

**APPENDIX C:  
COMMUNITY-WIDE GHG  
REDUCTION MEASURE  
TECHNICAL APPENDIX**



**1: Energy Conservation Programs**

Measure:

Collaborate with local utility providers, educational institutions, and stakeholders to develop effective energy conservation campaigns through energy competitions and to provide targeted marketing for new and existing conservation programs.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	-860	1% of population voluntarily conserve 10% of energy use. 0.5% of large commercial facilities retrocommissioned.
2020 Reductions (MTCO <sub>2</sub> e):	-2,870	5% household participation and 1% business participation in energy competition program. 1% of population voluntarily conserve 10% of energy use. 5% of large commercial facilities retrocommissioned.
2035 Reductions (MTCO <sub>2</sub> e):	-4,100	5% household participation and 1% business participation in energy competition program. 1% of population voluntarily conserve 10% of energy use. 10% of large commercial facilities retrocommissioned.

Assumptions:

Reductions in energy consumption will rely on voluntary public participation in energy conservation programs and actions to conserve energy. Participation rates are based on case studies from similar conservation programs.

Sources:

California Polytechnic State University Administration and Finance Division. 2010. Green Campus Program – Current Projects. <http://www.afd.calpoly.edu/greencampus/projects.asp>.

Council of Neighborhood Associations. 2011. Tallahassee – Leon County Energy Challenge. [http://www.econa.org/econa/page.html?page\\_id=34](http://www.econa.org/econa/page.html?page_id=34).

Pacific Gas and Electric Company. 2011. Retrocommissioning (RCx) Program. <http://www.pge.com/mybusiness/energysavingsrebates/rebatesincentives/retrocommissioning/>.

Sacramento Metropolitan Air Quality Management District. 2009. Spare the Air Control Measure Program; Revision to State Implementation Plan Staff Report. <http://www.airquality.org/notices/CAPUpdate/STA-revisiontoSIP-StaffRpt23April2009.pdf>.

**2: Low-Income Weatherization**

Measure:

Promote existing low-income energy conservation and weatherization programs and coordinate with

local utility providers and nonprofit corporations to develop additional energy efficiency programs.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	0	0
2020 Reductions (MTCO <sub>2</sub> e):	-1,120	75 households retrofitted annually. 750 households retrofitted by 2020.
2035 Reductions (MTCO <sub>2</sub> e):	-2,760	75 households retrofitted annually. 1875 households retrofitted by 2035.

Assumptions:

The anticipated number of low-income households retrofitted is based on the percentage of households retrofitted statewide and applied to San Luis Obispo County. The average energy savings per household comes from the State of California Department of Community Services and Development.

Sources:

State of California Community Services and Development. 2009. CSD Helps Low-Income Families Manage and Reduce Energy Costs. [http://www.csd.ca.gov/Contractors/documents/Energy%20tab/LIHEAP-DOE%20Fact%20Sheet%20\(2008\).pdf](http://www.csd.ca.gov/Contractors/documents/Energy%20tab/LIHEAP-DOE%20Fact%20Sheet%20(2008).pdf).

State of California Department of Finance. 2010. E-2 California County Population Estimates and Components of Change by Year. <http://www.dof.ca.gov/research/demographic/reports/view.php#objCollapsiblePanelEstimatesAnchor>.

### 3: Energy Efficiency Financing

Measure:

Develop and adopt an energy efficiency retrofit program to increase energy efficiency in existing commercial, residential, governmental, and industrial facilities.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	0	0
2020 Reductions (MTCO <sub>2</sub> e):	-11,430	15% of households and 10% of businesses participating. Average electricity savings of 10%. Average natural gas savings of 25%.
2035 Reductions (MTCO <sub>2</sub> e):	-13,410	25% of households and 15% of businesses participating. Average electricity savings of 10%. Average natural gas savings of 25%.

Assumptions:

Participation in energy efficiency financing programs and the average energy savings per participant is based on program evaluations and research of existing programs in other jurisdictions.

Sources:

City of Berkeley. 2010. Berkeley FIRST Initial Evaluation. Berkeley, CA.

National Resources Defense Council; PACE Now; Renewable Funding LLC; The Vote Solar Initiative. 2010. Property Assessed Clean Energy Programs White Paper.

