2012

COLORADO GREENING GOVERNMENT ANNUAL REPORT CARD

The Colorado Energy Office
1580 Logan St. #100, Denver, Colorado 80203
303-866-2100
www.colorado.gov/energy

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Acronyms - How to Read This Report

Acronym	Definition
ARRA	American Recovery and Reinvestment Act
B20	Biodiesel fuel at a blend of 20%
BTU	British thermal unit
CDA	Colorado Department of Agriculture
CDHS	Colorado Department of Human Services
CDLE	Colorado Department of Labor and Employment
CDOT	Colorado Department of Transportation
CDPHE	Colorado Department of Public Health and Environment
CDPS	Colorado Department of Public Safety
CEO	Colorado Energy Office (formerly the Governor's Energy Office)
CNG	Compressed Natural Gas
COARNG	Colorado Army National Guard
C.R.S.	Colorado Revised Statutes
CSDB	Colorado School for the Deaf and Blind
CSU	Colorado State University
CU	University of Colorado at Boulder
CWCB	Colorado Water Conservation Board
DCS	Division of Central Services (DPA)
DHE	Department of Higher Education
DMVA	Department of Military and Veterans Affairs
DNR	Department of Natural Resources
DOE	Department of Education
DOC	Department of Corrections
DOL	Department of Law
DOLA	Department of Local Affairs
DOR	Department of Revenue
DORA	Department of Regulatory Agencies
DOW	Division of Wildlife
DPA	Department of Personnel and Administration
DWR	Division of Water Resources
E85	Fuel blend containing 85% ethanol
EB: O&M	LEED® Existing Building Operation and Maintenance
EPA	Environmental Protection Agency (United States)
EPC	Energy performance contract
EPP	Environmentally preferable purchasing
ESCO	Energy services company
EVSE	Electric vehicle supply equipment
FFV	Flex-fuel vehicle
FIMS	Facility Improvement Measures
FLC	Fort Lewis College
FRCC	Front Range Community College
FY	Fiscal year
GFX	Government Fleet Expo and Conference
GGC	Greening Government (Coordinating) Council
GHG	Greenhouse gas
GPS	Global positioning system

Acronym	Definition
GSHP	Ground source heat pump
HB	House Bill
HCPF	(Department of) Health Care Policy and Financing
HEV	Hybrid electric vehicle
HPB	High performance building
HPCP	High Performance Certification Policy
HVAC	Heating, ventilation, and air conditioning
IDS	Integrated Document Solutions (DPA/DCS)
kGal	Kilogallon (1,000 gallons)
kW	Kilowatt
kWh	Kilowatt hours
LEED®	Leadership in Energy and Environmental Design®
MLBS	1000 pounds of steam; having energy value of 1,000,000 BTUs
MMBtu	Million metric BTUs
MPG	Miles per gallon
$MtCO_2e$	Metric ton of carbon dioxide equivalent
MVAC	Motor Vehicle Advisory Council
MW	Megawatt
NAFA	National Association of Fleet Administrators
OCC	Office of Consumer Counsel (DORA)
OSC	Office of State Controller
OIT	Governor's Office of Information Technology
P-Card	Procurement card
PC	Personal computer
PCC	Pueblo Community College
PCW	Post-consumer waste
PHEV	Plug-in Hybrid Electric Vehicle
PPA	Power Purchase Agreement (from US EPA)
PUC	Public Utilities Commission
PV	Photovoltaic
RAP	Reclaimed Asphalt Pavement
RE	Renewable energy
RMFMA	Rocky Mountain Fleet Management Association
RTD	(Denver) Regional Transportation District
RV	Recreational vehicle
SB	Senate Bill
SCP	Sustainable Campus Program (through DHE)
SFM	State Fleet Management (DCS/DPA)
SOS	Secretary of State
SPO	State Purchasing Office (DPA)
SWSI	Statewide Water Supply Initiative
TCR	The Climate Registry
TEA	Technical energy audit
TERC	Transportation Environmental Resource Council
Therm	Unit of heat energy equal to 1000 BTUs
U.S. DOE	United States Department of Energy
USDOT	United States Department of Transportation
VMT	Vehicle miles traveled

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"The Greening Government Program reduces energy and water consumption in Colorado state government by administering effective energy efficiency programs that both save money and protect the environment. This report outlines the goals and accomplishments achieved by our state agencies who consistently lead by example."

- Governor John Hickenlooper

Executive Summary

Overview

The Greening Government Council (GGC) was established by Executive Order D 005 05 to enhance the efficiency and greening of Colorado state government. In April 2007, Executive Order D 0011 07 was issued, directing the GGC to prepare an Annual Report Card to review its achievements and inform recommendations for additional action by the Governor. This Order also requires all state agencies to reduce their environmental impact and appoint a representative to serve on the GGC, which is coordinated by the Greening Government Program Manager within the Colorado Energy Office (CEO).

This Report Card not only reviews the state's 2012 fiscal year (FY12, July 1, 2011-June 30, 2012) progress, but also provides a full review of how the State and each agency did on reaching the sizeable reduction goals outlined on the right. *Appendix G* contains the various Executive Orders that guide the State of Colorado's greening government policies.

The GGC hopes that this report will help frame goals moving forward, reenergize our sustainability efforts and help elevate Colorado as a national model of sustainable government.

While there is still room for improvement, the State has made notable progress in reducing its energy, water, paper, and petroleum use. The sum of the State's efforts can be found in the main section of the report.

Individual state agencies and departments are making great strides in their commitment to create a more sustainable, energy and water efficient, and cost efficient workplace. The following chart summarizes greening government initiative implementation activities undertaken by each state agency during FY12. More information on individual agencies can be found in *Appendix A.*

Greening State Government Reduction Goals by July 1, 2012*

Energy Management at State Facilities:

- **20% energy consumption reduction** (10% if energy performance contracting is not feasible)
- Assess and implement **renewable energy** projects where effective

Materials and Resource Reduction:

- **20% reduction in paper use**
- **10% reduction in water consumption**
- Employ **purchasing policies** to reduce the state's environmental impact
- **75% landfill diversion** (by FY 2020)

*Vehicle Petroleum Reduction***:

- **25% volumetric reduction** within state fleet

Greenhouse Gas Emissions:

- **20% reduction** from FY 2005 levels by FY 2020
- **80% reduction** from FY 2005 levels by FY 2050

*Reduction goals are based on FY 2006 levels, to be met by the end of FY 2012.

