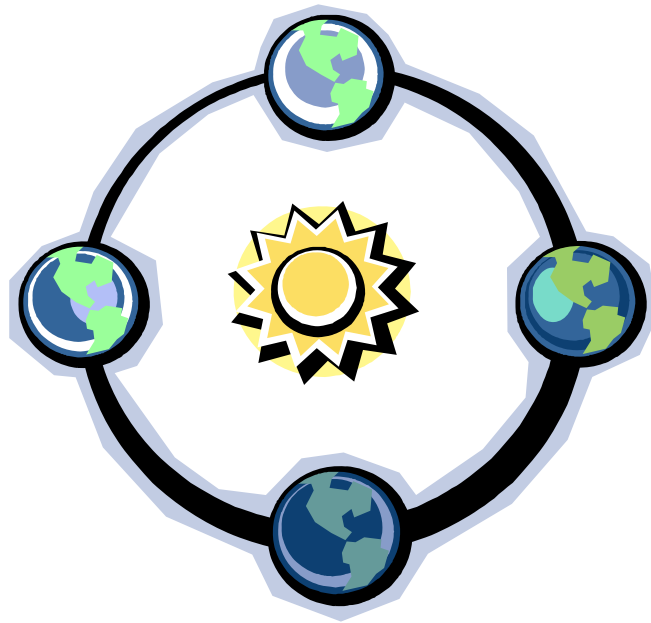


**Greenhouse Gas Emissions
Interagency Team Report
Initial Reporting Year Assessments and
Recommended Best Practices**



Department of Administrative Services
Methodology Report December 2006
Revised to include Initial Reporting Year Data
August 2007

Greenhouse Gas Emissions
Interagency Team Report
Baseline Assessments and Recommended Best Practices

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Executive Summary

Greenhouse gas emissions are a major indicator of Oregon state government's success at reducing the environmental impact from its operations. Governor Kulongoski has made combating global warming a priority. Executive Order No. 06-02 directed the Department of Administrative Services (DAS) to coordinate an Interagency Team to establish a baseline for state government emissions and recommend best practices for reducing emissions. Opportunities exist to improve environmental performance in state government. Agencies can engage in a wide range of sustainable activities that reduce greenhouse gas emissions.

The objective of the Interagency Team was to categorize those government activities most impacting greenhouse gas emissions and, after identifying those sources, to then outline the methodology state agencies will use to capture data and develop assessment baselines. Together with ongoing state energy and materials conservation practices, this report recommends areas where future inventory tools and best practices should be considered to advance the goal of reducing greenhouse gas emissions. The team concluded that building energy and transportation were the most significant greenhouse gas emissions for state government; however, solid waste was also included in the inventory due to its potentials for recycling and reduction, and implementation of best practices surrounding its generation.

After looking at several options, the Interagency Team chose to utilize the Clean Air-Cool Planet tool to inventory and assess greenhouse gas emissions. Currently, most state agencies are not collecting the data necessary for this tool, so the first step was to collect the necessary data for 2006. Ultimately, the amounts of energy, fuel, and waste produced will be converted to an equivalent weight of CO₂ emissions. This report was prepared by DAS with significant input from the other members of the Interagency Team.

The total initial reporting year results for state government are **544,821 tons CO₂**. A detailed summary of agency emissions can be found in Table 1 on page 10.

Introduction

For many years, the State of Oregon has looked for ways to diminish the impact on the environment from state government operations. One of the more significant indicators of success is reducing greenhouse gas emissions. In his first four years in office, Governor Kulongoski established combating global warming as one of his priorities. To that end, he involved Oregon in a three-state west coast collaboration on regional strategies to reduce greenhouse emissions, he created the state's first comprehensive look at reducing greenhouse gas emissions through creation of his Global Warming Advisory Group, and he has begun implementing recommendations from that group, which were delivered to him in December 2004. Key recommendations that already have been implemented include having Oregon adopt cleaner automobile tailpipe standards, increasing the use of renewable energy statewide in Oregon and in state government, and establishing greenhouse gas reduction goals for the state as follows:

- arrest increased emissions by 2010;
- reduce to 10% below 1990 levels by 2020;
- reduce to 75% below 1990 levels by 2050 to fully stabilize and eliminate the negative impacts of greenhouse gas emissions.

To further these efforts, in his Executive Order No. 06-02, the Governor directed the DAS to lead an Interagency Team and author a methodology for state agencies to develop greenhouse gas emission baseline assessments, a methodology for tracking and reporting emissions in the future, and to recommend best practices for reducing greenhouse gas emissions in order to ensure that state government shows leadership in addressing and ultimately complying with the state greenhouse gas reduction goals. The Interagency Team included representatives from the Oregon University System (OUS), the Oregon Department of Energy (ODOE), the Oregon Department of Environmental Quality (ODEQ), the Oregon Department of Transportation (ODOT), DAS Fleet, DAS Facilities, and the Governor's Sustainability Policy Advisor.