San Luis Obispo County. 2009. San Luis Obispo County General Plan: Housing Element. Planning and Building, San Luis Obispo, CA.

**4: Energy Efficiency in Existing Buildings**

Measure:

The County will collaborate with the incorporated cities in the county to develop and implement a countywide program to: 1) conduct energy audits or provide EPA Home Energy Scores for residential buildings; 2) disclose energy use history of non-residential buildings; and 3) prepare an energy conservation ordinance to reduce electricity and natural gas use by implementing energy efficiency measures identified in the energy audits.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	0	0
2020 Reductions (MTCO <sub>2</sub> e):	-9,580	3,200 residential units audited and 16% of nonresidential properties audited. 20% average energy savings per residential building and 25% for nonresidential buildings.
2035 Reductions (MTCO <sub>2</sub> e):	-29,250	8,000 residential units audited and 46% of nonresidential properties audited. 20% average energy savings per residential building and 25% for nonresidential buildings.

Assumptions:

Participation in the program is estimated at 3,200 residential units by 2020 and 8,000 units by 2035. Energy savings per building will be identified within the program/ordinance guidelines at the time of adoption.

Sources:

California Energy Commission. 2010. Nonresidential Building Energy Performance Rating Disclosure Regulations. Sacramento.

U.S. Department of Energy. 2011. Energy Efficiency and Renewable Energy. Home Energy Score. <http://www1.eere.energy.gov/buildings/homeenergyscore/>.

**5: Workforce Training Programs**

Measure:

Continue to seek funding and support green building and weatherization training programs like the SLO County Workforce Investment Board’s program funded by the California Clean Energy Workforce Training Program.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
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2010 Reductions (MTCO <sub>2</sub> e):	Supporting Measure – Not Quantifiable	200 participants trained
2020 Reductions (MTCO <sub>2</sub> e):	Supporting Measure – Not Quantifiable	1,000 participants trained
2035 Reductions (MTCO <sub>2</sub> e):	Supporting Measure – Not Quantifiable	1,500 participants trained

**Assumptions:**

The SLO County Workforce Investment Board has estimated that it will train 200 participants through the initial Green Building and Clean Energy Training Program. It is estimated that the County and its partners will continue to apply for funding to expand the program to train 1,000 participants by 2020 and a total of 1,500 participants by 2035.

**Sources:**

Workforce Investment Board San Luis Obispo County. 2009. Green Jobs Program. SLO County Receives Green Jobs Grant of \$610,055. <http://sloworkforce.com/wordpress/projects/green-jobs-program/>.

**6: Smart Grid Technology****Measure:**

Work with local utility providers to implement smart grid technology in new and existing residential and nonresidential properties.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	0	0
2020 Reductions (MTCO <sub>2</sub> e):	-7,930	50% of homes and businesses utilizing energy monitors
2035 Reductions (MTCO <sub>2</sub> e):	-13,180	80% of homes and businesses utilizing energy monitors

**Assumptions:**

Smart grid integration will reduce energy demand through continuous feedback of real-time energy use. Research has shown that the more frequently building users are reminded of their energy use, the more they will change their behaviors to consume less energy. Additional energy savings will be achieved through the installation of smart grid appliances that can be pre-programmed to run at off-peak energy times.

**Sources:**

Ehrhardt-Martinez, K., K. Donnelly, and J. Laitner. 2010. Advanced Metering Initiatives and Residential Feedback Programs: A Meta-Review for Household Electricity-Savings Opportunities. Washington, D.C.: American Council for an Energy-Efficient Economy.

Pike Research. 2010. Smart appliance sales to start off slow, but 118 million units will be sold worldwide by 2019. <http://www.smartgridnews.com/artman/publish/Smart-Grid-Press-Releases/Smart-appliance-sales-to-start-off-slow-but-118-million-units-will-be-sold-worldwide-by-2019->

forecasts-Pike-Research-3290.html.

U.S. Department of Energy. 2008. Energy Star. Clothes Washer Product Snapshot.  
[http://www.energystar.gov/ia/partners/rep/pt\\_reps\\_res\\_retail/files/CW\\_ProductSnapshot\\_May08.pdf](http://www.energystar.gov/ia/partners/rep/pt_reps_res_retail/files/CW_ProductSnapshot_May08.pdf).

