

**County of Ventura
Climate Protection Plan
for Government Operations:
A Community Commitment**

**Annual Report
April 2012**

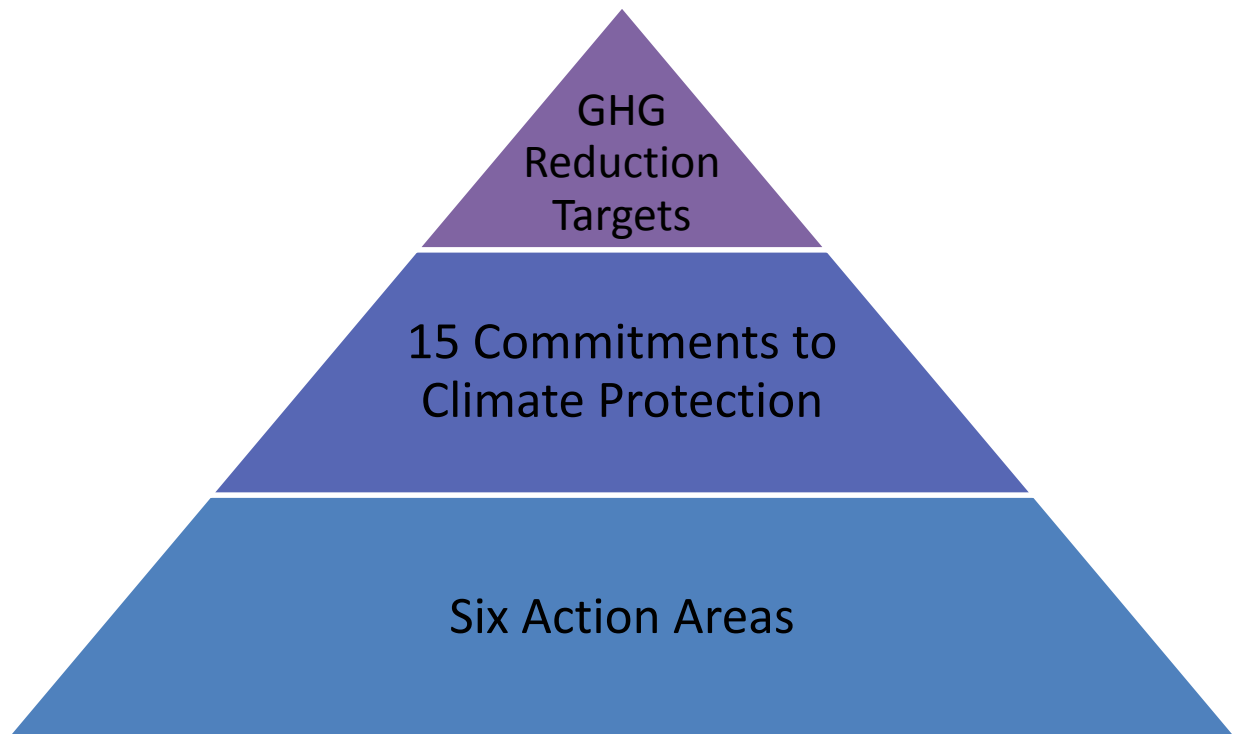


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Acknowledgments

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The Climate Protection Plan Team thanks the many County employees and associates who contributed to the Climate Protection Plan and this annual report.

Introduction

This 2012 Climate Protection Plan (CPP) Annual Report is the second report delivered to the County of Ventura's Board of Supervisors on climate protection activities in County government operations. In April 2011, the County's Climate Protection Team presented the Board of Supervisors with a Climate Protection Plan and the first annual report. The CPP focuses on County government operations, setting out six major action areas and 15 climate protection commitments that will provide direction for the next decade and beyond.

In January 2011, the Board of Supervisors directed the Climate Protection Team to pursue an emissions reduction target of 15% over a 2005 baseline inventory. The 2005 baseline inventory was estimated using reporting protocols adopted by The Climate Registry and the California Air Resources Board. Additional inventories have been completed for calendar years 2006 through 2010. The 2011 inventory will be available in September 2012.

The purpose of CPP Annual Reports, filed in April to coincide with Earth Day activities, is to provide a high level overview of ongoing activities and accomplishments related to the six action areas of the CPP and to outline the work ahead. This 2012 report focuses on activities that occurred in calendar year 2011. These activities are part of an ongoing commitment to reducing carbon from County operations. A summary of past and future activities are attached as Appendix "A".

Commitment #1: Establish a climate protection team to coordinate and guide the implementation of reduction/protection activities.

Background

- The CPP team was established in 2009 to represent the full range of agencies and departments under the operational control of the Board of Supervisors.
- The team
 - oversees the reporting and verification of annual greenhouse gas inventories
 - provides advice on climate change policies, strategies and overall implementation of the Climate Protection Plan.

Progress - April 2012

In Calendar Year 2011, the CPP team:

- Secured and oversaw grant funding related to climate change, including but not limited to an energy efficiency grant from Southern California Edison.
- Offered an internship through California State University at Channel Islands
- Joined The Climate Registry and committed to verifying emissions from County operations

Schedule

1.1	Secure and oversee grant funding	2011/12 forward
1.2	Offer climate change opportunities for local college and university students (internships)	2012/13 forward
1.3	Report and verify annual GHG inventories with The Climate Registry	2012/13 forward

Monitoring and Reporting

The CPP team will report back to the Board of Supervisors each year on:

- plan implementation, including proposals for upcoming activities, and
- annual inventories and progress towards meeting the GHG reduction target.

Commitment #2: Integrate full-cost financial analysis and greenhouse gas consideration into the County's Capital Planning and Budgeting process; decisions surrounding master planning and the location of government services.

Background

The County of Ventura began an aggressive energy efficiency program more than a decade ago, avoiding increased costs for energy delivery and GHG emissions that would have occurred as a result of growth in operations. Looking forward, the County seeks to formalize this process by estimating the GHGs associated with new projects and seeking ways to reduce or offset them.

Progress - April 2012

The County Executive Office is developing a training program for budget analysts that will allow them to incorporate energy efficiency financial assessment for projects with energy components. This training will be part of the County's overall program for energy efficiency education, discussed under Commitment #7 below. In addition, the Office will develop a common methodology for addressing return on investment as it relates to energy efficiency and greenhouse gases.

Schedule

2.1	Implement GHG budgeting for approved Capital Projects. (CEO)	2012/13
2.2	Develop a reporting mechanism for GHG accounting. (CEO/GSA)	2012/13
2.3	Review operational policies, plans and procedures. (CEO)	2012/13 forward
2.4	Implement GHG budgeting for all CIP applications. (CEO)	2012/13
2.5	<i>Removed</i>	
2.6	Provide training on energy budgeting and finance to budget managers	2012/13

Monitoring and Reporting

The CPP team will report back to the Board of Supervisors on GHG accounting in April 2013.

Commitment #3: Conduct a review of current policies, programs, and procedures to remove barriers to climate protection efforts and ensure employees are empowered to participate in all efforts.

Background

This Climate Protection Plan defines a range of activities needed to achieve GHG reductions in County operations. As in any other process of change, existing policies, programs and procedures can either help or hinder that change. A systematic review of existing policies and careful attention to new policies will assist with identifying barriers to emissions reductions.

Progress - April 2012

- After its review, the CEO has concluded that there are no significant policy barriers to cost effective emissions reductions. Ongoing review will ensure that any new barriers are avoided.
- The CEO will develop a CPP review process for Board letters.

Schedule

3.1	Review of Administrative Manual. (CEO, CPP Team)	2012/13 forward
3.2	Climate Protection review process for Board letters. (CEO)	2012/13
3.3	Tracking system for results of Climate Protection review process. (CEO)	2012/13

Monitoring and Reporting

The CPP team will report back to the Board of Supervisors in April of 2013, with a summary of policy review outcomes.

Commitment #4: Review County's building policies to ensure use of the latest environmental standards for materials and systems in all owned and leased facilities, new construction, and renovations.

Background

Electricity use in buildings and facilities accounts for approximately half of GHG emissions from County operations. Choices about materials and systems have significant impacts on emissions from County operations. Responsibility for these choices generally lies with the County's General Services Agency, Public Works Agency (new construction and capital leasing), and the Health Care Agency. The Airport and Harbor Departments also oversee facility-based choices.

The General Services Agency's 2010-2011 Energy Action Plan seeks to minimize energy use through a variety of activities, including regular review of policies and programs that would inhibit energy efficiency in GSA managed properties. The Energy Action Plan is attached as Appendix "B".

Progress - April 2012

- The General Services Agency completed a review of County building policies as part of a larger policy project related to Title 24, California's Energy Efficiency Regulation.
- In April 2012, the CEO will consider implementing a new policy for all new construction, alterations and additions. This policy would require that all construction, alterations and additions shall exceed the minimum energy efficiency requirements of 2008 Title 24, Part 6 California's Energy Efficiency Standards for Residential and Non-residential construction, as applicable, by 15%.
- Staff have reviewed the impact of County leases on the County's carbon footprint and determined that in 2010, full service leases, where landlords pay utilities, account for more than 10% of the footprint. Based on this analysis, the CEO and PWA/Real Estate will develop recommendations on a green leasing policy.

Schedule

4.1	Review of County policies. (RMA/Building and Safety)	2012/13
4.2	Encourage LEED Silver for all County owned facilities that are constructed or renovated. (PWA/GSA)	2012/13 forward
4.3	Review of leasing policies and existing leases and development of policy on leasing energy efficient/green facilities. (PWA/Real Estate)	2011/12
4.4	Proposed green facility leasing policy to Board of Supervisors. (PWA/Real Estate)	2012/13

Monitoring and Reporting

- Annual GHG inventories will track GHG emissions from all facilities, including those that are LEED silver.
- The 2013 Annual Report on the County's Carbon Footprint will include more detailed analysis of leased facilities and their contribution to the County's Scope 3 emissions.

Commitment #5: Take advantage of opportunities to capture and store carbon on County property and throughout the unincorporated communities (trees, wetlands).

