

FOURTH BIENNIAL REPORT



OF THE

CLIMATE NEUTRAL WORKING GROUP



PRESENTED TO

GOVERNOR PETER SHUMLIN

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COMMONLY USED ACRONYMS AND ABBREVIATIONS

ANR	Vermont Agency of Natural Resources
AOT	Vermont Agency of Transportation (also VTrans)
BGS	Vermont Department of Buildings and General Services
CATMA	Campus Area Transportation Management Association
CCTA	Chittenden County Transit Authority
CNWG	Climate Neutral Working Group
CO ₂	Carbon Dioxide
DII	Vermont Department of Information and Innovation
DPS	Vermont Department of Public Service
FEMA	Federal Emergency Management Agency
GCCC	Governor's Commission on Climate Change
GHG	Greenhouse Gas
GMTA	Green Mountain Transit Agency
NASA	National Aeronautics and Space Administration
NEG ECP	Conference of the New England Governors and Eastern Canadian Premiers
NOAA	National Oceanic and Atmospheric Administration
RGGI	Regional Greenhouse Gas Initiative
SAEP	State Agency Energy Plan
SOV	Single Occupancy Vehicle (i.e., one person traveling in one vehicle)
SRMRF	State Resource Management Revolving Fund
UVM	University of Vermont
VCC	Vermont Climate Collaborative
VISION	Vermont Integrated System for Information and Organizational Needs
VTrans	Vermont Agency of Transportation (also AOT)

EXECUTIVE SUMMARY

In accordance with the directives outlined in Executive Order #14-03, this Fourth Biennial Report of the Climate Neutral Working Group (CNWG) provides an update regarding the state of the science of responding to climate change; efforts to meet the goals of the Executive Order; and future planned steps and their anticipated impacts, expected challenges, and opportunities. Also summarized within this report are a number of related ongoing efforts within state government that will facilitate an expanded and coordinated campaign to reduce greenhouse gas (GHG) emissions.

The following recommended actions for continued GHG emissions reductions are presented in this report to be considered for implementation during 2011 – 2012 by Vermont State Government. These recommendations are outlined in more detail in Chapter IV. The major recommendations of this report include:

RECOMMENDATION #1: Remain vigilant with regard to continued evaluation and implementation of energy efficiency improvements within state buildings.

RECOMMENDATION #2: Implement a teleworking program for Vermont state employees as a GHG emission-reduction, emergency-management, and cost-savings strategy

RECOMMENDATION #3: Vermont State Government should rely more heavily on the Department of Information and Innovation's (DII) iLinc service and other telephone and web-based conferencing services

RECOMMENDATION #4: Promote stronger synergy between the Climate Neutral Working Group (CNWG), the State Agency Energy Plan (SAEP), and individual Agency Energy Implementation Plans (AEIP)

RECOMMENDATION #5: Collaborate with VTrans, CCTA, GMTA, CATMA and other transit providers to improve and expand bus / shuttle routes

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CHAPTER I: INTRODUCTION

Our planet continues to get warmer as concentrations of carbon dioxide (CO₂) and other greenhouse gases (GHG) steadily increase in the atmosphere (see Figure 1).¹ These GHGs capture enough of the Sun's heat that the Earth continues to warm despite the fact that solar activity is currently at a deep minimum.²

Numerous lines of scientific evidence show us that emissions from human activities around the globe are fundamentally responsible for this rise in atmospheric CO₂ levels. More and more fossil fuels are combusted each year to generate electricity, move our vehicles, heat our buildings, etc, thereby adding millions more tons of emissions to the atmosphere (see Figure 2).³

According to the National Aeronautics and Space Administration (NASA), global average temperatures measured during 2009 show that it "was only a fraction of a degree cooler than 2005, the warmest year on record, and tied with a cluster of other years — 1998, 2002, 2003, 2006 and 2007 — as the second warmest year since recordkeeping began".⁴ In addition, both NASA and the National Oceanic and Atmospheric Administration (NOAA) recently released sobering analyses that global average temperatures measured during 2010 rank it as tied with 2005 for the hottest year ever recorded.⁵ Data from the Global Historical Climatology Network show that 2010 was also the wettest year on record.

News headlines from around the globe have been documenting increases in extreme weather events that scientists tell us are

Figure 1. Atmospheric CO₂ at Mauna Loa Observatory (1959-2010)

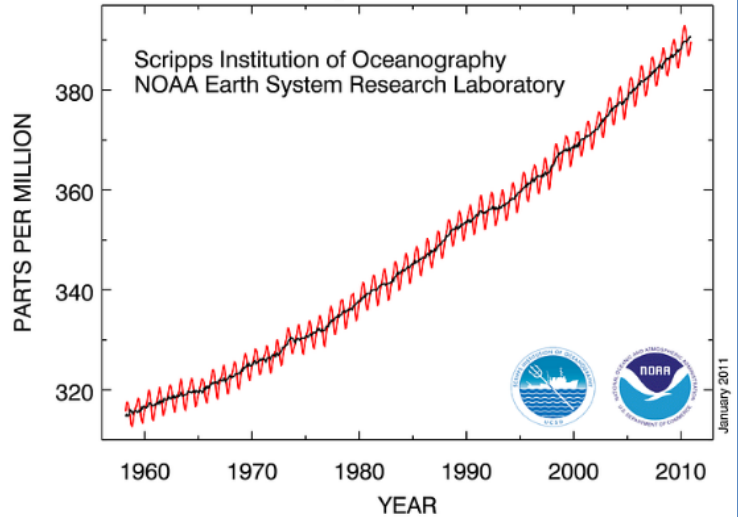
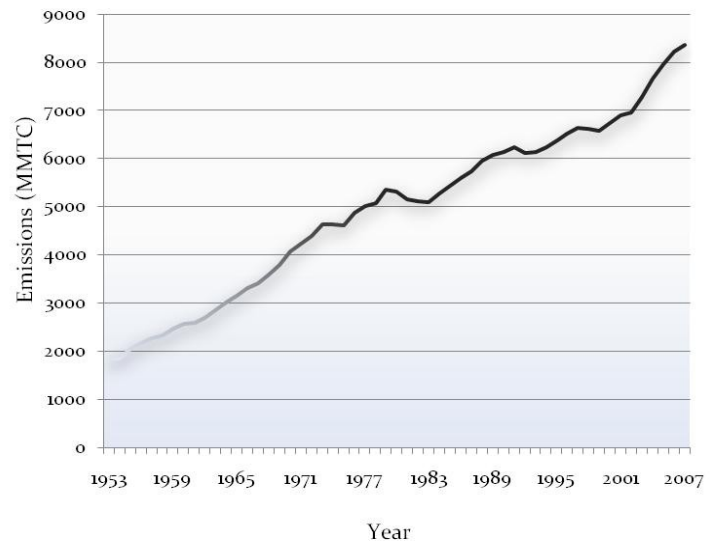


Figure 2. Total carbon emissions from global fossil fuel combustion (million metric tons C)



¹ Source: http://www.esrl.noaa.gov/gmd/ccgg/trends/#mlo_full

² See: http://science.nasa.gov/science-news/science-at-nasa/2009/01apr_deepsolarminimum/

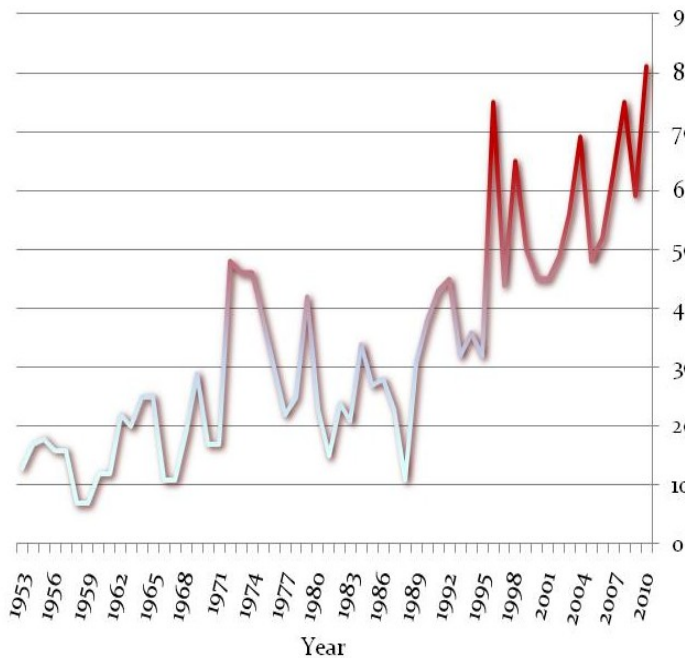
³ Data source: <http://cdiac.ornl.gov/trends/emis/glo.html>

