Strategy for Reducing Greenhouse Gas Emissions

Company Name: Seattle Community Colleges

Submittal Date: June 27, 2011, **Revision Oct. 2013**

1. Background

In 2009, the Legislature and Governor adopted the State Agency Climate Leadership Act (Engrossed Second Substitute Senate Bill 5560 – Chapter 519, Laws of 2009). The Act committed state agencies to lead by example in reducing their greenhouse gas (GHG) emissions to:

- 15 percent below 2005 levels by 2020.
- 36 percent below 2005 by 2035.
- 57.5 percent below 2005 levels by 2050 (or 70 percent below the expected state government emissions that year, whichever amount is greater.)

The Act, codified in RCW 70.235.050-070 directed agencies to annually measure their greenhouse gas emissions, estimate future emissions, track actions taken to reduce emissions, and develop a strategy to meet the reduction targets. The strategy is required by law in RCW 70.235.050 section (3):

> *By June 30, 2011, each state agency shall submit to the department a strategy to meet the requirements in subsection (1) of this section* [greenhouse gas reduction targets]. *The strategy must address employee travel activities, teleconferencing alternatives, and include existing and proposed actions, a timeline for reductions, and recommendations for budgetary and other incentives to reduce emissions, especially from employee business travel.*

Agency Policy statement

The Seattle Community Colleges engage students to think critically about all aspects of our world within the context of environmental literacy, social justice, and economic systems that reflects these values. Integration of sustainability into education, operations, and planning for the colleges is a priority for the district in the 2011-2013 biennium.

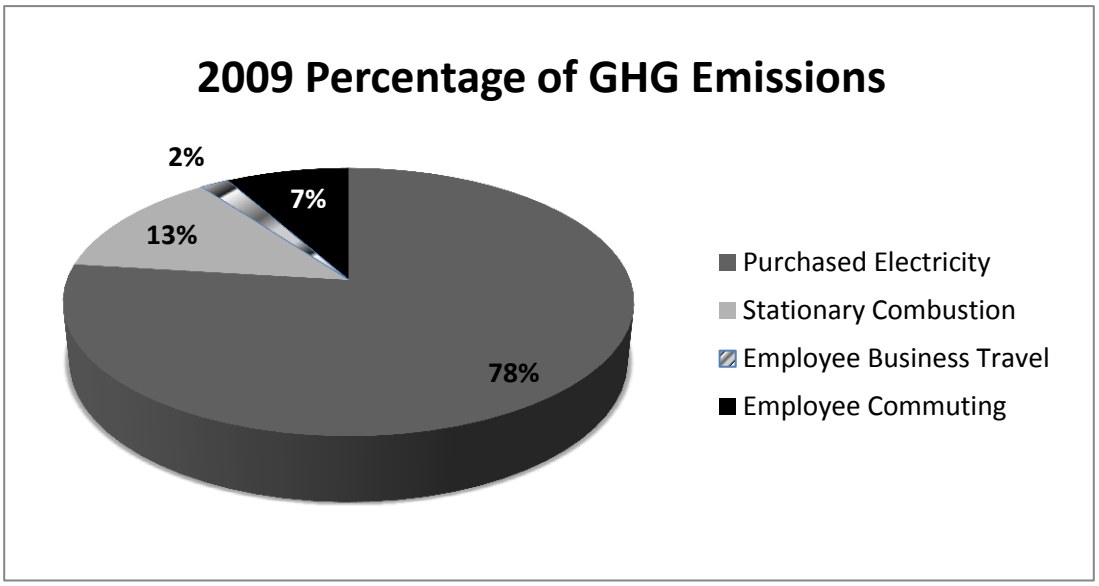
2. Greenhouse Gas Emissions from Agency Operations

A. Direct sources of GHG emissions from building and fleet energy use (does not include GHG emissions from employee business travel and commuting).

Year	Greenhouse Gas Emissions (metric tons carbon dioxide equivalent, $MTCO_2e$)
2005	15,003
2009	16,053
2020 (projected)	18,996
2035 (projected)	20,174

(Note: Figures do not include GHG emissions from buildings owned by General Administration. However, they do include GHG emissions from use of the GA Motor Pool.)

B. Main sources of direct GHG emissions



C. Greenhouse Gas Reduction Targets

- Improve tracking of information used to quantify GHG emissions
- Integrate GHG reduction goals and actions into sustainability efforts and track progress
- Monitor progress, implementation, and develop strategies
- Education/Outreach

Year	GHG Reduction Target ($MTCO_2e$)
2020 (15% below 2005)	12,753
2035 (36% below 2005)	9,602
2050 (57.5% below 2005)	6,376

D. Level of GHG Reduction (from 2009 Levels) Needed to Meet Targets

Year	Amount of GHG Reduction Needed to meet Targets ($MTCO_2e$)
2020	3,300
2035	6,451

3. <u>Overarching Strategies (if applicable)</u>

The agency identified several cross-cutting strategies to help in reducing GHG emissions:

- Benchmark existing sources of GHG emissions from operations and commuting
- Development of a Climate action Plan for each college in order to plan, identify, prioritize carbon emission reduction measures.
- Implement prioritized carbon emission reduction measures to meet Ecology's reduction requirements

4. Greenhouse Gas Reduction Strategies for Direct Emission Sources (Building and Fleet Energy Use)

A. Strategies and Actions with Low to No Cost

Where possible, include estimates of GHG reduction, cost, payback using emission reduction tool. Add the reduction and cost estimates and insert totals.