**Excludes vehicles used for law enforcement, emergency response, road maintenance, and highway construction.

Agency	Waste							Transportation							Energy Savings						Water							Renewable Energy							Environmentally Preferred Purchasing							
2012	Recycling	Employee Education	Printing Reduction	Electronics Recycling	Electronics Reduction	Paperless Initiative	Composting	Video conferencing	Eco Pass	Carpool	Flex Fuel	Hybrid	Mile Reduction	Driver Education	Employee Education	Equipment Efficiency Upgrades	Tracking Energy Use	Technical Energy Audit	Energy Performance Contracting	Energy Reduction Plan	Employee Education	Plumbing	Irrigation Optimization	Water Use Tracking	Xeriscaping	Water Use Reduction Plan	Reuse Water	Photovoltaic	Solar Thermal	Ground Source Heat Pump	Anaerobic Digestion	Biomass	Employee Education	Wind Power	EPP Policy in Place	Paper Policy	Employee Education	Other Office Supply Policy	Electronics Policy	Construction Material Policy	Vehicle Policy	EPP Policy Tracking & Review
The following agencies own at least some of their office space																																									
CDA	x	x	x	x		x		x	x	x	x	x				x	x	x	x			x	x	x									x	x	x					
CDHS	x	x		x				x		x	x	x	x	x		x	x	x	x			x	x	x				x	x	x										
CDLE	x	x	x	x	x			x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x				x		x	x	x	x	x	x	x
CDOT	x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x	x	x						x	x		x		x	x	
CDPHE	x	x	x	x	x		x			x	x	x	x	x	x	x	x	x		x	x	x		x	x										x	x				x	
DMVA	x	x	x					x		x					x	x	x	x		x	x	x	x	x	x	x	x	x	x			x			x	x					
DNR	x	x	x	x		x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x						x	x	x	x		x		
DOC	x	x	x	x		x	x	x		x	x	x	x		x	x	x	x	x	x		x	x	x	x	x		x						x	x						
DOR	x	x	x					x	x			x			x	x	x				x			x								x				x					
DPA	x	x		x					x					x	x	x	x	x	x	x	x	x	x	x		x		x		x			x			x	x		x		x
The following agencies only lease their office space																																									
CEO	x	x	x					x	x			x			x	x	x				x	x												x	x	x					
HCPF	x	x	x	x	x			x	x	x	x		x	x	x	x	x	x	x	x	x	x		x								x		x		x	x				
DHE	x	x	x	x	x		x	x	x					x	x						x											x		x			x				
DOL	x	x		x		x		x	x	x	x	x		x	x	x	x				x												x	x						
DOLA	x					x		x	x		x	x	x	x	x																							x			
DORA	x	x	x	x		x	x	x	x				x		x	x				x														x							
OIT	x		x		x				x		x	x				x	x																								
SOS	x		x	x		x			x																																

Goal Specific Results

Between FY06 and FY12 the State experienced notable growth in square footage and employees affecting the amount of resources used (see box below). Even with this increase, the State was able to meet its energy reduction goal, substantially reduce its greenhouse gas emissions and petroleum use, and increase recycling. Water use did increased. See individual sections for more information and *Appendix A* for agency specific information.

Review of State Government Growth between FY06-FY12:

Total Owned Sq. Ft. in FY'12: 21,982,649	**% Increase/(Decrease) in Owned Sq. Ft Since FY'06:** 15.6%
Number of Employees in FY'12: 25,602	**% Increase/(Decrease) in Employees Since FY'06:** 7.3%

Energy

Goal: By FY2012, achieve at least a 20% reduction in energy consumption of state facilities below FY06 levels. Where performance contracting is not feasible, state agencies shall strive to reduce energy use by 10% from a FY06 baseline.

Energy used by state agencies has a significant impact on the quality of Colorado's public health, environment, and the use of its natural resources. This section highlights the progress of state agencies in developing and implementing energy management plans as they work toward achieving an either 10% or 20% energy use reduction goal leading to an overall reduction goal of 19.4%.[1] It should be noted that this is one of the most aggressive goals set for energy reduction in the nation.

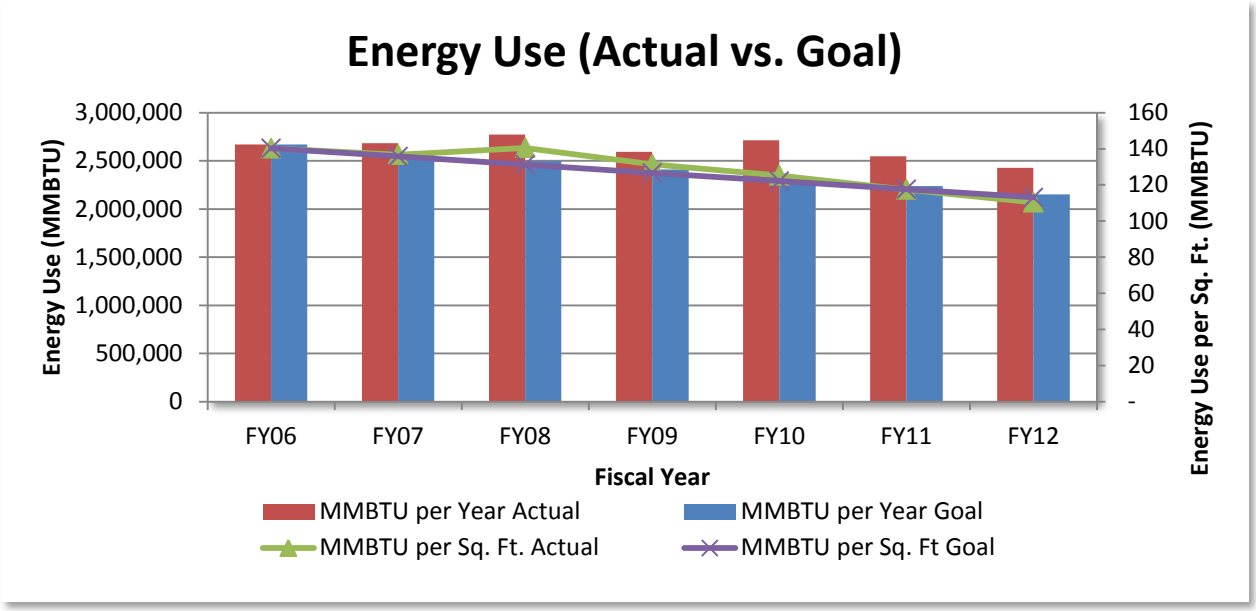
Tracking energy consumption is essential in making effective reductions. Executive Order D 2010-006 mandates that all state agencies enter energy and water data into EnergyCAP. [2]EnergyCAP is the standard statewide utility management software that allows state agencies and organizations to manage utility usage, report on benchmarks, eliminate billing errors, target wasteful facilities, and track GHG emissions.