⁴ See: <http://www.giss.nasa.gov/research/news/20100121/>

⁵ See: <http://www.ncdc.noaa.gov/sotc/global/2010/13>

likely symptoms of our rapidly changing climate. Intense precipitation events are expected to become far more common as the warmer atmosphere now contains about 4% more moisture than it did even 30 years ago. Places all around the globe, including the United States, experienced record-smashing weather extremes. This is reflected in data from the Federal Emergency Management Agency (FEMA), which show a marked increase in the number of “disaster declarations” in recent years (see Figure 3).⁶

Figure 3. Number of Declared Disasters in the United States by Year (1953-2010)



Even greater extremes were experienced very recently beyond the borders of the U.S. For example, some regions in Australia received more than 4 feet of rainfall in a three month period, and floodwaters covered an area more than 36 times larger than the entire state of Vermont! This past year also had the most national extreme heat records broken (nineteen) during a single year (including 128.3°F in Pakistan, 113.7°F in Russia, 99°F in Finland)... while no nations set a record for their coldest temperature in history during 2010.

Although, thankfully, Vermont has been spared the worst of such extremes and disasters; it is by no means immune. As

our planet warms, Vermont’s odds of experiencing weather extremes are likely to increase. This makes it even more essential for all Vermont state government agencies to work as a team to expedite policies and actions that reduce greenhouse gas (GHG) emissions, provide outreach to Vermonters about real risks and effective solutions, and work to protect both our natural and built environments from the adverse effects of a changing climate.

The chapters that follow outline the progress made by Vermont state government in addressing carbon dioxide (CO₂) emissions from its own buildings and operations, as well as recommended actions to further reduce emissions. The importance of effective and timely action to reduce GHG emissions at all levels, from state government to statewide, has never been clearer.

⁶ Data source: Federal Emergency Management Agency (FEMA)- <http://www.fema.gov/news/disasters.fema>



CHAPTER II: PROGRESS TOWARD GREENHOUSE GAS EMISSION REDUCTION GOALS

Executive Order No. 14-03 directs “state government agencies and departments to reduce greenhouse gas emissions from state government buildings and operations. Vermont's goal is to reduce emissions by an amount consistent with the recommendations of The Conference of the New England Governors and Eastern Canadian Premiers (NEG ECP) Climate Change Action Plan⁷. The goals established by the Conference are to reduce region-wide greenhouse gas emissions from the 1990 baseline by: twenty-five percent by 2012; fifty percent by 2028; and, if practicable using reasonable efforts, seventy-five percent by 2050.”

This chapter presents a summary of ongoing or recently completed actions by Vermont State Government to reduce GHG emissions and energy consumption. Section II a, provides an update regarding the status of various “*Recommendations and Next Steps*” from previous Biennial Reports. Section II b outlines Vermont State Government’s current and historical CO₂ emissions; and defines the emissions trend required to attain the 2012 and 2028 emissions reduction goals.

Section II a: Update on “*Recommendations and Next Steps*” from previous Biennial Reports

CNWG Biennial Report Recommendations that are Underway or Completed⁸

- ④ *Initiate widespread “Benchmarking” of buildings owned and operated by the State of Vermont, so that those with sub-optimal performance can be identified and given priority for performance upgrades.*
 - Status: Benchmarking and/or recommendations for specific performance upgrades have been completed on all District Courthouses, Correctional Facilities, Capital Complex and Waterbury State Office Complex. Sub-meters have been installed for electrical and condensate tracking at the Montpelier and Waterbury Complexes with software installed to make the data more accurate.

- ④ *Identify and implement resource conservation measures that are compatible with the goals of the newly created State Resource Management Revolving Fund (SRMRF).*
 - Status: The cap on the fund was recently increased. Ten projects have been completed with SRMRF and three are completely re-paid.

⁷ NEG ECP Climate Change Action Plan available at <http://www.negc.org/documents/NEG-ECP%20CCAP.PDF>

⁸ Also see Section II a of the Third Biennial Report of the CNWG available at:

http://www.anr.state.vt.us/air/Planning/docs/CNWG%203rd%20Biennial%20Report_July%202009%20Final.pdf

- ④ *Work with information technology (IT) personnel to install automatic power management software on each computer or set up so that control is at the network level.*
 - Status: Dept of Information and Innovation staff are reviewing the pilot program. All BGS computers are now operating under the power management software.
- ④ *Utilize Building Energy Performance Contracts wherever deemed appropriate.*
 - Status: BGS is done the construction portion of energy-efficiency improvements to state-owned buildings in Waterbury, Montpelier, and Middlesex with the savings over 10 years expected to pay for the cost of the 10-year-loan.
- ④ *Increase the use of video and online conferencing to reduce vehicle trips and vehicle miles traveled (VMT).*
 - Status: The Vermont Department of Information and Innovation continues to support and improve an interactive conference call / webinar service known as iLinc, (see http://dii.vermont.gov/DII_Divisions/Customer/Wireless_Web/webconferencing)
- ④ *Facilitate, coordinate and promote carpooling and vanpooling.*
 - Status: Vermont State Government continues to enhance outreach and utilization of VTrans' GoVermont program (see <http://www.connectingcommuters.org/>)

Section II b: Examples of Ongoing Actions

Infrastructure: Electricity Consumption⁹

- Implementation of recommendations from performance contract in Waterbury, Montpelier and Middlesex Complex.
- Continuous work on upgrading equipment with the use of the State Resource Management Revolving Fund (SRMRF) and Efficiency Vermont.
- DII is eliminating unnecessary office equipment. This is designed to maximize efficiency and improve energy savings – equipment will be used in areas of need or used as backup.
- Upgrading all cathode ray tube (CRT) monitors to flat screen monitors at end of life.
- Replacing lighting in state house as technology develops compatible lamps.

Transportation: Official State Business (Vehicles for Passenger and Non-Passenger Transport)

- The average fuel economy of the BGS fleet is now 34.5 miles per gallon (mpg).

Transportation: Employee Commuting¹⁰

The 2nd and 3rd CNWG Biennial Report outlined the ongoing Unlimited Access (UA) program at the University of Vermont (UVM) provided by The Campus Area Transportation Management Association (CATMA) and the Chittenden County Transit Authority (CCTA). Below are the updated ridership numbers for UVM and Champlain College showing the consistent growth in participation:

⁹ Source: BGS

¹⁰ Courtesy of S. Thibault - CATMA

UVM Unlimited Access

- FY/07 (July 1, 2006 - June 30, 2007): 203,465 trips (includes Local and LINK routes)
- FY/08 (July 1, 2007 - June 30, 2008): 238,311 trips (includes local and LINK routes)
- FY/09 (July 1, 2008 - June 30, 2009): 287,467 trips (includes Local & LINK routes)
- FY/10 (July 1, 2009 - June 30, 2010): 321,852 trips (includes local & LINK routes)