In developing this report, the Interagency Team was mindful of complementary initiatives announced in the March 10, 2006 Press Release (a link to the full press release can be found in the Appendix) and begun by the Governor which impact greenhouse gas emissions. These include:

- the Governor's call for 100 percent renewable electricity to be used in state government by 2010;
- the Governor's directive to green the state vehicle fleet by transitioning to hybrid and alternative fuel vehicles and to use increasing amounts of alternative fuels; and
- the Governor's call for state government to reduce energy use by 20 percent by 2016 (from a 2000 baseline).

This report, outlining the steps by which the state agency inventory will be developed, is the first step in reaching the goals set out in the Executive Order. It focuses on the owned facilities, vehicles and equipment within state government. Strategies for including state-leased buildings are included in the best practices section but full inclusion of leased space will need to occur in the future. Similarly, strategies for addressing emissions associated with materials use, emissions from third party entities working on state projects, and emissions from state employee commuting and airline travel, also will be addressed in future iterations.

The second step of reaching the goals set out in the Executive Order is the establishment of an initial baseline inventory of greenhouse gas emissions for state agencies using the processes laid out in this report. That inventory process is summarized in this updated report.

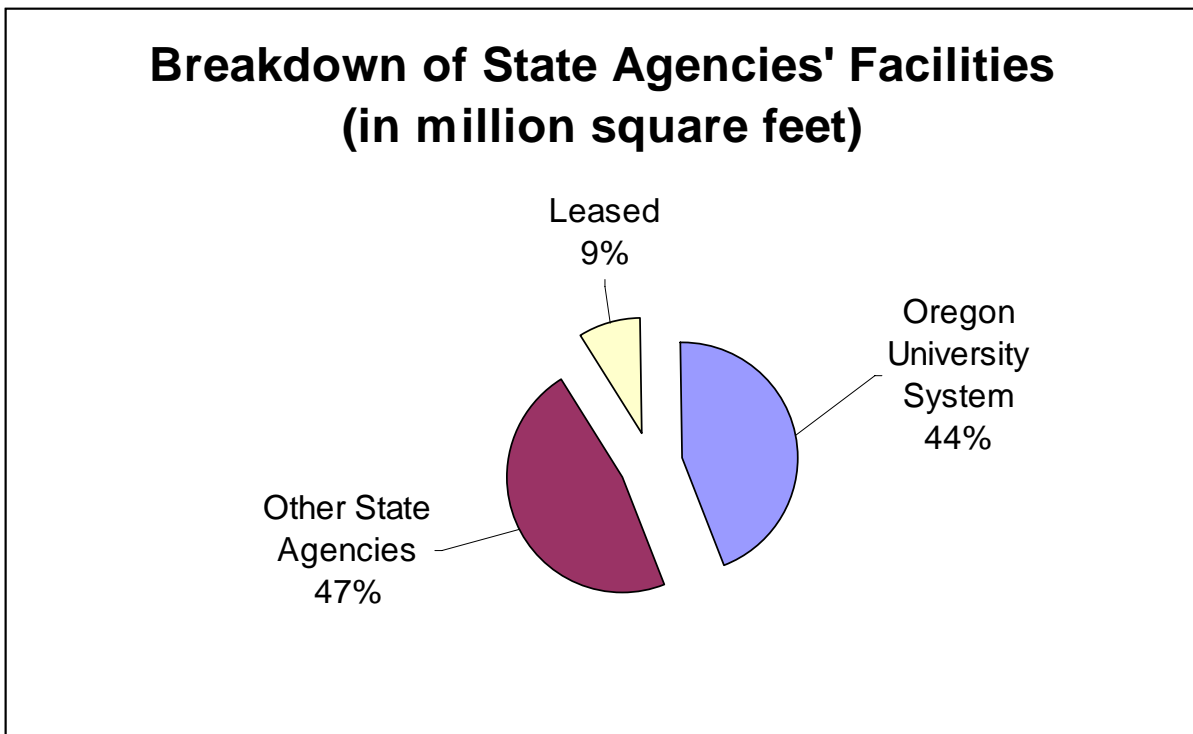
Additionally, the work of the 2004 Global Warming Advisory Group targeted recommended actions for the state based upon the 1990 Kyoto baseline. Continued work by the Interagency Team will be needed to reconcile that the strategies pursued for state government are consistent with the goals presented by the Global Warming Advisory Group.

The 2007 Legislative Session furthered the goals of greenhouse gas reduction through the approval of many house and senate bills, including establishment of the Global Warming Commission, requirements for solar projects in public buildings, formalizing the intent to move to 100% renewable power by 2016, and more. A link to a detailed summary document prepared by the Oregon Department of Energy can be found in the Appendix.