The figure below outlines the State's energy use by total use (left axis) and per square foot (right axis). The reduction goals outlined below show that the State has reduced their energy use by 9% or 242,070 MMBTU. The State has missed the goal of an overall reduction of 19.4% energy use. Of the 14 agencies and departments with owned square footage: three met their target, three decreased energy overall and eight increased their energy use.

However, since FY06 the State owned square footage has increased by 15.6%. **Taking this increase into account the State's energy use per square foot has reduced by 21.3%.** Of the 14 agencies and departments with owned square footage six reduced their energy per square foot over their corresponding goal, 4 decreased their energy per square foot overall, and four increased their energy use per square foot.

[1] An Energy Performance Contract (EPC) is not feasible at the following agencies with owned facilities for various reasons including size and location: CDPHE, OIT, CDE, DPS, DOR, DNR and DOL. They are required to reduce their energy by 10%. All other agencies in owned space must reduce their energy use by 20%. Average taken between agencies that are required to achieve a 10% energy reduction and agencies required to achieve a 20% reduction.

[2] Since FY'11, the tracking of energy and water use greatly improved with a 95% implementation rate (up from 70%) but is not consistent throughout state agencies. The following data was provided by each agency individually (See *Appendix A* for more information by agency) and reflects their best attempt to record all energy purchases between FY'06-FY'12. While the data has gone through a Quality Assurance-Quality Control process, discrepancies and errors though limited are inevitable.



Renewable Energy

Goal: On an ongoing basis, assess and implement where effective, the development of state renewable energy projects.

Realizing the economic potential, Colorado has issued mandates to develop, where possible, renewable energy resources at state facilities.

Since many state agencies work from leased office space, opportunities for renewable energy installations are limited. However, some agencies with more flexibility have been able to go forward with this initiative. Particularly, new construction allows for the inclusion of renewable energy installations, as well as energy efficiency measures. For example, the DMVA has been adding ground source heat pumps, solar thermal, and PV to newly constructed facilities throughout Colorado. In total, five agencies (DMVA, DHS, DOC, DPA, and DNR) have installed renewable energy on their facilities. See *Appendix A* to learn more about individual agency initiatives.

In FY12, CEO was able to work with the PUC and Xcel to come to an agreement on the interconnection rules that were holding up the implementation of solar across all agencies. Moving forward, all agencies will be able to interconnect without issue.

➲ Project Highlight: The Department of Corrections (DOC)

The DOC has installed solar arrays at nine prisons around the state. These solar panels have generated over 696,440 kWh, enough power to meet the needs of 80 homes every year. Taking advantage of numerous rebates and other financing options, the panels went live with no cash outlay by the state. They are expected to save the state $475,000 over the next twenty years.

Figure 1. Solar panels recently installed at Colorado Territorial prison in Canon City

DPA completed several projects including one ground source heat pump and 3 separate photovoltaic (PV) projects. A 100kW PV system, which produces about 134,500 kWh annually, was funded through energy savings and generates approximately one-third of DPA's electricity needs saving around $35,000 per year. In addition, the DPA installed a 10 KW system in 2009 on the State Capitol.

Energy Performance Contracting (EPC)

EPC is a way to finance energy performance measures based on future avoided utility costs (projected energy savings) and is an effective way to reduce energy consumption immediately and save money over time. This financial mechanism typically results in energy savings between 15% and 30%. At the end of FY12, seven projects were in the technical energy audit (TEA) process representing more than 3.5 million square feet; nine projects remained in the construction phase accounting for about $50 million in construction; and 33 projects had finished the construction phase of EPC and started the Measurement and Verification (M&V) phase on various projects. Of the projects that are in the M&V or post M&V stage the state has experienced utility cost savings of over $8 million, annual savings of over 40 million kWh, and annual savings of over 150 million gallons of water. These projects represent significant savings for the state, create jobs, and increase building comfort long-term.

Additional details of FY12 EPC activities are provided in *Appendix A* and *Appendix C.*

High Performance Certified Buildings (HPCB)

The Leadership in Energy and Environmental Design (LEED) is a voluntary international program that provides criteria for establishing a green rating of buildings, both new and existing. The LEED criteria identify those design and construction measures that will have the most impact on:

- ✓ conserving energy and water;
- ✓ providing a safer and healthier space for occupants;
- ✓ reducing waste sent to landfills; and
- ✓ lowering operating costs.