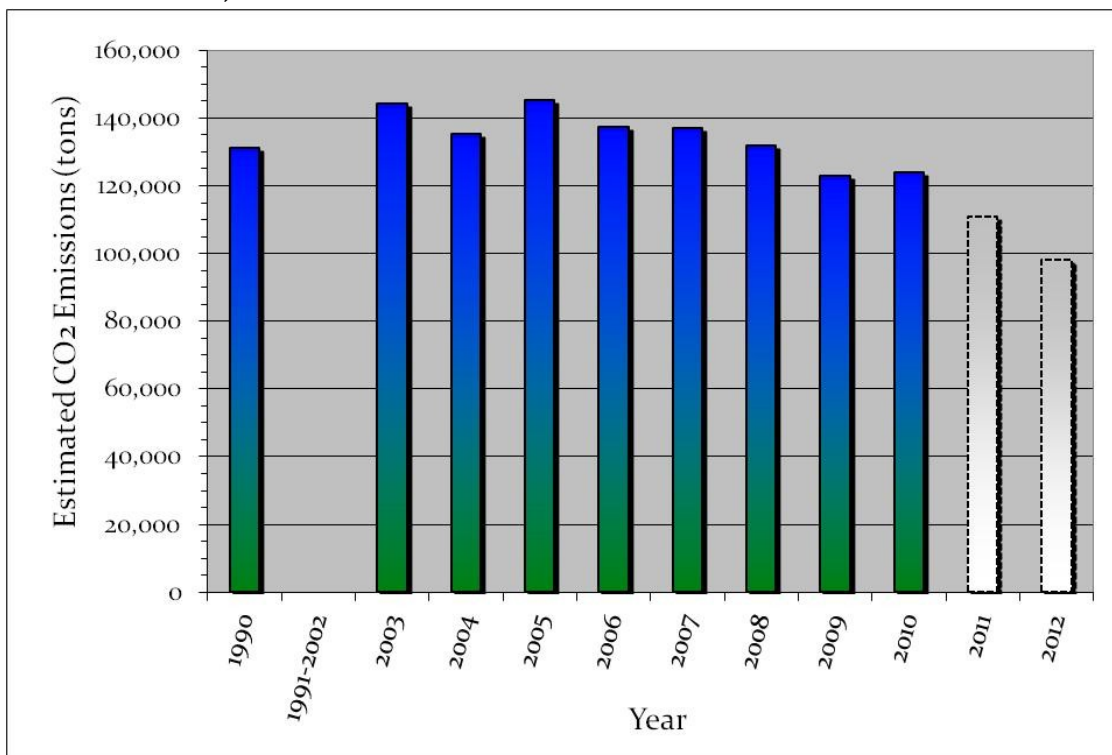
Champlain College Unlimited Access

- FY/07 (July 1, 2006 - June 30, 2007): 16,563 trips (includes Local and LINK routes)
- FY/08 (July 1, 2007 - June 30, 2008): 26,766 trips (includes local and LINK routes)
- FY/09 (July 1, 2008 - June 30, 2009): 32,332 trips (includes Local & LINK routes)
- FY/10 (July 1, 2009 - June 30, 2010): 36,604 trips (includes local & LINK routes)

Section II c: CO₂ Emissions Summary

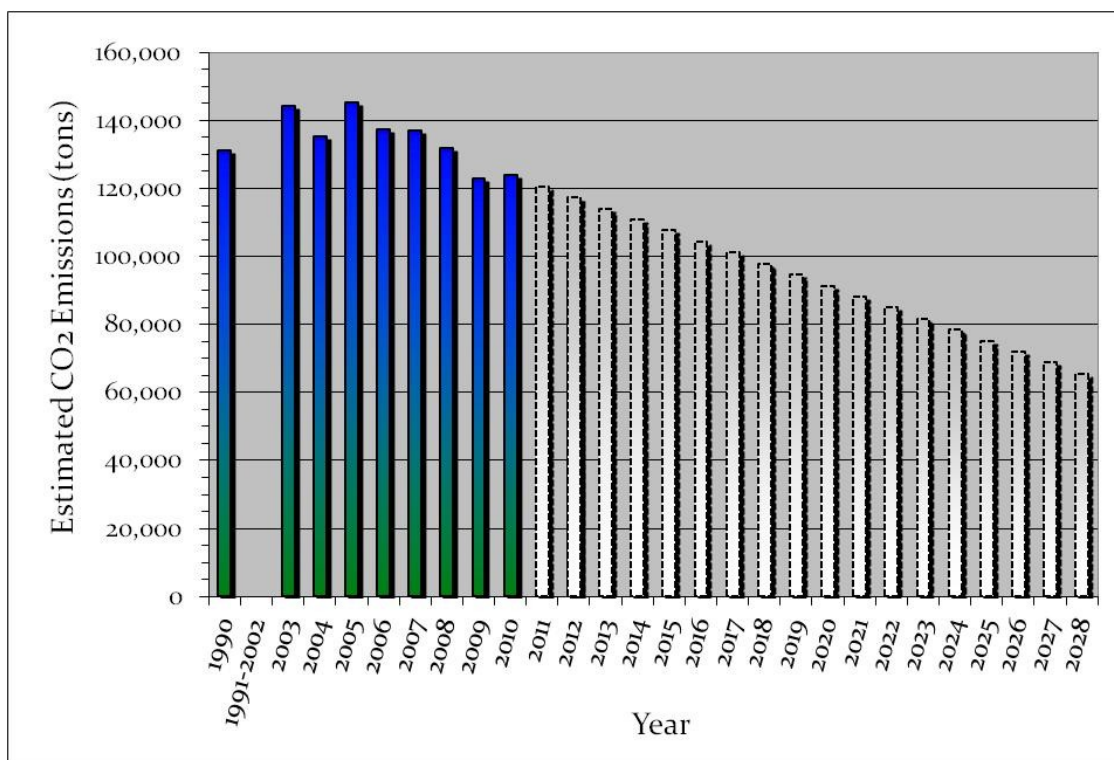
First, the not-so-good news... Vermont State Government would need to continue to reduce its annual CO₂ emissions by approximately 12,800 tons during both 2011 and 2012 to meet the short-term goal, set by Executive Order #14-03, of reducing GHG emissions 25% below 1990 levels by 2012. It appears unlikely that Vermont State Government will be able to make these steep reductions in such a short timeframe. Figure 4 shows estimated historical CO₂ emissions (colored bars) and identifies the future annual emissions levels necessary to achieve the short-term goal (gray bars).

Figure 4. Summary of Vermont State Government CO₂ Historical Emissions (1990 & 2003 through 2010) and Projected Emissions to 2012



The first three CNWG biennial reports outlined a considerable menu of recommendations that have not yet been implemented. Implementation of more of these strategies (along with development of innovative new strategies) will be absolutely necessary to meet the mid-term goal set by Executive Order #14-03 (50% below 1990 levels by 2028). The GHG emissions reductions necessary (approximately 3,200 tons per year) to meet the 2028 goal are shown in Figure 5.

Figure 5. Summary of Vermont State Government CO₂ Historical Emissions (1990 & 2003 to 2010) and Projected Emissions to 2028



There is a potential silver lining to this dark cloud. The 2028 goal may be an entirely achievable one given that historical emissions (colored bars) shown in Figures 4 & 5 have exhibited an overall declining trend since 2003. In fact, between 2003 and 2010, the *average* change from one year to the next was equivalent to achieving an annual CO₂ emissions reduction of about 2,900 tons. Annual emissions reductions of this magnitude are indeed challenging, and have resulted from numerous efficiency improvements to state buildings and operations.¹¹ However, the *average* annual emissions reduction achieved during the past 7 years (2,900 tons per year) is approximately equal to the annual emissions reductions that will be required through 2028 (3,200 tons per year). Vermont State Government must continue to be committed to making challenging, but entirely realistic, emissions reductions in the years to come.

¹¹ Some of these important improvements can be seen in the “Case Study Appendices” presented in this and previous CNWG Biennial Reports, as well as in Section III-d of this report.



CHAPTER III: UPDATE ON RELATED GREENHOUSE GAS EMISSION REDUCTION EFFORTS

Section III-a: Regional Greenhouse Gas Initiative (RGGI)

Regional Greenhouse Gas Initiative

an initiative of the Northeast and Mid-Atlantic States of the U.S.