Oregon State Government

The State of Oregon is made up of a multitude of services and programs. There are over 70 state agencies, with approximately 37,000 full-time employees, occupying 4,685 buildings. Of these, 376 buildings have individual values of more than 1 million dollars. These facilities use significant amounts of energy to heat and cool buildings, power machinery and fish hatcheries and light workspaces. The state owns and manages approximately 20 million square feet of facility assets and leases an additional 4 million feet of office and storage space. The Oregon University System, comprised of 7 campuses, includes 1,172 buildings totaling 21.5 million square feet. Together, the state manages about 42 million square feet of facility assets, consuming electricity, heating oil, natural gas, and other fuels that power equipment and provide light, heating and cooling, and hot water to building occupants.

Graph 1



Significant amounts of fuel are also used by state agency fleets for transportation purposes. From gasoline used in state-owned light fleet vehicles to diesel fuel used in state trucks and heavy equipment, fuel is consumed to ensure the successful day-to-day operation of state business.

The procurement of all types of energy is costly to state government; reducing energy even by a small percent will have a significant impact on energy expenditures. State government has an opportunity to lead in the reduction of greenhouse gas emissions by lowering energy consumption, increasing the use of renewable energy, and utilizing less polluting fuels for operating vehicles and equipment.

Reducing the amount of solid waste that results from state government operations leads to reduced greenhouse emissions. More importantly, by tracking solid waste, the emission reduction potential of important sustainability programs, such as recycling and reuse efforts, can be calculated and credited to state agencies.

Inventory Scope and Methodology

In order to estimate and report on the amount of greenhouse gas emissions from state government operations, the Interagency Team used data from the following energy sources, initially:

Building Energy:

- Electricity
- Natural Gas
- Heating Fuels

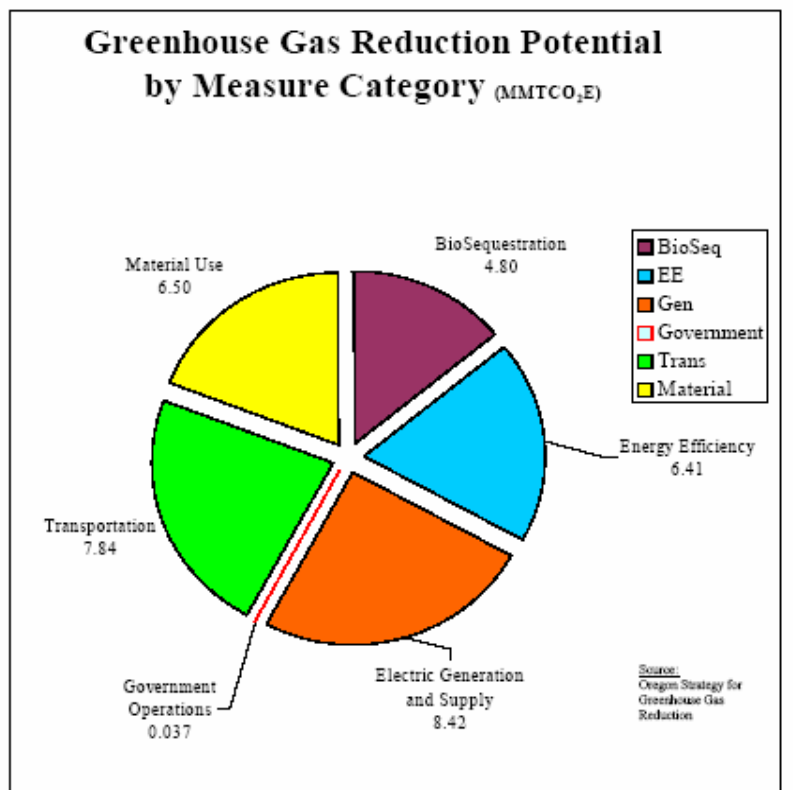
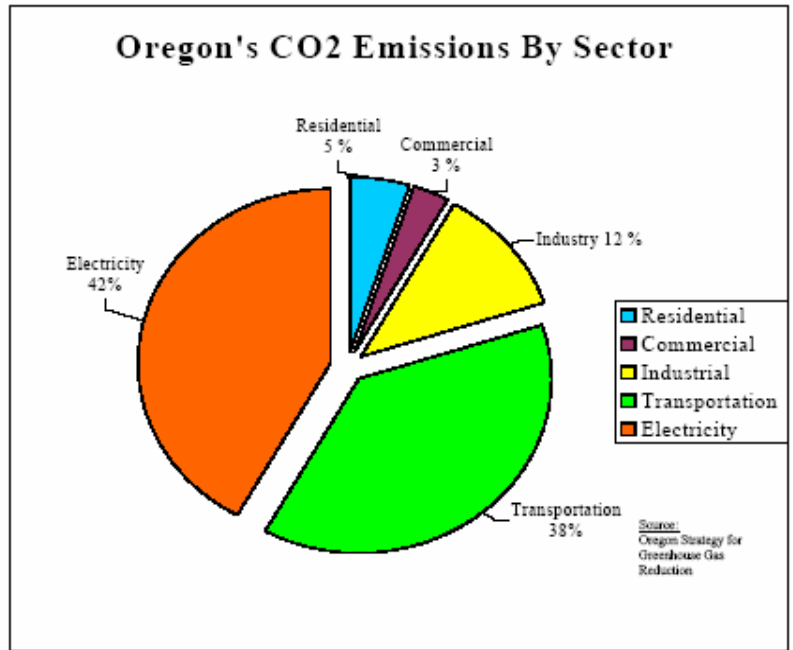
Transportation:

- Fuel Consumption (state-owned and operated light-, medium-, and heavy-duty vehicles, on-road and off-road)

Solid Waste:

- Garbage tonnage

**Graph 2
State of Oregon General Emissions**



It is important to note that the emissions associated with producing the goods that the state purchases (some fraction of which are subsequently disposed of as waste) are not included due to insufficient procurement data. Similarly, credits associated with recycling and composting by state agencies are also not included. The magnitude of emissions (or credits) in both of these categories are much larger than the magnitude of disposal-related emissions. Users of the Inventory should be cautioned not to place undue emphasis on the relatively small contribution of solid waste disposal; agency decisions regarding recycling and procurement of materials are typically more significant than disposal-related impacts, but are not reflected in the current inventory.

In addition, the metric for establishing a baseline and continued monitoring varies among these sources (building energy, transportation, and solid waste). Some are based on dollar expenditures (e.g. garbage) while others are based on the quantity of fuel purchased (e.g. electricity, natural gas, and fuels). While these sources are not meant to be exhaustive of all the greenhouse gas emissions attributable to state government, the team has chosen them as priority areas because they collectively represent the majority of the state's greenhouse gas emissions. In addition, reduction strategies for these sources can be implemented relatively quickly.

The scope of the inventory was designed with the following assumptions:

- Electricity is used primarily to light, cool, and to power building systems and equipment;
- Heating oils and natural gas are used mainly to provide building heat;
- Diesel, gasoline, propane and ethanol are used primarily to fuel vehicles.
- The dollar amount expended on garbage collection can be used to calculate a corresponding amount of tonnage.

CO₂ emissions from other activities related to state operations, such as employee commuting and procurement of construction and other materials, will not be included in this initial assessment, despite their contribution to climate change. While such data would make this inventory more complete, data for such items are not currently available. The report includes recommendations on how to develop better data in these areas with the expectation that it will be included in future iterations as the data become available.

Selection of Inventory Tool

After looking at several options, the Interagency Team chose to utilize a set of spreadsheets assembled by a non-profit group that has worked closely with schools and universities. This organization, Clean Air-Cool Planet, has organized these spreadsheets on-line as the Campus Climate Action Toolkit (CCAT). This tool has been used by over 150 different campuses to inventory their greenhouse gas emissions.

The CCAT is a Microsoft Excel-based spreadsheet tool to calculate greenhouse gas emissions. Once data are gathered and entered, the program calculates total emissions and generates charts and graphs in order to compare usage from year-to-year. This data can be broken out for analysis by type, sector (building versus transportation), agency, function (transportation versus human services, public safety, administration), and environmental impact.

In earlier greenhouse gas inventory efforts, the Oregon University System chose to utilize the CCAT. This was a logical decision, given the fact that the tool is specifically designed for use by higher education facilities. Given that the OUS comprises 44% of the square footage of

state buildings, and that their facilities and activities are expected to dominate the state agency inventory, the decision was made to utilize the same tool set for the remainder of the state agencies.

Although the CCAT was not designed specifically for state government operations, it was felt by the Interagency Team that it was robust enough to handle the needs of the overall state agency inventory in addition to the OUS inventory. Because the OUS inventory was already substantially complete using the tool, the group believed that unless there were substantial reasons for not using the same inventory tool, for the sake of consistency, the same tool should be used by all state agencies.

Therefore, the Interagency Team has chosen to use the methodologies, assumptions, and inputs of the CCAT as the basis of the state agency inventory process. It was agreed, however, that certain factors involved in the inventory process would be customized for use in the Oregon inventory, rather than using what was contained in the CCAT as a default. Further, where the CCAT omits certain categories of emissions (such as those associated with procurement and recycling), the state has the option of adding supplemental calculators or tools to capture those estimates in the future. The CCAT does offer this level of flexibility without having to modify the tool. It is anticipated that future iterations of the inventory process will continue to use the CCAT as well, which is undergoing constant revisions and updates.