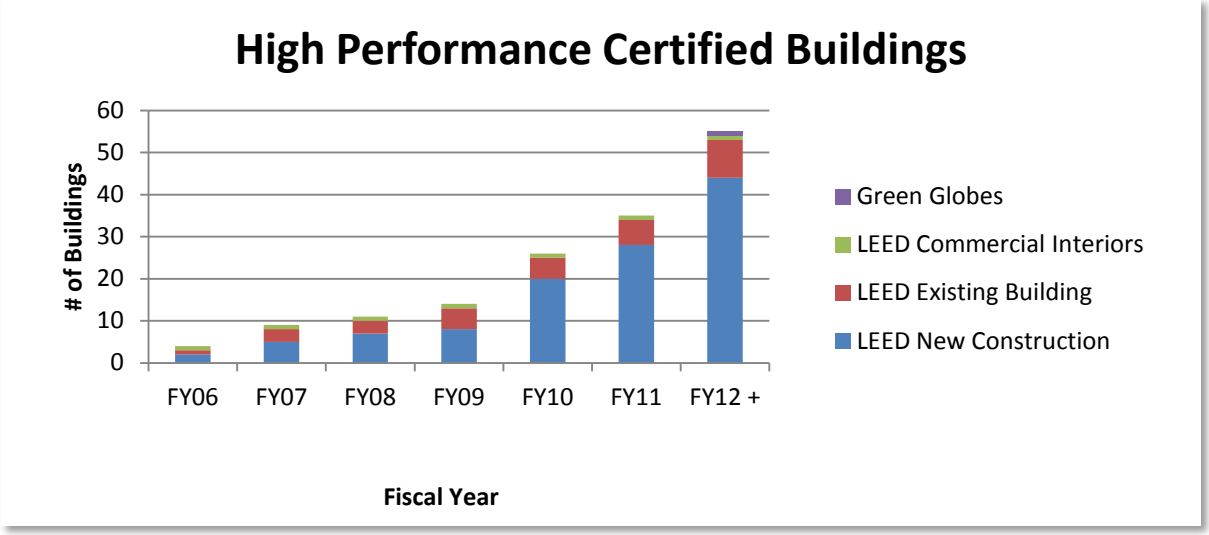
By satisfying the criteria building owners and operators earn points which accumulate to determine the building's LEED score and rating, the highest being LEED Platinum. In addition, the LEED program exists to promote the latest innovations in building design, from lighting controls to the use of recycled materials.

In 2011, Colorado ranked first for LEED certified square footage of space per capita with 420 certified buildings. Colorado's state government has played an important role in this with 54 certified buildings as

of FY2012 (13% of states total), 19 waiting for certification, and 22 in construction. In addition, the state has one Green Globes certified building.[3]

Colorado Senate Bill 07-051 mandated the adoption of a "Building Renovation, Design, and Construction Standard" to reduce the operating costs of state-assisted facilities by reducing the consumption of energy, water, and other resources. The State decided upon the LEED standard which became a requirement, when cost effective and applicable, by Executive Order D 005 05.

As of FY06 eight state buildings were LEED certified. Since then, the state has seen a steady increase in certified buildings. *Appendix A* contains more about each agency Higher Performance Certification initiatives; *Appendix B* has a full list of all certified buildings, buildings submitted for LEED certification, and in-design.



In FY09, the State Capitol – built in 1895 - became the first LEED-EB certified Capitol in the U.S. The Capitol building received 41 out of 44 points submitted to attain certification. Among the specific upgrades to the building were the installation of lighting improvements, heating and cooling system upgrades and improved energy controls.

[3] Note that the HPCB building requires all Higher Ed and State agencies to participate. Therefore, the Greening Government Council tracks Higher Ed LEED buildings as well even though Higher Ed is exempt from many of the Greening Government Executive Order requirements.

Project Highlight: The History Colorado Center

The History Colorado Center, which is part of the Colorado Historical Society, is set to become the country's first LEED Gold state cultural history museum. It utilizes water and energy conservation by incorporating native landscaping, low-flow water systems, and taking full advantage of the natural light and heat provided by the spacious atrium. The building also makes extensive use of recycled and regional materials, including Colorado sandstone, Douglas fir, and beetle-kill pine.

Figure 2. History Center

Information Technology Efficiencies

At the end of FY12, the state's Office of Information Technology (OIT) installed the Big Fix Power Management Software on approximately 9,500 state-owned computers (1,500 computers still awaiting implementation). This software is a comprehensive power control tool designed to reduce energy use by turning off inactive computers, even for short periods of time. It is estimated that this software will save the state approximately $25 each year for each of the 11,000 computers using it, with total savings in the hundreds of thousands of dollars and energy savings exceeding 2 million kWhs.

In FY12, OIT also started to consolidate their data centers which will save the state thousands of dollars while reducing a significant amount of energy consumption. OIT has made steady progress in its plan to migrate to primary two data centers. In 2011 alone, OIT migrated and terminated five data centers and decommissioned 236 servers (out of 1,800) through consolidation, virtualization, and migration to cloud-based solutions. More than 4,600 square feet of space has been recovered to date and will be repurposed. These efforts have already saved Colorado over $800,000 in annual operating costs

Future Plans and/or Suggestions

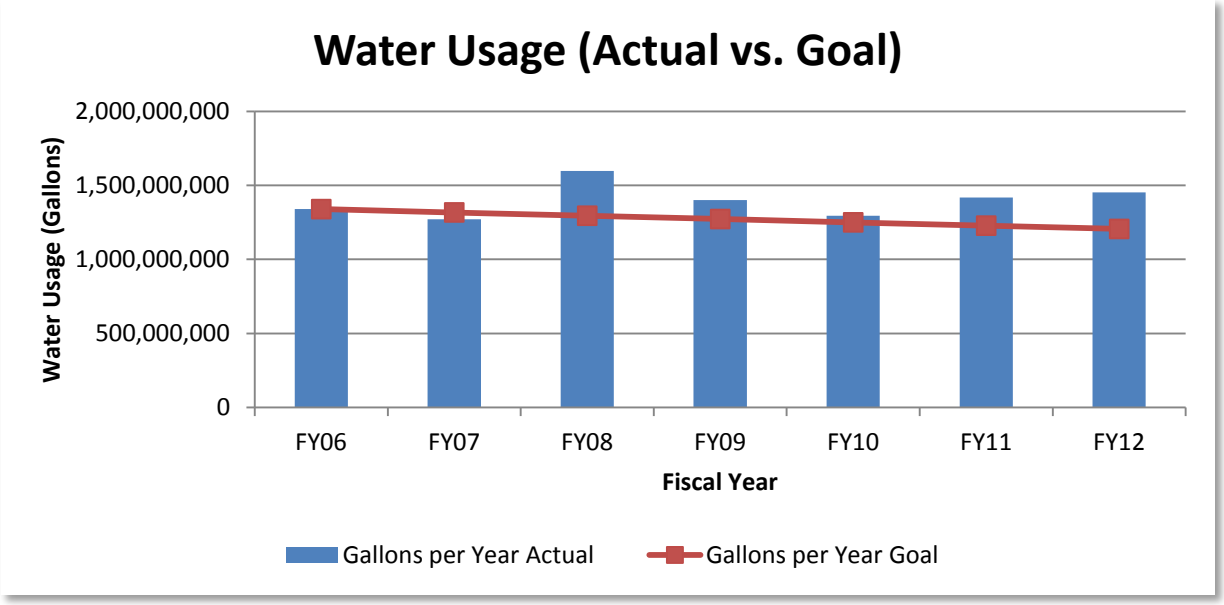
- Have agencies create an energy management plan that is updated every other year.
- Encourage EnergySTAR certification, when possible.
- The Council will continue to support renewable energy, where effective.
- Ensure all agencies with owned facilities are entering their utility data into EnergyCAP in a timely manner.
- Work with state agencies to implement Electronic Data Interchange (EDI) between Xcel, EnergyCAP, and COFERS to reduce costs, increase the speed of data entry, and reduce human error.
- Continue to encourage the use of financing mechanisms, such as issuing bonds and using energy performance contracting, to undertake energy and water reduction projects.
- Research alternative ways to provide funding for renewable energy projects including PPAs, and grants.
- Continue working with utility companies to address policies that have kept renewable energy initiatives from moving forward.
- Support agencies considering the opportunities of the Solar*Rewards Community Program and Solar Gardens programs.