Strategies and Actions	GHG Reduction Estimate Annual ($MTCO_2e$)	Upfront Cost Estimate ($)	Payback Period Estimate (Years)	Date to Imple-ment Estimate
Building Energy Use				
Using technology to replace printing materials	7#'s per ream	$0	Immediate	2011-2013
Reducing the number of printers and copiers	Unknown	$0	Immediate	2011-2013
Automatic shut-down of computers at night	4.1/ 100 Computers	$7.50/machine	6months	2011-2013
Partnering to install LED street lighting	50% per fixture	$0	Immediate	Complete
Collecting and composting organic materials	6.35	$6K	5-10 years	2020
Fleet Energy Use				
TOTALS:	**Unknown**		**Unknown**	**Unknown**

B. Strategies and Actions with Payback up-to Twelve Years *(or other time period determined by your agency)*

Strategies and Actions	GHG Reduction Estimate ($MTCO_2e$)	Upfront Cost Estimate ($)	Payback Period Estimate (Years)	Date to Imple-ment Estimate
Building Energy Use				
Placing sub-meters in all buildings	Indirect	$2K/building	N/A	2011-2013
Replacing existing appliances with energy star appliances	10% per appliance	N/A	2 years	2011-2013
Offering more online courses	Indirect	$3K/course	N/A	Ongoing
Installing LED street lighting	50% per fixture	$500/fixture	5-7	2011-2013
Fleet Energy Use				
Providing charging stations for electric vehicles	Indirect	$5K/station	10 years	2011-2013
Converting two on-road vehicles to electric vehicles	50% Reduction per vehicle	$20K/vehicle	10 years	2011-13
Converting campus on-site vehicles to electric vehicles	50% Fleet Emissions	$10K/vehicle	6.6 years	2013+
TOTALS:	**Unknown**		**Unknown**	**Unknown**

C. Strategies and Actions with High Cost and Long Payback *(more than 12 years or other time period determined by your agency)*

Strategies and Actions	GHG Reduction Estimate ($MTCO_2e$)	Upfront Cost Estimate ($)	Payback Period Estimate (Years)	Date to Imple-ment Estimate
Building Energy Use				
State-of-the-art controlled flow refrigerant HVAC system	Unknown	$100K/college	20 years	2011-13
Replacing existing lighting with energy efficient lighting and controls	145 / 500K sq ft Conditioned Space	$1/sf	7-10 years	2010-13
More efficient building control system schedule based on occupancy	10% of Building Energy	$500K/college	7-10 years	2010-13
Replacing HVAC systems to more energy efficient system	10% of Building Energy	$1.50/sf	10-15years	2010-13+
Building new construction to LEED silver or better	15% of Building Energy	+2% of capital	4.1 years	Ongoing
Installing photovoltaic co-generation solar panels	Negligible	$9/kW	N/A	2010-13
Installing wind turbine generator	Negligible	$9/kW	N/A	2010-13
Fleet Energy Use				
Replacing motor pool vehicles with hybrids	50% Fleet Emissions	$5K/vehicle	10 years	2011-13+
TOTALS:	**Unknown**		**Unknown**	**Unknown**

5. <u>Greenhouse Gas Reduction Strategies for Other Emission</u> *<u>Sources (Employee Business Travel and Commuting)</u>*

Source of GHG Emissions	GHG Emissions, 2009 **(or most recent year)** ($MTCO_2e$)
Business Travel	1490
Employee Commuting	Analysis in progress

Strategies and Actions	GHG Reduction Estimate ($MTCO_2e$)	Upfront Cost Estimate ($)	Payback Period Estimate (Years)	Date to Imple-ment Estimate
Employee Business Travel				
Analysis in progress				
Employee Commuting				
Analysis in progress				
TOTALS:			N/A	N/A

6. Additional Sustainability Strategies and Actions *(if applicable)*

Strategies and Actions	Co-benefits for GHG Reduction	Implementation Date Estimate
Sustainable purchasing practices	Analysis in progress	
Reduction in usage of hazardous materials	Analysis in progress	
Water use reduction	Analysis in progress	
More efficient waste stream management	Analysis in progress	
Sustainable grounds management	Analysis in progress	
Transportation management plan	Analysis in progress	
Sustainability coordinator and committee	Analysis in progress	

7. Next Steps and Recommendations

The Seattle Community Colleges are exploring:

- Collaborating to create a streamlined process for collecting and analyzing data used in annual reporting;
- Providing training when requested for understanding reporting requirements and how to inventory emissions at each college;
- Aggregating data from each college and submit final reporting to Ecology.
- Creating a "Climate Team" that is responsible for meeting CO2 reporting requirements to the district;
- Building on this preliminary benchmarking work, develop a Climate Action Plan with details of specific CO2 reduction measures;
- Identifying, prioritizing, and implementing most cost effective CO2 reduction strategies for their campus;
- Continuing to inventory C02 generating sources and refining data collection and reporting emissions.

Recommendations for budgetary and other incentives, especially from business travel

The current travel freeze has reduced business travel related emissions dramatically. No budgetary and other incentives have been identified at this time.

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