The Regional Greenhouse Gas Initiative (RGGI) is the regional cap and trade program that has been developed to limit carbon dioxide emissions from fossil fuel-fired electricity generators. Complete details about RGGI can be found at <http://www.rggi.org/home>; however, a summary of the highlights that occurred during 2009-2010 is provided below.

- ① A total of ten RGGI “CO₂ Allowance” Auctions have been held since September 2008.
- ① These ten auctions have resulted in cumulative proceeds of \$777.5 million for the ten RGGI states. Vermont’s share of the proceeds amounts to over \$5.7 million.
- ① Title 30 V.S.A. § 203a directs proceeds from Vermont’s sale of RGGI allowances to programs that support whole building heating and process energy efficiency and facilitate appropriate fuel switching. Half of these programs are tailored to benefit low-income residential consumers. A few examples of the programs being funded with Vermont’s RGGI proceeds include:
 - The Vermont Community Energy Mobilization Project, a volunteer-based program to install simple, cost-effective energy-saving measures in homes across the state. Through 2010, more than 500 volunteers visited approximately 1,100 homes in Bennington, Brattleboro, Shelburne, Charlotte, Underhill, and 14 towns in Rutland County. To date the measures have saved an estimated 590,000 kilowatt-hours of electricity and 1,750 MMBTU of heating energy.
 - Vermont has also invested RGGI proceeds to provide improved incentives for comprehensive residential retrofits through Efficiency Vermont’s Home Performance with ENERGY STAR service. Funds have enabled Efficiency Vermont to provide improved incentives of up to \$2,500 for comprehensive retrofits that address both electric and non-electric energy efficiency needs.
 - In addition, in 2009, Vermont invested RGGI proceeds to provide improved incentives for energy efficiency retrofits to lower and middle-income families

Section III-b: Vermont Climate Collaborative (VCC)



During 2010, the **Vermont Climate Collaborative (VCC)** effort resulted in the creation of working groups organized around the four thematic areas of the Governor's Commission on Climate Change (GCCC) report.¹² These working groups are outlined briefly below. Meeting notes for the VCC and working group meetings held during 2010 can be viewed on the VCC website.¹³

Energy Supply and Demand (ESD) –The group intends to explore the possibility of utilizing the University of Vermont Complex Systems Spire of Excellence to pursue research opportunities regarding Vermont's Energy Supply and Demand.

Transportation and Land Use (TLU) –The focus of this group has been on transportation issues. At the September meeting the group announced a multi-year research project to be funded by VTrans and performed by the UVM Transportation Research Center to research idling behavior.

Agriculture Forestry and Waste (AFW) –This group has been focusing on updating the matrix of GCCC activities in the AFW area to make that information current, and then utilizing those tables to prioritize activities.

Cross Cutting (CC) Issues (Adaptation, Education and Outreach) - The focus of this group has been development of a series of adaptation "white papers" covering agriculture, health, transportation, water quality, forest health, recreation, etc. This activity is intended as the first step in development of a state-level climate change vulnerability assessment and adaptation plan. The series of papers is scheduled to be completed in early 2011.

Section III-c: Agency of Natural Resources Climate Change Team

The end of 2010 marked the end of the second full year since this team was created. The current ten person team is composed of existing staff from the Department of Environmental Conservation (DEC) Air Division, DEC Waste Management Division, DEC Water Quality Division, and the Department of Forests, Parks and Recreation. The Climate Change team meets regularly to begin to identify climate-related concerns, develop solutions, and implement steps to help mitigate impacts and incorporate adaptation strategies where necessary to benefit people and the environment in Vermont, our region and the world. Some examples of recent team efforts include:



¹² The GCCC materials are available at: <http://www.anr.state.vt.us/anr/climatechange/Library.html>

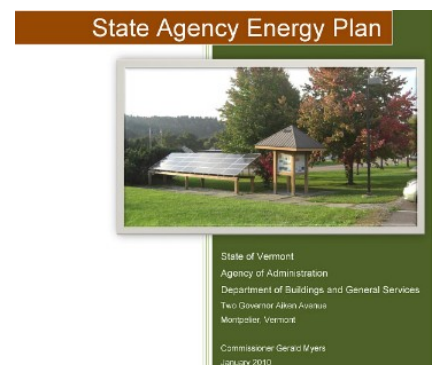
¹³ See <http://www.uvm.edu/~vtcc/?Page=meetings.html&SM=technicalsubmenu.html>

- ④ Plays an administrative role to the Vermont Climate Collaborative;
- ④ Created and administered the Vermont Community Climate Change Grant Program which provided competitive funding for 45 energy efficiency / renewable energy projects statewide, and resulted in avoided annual CO₂ emissions of more than 500 tons;
- ④ Continued participation in the development of a framework for a regional low carbon transportation and heating fuel standard, as agreed to in the December 2009 Memorandum of Understanding signed by the Governors of the eleven participating states;
- ④ Produced an updated “*Vermont Greenhouse Gas Emissions Inventory Update 1990-2008*” report to evaluate Vermont’s progress towards meeting the statewide GHG emissions reduction goals;
- ④ Developed hands-on climate change outreach materials and conducted an educational workshop for school students at the annual *Science on the Green* event held at the Waterbury State Office Complex during September 2010;
- ④ Participating in a Vermont Agency of Transportation (VTrans)-led effort to improve the State’s ability to utilize existing data, collect new data where feasible, and more accurately evaluate GHG emissions related to specific transportation modes and policies;
- ④ Participated in numerous steering committee meetings and one U.S. Department of Agriculture (USDA) event focused on agricultural energy issues, as part of the Vermont 25 x ’25 effort;
- ④ Working to collect Vermont-specific long-term climate change indicator data such as freeze-up and ice-out dates for Vermont lakes and ponds;
- ④ Co-sponsor and participant in the Third Annual Vermont Energy and Climate Action Network (VECAN) conference.

Further details about the Climate Change Team and its efforts can be found at the newly launched (October 2010) website: <http://www.anr.state.vt.us/anr/climatechange/>

Section III-d: Vermont State Agency Energy Plan for State Government (SAEP)¹⁴

The State Agency Energy Plan was re-adopted in January 2010 by the Department of Buildings and General Services (BGS). Legislation requires that the plan be evaluated every six years to ensure that the objectives of saving energy, promoting resource conservation, and reducing pollution are met through the institution of environmentally and economically sound practices. Examples of key activities undertaken through individual Agency Energy Implementation Plans since 2009 include:



- ④ The Agency of Commerce and Community Development (ACCD) Historic Preservation and BGS were recognized in 2010 for the design and construction of the Calvin Coolidge Museum and Education Center by receiving the Advanced Buildings Core Performance® designation by the New

¹⁴ The complete SAEP is available at: <http://bgs.vermont.gov/sites/bgs/files/pdfs/BGS-VTStateEnergyPlan.pdf>

Buildings Institute. The design team worked hard to create a space with passive lighting and heating where possible while insulating the envelope efficiently to prevent thermal bridging. The heating and cooling system is a high efficient air to air heat pump system with an on demand hot water boiler as a backup system during peaking heating. Efficient window, doors and lighting (with controls) completes the design that earned this designation.