Background

The County has direct responsibility for a significant inventory of its own trees, including those on property managed by GSA, Parks, the Watershed Protection District, HCA, Fire, Airports, Harbor and others. GSA is responsible for maintaining an inventory of approximately 1,900 trees; the Parks Department estimates that between 15 to 20% of County owned and operated parkland is tree-covered; the Watershed Protection District oversees large ecosystems, ensuring the protection and/or replacement of trees. These provide direct, ongoing benefits because the trees on these properties capture carbon and store it for their lifetimes. Projects like those associated with Integrated Watershed Protection Planning and cooperation with volunteer groups contribute to climate protection as well. For example, under the Tree Protection Ordinance, the Public Works Agency recently took mitigating action by planting new trees to offset the removal of trees needed for bridge/road construction. The County's Parks Department has worked with local volunteer groups to plant trees in Santa Rosa Park and other parks around the County. These types of mitigation/replacement projects are also an important component in watershed protection work. Without these types of actions, carbon benefits of removed trees would have been lost.

Progress - April 2012

The GSA Grounds Department is responsible for the care of 1,934 mostly mature trees. Preliminary estimates indicate the trees capture and store approximately 44 metric tons of CO₂ per year or the equivalent of emissions from the Santa Paula Hospital. The General Services Agency has developed comprehensive tree programs that provide for public safety and sustainability of County trees.

Schedule

5.1	Maintain GSA inventory of trees. (GSA/Landscaping)	2012/13 forward
5.2	Explore feasibility of full or partial inventory of trees on County parkland. (Parks)	2012/13
5.3	Identify grant opportunities for citizen-based tree planting. (CEO, Parks)	2012/13 forward
5.4	Incorporate tree guidelines into County employee education and communication. (GSA/Landscaping)	2012/13 forward
5.5	Participate in Integrated Regional Water Planning and State water grants	2012/13 forward

Monitoring and Reporting

The CPP team will report back to the Board of Supervisors in April of 2013 and/or as grant opportunities are identified. Any grant application will include a commitment to track the locations and types of trees planted and/or lost.

GSA Grounds will participate in employee training by providing Earth Day and other training sessions on tree maintenance and water efficiency, with a focus on how water savings are energy savings.

Commitment #6: Create a Climate Adaptation Workgroup.

Background

Nations, states, counties and cities are recognizing the need to prepare for inevitable changes resulting from climate change. In 2009, the State of California issued its first Climate Adaptation Strategy. The State recognizes that there will be direct impacts on water, agriculture, fishing, coastline, forests, air pollution and energy supply as well as indirect impacts on public health, quality of life and the economy. Several State laws, including AB 32, SB 375 and CEQA require a focus on climate adaptation. Local governments have been encouraged to identify opportunities to reduce risks associated with climate change and to build resilience in their operations and their communities.

Progress - April 2012

The County Executive Office and the CPP Steering Committee will address this commitment when additional State or Federal guidance is available. The County continues to track guidelines and policy discussions and to participate in climate adaptation planning through the Watersheds Council of Ventura County.

Schedule

6.1	Develop adaptation terms of reference. (CPP Steering Committee)	To be determined
6.2	Hold two workgroup meetings and develop workplan. (CEO/ Adaptation Committee)	To be determined
6.3	Begin implementation of workplan. (CEO/Adaptation Committee)	To be determined
6.4	Conduct a Continuity of Operations tabletop exercise based on climate change vulnerabilities and associated risk scenarios. (TBD)	To be determined

Monitoring and Reporting

The CPP team will continue to track State and Federal guidelines on climate adaptation planning for government facilities.

Commitment #7: Develop Countywide employee education and communication strategy on climate change and protection.

Background

With a County government employee base of approximately 8,000 housed in more than 200 facilities, the CPP team recognizes that broad-based participation is essential to meeting climate protection and GHG reduction goals. Employees who are committed to change will lead the way in our efforts. Education and communication are needed to implement all the activities in this Plan. While organizations can provide enabling conditions, they cannot take action: individual behavior leads to change.

Progress - April 2012

In 2012, the County's Building and Safety Department, with the assistance of VCREA, completed training on number of energy-related building standards and have plans in place for several more in the upcoming year.

The CEO and CPP team are recommending creation of a Pacesetters team to provide advice on CPP implementation and to act as environmental stewards for all County agencies.

Under a Southern California Edison grant, the CEO's office began developing an educational program for elected County officials, commissioners, and other key decision makers related to energy efficiency. The program will deliver information and outreach, through a variety of mechanisms, including; workshops for elected officials and key decision makers, County Executive Committee members, including Agency and department heads, facility and energy managers and budget analysts and fiscal officers and over all county employees. The goal of the educational programs is in increase overall awareness of all County employees about energy conservation and opportunities in County facilities.

Schedule

7.1	Establish education and communication workgroup, develop workplan and prepare initial set of curricula. (CPP Steering Committee, RMA Building and Safety, VCREA)	2012/13 forward
7.2	Design Title 24 training and pilot test program. (RMA Building and Safety, VCREA)	2011/12
7.3	Continue Title 24 training and assessment. (RMA Building and Safety, VCREA)	2012/13 forward
7.4	Develop additional curricula and program as identified in the workplan, including but not limited to vehicle use, tree planting, personal carbon footprinting, energy efficiency at work and at home. (CEO)	2012/13 forward
7.5	Establish “Pacesetters” team to advise on education and employee commuting, and to encourage staff involvement	2012/13 forward

Monitoring and Reporting

The CPP team will provide annual reports to the Board of Supervisors on education and communication with employees, and on the activities of the Pacesetters team.

Commitment #8: Incorporate climate change considerations into public education and public benefit programs

Background

The CPP team recommended a change to the wording of this commitment, from “Develop educational strategy on climate change and protection for public education and outreach programs” to the one shown above. This change reflects the County’s broader role in facilitating community activities that have energy efficiency and climate change benefits. Activities include making grant funds available to local residents, businesses and cities for energy efficiency and solar programs. The team proposes continuing to seek:

- Partnerships with community groups and nonprofits already working on climate change mitigation and adaptation awareness and action.
- Further integration of climate related information in existing outreach and education programs, including those delivered by the Resource Management Agency, Libraries, Health Care Agency and others.
- Grant funds to facilitate countywide GHG emission reductions, including block grants and State programs.

Progress - April 2012

In 2011, the County was awarded an Energy Efficiency and Conservation Block Grant Program (EECBG), funded through the American Recovery and Reinvestment Act of 2009. The grant was used for energy efficiency projects in government buildings, including those owned by the County and four of the County’s cities (Fillmore, Ojai, Port Hueneme and Santa Paula). The cities have reduced their electricity usage by more than 600,000 kWhs per year, and reduced their carbon footprints by about 190 metric tons of CO₂.

Schedule

8.1	Establish education and communication workgroup, develop workplan and prepare initial set of curricula. (CPP Steering Committee)	2012/13 forward
8.2	Identify and establish partnerships. (CPP Steering Committee)	2012/13 forward
8.3	Pilot test components of workplan. (CPP Steering Committee)	2013/14
8.4	Implement workplan, with additional curricula and programs as necessary	2013/14 forward
8.5	Facilitate AB 811 solar financing for unincorporated area	2012/13 forward
8.6	Facilitate energy efficiency measures in County cities through collaboration on state and federal grant funding	2012/13 forward

Monitoring and Reporting

The CPP team will provide annual reports to the Board of Supervisors on activities that provide community-wide benefit.

Commitment #9: Establish Purchasing Policy which provides consideration to environmental impacts of the manufacturing, use, transport, and disposal of products purchased by the County.

Background

In 2002, the County of Ventura's Board of Supervisors adopted a Green Procurement Policy, focused on the purchase of recycled products. The policy was reaffirmed in 2007. Since that time, there has been considerable research and guidance on green procurement policies that take supply chain greenhouse gas emissions into account. The California Sustainability Alliance's 2010 Guide outlines steps for establishing a green purchasing process and provides tools that will assist in assessing the feasibility of an expanded policy for County operations.

Progress - April 2012

The CEO has developed draft terms of reference for a green procurement workgroup and is currently reviewing and benchmarking procurement policies in other Counties and local cities, including but not limited to the City of Ventura.

Schedule

9.1	Terms of reference for green procurement workgroup. (CPP Steering Committee)	Completed
9.2	Green procurement workgroup reviews current purchasing procedures and develops green purchasing plan, including monitoring and reporting components. (GP workgroup)	2012/13
9.3	Update and reaffirm the Green Procurement Policy	2012/13
9.4	First phase of expanded green purchasing plan implemented. (GSA and HCA Procurement)	2013/14

Monitoring and Reporting

The CPP team will report on the progress of this activity on an annual basis, including recommendations on changes to the current procurement policy, if considered necessary.

Commitment #10: Advance an accessible, technologically-innovative, government service model.

Background

County owned and operated technology is integral to County operations and is also a major consumer of electricity. Although the GHG inventory does not differentiate technology-based electricity use, it is widely understood that a large portion of consumed energy in County facilities is used for air conditioning and lighting. Another significant source comes from electricity used by computers, servers and other electronic equipment. Over time, technological innovations (like green IT, electronic record keeping and service delivery, virtual meeting and workspace technologies) will allow the County to do more with fewer resources and will expand online services available to the public. This will have the added benefit of reducing GHG emissions associated with visits to and from government offices.

Progress - April 2012

Appendix “G” provides a summary of technology projects managed by ITSD and the Health Care Agency that have direct and indirect impacts on the County’s carbon footprint. In 2011, with the assistance of GSA, ITSD reduced its electricity use for cooling servers by more than 6.5%, with savings of almost \$12,000 and emission reductions of 29 metric tons CO₂e. Both ITSD and the Health Care Agency are looking to expand the availability of video conferencing for meetings and for client service.

Schedule

10.1	Promote the use of PC power management options among Agencies who have opted to remove the feature from desktop computers (CEO)	2010/11
10.2	Continue to evaluate an IT shared services model in order to leverage economies of scale; reduced duplication of effort has the potential to reduce GHG emissions. (CEO/ITSD/HCA and others)	2012/13 forward
10.3	Work with Health Care Agency on assessing GHG impacts of IT decisions related to Electronic Patient Records. (CEO/ITSD/HCA)	2012/13 forward
10.4	Consider ways in which technology can be used to reduce the number of physical customer visits (and associated GHG emissions from vehicle trips) to County facilities.	2012/13 forward
10.5	Include IT components in employee education and communication. (Education and Communication Workgroup/ITSD)	2012/13

Monitoring and Reporting

The County's Information Technology Committee (ITC) is the governing body responsible for oversight of all significant decisions related to IT. The CPP team recommends that the GHG budgeting for capital projects be designed to accommodate a similar budgeting process for large scale IT projects.

In addition to regular reporting to the Board by ITSD, the CPP team's annual April report will include an analysis of IT with respect to GHGs and sustainability.