— — — . n.d. Energy Star. Residential New Construction: An Overview of Energy Use and Energy Efficiency Opportunities. [http://www.energystar.gov/ia/business/challenge/learn\\_more/ResidentialNewConstruction.pdf](http://www.energystar.gov/ia/business/challenge/learn_more/ResidentialNewConstruction.pdf).

**7: Energy-Efficient New Development**

Measure:

Encourage and incentivize new development projects to exceed minimum Cal Green requirements.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	0	N/A
2020 Reductions (MTCO <sub>2</sub> e):	-3,780	Percentage of new buildings Exceeding minimum CALGreen requirements
2035 Reductions (MTCO <sub>2</sub> e):	-9,460	Percentage of new buildings Exceeding minimum CALGreen requirements

Assumptions:

Reduction in electricity and natural gas use from new buildings is based on average energy reductions by building type and climate zone as provided in the California Air Pollution Control Officers Association’s (CAPCOA) Quantifying Greenhouse Gas Mitigation Measures.

Sources:

California Air Pollution Control Officers Association. 2010. Quantifying Greenhouse Gas Mitigation Measures.

California Building Standards Commission. 2010. 2010 California Green Building Standards Code. Sacramento: California Building Standards Commission.

California Energy Commission. 2007. Impact Analysis: 2008 Update to the California Energy Efficiency Standards for Residential and Nonresidential Buildings. Sacramento: California Energy Commission.

**8: Community Forestry Program**

Measure:

Pursue a comprehensive program to plant and maintain trees on County-maintained roads, medians, and public parking lots in the unincorporated communities. Expand the program to include tree planting on private property where owners wish to be part of the program. Encourage property owners to plant and maintain trees near structures to reduce building energy demand.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	-240	0
2020 Reductions (MTCO <sub>2</sub> e):	-790	6,500 new trees planted
2035 Reductions (MTCO <sub>2</sub> e):	-1,510	15,000 new trees planted

**Assumptions:**

The community forestry GHG emissions reduction relies on an assumed rate of two trees planted per new household. The GHG reduction from these new trees will include the energy reductions from additional building shading and the reduced urban heat island, in addition to the sequestration benefits of tree planting.

**Sources:**

McHale, Melissa R., E. Gregory McPherson, and Ingrid C. Burke. 2007. The potential of urban tree plantings to be cost effective in carbon credit markets. Fort Collins, CO: Elsevier.

**9: Countywide Energy Collaborative****Measure:**

Build a collaborative network or organizational structure to work with the seven cities, other local and state agencies, investor-owned utilities, the California Energy Commission, and the California Public Utilities Commission to promote a wide range of energy efficiency and renewable programs.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	0	0
2020 Reductions (MTCO <sub>2</sub> e):	0 to -20,680	50% of electricity from renewable sources
2035 Reductions (MTCO <sub>2</sub> e):	-1,50 to -36,53010	75% of electricity from renewable sources

**Assumptions:**

50% of electricity will come from renewable sources by 2020 and 75% from renewable sources by 2035.

**Sources:**

n/a

**10: Commercial-Scale Renewable Energy****Measure:**

Develop a comprehensive renewable energy strategy to encourage the commercial-scale installation of renewable energy projects within the county.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	Included in the Renewable Portfolio Standard	
2020 Reductions (MTCO <sub>2</sub> e):	Included in the Renewable Portfolio Standard	Megawatts of solar installed

2035 Reductions (MTCO <sub>2</sub> e):	Included in the Renewable Portfolio Standard	Megawatts of solar installed
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Assumptions:

To avoid overlap with the GHG emissions reductions from the Renewable Portfolio Standard, GHG emissions reductions from commercial-scale renewable energy projects are not separately quantified. Quantifying the GHG reduction of commercial scale renewable energy generated in SLO County would result in the double-counting of the GHG reduction benefit from these projects.

**11: Small-Scale Renewable Energy**

Measure:

Implement a financing program to provide property owners with low-interest loans for the installation of renewable energy resources.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	0	0
2020 Reductions (MTCO <sub>2</sub> e):	-19,850	28 MW of renewable energy systems installed
2035 Reductions (MTCO <sub>2</sub> e):	-20,130	50 MW of renewable energy systems installed

Assumptions:

Participation in energy efficiency financing programs and the average energy savings per participant are based on program evaluations and research of existing programs in other jurisdictions.