- ④ The Department of Public Safety - Fleet Services started using a device called Battery Brain to disconnect the battery from the vehicle if the battery voltage drops too low while the vehicle is not running to prevent draining the battery. This device has saved many batteries from being replaced prematurely.
- ④ The Agency of Agriculture, Food and Markets (AAFM) has shifted from use of personal vehicles with mileage reimbursement to required use of fleet or rental vehicles for employees, and is making every effort to “right-size” the vehicles to minimize fuel consumption. The use of conference calling and internet based meeting has been encouraged to further reduce transportation costs. AAFM has purchased energy efficient appliances, such as computers and refrigerators for the laboratory.
- ④ The Departments of Corrections (DOC), Judiciary and BGS are making efficiency improvements in Newport, St. Johnsbury, Springfield, Windsor, White River Junction, St. Albans, Middlebury, Waterbury, and Bennington as part of two different grants awarded as part of the American Recovery and Reinvestment Act (ARRA) stimulus funding provided by the federal government through the Clean Energy Development Fund. The projects were the remaining recommendations compiled as part of a “ReBuild America” grant that the Department of Public Service administered to fund energy audits in various facilities owned by BGS.
- ④ The Agency of Transportation (AOT) and BGS are working on architectural planning studies to address many aspects of 120 State Street, the headquarters of the Department of Motor Vehicles (DMV). Some of the energy related projects being considered include: energy improvements to the heating, ventilating, and air conditioning (HVAC) and other mechanical systems, a new hot water radiant heating system, determining lighting needs and energy efficient fixtures, and a review of the south face awning system and the installation of solar collectors to replace the energy demand of replacing the awnings with air conditioning.
- ④ AOT converted all of the state’s traffic signals to light emitting diode (LED) bulbs in 2009. AOT is working with Efficiency Vermont to evaluate all of the state airports' hanger and terminal buildings and have a two-year plan underway to replace all non-energy efficient lighting. AOT manages 38 commercially powered incandescent hazard beacons statewide, all with high maintenance demands. Solar powered LED replacements have been designed and approved by the FAA and an FAA 95% funded project is underway. The design phase is occurring in FY10/11. In FY12, 12 of the 38 beacons will be replaced with LED and solar powered equipment in the Hartness (Springfield airport) area. In FY13, 8 beacons will be replaced in Rutland and the remaining, located statewide, will be complete by the end of FY13. Savings to AOT is estimated to be \$300,000 per year, an average figure derived from utility and maintenance costs.
- ④ Vermont Veterans' Home and BGS have installed a geothermal heating and cooling system at the Vermont Veterans' Home. BGS is currently working to install a geothermal system for the Bennington District Court and State Office Building.
- ④ Vermont Veterans' Home upgraded lighting systems and added timers and sensors. Converted all fluorescent tube fixtures from T12 to T8 lighting fixtures, replaced all incandescent bulbs with

compact fluorescent lamps (CFL), and installed night light timers in wings and photocells on exterior lighting.

- ④ The Military Department supporting the Army National Guard used ARRA stimulus funding at Camp Johnson in Colchester and the Ethan Allen Firing Range in Jericho. The improvements include upgrading refrigeration systems, installation of energy recovery, installation of monitoring and controls, upgrading to a high efficient boiler, insulation to improve the envelope, windows, drives and the addition of a wood boiler.
- ④ The Department of Public Safety and BGS completed the new Forensic Lab building in the Waterbury State Office Complex which houses state of the art technology within the energy efficient and well-insulated building. The original location of the Forensic Lab is being renovated to be more energy efficient and improved staff comfort.
- ④ The Vermont State Police now have copiers that have a scanning feature that allows members to scan documents so they can be shared by email with the District Attorney's office instead of mailing the paper documents or hand-delivering them by car.
- ④ The Agency of Natural Resources (ANR) is working at the fish hatcheries to reduce energy costs. Operational initiatives have been put in place to address scheduled maintenance, efficiencies and fuel service. Regular scheduled maintenance ensures optimum performance to reduce fuel costs. The hatcheries upgraded the lighting. The vaporizers were eliminated from the propane lines and the process was altered to achieve electrical savings. To reduce facility fleet fuel costs, onsite vehicle fuel tanks were installed. By reducing the main pump speed, filtration and disinfection (due to decreased temperatures and metabolic activity of the fish), the hatcheries use less water and electricity.
- ④ ANR is utilizing blade-server technology and decommissioning standalone server hardware to reduce energy consumption and cooling demands on the server room. The agency is also implementing server virtualization which will further decrease the server demands.
- ④ BGS, with the State Resource Management Revolving Fund (SRMRF) for funding, installed variable frequency drives (VFD) in the Williston northbound and southbound information centers to increase efficiency.
- ④ BGS, with the SRMRF for funding, added occupancy sensors to the Newport State Office Building for increased efficiency and control.
- ④ DOC and BGS, with the SRMRF for funding, improve efficiency at the Northern State Correctional Facility and the Southern State Correctional Facility by upgrading various lighting, refrigeration, VFD and motors.
- ④ The ACCD upgraded and repaired the lighting in the Bennington Battle Monument providing better lighting, a safer electrical system, and energy savings. The heating system was also replaced with a more efficient, ENERGY STAR® system.
- ④ The Department of Public Safety has been purchasing cars with four cylinder engines and improved fuel economy to reduce the fuel usage and their carbon footprint.

- ④ AOT has reduced vehicle idling through policy requirements, information, education and automatic vehicle controls. AOT is requiring the use of the right size vehicle for the job. Fuel efficiency is a consideration in vehicle specification and assignment. Fuel costs are allocated to the users thus encouraging them to select the most efficient vehicles.
- ④ AOT is in the process of modernizing their fleet, thus ensuring more efficient and cleaner burning equipment. The majority of the AOT vehicles and equipment are within their cost-effective service. Stable funding remains a challenge. AOT is maintaining the fleet in good mechanical condition. With very few exceptions, the agency's fleet operates in good mechanical condition and as efficiently as designed. Training and equipment are being kept current.
- ④ AOT continues to increase teleconference and video conference use including the creation of web based or other types of affordable video conferencing for Agency use. The agency provides employees with headset, speaker phones and other equipment necessary as well as training to facilitate conference calls, webinars and other virtual meetings and information sharing. AOT is working on the coordination of ridesharing within sections and between divisions when attending site visits and other meetings.
- ④ ANR Department of Forests, Parks and Recreation installed a 1200 watt photovoltaic system at the Green River Reservoir (a popular remote State Park) preventing the need to connect to the electrical grid. This system will power the park office. The system is designed for expansion in the future. By adding the system, the park was able to eliminate the need for a second remote park office. The poles used on this project were recycled (and sound) utility poles.
- ④ ANR Department of Forests, Parks and Recreation constructed three new campground restroom/shower facilities with efficient lighting, occupancy sensors and thermal solar hot water heating systems. Solar hot water systems are also being installed on existing facilities.



CHAPTER IV: RECOMMENDATIONS AND NEXT STEPS

The data shown in Chapter II paint a clear picture that Vermont state government has made good progress in reducing its GHG emissions. However, it is equally clear that reaching the short-term 2012 goal is unlikely; and that the path to achieving the 2028 goal must be based on innovative and highly-effective strategies. The list of recommendations presented below is deliberately brief to provide a concentrated focus where currently limited resources may be used effectively during the course of the next 2 years. If additional resources become available, the recommendation list should be expanded to include the numerous other key recommendations presented in the three previous biennial reports that the CNWG continues to endorse. Likewise it is hoped that, through ongoing interagency collaborations, it will be possible to develop and implement innovative strategies not yet envisioned by the CNWG.

RECOMMENDATION #1: Remain vigilant with regard to continued evaluation and implementation of energy efficiency improvements within state buildings.

As stated in the Third Biennial Report of the CNWG: *“This should include the use of pilot programs, case studies, and ongoing data collection including benchmarking energy consumption in all state buildings. Substantial reductions in cost, energy consumption and GHG emissions would likely result from a comprehensive “re-lamping” plan for all state buildings...”*

Next Steps:

1. The CNWG needs to collaborate with BGS and staff involved with the SAEP and Agency Energy Implementation Plans to continue to look for efficiency opportunities not already identified, while actively implementing those known to be feasible. The opportunities for improvement are many given the aged infrastructure. This effort will benefit from the recent effort to “benchmark” BGS buildings, and install more sub-meters.