Water

Goal: Achieve a reduction of water consumption goal of 10% by FY12, using FY06 as a baseline.

Colorado faces ongoing and future water supply challenges. Pursuant to Executive Order D 0012 07, state agencies are mandated to reduce water consumption by 10% by FY12. Many agencies have already achieved substantial reductions in their water usage since FY'06 by installing more efficient plumbing fixtures and fittings, and installing lawn irrigation controls. In addition, several agencies have been taking advantage of re-use water.

The State has seen an increase of 8.4% (112.5 million gallons of water) in water use. [4] Of the 14 agencies and departments with owned square footage, six reduced their water use by more than 10%, four reduced their water use by less than 10%, and four increased their water use.



Future Plans and/or Suggestions

- Continue requiring water reductions by all state agencies.
- Require agencies to take advantage of free or reduced cost water audits by their water utility, if applicable.
- Look into bulk purchasing of water efficient appliances for state agencies.
- Continue educating Council about the Energy/Water Nexus
- Research and identify alternative ways to provide sufficient funding for water efficiency.
- Continue encouraging agencies to use their water rights.

[4] The following data was provided by each agency individually and reflects their best attempt to record all water purchases between FY'06-FY'12 in EnergyCAP. Water usage has not been normalized for the increase in state employees, increasingly hot weather, or new water-intensive industries.

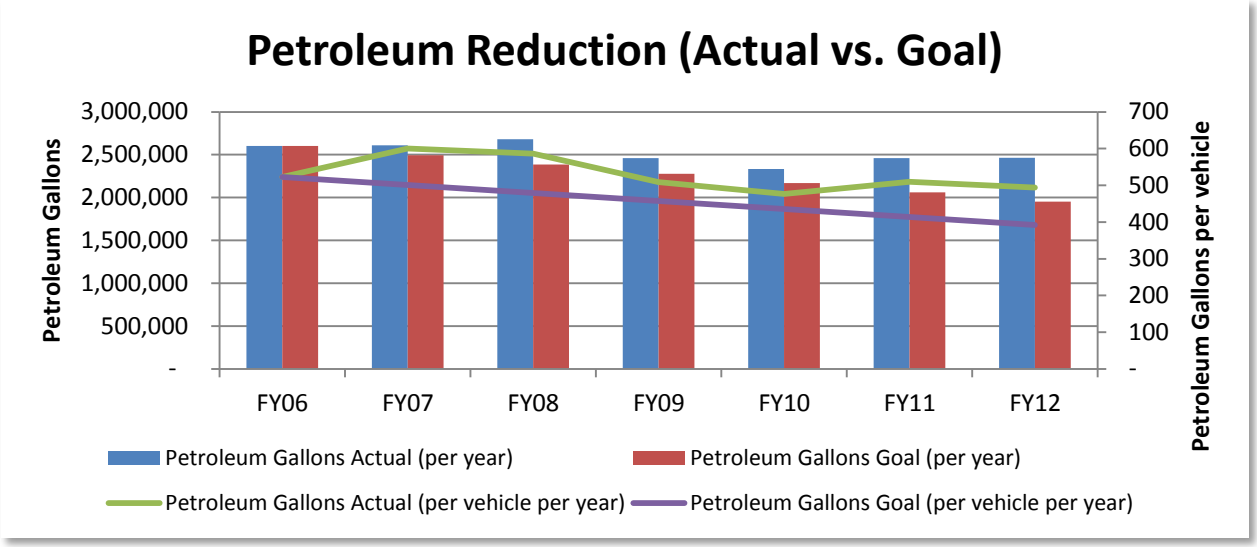
Petroleum Reduction

Goal: By FY12, all state departments and agencies will take all reasonable actions to achieve a 25% volumetric reduction in petroleum consumption by state vehicles measured against a FY06 baseline.

The Executive Order outlines all departments and agencies with non-exempt vehicles[5] will take all reasonable actions to achieve a 25% volumetric reduction in petroleum consumption by state vehicles. It should also be noted that all non-exempt vehicles managed by the state fleet are required to participate in this reduction including many Higher Ed institutions vehicles that are exempt from all other Executive Order mandates. See *Appendix A* for additional information for each agency. [6]

State Fleet Management (SFM) provides oversight (i.e. repairs, purchasing, salvage, general operations, etc) for all state fleet program vehicles. The Motor Vehicle Advisory Council (MVAC), an advisory body that includes a representative from each user agency and institution, assists SFM in its efforts to manage an effective and efficient fleet. SFM manages and monitors the state fuel efficiency programs in support of the Governor's greening government initiative, and purchases as many alternative-fuel vehicles as possible each fiscal year.

Between FY'06-FY'12, the State decreased their petroleum use by 5.28% or 137,265 petroleum gallons annually. During this time the fleet of non-exempt vehicles has seen growth of less than 1% so the reduction of petroleum per vehicle is about 5.6%.