Oregon University System (OUS) Inventory

The Oregon University System inventory is being completed on a parallel process to the state agency inventory. Because the two inventories will be using the same tool, it will be easy to combine the results of the inventories to create a combined inventory if desired. However, given some differences in scope between the two inventories, it is probably best to present the results of the two inventories separately if possible. The appendix includes a link to the full version of the University System 2006 inventory.

Initial Reporting Year Establishment and Data Collection

The Interagency Team chose 2006 as the initial reporting (baseline) year for the measurement of greenhouse gas emissions. While many organizations have adopted 1990 as a base year, as stipulated by the Kyoto Protocol and the baseline year for the Governor's greenhouse gas reduction goals, the team judged that an agency's ability to assemble past data would prove difficult and that the accuracy of the data would be questionable.

Energy consumption for the different fuel types and other commodities was captured from several different sources. Data was collected, tracked and reported by each agency occupying a state-owned building, as well as other key agencies active in sustainability initiatives. Data was reported to the Department of Energy using a web-based data collection tool, which was analyzed and developed into a profile for state government (Table 2).

Agencies reported on annual building energy use, transportation fuel consumption and solid waste. In cases where electricity and natural gas consumption, fuel expenditure and waste data are not available, but accurate cost data are available from purchasing records and vendor reports, these procurement records were used to estimate consumption.

Based on this baseline inventory, the greenhouse gas emissions of these selected state agencies will be calculated annually and a report developed for the Sustainability Board. This report will determine whether state government is on track to meet the reduction goals established by the Governor.

Building and Waste Calculations

Building energy data and solid waste data received from state agencies was compiled by the Department of Administrative Services and input into the CCAT inventory tool. The inventory tool is able to provide all necessary calculations to determine equivalent carbon dioxide values for all of these inputs. The building energy and electricity generation emissions do not include pre-combustion emissions. In combination with the data derived from state vehicles, an agency-by-agency listing of greenhouse gas emissions was developed (Table 1).

State Fleet Calculations

The Interagency Team, in collaboration with state agencies, DAS Fleet and the Fleet Management Advisory Council, chose a methodology for determining greenhouse gas emissions resulting from state fleet operations based upon fuel consumption by vehicles operated by state agencies. There are two other methods to determine greenhouse gas emissions (EPA vehicle ratings, and mileage by type of vehicle/engine). The fuel consumption model is currently used by other states (such as Massachusetts) and jurisdictions in similar measurement efforts and, uses the most readily-available type of data within the administrative records maintained by state agencies.

The calculation methodology is based upon fuel consumed times a fuel-specific emissions factor, which is the molecular weight of each fuel converted to pounds or grams for each gallon of fuel consumed. The emissions factor for standard gasoline (without any blended agents/fuels) is 19.564 pounds of CO₂-equivalent (carbon dioxide, nitrogen oxide, and twelve other toxins/compounds) per gallon. While standard gasoline weighs only 6.17 pounds per gallon, it combines with over 22 pounds of oxygen to produce, by its combustion in vehicle engines, 19.564 pounds per gallon of CO₂-equivalent (greenhouse gasses) and 8.89 pounds of H₂O (water). The emissions factors used for blended fuels were proportionally allocated consistent with the values of each of the blends used. An emission factor of 13.59 pounds per gallon for Ethanol-85 Blended fuel represents the proportional value of standard gasoline (19.564 pounds per gallon) and of ethanol (12 pounds per gallon).

This estimate includes state-owned and operated light-, medium-, and heavy-duty vehicles, on-road and off-road. It does not include emissions from vehicles operated in the delivery of goods and services contracted by state for the benefit of state agencies, the general public, or related to other federal, tribal, or public agencies. It also does not include leased vehicle use, such as Flexcar in Portland. DAS Fleet estimates that this baseline calculation represents 85% of the vehicle greenhouse gas emissions related to state fleet operations.

The default values in the CCAT inventory tool were modified as necessary to accommodate this calculation methodology for the state fleet. These fleet data were summed with the data from state buildings and waste operations to determine total agency-by-agency greenhouse gas emissions.