RECOMMENDATION #2: Implement a teleworking program for Vermont state employees as a GHG emission-reduction, emergency-management, and cost-savings strategy

Teleworking (a.k.a. telecommuting) has been included as a recommendation of the CNWG since the First Biennial Report was issued in 2005. To date it has not been pursued as an official State policy. Admittedly, potential difficulties may exist related to implementation of such a program, but they can be overcome. Vermont state government can benefit from the knowledge of numerous other state governments (and the Federal government) that have developed and gained experience with their own innovative programs and policies in recent years. Also not to be overlooked is the long list of significant benefits that teleworking provides which include:

- ④ Environmental benefits (including GHG and other air pollutant emissions reductions);
- ④ Potential for reduced demand for office space and reduced facility operating costs;

- ④ State government would have enhanced “Continuity of Operations” (COOP) in the event of an emergency (e.g., influenza outbreak, act of terrorism, etc.) or natural disaster (e.g., flooding, ice-storm, etc. which may become more prevalent as a result of climate change) with workers located at decentralized work sites;
- ④ Financial savings for the state government and employees alike, along with enhanced worker productivity and morale;
- ④ Allows for optimized use of technologies such as high-speed internet and cellular service.

A teleworking program can be tailored to Vermont by relying on the experience of those government agencies in other states that have implemented programs. Some examples of states having government agencies with official teleworking policies/programs include: Connecticut, California, Arizona, Utah, Virginia, Georgia and various federal government agencies. Looking in a little more detail at two very recently developed programs provides an introduction to the wealth of teleworking program resources that are now available:

- ④ Connecticut
 - Passed Public Act No. 10-169 – An Act Concerning Telecommuting Options for State Employees in July 2010 (<http://www.cga.ct.gov/2010/ACT/PA/2010PA-00169-RooHB-05202-PA.htm>)
 - The CT Department of Transportation provides a comprehensive web-based service called “Telecommute Connecticut” that helps employers design, implement, and maintain a telecommuting program. This service is intended for CT employers, but the resources available on the website would be extremely useful tools in designing a telecommuting program that would work for Vermont state government. Available resources include, cost/benefit analysis tools, training manuals, case studies, etc.
- ④ California
 - The California Department of General Services recently released new model Telework Program Policy and Procedures guidance documents (January 2010). (<http://www.dgs.ca.gov/dgs/ProgramsServices/telework.aspx>)
 - The State Chief Information Officer released a new teleworking policy letter for all state agencies in March 2010 (<http://www.sonicwall.com/us/12676.html>)

Below is a simple preliminary analysis of a few benefits that would be created if a telework program was instituted for Vermont State Government¹⁵:

- ④ There are approximately 7,700 state employees. **If 10% of these employees teleworked 2 days each week for an entire year**, it would result in many benefits, including the following:

¹⁵ This is based on various assumptions including: State employee average vehicle fuel economy = 20mpg; Average round-trip commute = 33 miles; Price of gasoline = \$3 per gallon

Reduction of more than 2.6 million vehicle miles traveled (VMT) ...
reducing traffic volume and 'wear & tear' on the built infrastructure

Avoided CO₂ emissions of 1,300 tons

Reduced fuel consumption of approximately 133,000 gallons ...
(saving each teleworker roughly \$515 per year)

If the teleworking program participation was even larger, and roughly one third of all employees were teleworking 3 days per week, these highlighted annual benefits would be roughly **5 times greater** than shown in this analysis.

Next Steps:

1. Vermont State Government should make a firm commitment to developing and instituting a teleworking program for state employees by February 2012.
2. To that end, an interagency task force (including members of the CNWG) should be assigned to research the existing successful state and federal teleworking programs and provide a draft proposal for implementing an effective program for Vermont state government. The draft proposal should be delivered to the CNWG Co-chairs by no later than July 2011 for their review and revisions.
3. Subject to final approval of the proposal by the CNWG Co-chairs and the Governor, the CNWG Co-chairs shall work with other Agency Secretaries and Department Commissioners to identify and enlist other state government staff experts whose involvement will be essential to implement the program successfully by 2012.

RECOMMENDATION #3: Vermont State Government should rely more heavily on the Department of Information and Innovation's (DII) iLinc service and other telephone and web-based conferencing services

Case studies from other states using the iLinc service indicate that there are tremendous savings to be realized. For example, the State of Arizona estimated in 2008:

- "With 14 state agencies using iLinc so far, here's just one year of total savings:
 - 2.5 million pounds of CO₂
 - 126,000 gallons of gasoline
 - 180 cars taken off the road
 - \$3.2 million saved in travel-related costs"

Next Steps:

1. The CNWG should collaborate with DII to better publicize the available conferencing services to all agencies. The CNWG also should work with the Department of Human Resources to make relevant training opportunities available to state employees through venues such as The Summit Center for State Employee Development.¹⁶
2. All Vermont State Government Agencies should actively promote use of iLinc service and other remote conferencing services in lieu of travel whenever feasible. In addition, all state agencies should investigate successful applications of iLinc (e.g., The State of Arizona) and develop consistent policy and guidelines as to its use.
3. The CNWG should work with DII to develop a simple tool that can assess actual usage of iLinc (number of employees, miles of travel avoided, etc.) and estimate the associated energy and CO₂ emissions reductions.

RECOMMENDATION #4: Promote stronger synergy between the Climate Neutral Working Group (CNWG), the State Agency Energy Plan (SAEP), and individual Agency Energy Implementation Plans (AEIP)

These parallel efforts essentially focus on reducing energy consumption from state government buildings and operations. The consumption of energy in the form of heating fuels, transportation fuels, and electricity is the primary source of GHG emissions for Vermont state government. In accordance with state statute¹⁷, the SAEP¹⁸ was revised and readopted in January 2010 and includes (among other) requirements to “...conserve resources, save energy, and reduce pollution” and “...devise a strategy to reduce greenhouse gas emissions”. In addition, the state statute that created the SAEP process requires that “each state agency shall adopt an implementation plan on or before August 31, 2010 to ensure compliance with the state agency energy plan. Each agency shall readopt and file its implementation plan biennially with the commissioner...” This Agency Energy Implementation Plan (AEIP) biennial planning process has the potential to dovetail more effectively with the efforts of the CNWG.

Measuring progress made towards reducing energy use and / or GHG emissions is done largely through analysis of data available in the *Vermont Integrated System for Information and Organizational Needs* (VISION). Currently, total expenditures logged in the VISION system are separated into the individual energy and / or fuel types. However, actual “cost per unit of energy” currently is not tracked by VISION. As a result, VISION enables accurate tracking of financial resources. However, it makes understanding energy consumption trends more difficult since the cost of a kilowatt-hour of electricity or a gallon of fuel varies from year to year, and has shown a sharply increasing trend in recent years. It’s important to note that an increase in total energy expenditures (i.e., due to a rising cost per unit of energy)

¹⁶ See: http://humanresources.vermont.gov/training/the_summit

¹⁷ Title 3 Vermont Statutes Annotated (V.S.A.) Section (§) 2291

¹⁸ See: <http://bgs.vermont.gov/sites/bgs/files/pdfs/BGS-VTStateEnergyPlan.pdf>

doesn't necessarily signify that more units of energy are being consumed. As the old cliché goes ... "You can't manage what you don't measure".

Next Steps:

1. The CNWG could focus its limited resources on researching and recommending strategies that will effectively reduce energy consumption and GHG emissions. The CNWG would be able to assist with the energy / emissions analyses of individual strategies and work with each state agency to determine the best menu of strategies for meeting the requirements of Title 3 V.S.A. (§) 2291 and the emissions reduction goals of Executive Order #14-03.
2. Modify VISION to include data fields for actual "units" of energy and "price per unit", and work with appropriate accounting / clerical / IT staff to ensure effective collection and entry of data in the new fields. *(e.g., a data record in VISION currently may show that an electricity bill paid on 1/15/09 was \$218.57 ... but it should be modified to also indicate that the bill represents the use of 1619 kWh of electricity at \$0.135 per kWh)*
3. Ensure that the VISION database could then be queried to obtain total consumption (e.g., kilowatt-hours, gallons, etc.) for each energy type (e.g., electricity, fuel oil #2, etc.) and agency. This would allow individual agencies to track their actual energy consumption for the AEIP, and the data could be converted much more accurately to GHG emissions for purposes of tracking progress towards the goals of the CNWG.
4. Our understanding and tracking of energy consumed by the state vehicle fleet (both BGS-owned and non-BGS owned fleet vehicles) would also be vastly improved if monthly or quarterly odometer readings for each vehicle were maintained in an electronic database / spreadsheet format. *(e.g., Vehicle make / model / model year; state plate number; odometer reading; date reading taken)*

RECOMMENDATION #5: Collaborate with VTrans, CCTA, GMTA, CATMA and other transit providers to improve and expand bus / shuttle routes

Creating a more comprehensive network of bus and shuttle routes for state employees to use for commuting and business travel will reduce GHG emissions by eliminating many single occupancy vehicle (SOV) trips, while simultaneously reducing wear and tear on state-owned and employee vehicles.