Since FY06 the vehicle miles traveled (VMT) has decreased. This decrease is due to many factors, including the general downturn in economic conditions as well as the statewide implementation of vehicle mile reduction guidelines. These guidelines recommend that agencies use daily trip logs to improve route efficiency and record miles reduced; optimize use of videoconferencing equipment; and offer employee

[5] Exempt vehicles include vehicles used by law enforcement, emergency response, road maintenance, and highway construction.
[6] The totals in Appendix A will not add up to the summary totals on this page. This is because Higher Education Institutions (not Department of Higher Education) and the judicial branch which have non-exempt vehicles are not required to participate in the Greening Government Council or follow other mandates such as energy and greenhouse savings. Therefore, they do not have their own subsection in Appendix A.

education and outreach on reducing vehicle use. As shown in the table below, VMT decreased by 1.9 million miles between FY06 and FY12.

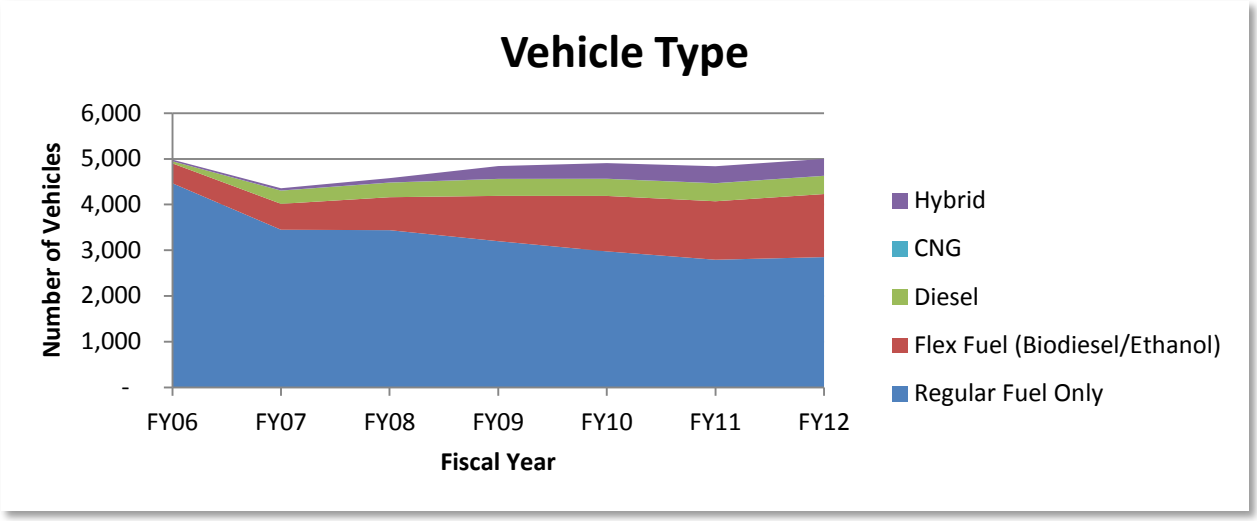
	FY06	FY07	FY08	FY09	FY10	FY11	FY12
Vehicle Miles Traveled	45,045,278	46,761,916	46,721,573	43,268,738	40,931,404	43,200,482	43,138,996
Miles Increased (Decreased)	N/A	1,716,638	1,676,295	(1,776,540)	(4,113,874)	(1,844,796)	(1,906,282)

Realizing the direct correlation between reduced petroleum consumption and mileage, SFM developed and implemented a fuel rebate program in FY 2010. Under this program, agencies that achieved a reduction in petroleum consumption received a rebate equivalent to the number of gallons saved times a monetary value per gallon, thus providing a direct incentive to decrease petroleum use.

While falling short of the 25% petroleum reduction goal the State has made progress in creating a more diverse fleet with flex fuel vehicles and hybrids. In FY06, 90% (4,460 vehicles) of the State Fleet consisted of regular fuel-only-vehicles, while in FY12 this percentage dropped to 57% (2,845 vehicles). This decrease has been offset by a:

- 217% increase (435 to 1,379 vehicles) in flex fuel vehicles (ethanol in a blend of 85% (E85), or biodiesel at a blend of 20% (B20) or higher).
- 747% increase (47 to 398 vehicles) in diesel vehicles
- 985% increase (34 to 369 vehicles) in hybrid vehicles
- Two CNG vehicles were added to the fleet

Using renewable fuels directly displaces the use of petroleum fuel and significantly reduces GHG emissions, further supporting the reductions of GHG and climate change initiatives. The increase in hybrids has led to a significant increase in our MPG, making the fleet more efficient.



The State Fleet once again had an award winning year being recognized as one of the top Government Green Fleets in North America by "100 Best Fleets" (there are over 38,000 public fleets in North America). The State Fleet Manager of Energy and Environmental Sustainability was honored with the National Fleet Award of Environmental Leadership, and received the Sustainability All-Star Award during October 2012.

Future Plans or Suggestions:

- Require that all new vehicles purchased by the State fleet will be either alternatively fueled or exceed the appropriate CAFE standard. Purchase decisions should also be based on a lifecycle cost analysis as this reflects the overall impact to the state's fiscal bottom-line. Vehicle lifecycle costs will be based on the average expected lifetime and operational characteristics of a similar vehicle in the state fleet, and the first priority for vehicle selection will be given to compressed natural gas when the required CNG model is available, and when the lifecycle cost is no greater than 10% when compared to the conventional vehicle that it will replace.
- Due to the reduction in the cost and availability of alternatively fueled vehicles, SFM recommends that the state continue to pursue procurement when lifecycle cost is within 10% when compared to comparable petroleum-only fueled vehicles.
- Restrict the purchase of four-wheel drive vehicles to functions that are explicitly deemed necessary by agency Executive Directors.
- Establish a fleet sub-council to include representatives from each state agency and department. The fleet sub-council will help develop, implement, and augment programs, plans, and policies that save money, reduce emissions, promote domestic fuel use, and conserve natural resources. Alternatively the Motor Vehicle Advisory Council could potentially take on this task.
- Encourage fleet coordinators to develop programs for their fleet to ensure that alternative fuel vehicles are being fueled with alternative fuels and energy efficiency improvements are occurring. This could also be included as part of performance reviews if deemed necessary by agency executive directors.
- Enforce any existing idling policies to reduce emissions and fuel use.
- Investigate alternative financing options for state vehicles, including leasing, energy performance contracting, and other options that may reduce costs for the state over the lifecycle of the vehicles.
- DPA and the State Purchasing Office will include a variety of biofuel, CNG fueled, hybrid electric, and electric vehicles in annual state pricing agreements once they are deemed affordable and viable. Not only does this provide flexibility to state agencies purchasing vehicles, it serves other organizations that may buy these vehicles off of the state bid.
- Each agency shall evaluate opportunities to improve commuting options for employees.
- Telematics/GPS should be investigated by DPA and CDOT as a tool to monitor and manage many fleet efficiency functions. Any telematics program should be evaluated in the context of methods of implementing any lessons that emerge from telematics data and the cost of the systems.