Commitment #11: Reduce electricity use by 2020 through implementation of a comprehensive energy action plan.

Background

In April 2010, the County selected a greenhouse gas baseline year of 2005 and in January 2011 the Board of Supervisors established a 15% reduction target, to be achieved by 2020. Electricity use accounts for more than 50% of the County's GHG emissions, almost all of which is associated with facilities and water delivery and treatment.

Progress - April 2012

Since 2005, the County has instituted energy efficiency projects that resulted in more than 2,000 tonnes of avoided GHG emissions. Without these savings, emissions from electricity use would have been more than 5.5% higher. Appendix "C" contains a list of completed projects (2005 through 2011) and their associated financial and GHG savings.

In 2012, GSA purchased Facility Management software and identified a provider for electronic processing of utility bills. In addition to other efficiencies and risk management benefits, the software will centralize data needed to implement comprehensive energy management and to calculate GHG emissions.

Appendix "E" contains a list of energy efficiency projects scheduled for 2012 forward, including those that are funded, in the design stage and in pre-design. If all projects are funded and completed by 2020, future GHG savings would be 1,770 MT of CO₂e or 8.5% of total 2005 emissions from electricity and 4.5% of the total 2005 base year emissions. This is in addition to the 2,035 metric tons of savings from energy efficiency projects since 2005.

Schedule

As noted above, Appendix "E" contains a list of future projects.

Monitoring and Reporting

The results of these energy efficiency projects will be monitored through a combination of data from FM Systems and the annual greenhouse gas inventory. The Steering Committee will report back to the Board of Supervisors on an annual basis, summarizing accomplishments and progress towards the reduction target.

Commitment #12: Increase share of renewable energy by 2020.

Background

The County purchases all of its electricity from Southern California Edison. The California Public Utility Commission regulates SCE and, at the direction of the State of California, requires annual increases in the portion of electricity produced by renewable resources. By default, the County will increase its share of renewable energy through its purchases from Edison. Additional options for increasing the County's share of renewable energy include installation of photovoltaic, wind and other on-site renewable energy sources, additional green power purchasing, and/or purchase of green tags (or "credits").

Progress - April 2012

Since 2005, the County has developed solar projects that contribute approximately 700 megawatt hours (MWhs) to total County requirements. These projects resulted in a total of 206 tonnes of avoided GHG emissions. Appendix "D" contains a list of completed projects (2005 through 2010) and their associated financial and GHG savings.

Appendix "F" contains a list of energy efficiency projects scheduled for 2012 forward. If all projects are funded and completed by 2020, future GHG savings would be 1,770 MT of CO₂e or 8.5% of total 2005 emissions from electricity and 4.5% of the total 2005 base year emissions.

Schedule

Appendix "F" contains a list of future projects.

Monitoring and Reporting

The GHG results of photovoltaic projects will be monitored through a combination of data from FM Systems and the annual greenhouse gas inventory. Since these projects tend to be complex and can require significant funding, they will be presented to the Board of Supervisors for approval on an ongoing basis.

Commitment #13: Implement a green mobility approach to vehicle use

Background

The CPP team recommended a change to the wording of this commitment, from “Integrate a suite of green vehicles policies to promote efficiency, alternative fuels, and the infrastructure required for alternative travel modes” to the one shown above. Green mobility more accurately captures the combination of technological and behavioral changes necessary to reduce and optimize vehicle use.

Emissions from County-owned vehicles account for approximately one-third of the County government’s carbon footprint for County operations. In 2002, the Board of Supervisors adopted a policy supporting the purchase of hybrid vehicles, with the objective of developing a fuel efficient fleet in a cost effective and environmentally friendly manner. The policy is implemented by the General Services Agency, who reports back to the Board on an annual basis.

Emissions from the combustion of fuel in County owned vehicles are designated as Scope 1 under international greenhouse gas accounting standards. Scope 1 emissions are those over which an organization has direct operational control, like decisions about type of vehicle, maintenance schedule, type of fuel, etc. Emissions from the combustion of fuel in personal vehicles used for work-related purposes are designated Scope 3 because the County does not have the same type of control. When approved, employees may request reimbursement for fuel purchases, at a pre-established rate. In CY 2008, that rate was \$0.505 per mile travelled. Based on data collected as part of the employee commute survey (February 2010), the average estimated efficiency for employee-owned vehicles is 17.4 miles per gallon. Using this estimate, the emissions from employee owned vehicles used for work total 960 tonnes CO₂ emissions, almost 10% of the emissions associated with gasoline burned in GSA fleet vehicles.

Progress - April 2012

While vehicle emissions are up since 2005, they decreased by more than 5% between 2008 and 2010. In addition to technological solutions, the County’s Fleet Services continues to:

- Enforce replacement of inefficient vehicles and control addition of new vehicles
- Provide information on efficient routing and driving techniques, including the “Think Before You Drive” campaign
- Maintain motor pool sites at various locations throughout the County
- Look for economies in all aspects to mobility.

Action Area: Vehicle (Fleet) Operations

In 2012, GSA will explore an integrated, green approach to County mobility, to include technology and behavioral-based solutions, including vehicle acquisition, use of trip planning software, video conferencing, decisions about vehicle use, use of public transit and others. The CPP team will work with Fire's Fleet Services to identify opportunities for reducing fuel use and GHG emissions.

Schedule

13.1	Annual report to Board of Supervisors on Alternative Fuel Vehicles. (GSA/Fleet)	2012/13
13.2	Continue monitoring of underutilized vehicles. (GSA/Fleet)	2012/13
13.3	Review feasibility of including GPS devices in all vehicles, to enhance efficient routing. (GSA/Fleet)	2012/13
13.4	Redevelop vehicle usage dashboard, to include Fleet and Fire vehicles. Consideration will be given to including personal vehicle mileage/fuel usage in dashboard. (GSA)	2012/13
13.5	Develop GHG reduction options for fire and law enforcement vehicles. (Fire/GSA Fleet/Sheriff)	2012/13
13.6	Explore an integrated, green approach to County mobility, to include technology and behavioral-based solutions, including vehicle acquisition, use of trip planning software, video conferencing, decisions about vehicle use, use of public transit, and others.	2012/13

Monitoring and Reporting

The CPP team's annual April report will include a general review of the impact of fleet emissions on the County footprint. Annual GHG inventory reports will include more detailed analysis of the fleet emissions and any change over prior and base years. The General Services Agency provides an annual Alternate Technology report to the Board of Supervisors.

Commitment #14: Shift County employees' commute trips from "drive alone" to other options, by 2020.

Background

Changing the way employees travel to and from work is perhaps the most challenging and effective means of reducing an employer's carbon footprint, and one that can result in significant co-benefits for the environment and public health. The State of California recognized this challenge and adopted SB 375, a law requiring regional planning agencies to create a land use and transportation plan to meet GHG reduction targets. SB 375 integrates planning processes for transportation, land use and housing, with the goal of reducing the distances that people will be required to drive in future.

The County of Ventura's employees, like most southern Californians, generally drive to work alone. Any change to that behavior will require a combination of push and pull. Higher gas prices will in all likelihood encourage other modes of travel, including public transportation, more fuel efficient personal vehicles and carpooling. The availability of flexible work schedules, like the 9/80 schedule in place for some Agencies, reporting to duty at remote locations closer to home, subsidized public transportation, and telecommuting are options that could result in fewer vehicle miles travelled to work by County employees.

Progress - April 2012

In addition to GSA's work on a green approach to County mobility, the CPP team will work with the Climate Protection Pacesetters to identify ways in which employee commuting patterns can be changed. Information about the impacts of employee commuting on the environment and on the County's carbon footprint will be included in training materials for new hires and current employees.

Schedule

14.1	Develop employee commute team terms of reference. (CPP Steering Committee)	2012/13
14.2	First meeting of employee commute team. (Pacesetters)	2012/13
14.3	Develop workplan and oversee spring 2012 employee commute survey. (Pacesetters)	2012/13
14.4	Design employee recognition program. (Pacesetters)	2012/13
14.5	Establish working relationships with VCTC and APCD. (CPP Team)	2012/13
14.6	Provide feedback on education and communication. (Pacesetters)	2013/14
14.7	Make first set of recommendations on reducing emissions from employee commuting. (Steering Committee/Pacesetters)	2013/14
14.8	Assist with implementation of recommendations and oversee regular employee surveys. (Pacesetters and all County employees)	2013/14 forward

Monitoring and Reporting

The Pacesetter team will be responsible for overseeing regular surveys of employees regarding their commuting patterns, and determining the frequency of those surveys. These surveys will be the primary source of information for reporting back to the Board of Supervisors. VCTC conducts annual employee surveys for the County's largest facilities; the team will work with VCTC to identify how the results of those surveys can be used to better understand overall commuting patterns and their impact on the County's carbon footprint.

Commitment #15: Expand Climate Protection plan to include broader sustainability goals related to zero waste and water conservation.

Background

The CPP focuses its commitments on reducing emissions from relatively direct sources, like fuel combustion in vehicles and equipment, and use of electricity in facilities and other operations. While waste generation and water use do not fall in this category and are not included in GHG Reporting Protocols, they are generally recognized as significant “upstream” and “downstream” contributors to climate change. There are an increasing number of calculation tools and methodologies to identify how water and waste contribute to climate change.

According to the California Energy Commission (CEC), water-related energy use in California consumes approximately 20% of the state’s electricity, and 30% of natural gas not used for power production. Most of the energy use is for heating, processing and pressurizing water. The CEC estimates that almost all of the natural gas use related to water in California is associated with the end use of water, mostly for water heating. In addition to the delivery and treatment of water for consumption, treating waste water also requires energy.

Green procurement policies will assist with reducing upstream emissions through preferential purchasing. The County complies with State and local regulations and policies on recycling and waste diversion to reduce the volume of material from County operations that goes to landfills.

Progress - April 2012

Current information on water and waste services is decentralized and generally paper-based. With the licensing of Ecova, the electronic utility bill payment program, the County will have much more detailed information on the waste and water profiles for every facility in the County. Based on GSA estimates, water use (including facilities and landscaping) in GSA managed facilities has been reduced by more than 30% since 2007, with annual savings of almost \$150,000 per year.

Action Area: Expand Climate Protection Planning to Broader Sustainability Goals

Schedule

15.1	Define parameters of Sustainability Plan/Program. (CPP Steering Committee)	2013/14
15.2	Identify resource requirements. (CPP Steering Committee)	2013/14
15.3	Make recommendations on sustainability. (CEO)	2013/14

Monitoring and Reporting:

The exact nature of monitoring and reporting will be addressed as part of recommendations on sustainability.