Next Steps:

1. Initiate and maintain active contact with Vermont transit providers to explore mutual interests and partnership opportunities. This should include reexamining the potential for innovative approaches such as the "Unlimited Access" (UA) program outlined in this and the two previous CNWG Biennial Reports



APPENDIX A

STATE OF VERMONT
ENERGY CONSUMPTION
&
GHG EMISSIONS REDUCTION
CASE STUDIES



Performance Contract

Capital, Middlesex and Waterbury State Office Complexes - Energy Improvements

BENEFITS

- Funding mechanism for energy improvement projects
- Long payback improvements are bundled with short payback improvements to provide solid financial funding
- Multiple improvement package options are presented for selection of the best solution
- Energy efficiency utility provides assistance with measurement and verification

APPLICATIONS

Large scale improvement projects within state government that show a reasonable payback and savings in state utility costs will benefit from this type of contract.

Summary

The Department of Buildings and General Services entered into the first State of Vermont performance contract to address the multiple energy opportunities within the three complexes. The contractor conducted audits of the facilities and utility data and presented three packages as options for implementation. The package selected combined the mechanical, controls, envelope and electrical opportunities in a way that resulted in a simple payback of about eight years. Monthly meetings were conducted to ensure that each recommendation was feasible and adjustments were made throughout



the process. Once the construction phase of the contract is complete, BGS will begin the period of realizing the savings and paying the agreed amount for the work done. This experience made the staff

more knowledgeable about the facilities and the tenants more aware of the steps being taken to provide a more energy efficient work environment.

Results

BGS invited the energy efficiency utility to participate in the process. In return, the energy efficiency utility offered assistance in the measurement and verification and also provided incentive checks for all three locations. The energy savings are estimated to be 3.16 million kilowatt-hours

per year in electrical use, 21,489 million British thermal units in heating use, and 5424 thousands of gallons of water, **avoiding nearly 3470 tons of CO₂ emissions.**

The simple payback is approximately eight years during which BGS will make payments with savings from reduced energy costs. The historic

nature of the majority of the facilities caused some unforeseen changes in the recommendations but the project team worked together on solutions to continue with the goal of saving energy while improving the conditions of the facilities. Overall, BGS is receiving positive feedback on the changes.

Additional Information:

Dept of Buildings & General Services

Debra M. Baslow

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802-828-0377



Safety and Efficiency in Parking Lots

BENEFITS

- Low-watt lighting
- No mercury used in the lamp
- Crisp, clear light for night vision
- Directional light to eliminate the risk of light where it is not needed
- Energy efficiency utility provides incentive to buy down the overall costs of the fixtures
- Long- life for the lamps
- Some LED fixtures can be retrofitted to replace existing lamps
- Works well in cold climates

APPLICATIONS

Any state parking lot or garage is a possible location for the use of this type of lighting. Advances in the technology are coming quickly, with more flexibility in directing the light and ease of maintenance and replacement.

Additional Information:

Dept of Buildings & General Services

Debra M. Baslow

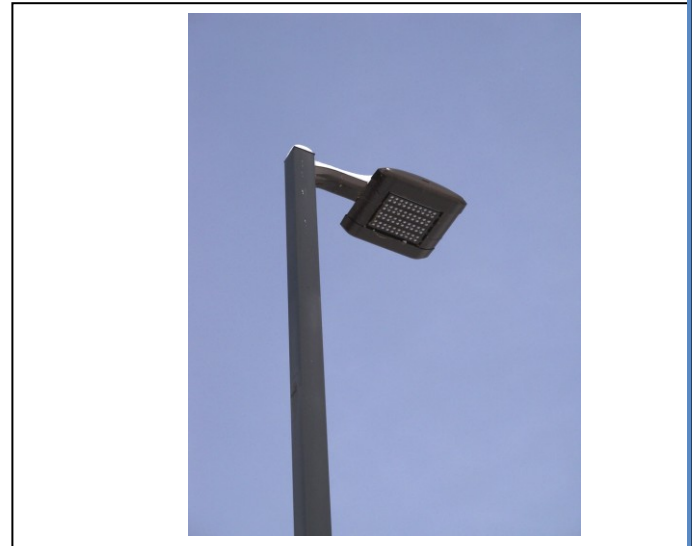
debra.baslow@state.vt.us

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Northern State Correctional Facility – Light Emitting Diodes for Lighting

Summary

The Department of Corrections and Buildings and General Services work together on energy improvements in the correctional facilities. Together, the recommendations need to be selected based on safety, security and efficiency. This combination of factors was part of the selection for the new parking lot fixtures at the Northern State Correctional Facility. The energy efficiency utility was called to assist and qualified the projects as part of a limited-time program. This program provided an audit of the lighting and an incentive to upgrade to the new, four-bar, light emitting diode (LED) light fixtures. The current lighting was with metal halide lamps that



were 25 watts each. The safety of employees walking in the lot, the security of being able to clearly identify objects or people in the parking lot, and the efficient use of light was all part of the

recommendation. The LED fixture has small, individual bulbs that are sold in a single housing. The housing has fins to allow for cooling of the bulbs. This fixture performs well in colder climates.

Results

Participation in the limited-time program through the energy efficiency utility resulted in a significant incentive check to cover all of the costs for the purchase of the fixtures. BGS was responsible for the installation of the fixtures. The energy savings were estimated to be 20,860 kilowatt-hours per year, **avoiding nearly 12 tons of CO₂ emissions.** The simple

payback is less than one year. Overall, BGS is receiving positive feedback on the changes. The design of LED fixtures minimizes overheating of the electronics contained in the housing. The market is being flooded with different levels of quality for fixtures so consideration of venting and engineering of the connections was critical.

BGS researched the fixtures to ensure that they were safe and reliable. The LED parking lot fixtures are low maintenance, making them attractive to maintenance staff. The directional nature of the LED bulbs makes them attractive to BGS for controllability of where the light falls on the property.



Control and Efficiency in Parking Garage

BENEFITS

- Low-watt lighting
- No mercury used in the lamp
- Crisp, clear light for night vision
- Directional light to eliminate the risk of light where it is not needed
- Energy efficiency utility provides incentive to buy down the overall costs of the fixtures
- Long- life for the lamps
- Some LED fixtures can be retrofitted to replace existing lamps
- Works well in cold climates

APPLICATIONS

Any state parking lot or garage is a possible location for the use of this type of lighting. Advances in the technology are coming quickly, with more flexibility in directing the light and ease of maintenance and replacement.