**Table 1
State Government Agency Profile**

Agency	Facility Electricity (MMBTU)	Facility Heating Fuel (MMBTU)	Transportation (gallons)	Solid Waste (tons)*	Total Tons CO ₂ Emissions	% of State Government Total
Agriculture	218	554	179,159	3 ⁴	1,675	0.31%
Aviation	225	69	8,377	3 ⁴	126	0.02%
Corrections	231,151	588,867	292,850	18 ⁵	80,507	14.78%
DAS	159,536	46,538	64,191	1,452 ⁴	35,106	6.44%
Education	6,864	29,113	10,112	16 ⁵	3,017	0.55%
Employment	5,158	8,979	38,952	50 ⁴	2,036	0.37%
Energy	674	311	4,393	10 ⁴	210	0.04%
Environmental Quality	15,874 ⁹	4,630 ⁹	73,998	173 ^{4 7}	4,157	0.76%
Fish & Wildlife	38,322	5,641	465,075	377 ⁴	12,593	2.31%
Forestry	13,674	13,888	505,067	72 ⁴	8,500	1.56%
Human Services, Other	85,076 ^{2 3 9}	24,817 ⁹	596,981	927 ^{4 7}	24,072	4.42%
Human Services, State Hospital	27,347	96,188	²	1 ⁵	10,617	1.95%
Judicial	1,300	1,263	2,862	25 ⁴	352	0.06%
Lands, State	3,705	1,496	14,858	35 ⁴	957	0.18%
Legislative	11,093	6,623	609	150 ⁴	2,581	0.47%
Liquor Commission	4,351	5,472	28,328	74 ⁴	1,441	0.26%
Lottery, State	6,753	2,955	176,397	44 ⁴	3,092	0.57%
Military	112,151	147,813	27,904	1,414 ⁴	30,272	5.56%
Parks & Recreation	51,795	18,827	236,339	1,723 ⁸	15,387	2.82%
PERS	4,448	116	4,256	36 ⁴	952	0.17%
Police, State	10,747 ⁹	3,135 ⁹	836,754	117 ^{4 7}	9,843	1.81%
Public Safety, Standards & Training	5,145	3,796	30,473	333 ⁸	1,476	0.27%
Transportation	213,359	67,033	3,512,044	212 ^{4 6}	87,638	16.09%
University System, Oregon	947,637	1,418,056	249,039	21,500 ⁸	195,087	35.81%
Veterans	10,034	11,683	5,188	89 ⁴	2,682	0.49%
Youth Authority	28,163	74,249	88,191	3 ⁵	10,445	1.92%
TOTAL	1,994,800	2,582,112	5,888,614	28,857	544,821	100%

Note: This table does not represent all state agencies. This analysis only includes those agencies with statutory authority to own buildings, those who consume significant quantities of building or transportation fuel, or those whose missions are relevant to this report.

¹ Building energy use data is not available because the agencies are housed leased facilities with multiple leases or tenants.

² State Hospital transportation use reported in Dept of Human Services total.

³ Human Services Building use reported in Dept of Administrative Services total and State Hospital reported separately. Other DHS buildings are leased and figures are not available.

Additional footnotes of data assumptions continued on next page.

Data assumptions for Table 1:

- 4 Offices and remote locations are based on DAS figure of 1 lb/sq ft/year.
- 5 24/7 facilities (Corrections, State Hospital and Youth Authority) are based on Corrections figure of 2.56 lbs/inmate. Parks are based on this same figure of 2.56 lbs/overnight guest.
- 6 ODOT maintenance yards are excluded from the solid waste figures. Based on surveys of the maintenance yard waste, using general averages to get a rough quantification: about 20 percent of the waste leaving a typical maintenance yard is directly attributable to ODOT operations. Of that, about 50 percent is recycled on average. Of the 50 percent that isn't typically recycled, 25 percent is organic material. Therefore, of the total waste stream leaving a typical maintenance yard, about 2 percent is ODOT-generated organic material going to a landfill. Given that, the group recommended excluding the maintenance yard waste stream from the greenhouse gas calculations for the time being, because it is de minimis. In future iterations, when there is more time for data collection and possibly more support and funding for staff to work on this, the group recommends revisiting this decision. ODOT office areas are based on the DAS figure.
- 7 Square footage calculation used for garbage figures for DHS, OSP, and DEQ based on 2006 leased office space in the DAS database.
- 8 The University System, Parks, and DPSST were based on double the DAS figure to account for the office space, but add a surcharge for the dormitories or overnight campers.
- 9 Electricity and heating fuel use for leased buildings is not actuals due to complications in the leasing structure, but based on DAS/sq ft usage.