Appendix “A”

County of Ventura Climate Protection Plan Annual Report – 2012

Summary of Activities

No.	Activity	Timeframe	Status	Current Timeframe
Commitment #1: Establish a climate protection team to coordinate and guide the implementation of reduction/protection activities				
1.1	Secure and oversee grant funding	2011/12 forward	New activity	2011/12 forward
1.2	Offer climate change opportunities for local college and university students (internships)	2012/13 forward	New activity	2012/13 forward
1.3	Report and verify annual GHG inventories with The Climate Registry	2012/13 forward	New activity	2012/13 forward

No.	Activity	Timeframe	Status	Current Timeframe
Commitment #2: Integrate full-cost financial analysis and greenhouse gas consideration into the County's Capital Planning and Budgeting process; decisions surrounding master planning and the location of government services				
2.1	Implement GHG budgeting for approved Capital Projects. (CEO)	2011/12	Initiate after training (activity 2.6 below)	2012/13
2.2	Develop a reporting mechanism for GHG accounting. (CEO/GSA)	2011/12	Initiate after training (activity 2.6 below)	2012/13
2.3	Review operational policies, plans and procedures. (CEO)	2011/12	Completed – no significant barriers identified – ongoing review	2012/13 forward
2.4	Implement GHG budgeting for all CIP applications. (CEO)	2012/13	Initiate after training (activity 2.6 below)	2012/13
2.5	<i>Implement SB 375 as it relates to County facilities. (GSA/PWA)</i>	<i>2012/13 forward</i>	<i>Activity removed: part of larger building compliance issues</i>	<i>Removed</i>
2.6	Provide training on energy budgeting and finance to budget managers	2012/13	New activity: 2012/13	2012/13
Commitment #3: Conduct a review of current policies, programs, and procedures to remove barriers to climate protection efforts and ensure employees are empowered to participate in all efforts				
3.1	Review of Administrative Manual. (CEO, CPP Team)	2011/12	Completed – no significant barriers identified – ongoing review	2012/13 forward
3.2	Climate Protection review process for Board letters. (CEO)	2012/13	To be initiated	2012/13
3.3	Tracking system for results of Climate Protection review process. (CEO)	2012/13	To be initiated	2012/13

No.	Activity	Timeframe	Status	Current Timeframe
Commitment #4: Review County's building policies to ensure use of the latest environmental standards for materials and systems in all owned and leased facilities, new construction, and renovations				
4.1	Review of County policies. (RMA/Building and Safety)	2011/12	To be documented as part of Energy Efficiency Action Plan under SCE grant	2012/13
4.2	Encourage LEED Silver for all County owned facilities that are constructed or renovated. (PWA/GSA)	2011/12	Ongoing	2012/13 forward
4.3	Review of leasing policies and existing leases and development of policy on leasing energy efficient/green facilities. (PWA/Real Estate)	2011/12	Review of existing leases completed, recommendations made on establishing criteria	2011/12
4.4	Proposed green facility leasing policy to Board of Supervisors. (PWA/Real Estate)	2012/13	On track	2012/13
Commitment #5: Take advantage of opportunities to capture and store carbon on County property and throughout the unincorporated communities (trees, wetlands)				
5.1	Maintain GSA inventory of trees. (GSA/Landscaping)	2011/12	Ongoing	2012/13 forward
5.2	Explore feasibility of full or partial inventory of trees on County parkland. (Parks)	2011/12	Postponed pending further discussion	2012/13
5.3	Identify grant opportunities for citizen-based tree planting. (CEO, Parks)	2011/12	Ongoing	2012/13
5.4	Incorporate tree guidelines into County employee education and communication. (GSA/Landscaping)	2012/13	Underway, part of 2012 Earth Day Celebrations	2012/13
5.5	Participate in Integrated Regional Water Planning and State water grants	2012/13	New activity	2012/13 forward

No.	Activity	Timeframe	Status	Current Timeframe
Commitment #6: Create a Climate Adaptation Workgroup				
6.1	Develop adaptation terms of reference. (CPP Steering Committee)	2010/11	Tracking and awaiting State and/or Federal guidance	To be determined
6.2	Hold two workgroup meetings and develop workplan. (CEO/ Adaptation Committee)	2011/12	Tracking and awaiting State and/or Federal guidance	To be determined
6.3	Begin implementation of workplan. (CEO/Adaptation Committee)	2011/12	Tracking and awaiting State and/or Federal guidance	To be determined
6.4	Conduct a Continuity of Operations tabletop exercise based on climate change vulnerabilities and associated risk scenarios. (TBD)	2012/13	Tracking and awaiting State and/or Federal guidance	To be determined
Commitment #7: Develop Countywide employee education and communication strategy on climate change and protection				
7.1	Establish education and communication workgroup, develop workplan and prepare initial set of curricula. (CPP Steering Committee, RMA Building and Safety, VCREA)	2011/12	Work with Pacesetters (see activity 7.5 below) to finalize training funded through SCE. Areas to be considered include: Introduction to Energy efficiency/ conservation, Energy efficiency in the office, community and at home, the water-energy nexus, new hires- Introduction to energy efficiency	2012/13

No.	Activity	Timeframe	Status	Current Timeframe
7.2	Design Title 24 training and pilot test program. (RMA Building and Safety, VCREA)	2011/12	Completed training on Residential Building Standards (November 2011), Non-residential Building Standards (January 2012). Upcoming 2012 training include: Additions, Alterations, Repairs, New Low Rise Residential buildings, Non-Residential Design Approaches, Building Envelopes, Mechanical Systems, Non- Residential Forms, Mechanical Systems, and Indoor and Outdoor Lighting	2011/12
7.3	Continue Title 24 training and assessment. (RMA Building and Safety, VCREA)	2012/13 forward	Ongoing	2012/13 forward
7.4	Develop additional curricula and program as identified in the workplan, including but not limited to vehicle use, tree planting, personal carbon footprinting, energy efficiency at work and at home. (CEO)	2012/13 forward	Work with Pacesetters (see activity 7.5 below)	2012/13 forward
7.5	Establish “Pacesetters” team to advise on education and employee commuting, and to encourage staff involvement	2012/13	Call for nominations to be sent to Agency and Department Directors, first meeting to be held June 2012	2012/13

No.	Activity	Timeframe	Status	Current Timeframe
Commitment #8: Develop educational strategy on climate change and protection for public education and outreach programs – changed to “<u>Incorporate climate change considerations into public education and public benefit programs</u>”				
8.1	Establish education and communication workgroup, develop workplan and prepare initial set of curricula. (CPP Steering Committee and Education and Communication workgroup)	2011/12	Work with Pacesetters (activity 7.5 above) to identify opportunities for collaborating on education about climate change and sustainability	2012/13 forward
8.2	Identify and establish partnerships. (E&C workgroup)	2011/12	Work with Pacesetters (activity 7.5 above)	2012/13 forward
8.3	Pilot test components of workplan. (E&C workgroup)	2011/12	Work with Pacesetters (activity 7.5 above)	2012/13 forward
8.4	Implement workplan, with additional curricula and programs as recommended by workgroup	2012/13 forward	Work with Pacesetters (activity 7.5 above)	2012/13 forward
8.5	Facilitate AB 811 solar financing for unincorporated area	2012/13	New activity	2012/13 forward
8.6	Facilitate energy efficiency measures in County cities through collaboration on state and federal grant funding	2011/12 forward	New activity	2012/13 forward

No.	Activity	Timeframe	Status	Current Timeframe
Commitment #9: Establish Purchasing Policy which provides consideration to environmental impacts of the manufacturing, use, transport, and disposal of products purchased by the County				
9.1	Terms of reference for green procurement workgroup. (CPP Steering Committee)	2010/2011	Completed	
9.2	Green procurement workgroup reviews current purchasing procedures and develops green purchasing plan, including monitoring and reporting components. (GP workgroup)	2011/12	Underway, including review of benchmarks (City of Ventura, County of Alameda, etc.)	2012/13
9.3	Update and reaffirm the Green Procurement Policy	2011/12	Postponed to 2012/13	2012/13
9.4	First phase of expanded green purchasing plan implemented. (GSA and HCA Procurement)	2011/12	Postponed to 2013/14	2013/14
Commitment #10: Advance an accessible, technologically-innovative, government service model				
10.1	Promote the use of PC power management options among Agencies who have opted to remove the feature from desktop computers (CEO)	2010/11	Repeat in 2012/13	2012/13
10.2	Continue to evaluate an IT shared services model in order to leverage economies of scale; reduced duplication of effort has the potential to reduce GHG emissions. (CEO/ITSD/HCA and others)	2011/12 forward	Ongoing	2012/13 forward
10.3	Work with Health Care Agency on assessing GHG impacts of IT decisions related to Electronic Patient Records. (CEO/ITSD/HCA)	2011/12 forward	To be initiated	2012/13

10.4	Consider ways in which technology can be used to reduce the number of physical customer visits (and associated GHG emissions from vehicle trips) to County facilities.	2011/12 forward	Underway with video conferencing	2012/13 forward
10.5	Include IT components in employee education and communication. (Education and Communication Workgroup/ITSD)	2011/12 forward	Postponed 2012/13	2012/13 forward
Commitment #11: Reduce electricity use by 2020 through implementation of a comprehensive energy action plan				
11.1	Implement FM Systems (Facility Management Software) to track energy use	2012/13 forward	New Activity 2011/12	2012/13 forward
11.2	Purchase and implement Ecova/Performance IQ – utility management software	2012/13 forward	New Activity 2012/13	2012/13 forward
11.3	Consider energy efficiency savings in IT project development	2012/13 forward	Activities include virtualization, cloud computing, power management and others	2012/13 forward
Commitment #12: Increase share of renewable energy by 2020				
12.1	Install photovoltaic/solar array at Moorpark Wastewater Treatment plant	2012/13	New Activity 2012/13 – Board approved	2012/13
12.2	Install photovoltaic/solar array at Todd Road Jail	2012/13		2012/13