Greenhouse Gas Emissions

Goal: State agencies shall achieve reductions in greenhouse gas (GHG) emissions of 20% below 2005 levels by 2020. By 2050, state agencies must reduce GHG emissions by 80% below 2005

The 2010 Executive Order included the following goals for reducing greenhouse gas (GHG) emissions from state agency operations: 20% reduction by FY20 and 80% reduction by FY50 from the initial FY'06 levels.[7]

To support these goals, the Greening Government Council initiated an effort for Colorado to become the first state to report emissions using The Climate Registry (TCR), a non-profit collaboration among North

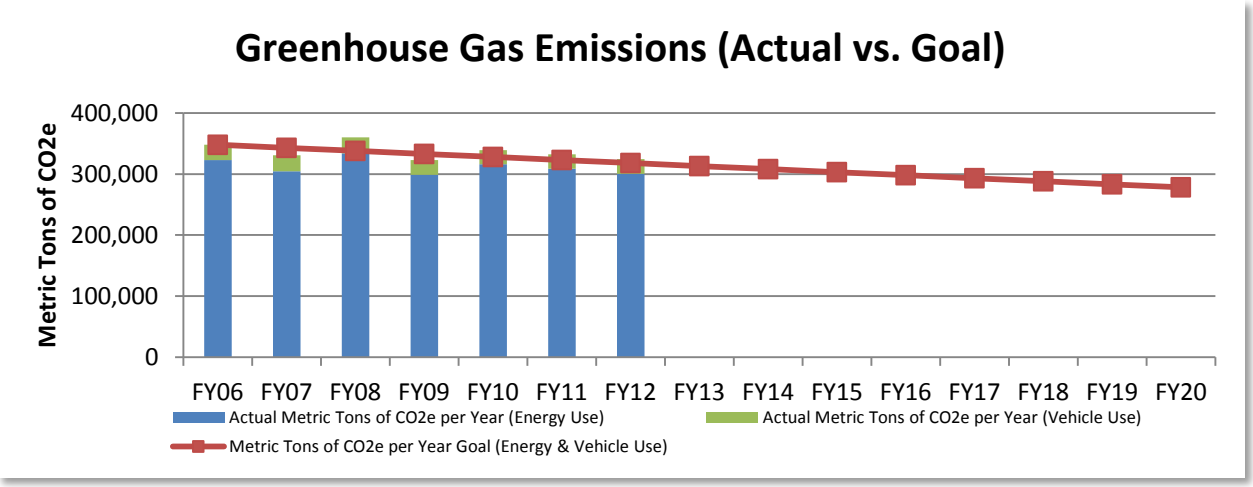
[7] These goals are based off of Executive Order D 004 08 which baseline is 2005 (calendar year). However the State has tracked data from FY'06 (July 2005-June 2006) not calendar year 2005 and therefore does not have data from January-June 2005. As such the state has adapted these goals to make our baseline FY'06 and our deadlines FY'20 and FY'50.

American states, provinces and territories. TCR uses consistent and transparent standards to calculate, verify, and publicly report GHG emissions into a single registry.

The State is tracking its Scope 1 and Scope 2 emissions. Scope 1 emissions are from state owned vehicles and fuel combustion on site, while Scope 2 is from purchased electricity. The State is not tracking Scope 3 emissions. TCR data entry for 2009, 2010 and 2011 emissions was completed.[8] The data includes fuel consumption amounts by fleets and building operations for all state agencies.

Below is a figure showing the states actual GHG emissions broken out by emissions from energy and vehicle use. Additionally, the green line illustrates our goal of reduction if the state is to meet the first goal of a 20% reduction by 2020.

To reach the FY20 reduction goal of 20% since FY05, the State must average a decrease in emission by 1.3% annually (8.6% in 7 years). Over the last seven years, the State has experienced a decrease in emission by 6.7% or 23,269 metric tons of CO2e (carbon dioxide equivalent) falling short of the intermediate goal. The State's fleet has experienced a decrease of GHG emission by 3.8% (1,003 metric tons of CO2e), while our reduction in energy use has led to a decrease in 6.9% (22,307 metric tons of CO2e).



Future Plans and/or Suggestions

- Utilize EnergyCAP to track all GHG emissions instead of using two systems: TCR and EnergyCAP
- Increase focus on petroleum consumption reduction, fuel switching, and decreasing vehicle miles traveled. For energy reduction focus on decreasing consumption and alternative energies.

Procurement and Waste Reduction

Goal: All agencies are directed to develop and implement materials management, purchasing, and resource management policies that minimize the impact on public health, the environment and natural resources and reduce state government expenditures.

[8] The Climate Registry only reports on the calendar year. We were able to provide data on the calendar year for 2009, 2010, and 2011.

Greening of State Government is more than just reducing energy and water; it also involves environmental preferable purchasing policies, decreasing paper consumption, increasing recycling and reuse of materials, and the disposal of materials in an environmentally-responsible manner.

Environmentally Preferable Purchasing

DPA's State Purchasing Office (SPO) with the support of CEO, GGC, and CDPHE is responsible for developing and maintaining the Environmentally Preferable Purchasing Policy (EPP). The original version of the EPP policy was drafted in 2008 to comply with requirements set forth in Executive Orders. It also was tailored to incorporate elements of the Colorado Climate Action Plan and the Government Efficiency Management (GEM) Study.

Major strategies for "greening" state agency purchases include: source reduction (reducing waste); reduction of toxic elements, energy, emissions, and pollution; recycled content products; and energy and water saving products (e.g., the EPA ENERGY STAR® certification or similar). The policy also takes into consideration "life cycle costs" of the product (such as raw materials acquisition, production, manufacturing, packaging, distribution, reuse, operation, maintenance, disposal, energy efficiency, product performance, durability, safety, needs of the purchaser, and cost). By utilizing the "green" guidance and resources provided in the EPP Policy, agency decision makers and purchasers of goods and services are able to support their mission in a more environmentally responsible fashion.