Additional Information:

Dept of Buildings & General Services

Debra M. Baslow

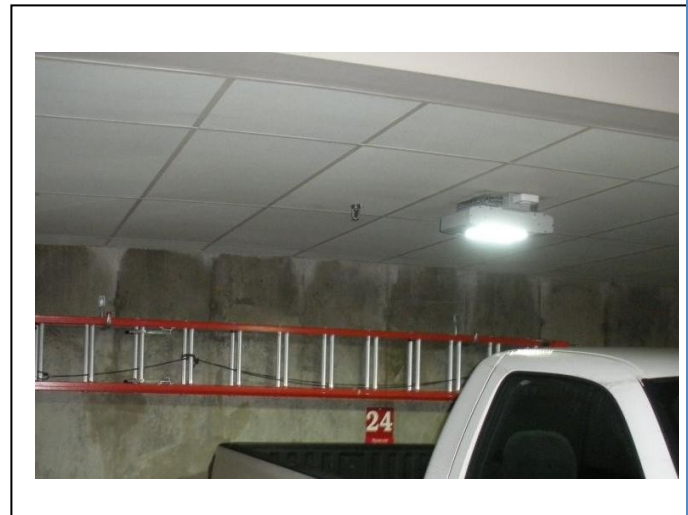
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Franklin County District Courthouse - Light Emitting Diodes and Occupancy Sensors

Summary

The Department of Buildings and General Services worked to upgrade the parking garage lighting in the Franklin County District Courthouse in St. Albans. The existing lighting was 250 watt high pressure sodium and not controlled, leaving the entire parking garage lit all day even with minimal occupancy. The maintenance staff at BGS researched possible solutions for the lighting, considering safety, controllability, and efficiency. The result is the installation of fewer, light emitting diodes (LED) low-bay fixtures. To provide security lighting, a few of the fixtures were installed



to stay on at all times. The remaining fixtures have fixture-mounted occupancy sensors wired to the fixtures that turning them on when the sensor recognizes movement nearby from a vehicle or person. The LED

fixture has small, individual bulbs that are sold in a single housing. The housing has fins to allow for cooling of the bulbs. This fixture performs well in colder climates.

Results

The addition of the lighting controls adds to the savings. The occupancy sensors turn on the lighting in the section of the garage that has movement only. The energy savings were estimated to be 10,000 kilowatt-hours per year, **avoiding nearly six tons of CO₂ emissions**. The simple payback is approximately three

years. Overall, BGS has received positive feedback on the changes. The design of LED fixtures minimizes overheating of the electronics contained in the housing. The market is being flooded with different levels of quality for fixtures so consideration of venting and engineering of the connections was critical. BGS researched the fixtures to ensure that

they were safe and reliable. The LED low-bay fixtures are low maintenance, making them attractive to maintenance staff. The crisp light makes it easier to find vehicles in the parking garage and the controls ensure that unused sections of the parking garage and not unnecessarily lit.



APPENDIX B – COMPLETE TEXT OF VERMONT EXECUTIVE ORDER # 14-03

STATE OF VERMONT Executive Department EXECUTIVE ORDER

[Climate Change Action Plan for State Government Buildings and Operations]

WHEREAS, the scientific evidence, reviewed by the U.S. National Academy of Sciences, the Intergovernmental Panel on Climate Change, and an overwhelming majority of the world's climate scientists, indicates greenhouse gases are accumulating in the Earth's atmosphere as a result of human activities; and

WHEREAS, these scientists also contend that the increases in greenhouse gases are causing the global climate to change at a greater rate and magnitude than would otherwise be expected, projecting an increase in globally-averaged surface temperatures of 2.5 to 10.4 degrees Fahrenheit by the end of the century; and

WHEREAS, even small changes in surface temperatures are projected to cause significant changes in our regional climate and Vermont's environment; and

WHEREAS, the United States, with only 5 percent of the world's population produces 20 to 25 percent of all greenhouse gas emissions from human activities and is, therefore, a significant factor affecting the global climate; and

WHEREAS, Vermont, although it plays a small role, contributes to greenhouse gas emissions via car and truck traffic, with Vermonters driving more miles per person than the national average, and the burning of fossil fuels for home heating and power generation; and

WHEREAS, the federal government and numerous private sector businesses in the United States and abroad are discovering that it is a sound business decision, both financially and environmentally, to decrease their greenhouse gas emissions - simultaneously increasing productivity and employment; and

WHEREAS, ambitious energy efficiency and conservation efforts will not only reduce greenhouse gas emissions, but will also reduce a host of other pollutant emissions (including toxic chemicals) associated with fossil fuel combustion for electricity generation and transportation.

NOW, THEREFORE, BE IT RESOLVED THAT I, James H. Douglas, by virtue of the power vested in me as Governor of the State of Vermont, do hereby direct state government agencies and departments to reduce greenhouse gas emissions from state government buildings and operations. Vermont's goal is to reduce emissions by an amount consistent with the recommendations of The Conference of the New England Governors and Eastern Canadian Premiers Climate Change Action Plan. The goals established by the Conference are to reduce region-wide greenhouse gas emissions from the 1990 baseline by: twenty-five percent by 2012; fifty percent by 2028; and, if practicable using reasonable efforts, seventy-five percent by 2050.

To promote these goals I hereby order as follows:

(1) A Climate Neutral Working Group is established to be jointly chaired by the Commissioners of the Department of Environmental Conservation, the Department of Buildings and General Services, and the Department of Public Service, and to include Secretaries, Commissioners, and technical representatives from the Agency of Natural Resources, Department of Public Service, Agency of Administration, Agency of Commerce and Community Development, Agency of Transportation, Department of Buildings and General Services, Vermont Energy Investment Corporation, and other agencies as interested. The working group is tasked with coordinating, documenting, and encouraging efforts to meet Vermont's greenhouse gas emission reduction goals. It will prepare a biennial report documenting efforts to meet the goals, identifying future planned steps and their anticipated impacts, and

highlighting any challenges for meeting those goals, as well as opportunities for expediting greenhouse gas emission reductions.

(2) The report shall include the state of the science for responding to climate change, including the status of methods and measures available to meet the goals. In addition, the working group will identify opportunities to share lessons learned with Vermont businesses, other state and provincial governments, and the federal government.

(3) All state government agencies, offices, and departments are hereby directed to: (i) Purchase only energy-consuming devices that meet or exceed the Energy Star® or comparable standards established by the U.S. federal government, and to operate these devices in a manner that maximizes their energy efficiency features. (ii) Purchase vehicles that have the highest available fuel efficiency in each respective vehicle class (e.g., passenger cars, light duty trucks, etc.), pursuant to performance specifications approved by the Climate Neutral Working Group. In setting these performance specifications, the Working Group shall consider vehicles that not only meet high fuel economy standards but that also provide lower total overall emissions of greenhouse gases, criteria pollutants, and hazardous air contaminants. (iii) Develop programs to encourage state employees, through the use of incentives, to use transportation alternatives to a single person in a single motor vehicle for commuting and business travel, including incentives as may be bargained with the collective bargaining units.

(4) The Department of Buildings and General Services shall work with the Climate Neutral Working Group and all state facilities to ensure that every state building reduces its energy consumption to meet the outlined greenhouse gas reductions.

(5) The Department of Buildings and General Services shall investigate cost-effective opportunities to purchase renewable energy to reduce the State of Vermont's reliance on fossil fuels. Renewable energy includes electricity derived from sources such as solar, wind, geothermal, landfill methane gas, or small scale (less than 30 megawatts) hydroelectric projects.

(6) The Climate Neutral Working Group shall prepare a report to the Governor and the General Assembly describing opportunities to initiate a statewide voluntary greenhouse gas emissions registry, and investigate the feasibility of a carbon emissions cap and trading program for the state as a strategy for further reducing region-wide greenhouse gas emissions. The Agency shall identify the effort required to establish sector-specific baselines, develop an emissions tracking protocol, and institute an emissions trading mechanism. It should also recommend greenhouse gas reduction targets and identify activities to help meet those targets.

(7) The Climate Neutral Working Group shall request input from representatives of the business, environmental, forestry and transportation sectors regarding opportunities for the private sector to reduce emissions and conserve energy.

(8) The chairs of the Climate Neutral Working Group shall consult with representatives from the other New England states to establish a broad-based approach to these environmental issues.

Administrative support shall be provided by the Agency of Natural Resources.

This Executive Order shall take effect upon signing and supersedes and replaces Executive Order #11-02 (renumbered Executive Order #10-28) dated August 22, 2002.

This Executive Order shall sunset on July 1, 2020.

Witness my name hereunto subscribed and the Great Seal of the State of Vermont hereunto affixed at Montpelier this 16th day of September, 2003.

James H. Douglas Governor

By the Governor:

Neale F. Lunderville
Secretary of Civil and Military Affairs Executive Order No. 14-03