Commitment #13: Integrate a suite of green vehicles policies to promote efficiency, alternative fuels, and the infrastructure required for alternative travel modes – change to “Implement a Green Mobility Approach to Vehicle Use”				
13.1	Annual report to Board of Supervisors on Alternative Fuel Vehicles. (GSA/Fleet)	2010/11	Completed, next report May 2012	2012/13
13.2	Continue monitoring of underutilized vehicles. (GSA/Fleet)	2010/11	Ongoing	2012/13
13.3	Review feasibility of including GPS devices in all vehicles, to enhance efficient routing. (GSA/Fleet)	2011/12	Postponed pending feasibility study	2012/13
13.4	Redevelop vehicle usage dashboard, to include Fleet and Fire vehicles. Consideration will be given to including personal vehicle mileage/fuel usage in dashboard. (GSA)	2011/12	Postponed pending feasibility study	2012/13
13.5	Develop GHG reduction options for fire and law enforcement vehicles. (Fire/GSA Fleet/Sheriff)	2012/13		2012/13
13.6	Explore an integrated, green approach to County mobility, to include technology and behavioral-based solutions, including vehicle acquisition, use of trip planning software, video conferencing, decisions about vehicle use, use of public transit and others	2012/13	New activity	2012/13

Commitment #14: Shift County employees' commute trips from "drive alone" to other options, by 2020				
14.1	Develop employee commute team terms of reference. (CPP Steering Committee)	2010/11	Work with Pacesetters (activity 7.5 above)	2012/13
14.2	First meeting Pacesetters	2011/12	Work with Pacesetters (activity 7.5 above)	2012/13
14.3	Develop workplan and oversee employee commute survey. (Pacesetters)	2011/12	Work with Pacesetters (activity 7.5 above)	2012/13
14.4	Design employee recognition program. (Pacesetters)	2011/12	Work with Pacesetters (activity 7.5 above)	2012/13
14.5	Establish working relationships with VCTC and APCD. (Pacesetters)	2011/12	Work with Pacesetters (activity 7.5 above)	2012/13
14.6	Provide feedback on education and communication. (Pacesetters)	2012/13	Work with Pacesetters (activity 7.5 above)	2013/14
14.7	Make first set of recommendations on reducing emissions from employee commuting. (Steering Committee/Pacesetters)	2012/13	Work with Pacesetters (activity 7.5 above)	2013/14
14.8	Assist with implementation of recommendations and oversee regular employee surveys. (Pacesetters and all County employees)	2013/14	On track	2013/14 forward

No.	Activity	Timeframe	Status	Current Timeframe
Commitment #15: Expand Climate Protection plan to include broader sustainability goals related to zero waste and water conservation				
15.1	Define parameters of Sustainability Plan/Program. (CPP Steering Committee)	2011/12	Postponed pending first full year of data from Ecova on water and waste	2013/14
15.2	Identify resource requirements. (CPP Steering Committee)	2011/12	Postponed pending first full year of data from Ecova on water and waste	2013/14
15.3	Make recommendations on sustainability. (CEO)	2011/12	Postponed pending first full year of data from Ecova on water and waste	2013/14

County of Ventura
General Services Agency
Maintenance Division

2010-2011 Energy Action Plan
April 2010

Policy

This Energy Action Plan is relevant to all General Services Agency (GSA) maintained buildings. GSA shall strive to:

1. Minimize the energy intensity in GSA maintained buildings through the identification and implementation of energy efficiency projects;
2. Ensure that projects whose primary purpose may not be energy savings, such as upgrades to the HVAC, electrical or water fixtures consider reducing energy use and maximizing operational efficiency during the design phase;
3. Reduce the use of electricity, natural gas and water by a minimum of 15% over the next five years through targeted energy projects, management of building operating schedules, use of peak shifting operating strategies, management of utility rate structures and the installation of low flow water fixtures. Minimize project costs by taking advantage of available utility incentives;
4. Pursue United States Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) Green Building certification and/or the Environmental Protection Agency's ENERGY STAR certification for appropriate GSA maintained buildings;
5. Influence employee behavioral changes through an education program consisting of articles in the GSA newsletter and other publications, targeted emails, seminars, information kiosks and responding to employee concerns about energy use.

Implementation

The following Energy Action Plan (EAP) is designed to implement the Energy Action Policy defined above. The actions in the EAP will be implemented by GSA staff, GSA contractors and County employees. The County's CEO office, Agency Directors and GSA Management continue to provide leadership and financial support for the EAP implementation.

Programs and projects identified below will require near term investment of resources to reduce utility expenditures over the long term. Measures to reduce energy consumption are financially and environmentally prudent. Developing a culture of striving for energy efficiency in operating and maintaining GSA buildings will benefit both the County and the residents of Ventura County. Savings resulting from these actions will continue to

accumulate annually as more efficient approaches to building operation are developed and implemented.

The State of California has implemented a regulation to control greenhouse gas (GHG) emissions. The Ventura County Board of Supervisors has requested that County government reduce GHG emissions from County operations. Actions included in the GSA EAP not only improve the energy efficiency but also reduce the GHG footprint of GSA maintained buildings.

Energy Conservation Projects

GSA is responsible for maintaining approximately 3,500,000 square feet of buildings with a range of tenants including County Administration; Courts Administration and Court Rooms; Probation Administration and Detention; Sheriff's Administration and Detention; Fire Administration and Fire Stations; and Human Services.

Specific projects identified for Fiscal Year 2010-2011 include the following:

System-wide Projects

1. Monitor Equipment Operations and Schedules

Operation of the HVAC and lighting in the Government Center and in most of the larger GSA maintained buildings is controlled by a computerized energy management system (EMS.) The software allows the setting of operating times for the operation of the HVAC equipment and the lighting system in those buildings. The EMS also allows building operation to be automatically adjusted based on temperatures within the occupied space, outside air temperature and other HVAC system parameters. Operational programming within the EMS for each building will be reviewed at least annually to ensure the sequence of operation controls the building in the most energy efficient manner consistent with the occupancy of the building.

2. Energy Management System (EMS) in County Buildings

Many of the County's larger buildings are controlled by an EMS. These systems are nearing the end of their useful life. Maintenance of these systems can be problematic and many times compatible parts are no longer available. GSA is transitioning to a new web-based EMS manufactured by Andover. There is a significant operational benefit if all appropriate County buildings are controlled by the new EMS. Commonality of programming from building to building will ensure maintenance personnel and maintenance contractors understand and can utilize the EMS to efficiently control County buildings. Where appropriate, GSA will ensure that HVAC and lighting retrofit projects include the use of the Andover EMS to provide control of the new equipment.

3. Program Management of HVAC Contractors

Routine HVAC maintenance at GSA maintained buildings is subcontracted to EMCOR Services. GSA maintenance personnel oversee the operation of the building, the work of the contractor and deal with building occupants concerning issues related to building operation. EMCOR is responsible for all routine HVAC maintenance activities including filter replacement. GSA will develop metrics to assist maintenance personnel in ensuring building operating systems and equipment are being properly maintained and are operating at peak efficiencies. Five percent of maintained equipment will be audited annually.

4. Building tune-up and Retro-commissioning

Designing a new HVAC or lighting system for a building is only the first step in improving the operational efficiency of a building. Once designed and constructed, the operation of the new system must be audited to ensure the system is operating as designed, is meeting the needs of the occupants and is meeting the efficiency targets identified during design. GSA requires the designer of a building upgrade to develop a commissioning plan to ensure proper system operation once installation is complete and operation has begun. For older buildings, GSA will audit and develop commissioning surveys to ensure buildings are operating as efficiently as possible in support of the GSA goal to reduce energy use by a minimum of 15% over the next five year. Conducting these surveys will also give GSA personnel the opportunity to identify upgrades that should be considered for future implementation.

5. Benchmarking Utility Expenditures

GSA Accounting pays the utility bills for GSA maintained buildings. As they are paid, utility bills are logged into a database for tracking. In addition, the Government Center, the County's largest energy user, has County owned sub-meters on individual buildings to better understand the energy usage patterns within the Government Center. GSA has purchased a Utility Management System (UMS) which will easily allow usage trends to be identified in specific buildings as well as comparing energy intensity, such as energy per square foot or energy per employee, between buildings. GSA will also utilize external databases such as the US EPA ENERGY STAR Portfolio program to benchmark the energy use patterns of County buildings against similar buildings within the ENERGY STAR database. By comparing the energy intensity of GSA maintained buildings with external benchmarks, specific conservation efforts can be identified and prioritized. The UMS will also allow GSA to receive utility bills electronically eliminating the current use of receiving paper utility bills each month.

6. Refrigerants

During recent upgrades to the air conditioning systems at the Vanguard Building, East Valley Sheriff's Station, Camarillo Animal Regulation and Royal Avenue Building, GSA incorporated the use of more efficient and environmentally friendly refrigerants, R-134A

and R-410A. These refrigerants are less harmful to the ozone because they have a lower ozone depletion potential than the products that were previously contained in the systems at these buildings. In addition, GSA is replacing refrigerators that have reached the end of their useful life with energy efficient refrigerators that utilize environmentally friendly refrigerants.

7. Solar Photo Voltaic Systems

GSA will work with other County Agencies and consultants to identify buildings that may benefit from the installation of solar photo voltaic systems. Each identified opportunity will be examined to better understand the benefits of installing a solar system. For buildings where a solar installation has potential, GSA will develop a Request for Proposal to collect contractor input to more fully quantify the financial benefit of installing a solar photo voltaic system.

8. Restroom water reduction

GSA will continue to install low flow water closets, urinals and faucets in restrooms in GSA maintained buildings. Specifically targeted for replacement in the near term will be all water closets using 3.5 or more gallons per flush and all urinals using 1.5 or more gallons per flush. Waterless urinals will be installed where practical.

Building Specific Energy Conservation Projects

1. Lighting retrofits and upgrades

The County has an ongoing need to replace lamps with more efficient alternatives. This can be done on a one-by-one basis or by the process of group re-lamping or group retrofits. Due to the availability of Federal stimulus funding, GSA has identified a significant number of lighting retrofit projects to be accomplished during calendar years 2010 and 2011. Interior lighting will be upgraded to the most efficient T8, T5 and compact fluorescent lighting. Occupancy sensors and LED task lighting will be installed where appropriate. External lighting will include the installation of T5 High Output, induction, compact fluorescent fixtures or LED lighting and occupancy sensors where appropriate.

The buildings or portions of buildings that are to be retrofitted include:

646 County Square Drive
669 County Square Drive
Hall of Administration
Hall of Justice
2220 Gonzales Road
Animal Regulation
Work Furlough, Eubanks Drive

Work Furlough, Willis Drive
Ojai Police Station
Fire Department Headquarters
Fire Department Training Center
Fire Stations #23, #37, #42, #50, #51, #53
Sheriff's Academy, Camarillo
Simi Valley Mental Health
Todd Road Jail
Todd Road Jail, Exterior
Fire Communications Center
Fire Station Exteriors

2. East County Court House, Phase 1

The building's HVAC thermal energy storage system and controls are over 20 years old and are near the end of their useful life. GSA is designing a retrofit to the central chiller plant that will more efficiently respond to the load within the building and provide needed redundancy. The project includes controlling the HVAC central plant and lighting with a new Andover EMS.