**Graph 3
State Government Agency Percentages of Greenhouse Gas Emissions**

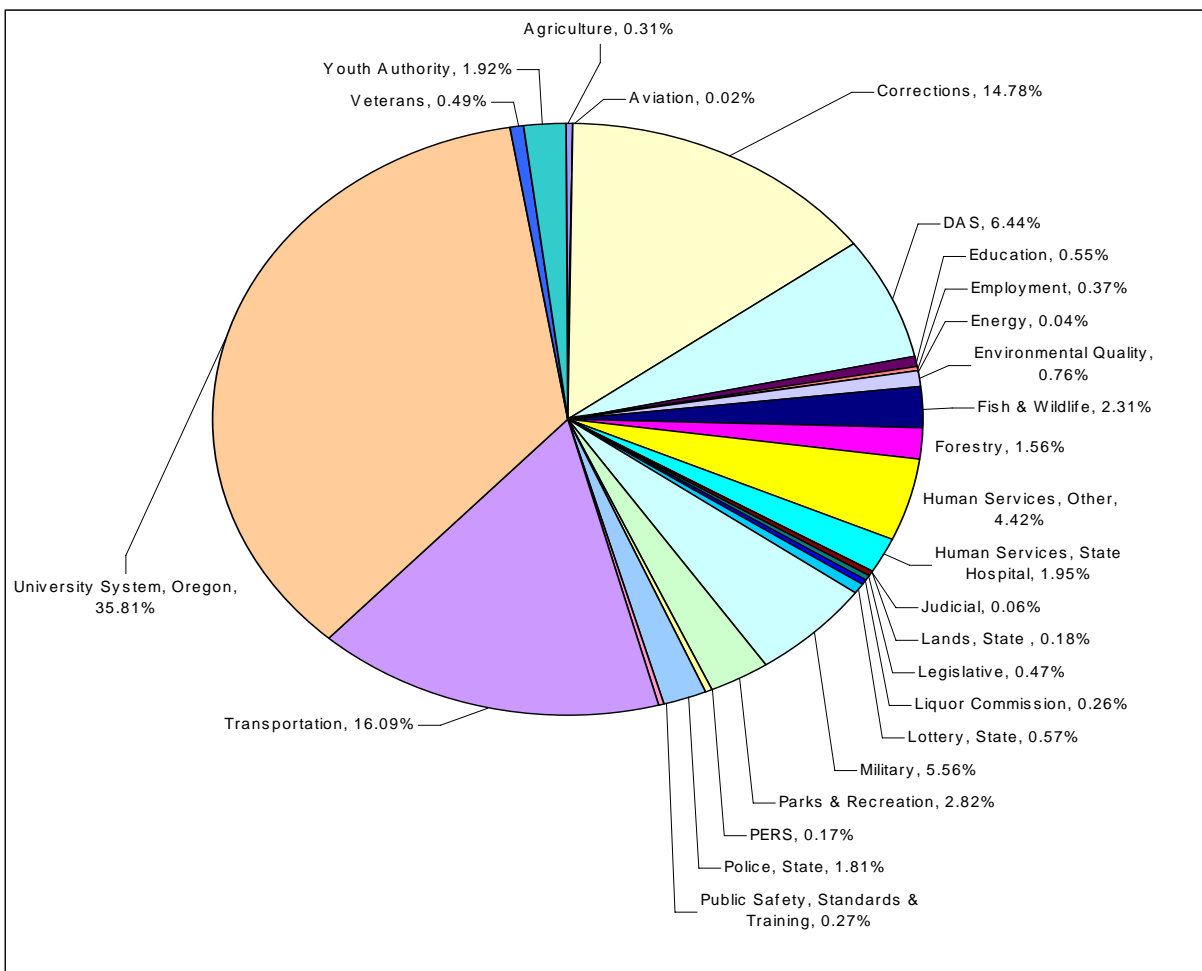


Table 2
2006 Oregon State Agencies' Facility Energy Use
 (provided by Oregon Department of Energy)

Agency	Electricity	Nat. Gas	#5 Oil	Diesel	Kerosene	Propane
	kWh	therms	gal	gal	gal	gal
DAS	46,757,387	465,379				
Agriculture	64,023	5,542				
Aviation	65,920		461			
Corrections	67,746,433	5,888,673				
Education	2,011,699	291,131				
Employment	1,511,833	31,169		34,574	7,966	
Energy	197,680	3,111				
Fish & Wildlife	11,231,481	29,309				29,591
Forestry	4,007,740	51,789		55,909	7,129	
Parks & Recreation	15,180,114	65,819				133,677
ODOT	62,531,862	670,334				291,490
Veterans	2,940,860	116,830				
State Lands	1,085,799	14,962				
Leg Admin	3,251,136	66,232				
Liquor Control Comm.	1,275,139	54,724				
Military	32,869,693	1,447,018	2,500			29,872
Lottery	1,979,200	29,546				
OUS	223,344,959	13,683,258			371,123	
OYA	8,254,141	700,579				45,753
PERS	1,303,600	1,159				
State Hospital	8,014,835	961,875				
PSS&T	1,508,020	37,956				
TOTAL	497,133,554	24,616,395	2,961	90,483	386,218	530,383

Best Practices for Mitigation Measures

The purpose of compiling this inventory is to identify and quantify the sources of greenhouse gas emission in Oregon state government operations. These data will be the basis for establishing greenhouse gas emission targets which, at the discretion of the Governor, can be set for individual agencies or for state government operations as a whole.

