SUMMARY AND NEXT STEPS**

This paper has provided a listing of six significant internal and external process-related efforts that ODOT has undertaken to respond to the issue of climate change (see bullets under **INTERNAL AND EXTERNAL PROCESS-RELATED EFFORTS** above). One of these involves interactions with eight key external groups and initiatives started by the Governor’s Office that are related to climate change.

The paper lists six internal operations climate change efforts (see bullets under **INTERNAL OPERATIONS EFFORTS** above), including greenhouse gas reporting, facilities and fleet management to reduce emissions of greenhouse gases, modification of highway lighting systems to reduce energy consumption, encouragement of alternative employee commuting practices, and the creation and support of conservation and
alternative resource teams to help educate employees about work-related conservation efforts.

Finally, the paper lists climate change efforts that relate to the external transportation system in the areas of land use and planning, development and support of an effective multimodal system, freight, transportation system optimization, innovative pilot projects, and highway construction (see **EXTERNAL TRANSPORTATION SYSTEM EFFORTS** above).

The next steps for ODOT in response to climate change involve continued involvement with groups like the Oregon Global Warming Commission and its various committees and subcommittees and key processes such as the Western Climate Initiative and the Big Look Task Force. Through the efforts of ODOT’s Climate Change Executive Group and Technical Advisory Committee, ODOT will play a continuing important role in the avoidance of future climate change through development of mitigation actions related to Oregon’s transportation system as well as actions that will adapt the transportation system to climate change already anticipated.
APPENDIX 1: POLICY MANDATES RELATED TO INTERNAL OPERATIONS

ORS 276.900 states that “It is the policy of the State of Oregon that facilities to be constructed or purchased by authorized state agencies be designed, constructed, renovated and operated so as to minimize the use of nonrenewable energy resources and to serve as models of energy efficiency.”

A goal of 20 percent energy reduction by state agencies by 2010 (over a 2000 baseline) is mandated by Executive Order 06-02; energy savings are required to come from both new and existing buildings and other metered electricity use.

When siting state office locations, Executive Order 94-07 “Siting State Offices in Oregon’s Community Centers” requires preferential consideration be given to locations within central business districts and conveniently close to transit in communities that have transit service. Other areas of mixed-use development that are highly accessible to the public, have a fully developed pedestrian circulation system, have high-quality transit service (in those communities with transit service), and are designated as urban centers in the applicable comprehensive plan may also be given priority consideration.

OAR 330-130 prescribes procedures to minimize energy use in new and renovated facilities designed and constructed by state agencies; guidelines for implementing these procedures are given in the State Energy Efficient Design (SEED) Program Guidelines.

Governor Kulongoski has stated his desire for state agencies to purchase 100 percent of their energy from renewable sources by 2010.

Oregon’s Renewable Energy Action Plan (REAP) mandates the following use of biofuels: 10 percent of the gasoline used by state government’s fleet vehicles will be E-85 by 2010, increasing to 25 percent by 2025; 10 percent of the diesel used by state government’s fleet vehicles will be B-20 by July 2007, increasing to 25 percent by July 2010 and 100 percent 2025.

DAS Policy 125-6-010 “Sustainable Facilities Standards and Guidelines” requires:

- Building decisions must consider the full life of materials. The review must include life cycle assessment and life cycle cost factors.
- New state-owned buildings shall be designed to meet the point equivalent of a Leadership in Energy and Environmental Design (LEED™) Silver rating.
- Renovations of state-owned or build-to-suit leased buildings shall be designed to meet the point equivalent of a LEED™ Certified rating.

DAS Policy 107-009-0050 “Sustainable Acquisition and Disposal of Electronic Equipment” requires the use of Electronic Products and Acquisition Technology (EPEAT) environmental and energy criteria for the purchase of computer equipment such as desktops, computer laptops, computer monitors, and input or output devices.
APPENDIX 2: POLICY MANDATES RELATED TO THE TRANSPORTATION SYSTEM

OTP\(^1\) Policy 1.1 – It is the policy of the State of Oregon to plan and develop a balanced, integrated transportation system with modal choices for the movement of people and goods.

OTP Policy 2.1 – It is the policy of the State of Oregon to manage the transportation system to improve its capacity and operational efficiency for the long-term benefit of people and goods movement.

OTP Policy 4.2 – It is the policy of the State of Oregon to support efforts to move to a diversified and cleaner energy supply, promote fuel efficiencies, and prepare for possible fuel shortages.

OHP\(^2\) Policy 4B – It is the policy of the State of Oregon to advance and support alternative passenger transportation systems where travel demand, land use, and other factors indicate the potential for successful and effective development of alternative passenger modes.

OHP Policy 4D – It is the policy of the State of Oregon to support the efficient use of the state transportation system through investment in transportation demand management strategies.

ORS 469.010 states that "It is the goal of Oregon to promote the efficient use of energy resources and to develop permanently sustainable energy resources" and includes the following policy: "Energy-efficient modes of transportation for people and goods shall be encouraged, while energy-inefficient modes of transportation shall be discouraged."

House Bill 3543 (The Climate Change Integration Act) created specific greenhouse gas emissions reduction goals for the state:

1. By 2010, arrest the growth of Oregon’s greenhouse gas emissions and begin to reduce them.
2. By 2020, achieve greenhouse gas levels that are 10 percent below 1990 levels.
3. By 2050, achieve greenhouse gas levels that are at least 75 percent below 1990 levels.

ORS 366.514 requires that wherever highways, roads, or streets are being constructed, reconstructed, or relocated, footpaths and bicycle trails will be built as part of these projects. The amount expended by ODOT shall never in any one fiscal year be less than one percent of the funds received from the Highway Fund.

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\(^{1}\) Oregon Transportation Plan, 2006.