3. Todd Road Jail, Master Plan

The facilities HVAC systems and controls have operated twenty-four hours a day since the building was occupied in 1995 and are nearing the end of their useful life. GSA is developing a Master Plan to guide in the upgrading of the Todd Road Jail HVAC and control systems. The Master Plan will identify the most energy efficient approach to providing heating and air conditioning to the facility and will identify a series of projects to implement the goals of the Master Plan.

4. Pretrial Detention Facility Commissioning and Implementation

GSA will conduct a retro-commissioning audit of the PTDF HVAC, controls, air and cooling water distribution systems. This audit will identify operational changes that can reduce the building operating costs while still satisfying the needs of the occupants.

5. Telephone Road Building, USGBC LEED Green Building Certification, 2011

During calendar year 2010 and 2011 GSA will apply through the United States Green Building Council (USGBC) Green Building Operations and Maintenance certification for the Telephone Road building. As part of the Leadership in Energy and Environmental Design (LEED) certification process GSA will work to improve the indoor environment; create a more energy efficient building; lower operating costs; educate occupants about how they can help to reduce, reuse and recycle and use the knowledge gained to certify other County buildings.

6. ECCH, HVAC Upgrade Phase 2

Following the chiller plant upgrade identified above, Phase 2 will focus on improving the efficiency of the interior air distribution system and will integrate interior controls into the existing Andover EMS.

7. Juvenile Justice Center, Energy Efficient Chiller

GSA is designing a new energy efficient chiller for this facility. The new chiller will be sized to more efficiently supply the cooling water required during the lower load periods of the year. An additional benefit of the new chiller will be to provide needed redundancy to support the building. The new systems will be controlled through the existing Andover EMS.

8. Solar Photo Voltaic System for Todd Road Jail

GSA is evaluating a proposal to provide electrical energy to the Todd Road Jail from a solar photo voltaic field to be built on leased land adjacent to the Jail. GSA will evaluate the proposal with the appropriate County agencies and the utility companies to determine if the project is feasible and in the County's best interest.

9. Natural Gas Supply for Todd Road Jail

Limoneira Corporation, a company with lemon and avocado orchards in Santa Paula has a contract with Occidental Petroleum to operate an oil field on the Limoneira property. As part of the oil field operation, natural gas extracted from the oil wells is flared or burned off. Limoneira has offered to evaluate the possibility of providing that gas to the County for use at the Todd Road Jail. Limoneira is investigating the quality of the natural gas; the viability of storing the gas; and the legal issues concerning transporting and selling the gas to the County.

Recently Completed Projects

GSA completed the following HVAC upgrades in 2009 and to-date in 2010: East Valley Sheriff's Station; Camarillo Animal Regulation; Royal Avenue Building; variable Todd Road Jail Cooling Tower variable frequency drives and premium efficiency motors; and PTDF variable frequency drives. These projects resulted in a savings of 124,000 kWh and a decrease of 89 tons of greenhouse gas annually.

1. East Valley Sheriff's Station

GSA replaced twenty-one package air conditioning units which were at the end of their useful life, with new, energy efficient units utilizing environmentally friendly refrigerant. In addition, the ductwork was cleaned and modified, as necessary, to more efficiently

serve rooms that had been modified by use or by size since the building was constructed. A new web-based Andover EMS was installed to replace the existing, obsolete control system and system commissioning was completed.

2. Camarillo Animal Shelter

GSA replaced six package air conditioning units which were at the end of their useful life, with new, energy efficient units utilizing environmentally friendly refrigerant. The new package units were integrated into the web-based Andover EMS.

3. Royal Avenue

GSA replaced six package air conditioning units which were at the end of their useful life, with new, energy efficient units utilizing environmentally friendly refrigerant. The new package units were integrated into the web-based Andover EMS.

4. Vanguard Building USGBC LEED Green Building Certification. June 2010

In March, 2010, GSA submitted the application to the United States Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED) for Existing Buildings (EB) Green Building certification for the Vanguard Building. The application was submitted at a Silver level and the application process should be complete by June, 2010.

The Vanguard Building and its systems were over 20 years old and scheduled for replacement and upgrade. GSA felt that this was the right time to pursue USGBC LEED-EB Green Building Certification. The results are an improved indoor environment; a more energy efficient building; lower operating costs; occupants know how they can help to reduce, reuse and recycle and we will use the knowledge gained to certify the Telephone Road Building and other County buildings.

The Vanguard Building earned an ENERGY STAR score of 81 from the Environmental Protection Agency and Department of Energy as of January, 2010. This is an increase of 15 points over the January, 2009 ENERGY STAR score of 66. The upgrades to the building have reduced energy costs by approximately \$44,000 annually.

5. Hall of Administration, All Variable Speed Central Plant Control System

GSA installed a "Hartman Loop" control system for the Hall of Administration central chiller plant. The "Hartman Loop" is a proprietary computer-controlled operating system that integrates and optimizes the performance of the chillers, the chilled and condenser water pumps and the cooling tower providing the chilled water used to cool the Hall of Administration. Installation of this system has resulted in a decrease of building operational electrical energy by 197,000 kWh and a decrease of 141 tons of greenhouse gas annually.

6. Solar Photo-Voltaic System

GSA completed a power purchase agreement that resulted in the installation of solar photovoltaic systems on GSA's Vanguard Building, the Saticoy GSA Building and the Saticoy PWA Building. The systems became operational in March 2010. The three systems will generate 742,469 kWh annually resulting in a decrease of 514 tons of greenhouse gas annually compared to power plant generated electricity.

7. Various Lighting Upgrades

GSA uses the latest, economical, technology when upgrading building interior and exterior lighting. Examples include retrofitting lighting to high performance, low energy, T-8 lamps and ballasts; installing T-5 high output lamps in parking lots that use dual levels controlled by motion sensors; and utilizing LED desk top task lights in office remodels. Lighting retrofits completed in 2009 and to-date in 2010 have included: Juvenile Justice Center Gymnasium Lighting; PTDF interior lighting upgrades; Vanguard Building Parking Lot; Hall of Justice stairways and basement; Telephone Road Building Parking Lot; 2220 Gonzales Road, Portions of the Second Floor Lighting; and multiple Fire Stations. These energy conservation measures will result in a decrease of building operational electrical energy of 728,000 kWh annually which is an equivalent decrease of 522 tons of greenhouse gas annually.

8. Vanguard Building, Low Flow Water Fixtures

GSA installed low flow water fixtures, replacing water closets that were rated at 3.5 gallons per flush and urinals that were rated at 1.5 gallons per flush. The actual reduction in water amounted to 30 HCF per month which is equivalent to 3,000 cubic feet or 22,440 gallons per month.

9. Hall of Administration, Waterless Urinals

GSA has installed waterless urinals in several restrooms in the Hall of Administration. Compared with standard urinals, the waterless urinals can save between 20,000-40,000 gallons of water per year, each.

County of Ventura Climate Protection Plan Annual Report 2012
Appendix "C"
Greenhouse Gas Reductions from Completed Energy Efficiency Projects