In order to meet these greenhouse gas reduction targets, a number of greenhouse gas mitigation measures will have to be undertaken. Some key measures have already been identified by the Governor to move the state forward toward energy independence, and include:

- Greater energy conservation and efficiency. State-owned buildings will reduce energy consumption by 20 percent by 2016 (based on 2000 energy consumption levels).
- State government's total electricity consumption will move to renewable energy sources. The plan calls for 25 percent renewable energy consumption by 2007 and by an incremental phase-in, will reach 100 percent renewable energy by 2010.

- State government will continue to purchase hybrids and flex fuel cars and increase the use of use of alternative fuels, with bio-diesel in state vehicles increased by 25 percent and ethanol by 10 percent by 2010.

The greenhouse gas mitigation potential of each of these initiatives has not yet been quantified. However, assessing this potential should be a key priority in the coming year as work continues on each of these initiatives. Ideally, the impact of each of these policy initiatives should be determined before greenhouse gas targets are set for state agencies so that a proper balance of new and ongoing actions can be encouraged.

Concurrently, the goal of the state is to explore:

- Development of one or more state renewable energy facilities – or partnering with a private developer to purchase the output of renewable energy.
- Participate in utility renewable energy purchase programs.
- Expand the use of cost-effective solar energy in state buildings.
- Continue to promote legislation that authorizes state agencies to develop renewable energy on state forests, state lands, state campuses and other state property.

In addition to the large-scale initiatives underway that will greatly reduce greenhouse gas emissions by state agencies, there are numerous smaller programs that can be implemented by state agencies. A fuller list of those actions can be developed over the course of the 2007-2009 biennium as necessary, however, it is probably best if the greenhouse gas reduction impacts of the larger initiatives are determined first so as to illustrate the range of additional actions that may be necessary to achieve the greenhouse gas reduction targets set by the Governor.

Long-term Inventory Improvement Practices

During this process of developing the strategy to capture greenhouse gas emission data, the team identified areas where future improvements in data collection and analysis should be considered:

- Business air travel
- Employee commuting data
- Data on energy use and waste generated from agencies in leased locations
- Data on vehicle use from leased fleets (such as Flexcar in Portland)
- Development of a system to capture the amounts of greenhouse gas emissions generated as it correlates to the amount of paper and other materials purchased, recycled, and composed by an agency
- Development of systems to capture energy data, i.e. street lighting, fish hatcheries
- Emissions from third parties working on contract on state projects
- Implementation of educational programs for agency personnel staff

- Improved data collection of waste collection (trash and recycling)
- Procurement practices
- Reporting of emissions generated from construction of buildings (both materials and operations)
- Normalizing of data by employee, by facility, etc. to help identify trends and/or improvement strategies

Given the lack of available data for many of these areas, or the relatively low cost to benefit ratio in terms of work to integrate these data, it is not recommended that these areas be included in the near future. However, as data collection tools or processes are improved by the state it is worth considering modifying those tools or processes to allow collection or analysis of these data.

Conclusion

Establishing an inventory is the first step towards achieving the Governor's greenhouse gas reduction goals. As a starting point, the Interagency Team has adopted the use of the Clean Air-Cool Planet's Campus Climate Action Toolkit (CCAT) as the means of creating the inventory. While the Interagency Team recognizes that this recommended inventory is not inclusive of all emissions from state operations, it will succeed in highlighting the major sources of emissions, both by agency and type, and will enable the state to provide a baseline for prioritizing reductions and documenting success as we move forward.

Report was compiled on August 6, 2007 by:

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Appendix

Executive Order No 06-02 <http://governor.oregon.gov/Gov/pdf/eo0602.pdf>

Press Release http://governor.oregon.gov/Gov/p2006/press_031006.shtml

Oregon Strategy for Greenhouse Gas Reductions, Governor's Advisory Group on Global Warming, State of Oregon, December 2004, Executive Summary
<http://www.oregon.gov/ENERGY/GBLWRM/Strategy.shtml>

Oregon University System Greenhouse Gas Emissions Inventory. Produced by The Good Company, July 2007. www.goodcompany.com/lib/documents/OUS_GHG_Inventory-July2007.pdf

Clean Air Cool Planet. 6 Aug. 2007.

<http://www.cleanair-coolplanet.org/about/index.php>

"Clean Air Cool Planet Carbon Calculator v5.0 2006 Greenhouse Gas Inventory Calculation, Summary, and Analysis Workbook." 2006.

Clean Air Cool Planet. 2007

<http://www.cleanair-coolplanet.org>

"Climate Action Toolkit"

<http://www.cleanair-coolplanet.org/toolkit>. 2007

Summary of energy-related bills passed by the 2007 Legislative Session, compiled by the Oregon Department of Energy http://egov.oregon.gov/ENERGY/docs/Bill_Passed_Summary.pdf