Because of continued efforts by the GGC, and with the support of subsequent Executive Orders, the State of Colorado has been recognized as a leader in making progress towards more sustainable practices while providing critical services to its citizens.

Recycling and Waste

Goal: Agencies will achieve a waste diversion from landfills of 75% by 2020.

The State has not yet found an effective way to track current waste diversion in State Agencies, however many agencies have made great strides to reduce their consumption while increasing their recycling and composting activities.

Recycling in state offices is commonplace and very effective at reducing waste sent to landfills. Composting has also become more common in government agencies. In FY'12, state agencies reported a total of 215,513 tons of materials had been recycled and/or composted.[9] This number is not comprehensive as many agencies do not have the ability to track their recycling and composting tonnages. A summary of state agencies' recycling activities and individual totals is presented in Appendix D.

Agencies in leased spaces are often involved in recycling programs, but information regarding the quantities of recycled materials attributable to these efforts is typically unavailable because the collection processes do not provide a mechanism to distinguish generation volumes by individual building tenants.

The 44 LEED-New Construction certified buildings in Colorado had to follow LEED Certified construction debris requirements which greatly reduce the amount of waste created during construction.

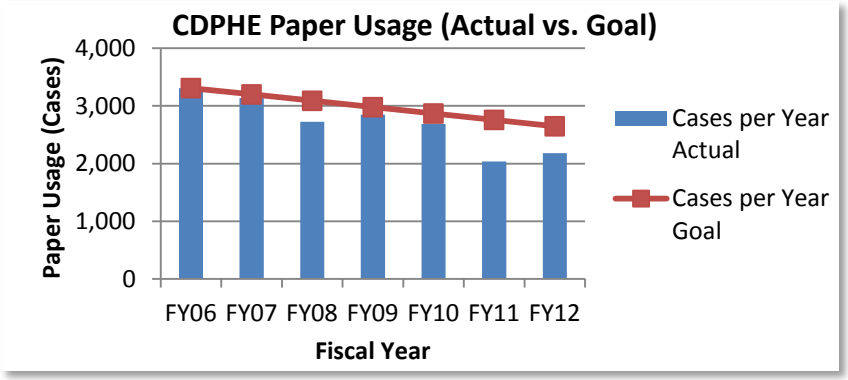
[9] Note that the majority (213,028 tons) of the tonnage comes from CDOT's Recycled Asphalt Pavement Program. See *Appendix A* for more information.

Paper

Goal: Agencies will achieve a paper use reduction goal of 20% by FY12 using FY06 baseline. Of the paper purchased 50% will contain at least 30% Post-Consumer Waste.

Tracking paper However, in FY12 the first statewide baseline was created that tracked total paper use and the recycled content of the paper purchased. In FY'12, the State purchased 2,034,600 lbs of paper, of which 44.7% contained at least 30% recycled content falling below the 50% requirement. Seven agencies and departments met the goal, while 12 purchased below the required amount [1].

The majority of State agencies have reduced their printing between FY06-FY12 through various means including employee education, double sided printing settings, and reduction in number of printers used. Many agencies have begun paperless initiatives by moving forms and work online, as seen in the States payroll system that has moved completely online eliminating the thousands of pay slips sent out monthly. Many agencies have used their cost savings from decreased paper use to cover the slightly higher costs of recycled paper. CDPHE tracked their paper use between FY06 and FY12 and through aggressive paper reduction strategies such as eliminating printers and requiring duplex printers CDPHE experienced a 34% (1,127 cases) decrease in paper use. In return, they were able to use their savings to switch to the slightly more expensive recycled paper.



Future Plans and/or Suggestions

- Update the EPP Policy.
- Research ways to train current and future procurement and purchasing officers on the EPP.
- Eliminate the ability to purchase non-recycled paper.
- Update states existing OIT and Correctional surplus electronics end of life policies which have not been updated over 10 years.
- Consider soliciting multi-regional awards that incorporate shared agency disposal services, recycling, hazardous materials and E-waste. This could prove beneficial in increasing recycling and composting while creating efficiencies, reducing costs, and promoting regional job creation opportunities.
- Look into strengthening our relationships and network with Multiple Assembly of Purchasing Officials, Colorado Educational Purchasing Association, Rocky Mountain Governmental Purchasing Association, and Responsible Purchasing Network.
- Explore ways to track waste diversion in state agencies.

Employee Engagement

Employee engagement has been a key factor in the success of the greening government initiative. To ensure participation, all State agencies have at least one member on the GGC; most have green teams that promote sustainability within the agency. Without this employee engagement, the impact of the GCC initiatives would be lessened.

A great success has been the State's agreement with Denver's Regional Transportation District (RTD) to increase ridership and participation in the district's Eco Pass program. Since 2009, the usage of the ecopasses has increased helping reduce traffic and GHG emissions. In 2012, approximately 3,925 employees participated.

➲ Project Highlight: Solar Benefits Colorado - An Employee Benefit Greening Program

In FY12, the State partnered with the City and County of Denver, and Colorado Federal employees on the Solar Benefits Colorado program which helped employees pool their buying power for significant discounts (~25%) on solar energy systems. This program was extremely successful as a result of the hard work of the GGC. Approximately 1,115 public employees (~50% State Employees) signed up for the program to determine if solar was a cost effective options for their house Of those 1,115 public employees, over 119 contracts were signed totaling more than 662 kW (332 kW were contracted to State Employees) of new solar capacity will be installed throughout the state. These projects will produce 18.3 million kW hours of electricity over the next 20-years, reducing 30.6 million pounds of carbon dioxide emissions. This is roughly equivalent to planting 62,000 trees or avoiding nearly 32.5 million vehicle miles of travel. In addition, it is estimated that the program contributed to almost $3 million in solar investments throughout the State.

Figure 3. First Installation from the Solar Benefits Program

Future Plans and/or Suggestions

- Restore the GGC Employee Engagement Advisory Group.
- Create a better way for agencies to communicate the implementation of successful employee engagement programs.
- Review agencies' progress with Executive Directors and GGC agency representative(s).
- Increase the visibility of the greening government initiatives through success stories, presentations, and conversations with the cabinet members.
- Include an overview of the GGC in all new employees orientation boo

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