Year Completed	Facility	Location	Project Description	Estimated Project Cost	Incentive Amount	Annual kWh Savings	Cost to County	Annual Therm Savings	Annual \$ Savings (0.125/kWh) (\$0.154/therm)	Annual CO2e Reduction (MT)
2010	East County Courthouse Phase 1	Simi Valley	Chiller plant upgrade; air distribution	\$ 1,985,661	\$ -	260000.00	\$ 1,985,661		\$ 32,500	81
2010	Todd Road Jail Master Plan	Santa Paula	Identify efficiency upgrdes	\$ 22,500	\$ -	0.00	\$ 22,500		\$ -	0
2010	Juvenile Justice Center	Oxnard	Install efficient chiller	\$ 618,655	\$ -	256000.00	\$ 618,655		\$ 32,000	79
2010	646 County Square Drive	Ventura	Lighting Retrofit	\$ 45,200	\$ 5,816	52185.00	\$ 39,384		\$ 6,523	16
2010	669 County Square Drive	Ventura	Lighting Retrofit	\$ 40,800	\$ 6,284	38881.00	\$ 34,516		\$ 4,860	12
2010	2220 Gonzales Road	Oxnard	Lighting Retrofit	\$ 85,700	\$ 10,107	98267.00	\$ 75,593		\$ 12,283	30
2010	Animal Regulation	Camarillo	Lighting Retrofit	\$ 18,400	\$ 1,945	17521.00	\$ 16,455		\$ 2,190	5
2010	Pre-Trial Detention Facility Annex	Ventura	Lighting Retrofit - Stairways	\$ 15,280	\$ 325	16930.00	\$ 14,955		\$ 2,116	5
2010	Todd Road Jail	Santa Paula	Lighting Retrofit	\$ 99,800	\$ 7,334	91673.00	\$ 92,466		\$ 11,459	28
2010	Fire Stations	Countywide	Lighting Retrofit	\$ 90,296	\$ 8,498	105794.00	\$ 81,798		\$ 13,224	33
2010	Fire Department Headquarters	Camarillo	Lighting Retrofit	\$ 60,280	\$ 8,204	103332.00	\$ 52,076		\$ 12,917	32
2010	Fire Department Training Center	Camarillo	Lighting Retrofit	\$ 36,707	\$ 5,826	69754.00	\$ 30,881		\$ 8,719	22
2010	Fire Department Exteriors	Countywide	Lighting Retrofit	\$ 120,000	\$ 8,593	74679.00	\$ 111,407		\$ 9,335	23
2010	Ojai Police Station	Ojai	Lighting Retrofit	\$ 15,587	\$ 2,940	41236.00	\$ 12,647		\$ 5,155	13
2010	Prueter Library	Port Hueneme	Lighting Retrofit	\$ 36,205	\$ 4,629	50369.00	\$ 31,576		\$ 6,296	16
2010	Foster Library	Ventura	Lighting Retrofit	\$ 38,730	\$ 3,754	32832.00	\$ 34,976		\$ 4,104	10
2010	Simi Library	Simi Valley	Lighting Retrofit	\$ 3,800	\$ 602	8400.00	\$ 3,198		\$ 1,050	3
2010	Work Furlough - Eubanks and Willis	Camarillo	Lighting Retrofit	\$ 29,419	\$ 2,914	22614.00	\$ 26,505		\$ 2,827	7
2010	Simi Valley Behavioral Health	Simi Valley	Lighting Retrofit	\$ 16,445	\$ -	25255.00	\$ 16,445		\$ 3,157	8
2010	Sheriff's Academy	Camarillo	Lighting Retrofit	\$ 40,584	\$ -	21979.00	\$ 40,584		\$ 2,747	7
2010	Juvenile Justice Detention Center	Oxnard	Lighting Retrofit	\$ 350,000	\$ 58,322	690150.00	\$ 291,678		\$ 86,269	214
2010	Government Center Parking Lots	Ventura	Lighting Retrofit	\$ 83,390	\$ 10,465	102422.00	\$ 72,925		\$ 12,803	32
2010	Telephone Road Building	Ventura	Install occupancy sensors	\$ 22,140	\$ 3,758	17750.00	\$ 18,382		\$ 2,219	6
2010	Todd Road Jail	Santa Paula	Install A.O. Smith Hot Water Heaters	\$ 150,000			\$ 150,000	3,000	\$ 462	0
2009	East Valley Sheriff Station	Thousand Oaks	HVAC Replacement	\$ 1,093,239	\$ 35,000	75000.00	\$ 1,058,239		\$ 9,375	23
2009	Pre-Trial Detention Center	Ventura	Lighting	\$ 200,000	\$ 45,000	476680.00	\$ 155,000		\$ 59,585	148
2009	Camarillo Police Department	Camarillo	Lighting	\$ 24,080	\$ 9,632	72865.00	\$ 14,448		\$ 9,108	23
2009	2220 Gonzales	Oxnard	Lighting	\$ 15,000	\$ 2,500	16000.00	\$ 12,500		\$ 2,000	5
2008	Hall of Administration	Ventura	Hartman Loop Control	\$ 390,000	\$ 60,972	197000.00	\$ 329,028		\$ 24,625	61
2008	Vanguard Building	Oxnard	HVAC Replacement	\$ 550,000	\$ 35,990	167980.00	\$ 514,010		\$ 20,998	52
2008	Service Building	Ventura	Lighting	\$ 97,000	\$ 28,035	187000.00	\$ 68,965		\$ 23,375	58
2008	Fire Facilities Completed	Various	Lighting	\$ 75,176	\$ 26,025	168519.00	\$ 49,151		\$ 21,065	52
2008	HCA Knoll Drive	Ventura	Lighting	\$ 70,267	\$ 25,436	137567.00	\$ 44,831		\$ 17,196	43
2008	Fire Facilities Current (Stations)	Various	Lighting	\$ 99,097	\$ 18,387	106000.00	\$ 80,710		\$ 13,250	33
2008	East Valley Sheriff Station	Thousand Oaks	Lighting	\$ 36,520	\$ 11,400	87680.00	\$ 25,120		\$ 10,960	27
2008	Vanguard Building	Oxnard	Lighting	\$ 150,000	\$ 25,000	75000.00	\$ 125,000		\$ 9,375	23
2008	Various	Various	Lighting	\$ 10,000	\$ 3,725	70551.00	\$ 6,275		\$ 8,819	22
2008	Service Building Warehouse	Ventura	Lighting	\$ 35,000	\$ 9,375	62500.00	\$ 25,625		\$ 7,813	19

County of Ventura Climate Protection Plan Annual Report 2012
Appendix "C"
Greenhouse Gas Reductions from Completed Energy Efficiency Projects

Year Completed	Facility	Location	Project Description	Estimated Project Cost	Incentive Amount	Annual kWh Savings	Cost to County	Annual Therm Savings	Annual \$ Savings (0.125/kWh) (\$0.154/therm)	Annual CO2e Reduction (MT)
2008	646 County Square Drive	Ventura	Lighting	\$ 35,000	\$ 9,000	60000.00	\$ 26,000		\$ 7,500	19
2008	East Valley Sheriff Station	Thousand Oaks	Lighting	\$ 35,000	\$ 7,500	50000.00	\$ 27,500		\$ 6,250	16
2008	Hall of Justice	Ventura	Lighting	\$ 100,000		36861.00	\$ 100,000		\$ 4,608	11
2008	Wright Library	Ventura	Lighting	\$ 26,054	\$ 7,618	30470.00	\$ 18,436		\$ 3,809	9
2008	Telephone Rd Bldg	Ventura	Lighting	\$ 14,383		23900.00	\$ 14,383		\$ 2,988	7
2008	Government Center	Ventura	Lighting	\$ 16,200	\$ 1,500	7576.00	\$ 14,700		\$ 947	2
2008	El Rio Library	Oxnard	Lighting	\$ 8,346	\$ 1,857	7249.00	\$ 6,489		\$ 906	2
2008	Well Number 96	Moorpark	Pump Overhaul	\$ 188,632		186848.00	\$ 188,632		\$ 23,356	58
2008	Well Number 6	Moorpark	Pump Overhaul	\$ 67,809		68494.00	\$ 67,809		\$ 8,562	21
2008	Well Number 95	Moorpark	Pump Overhaul	\$ 64,524		12385.00	\$ 64,524		\$ 1,548	4
2008	VCMC	Ventura	VFD	\$ 4,750	\$ -	14440.00	\$ 4,750		\$ 1,805	4
2008	Santa Paula Hospital	Santa Paula	VFD	\$ 4,500	\$ -	10287.00	\$ 4,500		\$ 1,286	3
2007	Ventura County Inpatient	Ventura	Lighting	\$ 67,803	\$ 22,230	118096.00	\$ 45,573		\$ 14,762	37
2007	Santa Paula Hospital	Santa Paula	Lighting	\$ 458,281	\$ 17,681	85500.00	\$ 440,600		\$ 10,688	27
2007	Ventura County FAB	Ventura	Lighting	\$ 29,865	\$ 9,182	47327.00	\$ 20,683		\$ 5,916	15
2007	West Ventura Clinic	Ventura	Lighting	\$ 38,284	\$ 6,829	28463.00	\$ 31,455		\$ 3,558	9
2007	Hall of Justice	Ventura	Lighting	\$ 14,650	\$ 2,251	15275.00	\$ 12,399		\$ 1,909	5
2007	Soliz Library	Oxnard	Lighting	\$ 8,346	\$ 1,857	7429.00	\$ 6,489		\$ 929	2
2007	Hall of Administration	Ventura	Lighting	\$ 6,404	\$ 1,281	6591.00	\$ 5,123		\$ 824	2
2007	Government Center	Ventura	VFD	\$ 34,235	\$ 2,130	14202.00	\$ 32,105		\$ 1,775	4
2006	West Ventura Clinic	Ventura	Boiler Replacement (2 ea)	\$ 32,000	\$ 4,520		\$ 27,480	6,305	\$ 971	34
2006	HCA Knoll Drive	Ventura	Boiler Replacement (2 ea)	\$ 32,000	\$ 4,520		\$ 27,480	6,305	\$ 971	34
2006	Service Building	Ventura	HVAC Replacement	\$ 605,522	\$ 37,500	150000.00	\$ 568,022		\$ 18,750	43
2006	646 County Square Drive	Ventura	HVAC Replacement	\$ 617,646	\$ 22,492	89968.00	\$ 595,154		\$ 11,246	28
2006	VCMC	Ventura	Lighting	\$ 226,464	\$ 90,000	787865.00	\$ 136,464		\$ 98,483	244
2006	Hall of Administration	Ventura	Lighting	\$ 14,200	\$ 2,800	13834.00	\$ 11,400		\$ 1,729	4
2006	Fillmore Library	Ventura	Lighting	\$ 11,075	\$ 2,380	9521.00	\$ 8,695		\$ 1,190	3
2006	Hall of Administration	Ventura	VFD	\$ 80,000	\$ 15,000	100000.00	\$ 65,000		\$ 12,500	31
2006	Hall of Justice	Ventura	VFD	\$ 34,234	\$ 3,600	24000.00	\$ 30,634		\$ 3,000	7
2006	Hall of Administration	Ventura	VFD	\$ 68,000	\$ 27,200	246025.00	\$ 40,800		\$ 30,753	76
TOTAL				\$ 9,815,165	\$ 787,720	6,350,971	\$ 9,027,445	15,610	\$ 796,275	2,035

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Appendix "D"
Greenhouse Gas Reductions from Completed Photovoltaic Projects

Year Completed	Facility	Location	Project Description	Estimated Project Cost	Incentive Amount	Annual kWh Savings	Cost to County	Annual Therm Savings	Annual \$ Savings (0.125/kWh) (\$0.154/therm)	Annual CO2e Reduction (MT)
2008	Vanguard Building and Saticoy	Oxnard and Saticoy	Photovoltaic Array (3rd party)	(Third party)		716,452	\$ -		\$ (9,314)	206
TOTAL				\$ -	\$ -	716,452	\$ -	0	\$ (9,314)	206

County of Ventura Climate Protection Plan Annual Report 2012
Appendix "E"
Greenhouse Gas Reductions from Future Energy Efficiency Projects

Facility	Location	Project Type	Estimated Project Cost	Incentive Amount	Annual kWh Savings	Cost to County	Annual Therm Savings	Annual \$ Savings (0.125/kWh) (0.154/therm)	Annual CO2e Reduction (MT)
Hall of Justice	Ventura	Commission the HVAC and lighting system	\$ 100,000		251,000	\$ 100,000		\$ 31,375	78
Telephone Road Building	Ventura	Commission the HVAC and lighting system	\$ 75,000		33,500	\$ 75,000		\$ 4,188	10
Government Center	Ventura	Install CO2 sensors in parking garages	\$ 35,000		47,000	\$ 35,000		\$ 5,875	15
PreTrial Detention Facility, Crime Lab	Ventura	Install dedicated unit for DNA Lab	\$ 140,000		2,560	\$ 140,000		\$ 320	1
Todd Road Jail	Santa Paula	Install direct digital control for housing units	\$ 500,000		88,000	\$ 500,000		\$ 11,000	27
PreTrial Detention Facility, Crime Lab	Ventura	Install exhaust nozzles	\$ 16,500		3,000	\$ 16,500		\$ 375	1
East Valley Sheriff Station	Thousand Oaks	Install pre-coolers	\$ 35,000		22,000	\$ 35,000		\$ 2,750	7
James Knight Building	Oxnard	Lighting Retrofit	\$ 7,665		15,084	\$ 7,665		\$ 1,885	5
Santa Paula Clinic	Santa Paula	Lighting Retrofit	\$ 10,342		22,793	\$ 10,342		\$ 2,849	7
Santa Paula Medical Clinic Portables	Santa Paula	Lighting Retrofit	\$ 21,197		35,870	\$ 21,197		\$ 4,484	11
2240 Gonzales Road	Oxnard	Lighting Retrofit	\$ 57,784		67,652	\$ 57,784		\$ 8,457	21
Todd Road Jail	Santa Paula	Replace evaporative air handlers	\$ 660,000		13,000	\$ 660,000		\$ 1,625	4
PreTrial Detention Facility, Annex	Ventura	Replace primary HVAC controls	\$ 70,000		19,000	\$ 70,000		\$ 2,375	6
PreTrial Detention Facility, Crime Lab	Ventura	Replace Property Room heat pump	\$ 140,000		3,000	\$ 140,000		\$ 375	1
Todd Road Jail	Santa Paula	Replace/rebuild air handling units	\$ 1,250,000		87,000	\$ 1,250,000		\$ 10,875	27
Animal Regulation	Camarillo	Retrofit exterior lighting	\$ 35,000		1,000	\$ 35,000		\$ 125	0

County of Ventura Climate Protection Plan Annual Report 2012
Appendix "E"
Greenhouse Gas Reductions from Future Energy Efficiency Projects

Facility	Location	Project Type	Estimated Project Cost	Incentive Amount	Annual kWh Savings	Cost to County	Annual Therm Savings	Annual \$ Savings (0.125/kWh) (0.154/therm)	Annual CO2e Reduction (MT)
PreTrial Detention Facility, Crime Lab	Ventura	Upgrade AHU-3 operation	\$ 82,000		2,560	\$ 82,000		\$ 320	1
PreTrial Detention Facility	Ventura	Upgrade HVAC controls to direct digital control	\$ 400,000		169,725	\$ 400,000		\$ 21,216	53
Hall of Justice	Ventura	Upgrade HVAC controls to direct digital control	\$ 400,000		345,000	\$ 400,000		\$ 43,125	107
East County Courthouse Phase 2	Simi Valley	Upgrade interior HVAC system and controls	\$ 1,000,000		176,000	\$ 1,000,000		\$ 22,000	55
Well Number 20	Moorpark	Water and Wastewater	\$ 2,000,000		1,566,000	\$ 2,000,000		\$ 195,750	486
District 17 Pipeline & Flintrock Demolition	Canoga Park	Water and Wastewater	\$ 600,000		37,668	\$ 600,000		\$ 4,709	12
			\$ 7,635,488	\$ -	3,008,412	\$ 7,635,488	-	\$ 376,051	1,770

County of Ventura Climate Protection Plan Annual Report 2012

Appendix "F"

Greenhouse Gas Reductions from Future Photovoltaic Projects

Facility	Location	Project Type	Estimated Project Cost	Incentive Amount	Annual kWh Savings	Cost to County	Annual \$ Savings (0.125/kWh)	Annual CO2e Reduction (MT)
Moorpark WWTP Solar	Moorpark	Photovoltaic Array	\$ 5,550,000		\$ 2,000,000	5,550,000	\$ 250,000	621
Moorpark Desal Solar	Moorpark	Photovoltaic Array	\$ 6,000,000		\$ 2,000,000	6,000,000	\$ 250,000	621
Todd Road Jail	Santa Paula	Photovoltaic Array	\$ 5,300,000	\$ 1,254,829	\$ 1,929,000	4,045,171	\$ 241,125	599
Government Center	Santa Paula	Photovoltaic Array	\$ 5,000,000	\$ 1,254,829	\$ 1,929,000	3,745,171	\$ 241,125	599
East Valley Sheriff Station	Thousand Oaks	Photovoltaic Array	\$ 3,000,000	\$ 710,280	\$ 1,092,000	2,289,720	\$ 136,500	339
Total			\$ 24,850,000	\$ 3,219,938	\$ 8,950,000	21,630,062	\$ 1,118,750	2,777

Appendix “G”:
Case Study: Information Technology, Energy Efficiency and Climate Change

This appendix is the first in a series of case studies that will highlight the work undertaken by various County agencies to reduce costs and energy use and to contribute towards the County’s reduction goals for greenhouse gas emissions.

Both the Information Services Technology Department (ITSD) and the Health Care Agency are responsible for acquiring and maintaining software and hardware necessary to deliver all services to the County, including public safety, health and continuity of government operations. The following describes projects that have been completed in the last two to three years, those that are ongoing and those that will be considered in the future. While the County has limited access to submeters, there is data to suggest that the increase of temperatures in the ITSD data center alone accounted for more than 6.5% in GHG emissions between 2010 and 2011, and a savings of \$11,877 per year.

Completed Projects - ITSD		
Project	Description	Impact – Energy and Service Delivery
Air Conditioning	Temperature in data center has been increased by a total of 4 degrees	Reduced energy demand
Data Center Size	53 new virtual servers	By reducing the number of servers in the data center, there is a lower energy demand and space made available for other County functions
Printing	Transfer all printing to GSA	Reduced energy requirements in data center, with economies of scale through printing with GSA
Document imaging	Completed document imaging project for Human Services Agency	By transferring paper files to electronic versions, ITSD estimates that reduced demand for paper storage of all images to date is equivalent to a 2 mile high stack of paper. This is not just for HSA, so this count continues to grow. This reduces the County footprint by reducing the need for climate controlled warehouse and/or office space.
Unified fax solution	Faxes are delivered to email accounts	Reduces printing needs, with associated waste and electricity demands.
GIS Data	Sheriff and Fire District utilize GIS data from ITSD to calculate the shortest routes from responding units to call destinations	Reduces fossil fuel usage, as well as critical response time

Completed Projects – Health Care Agency		
Project	Description	Impact – Energy and Service Delivery
Thin Clients	Replacement of desktop towers with thin client computers.	Thin clients draw significantly less power than PC computers resulting in a reduction of emissions. Thin clients also take up much less space than PC computers creating a more efficient workspace for employees.
Electronic Health Records	Installation of a digital record system for medical information about patients. Eliminates the need for paper charting and streamlines medical information for ease of access by healthcare professionals.	Reduction of paper usage, resulting in reduction of emissions from procurement and storage due to elimination of paper charting. In addition, the use of an electronic health record greatly reduces errors made during charting. By streamlining all medical records, patient care is improved by allowing healthcare professionals ease of access to a patient's entire file.
Blades	Installation of blades reduced rack servers from 12 to 4. Allows for use of thin client computers.	Initial decrease in power consumption. However, more air-conditioning will be utilized to keep blades at operational temperatures.
Picture Archiving and Communication System (PACS)	Installation of medical imaging technology which provides economical storage of, and convenient access to, images from multiple modalities.	PACS will help decrease emissions by eliminating the need for space for storage of paper and images. This may result in a decrease of warehouses for storage and space can be better utilized.
Virtual Health Care Training	Virtual Training Program replaces annual training workshops held at different locations around the county.	Carbon emissions are reduced by removing the need for 3000 employees to travel to an annual training. This could represent as much as 130 metric tons of CO2 savings per year.
Virtual Medical Translation Service	Enrolled in a medical translation service that can access a translator by phone or video 24/7.	This eliminates the need for a translator to drive to the medical facility. This also improves patient care by quicker response and availability of more languages.

Ongoing Projects - ITSD		
Project	Description	Impact – Energy and Service Delivery
Energy Star	All equipment purchased and recommended by ITSD meet Energy Star requirements	Reduced use of electricity.
Radio coverage	Expanding radio coverage in the County from 6 to 16 mountain top locations	Critical for emergency services and continuity of operations. Will increase electricity use: ITSD is exploring solar energy, dependent on nature of the lease arrangements
Virtual desktops	Virtualizing desktops for Human Services Agency	Reduced demand for electricity from individual CPUs.
Floor ducting	Changing floor ducting will allow for in-rack cooling in data centers.	Reduced demand for air conditioning and electricity.
Disaster recovery	Contract with Agility to provide portable data center	County does not maintain a “warm” recovery site, reducing the need for climate controls in a facility that would only be used in exceptional circumstances.
Mobile access pilot	Working with Human Services Agency to provide mobile access for field-based workers	Reduced employee commutes, and reduced overall vehicle emissions because employees are not required to drive to central locations before and after starting their workday
Ongoing Projects - HCA		
Project	Description	Impact – Energy and Service Delivery
Server virtualization	Continually adding information to the cloud rather than server. At this point, some information must remain on local servers.	Reduction in emissions due to reduced number of local servers needed.

Potential Areas for Future Attention ITSD		
Project	Description	Impact – Energy and Service Delivery
Cloud hosting	ITSD currently uses a cloud-based software-as-a-service solution for its primary business, and is further exploring cloud-based solutions for server and data storage provisioning	Reduced demand for electricity and air conditioning, at least at County facilities.
Data center improvements	ITSD is examining the SwitchNap model for improving energy efficiency in data centers	Reduced demand for electricity and increased data reliability.
Shortest path routing	ITSD works with agencies to develop efficient routing for field staff	More efficient use of staff time and reductions in vehicle fuel emissions, with associated cost savings. Underutilized at this point.
Video conferencing	Video conference rooms	Recommendation to identify conference rooms where Skype video conferencing will be enabled. Universal access to Skype is not recommended, given its demand on bandwidth. Video conferencing will reduce the need for travel for County staff meetings, and in some cases will be useful for meetings with clients and/or vendors.
Enterprise content management	Move away from paper storage to electronic files	ECM will make information management easier through simplifying storage, security, version control, process routing, and retention. By virtualizing information, the County can anticipate a reduced physical footprint, by eliminating the use of climate controlled space for filing cabinets and file warehouses.

Potential Areas for Future Attention - HCA		
Project	Description	Impact – Energy and Service Delivery
Video Conference Technology	Many facilities have the ability to use video conference technologies. This ability isn't widely used, and generally for telemedicine.	This technology could be adapted to be used for more teleconference meetings. Physicians could be encouraged to use this technology for consults with specialists, etc.
PC Power Management	A PC power management program (Verdiem) is installed and available for use on all computers. The Agency's experience has been that when Verdiem is activated, other applications do not operate properly or freeze. For this reason PC power management is disabled on many computers.	Research other options for newer applications, power-management software, or other updates/workarounds to allow PC power management and/or Verdiem to be used without reducing employee efficiency or patient care.