Sources:

California Energy Commission. 2010. New Solar Homes Partnership, Third Edition. Sacramento: California Energy Commission.

City of Berkeley. 2010. Berkeley FIRST Initial Evaluation. Berkeley, CA.

National Resources Defense Council; PACE Now; Renewable Funding LLC; The Vote Solar Initiative. 2010. Property Assessed Clean Energy Programs White Paper.

San Luis Obispo County. 2009. San Luis Obispo County General Plan: Housing Element. Planning and Building, San Luis Obispo, CA.

**12: Renewable Energy Partnerships**

Measure:

Collaborate with local and state governmental agencies (California Men’s Colony, Cal Poly, Cuesta College, etc.) and energy facility operators to develop renewable energy sources at existing facilities.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	-450	1 MW of renewable energy installed

2020 Reductions (MTCO <sub>2</sub> e):	-760	2.5 MW of renewable energy installed
2035 Reductions (MTCO <sub>2</sub> e):	-1,260	4 MW of renewable energy installed

**Assumptions:**

This measure quantifies the GHG reductions that will occur from state and local agencies that are located in the unincorporated areas installing renewable energy at the various facilities. Cal Poly has installed several renewable energy facilities and will continue to install additional facilities as funding becomes available. This measure assumes that state and local agencies in the unincorporated areas will procure 10% of their electricity from renewable energy sources by 2020 and 25% by 2035.

**Sources:**

California Polytechnic State University Administration and Finance Division. 2010. Cal Poly Sustainability. <http://www.afd.calpoly.edu/sustainability/metrics.asp>.

**13: Recycling****Measure:**

Provide additional opportunities for county residents to recycle cardboard, glass, paper, and plastic products.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	0	0
2020 Reductions (MTCO <sub>2</sub> e):	-6,170	Percentage of residents and businesses with access to recycling opportunities
2035 Reductions (MTCO <sub>2</sub> e):	-7,170	Percentage of residents and businesses with access to recycling opportunities

**Assumptions:**

Increased recycling will result in a higher waste diversion rate for unincorporated areas of the county. This measure relies on the reported diversion rate in 2006 and sets goals to achieve a 75% diversion rate by 2020 and 90% by 2035. Many of the community service districts negotiate the waste hauling contracts for residents and businesses within their jurisdiction. This measure assumes an increased diversion rate only for the portions of the population where the County is responsible for negotiating the waste hauling contract.

**Sources:**

California Integrated Waste Management Board. 2004. Statewide Waste Characterization Study. Sacramento: California Integrated Waste Management Board.

San Luis Obispo County. 2011. San Luis Obispo County Garbage Contacts.

[http://www.slocounty.ca.gov/PW/Franchise\\_Administration/Garbage\\_contacts.htm](http://www.slocounty.ca.gov/PW/Franchise_Administration/Garbage_contacts.htm)

San Luis Obispo County Integrated Waste Management Authority. 2008. Ordinance No. 2008-3: An Ordinance Establishing Mandatory Recycling. San Luis Obispo, CA.

**14: Composting & Green Waste**

Measure:

Implement a composting and green waste program in those communities without them.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	0	0
2020 Reductions (MTCO <sub>2</sub> e):	-3,230	Percentage of residents and businesses with access to food waste and green waste opportunities
2035 Reductions (MTCO <sub>2</sub> e):	-4,560	Percentage of residents and businesses with access to food waste and green waste opportunities

Assumptions:

The creation of a curbside compost and green waste program will result in a higher waste diversion rate for unincorporated areas of the county. This measure relies on the reported diversion rate in 2006 and sets goals to achieve a 75% diversion rate by 2020 and 90% by 2035. Many of the community service districts negotiate the waste hauling contracts for residents and businesses within their jurisdiction. This measure assumes an increased diversion rate only for the portions of the population where the County is responsible for negotiating the waste hauling contract.

Sources:

California Integrated Waste Management Board. 2004. Statewide Waste Characterization Study. Sacramento: California Integrated Waste Management Board.

San Luis Obispo County. 2009. Cold Canyon Landfill Draft Environmental Impact Report. San Luis Obispo, CA.

San Luis Obispo County Integrated Waste Management Authority. 2008. Ordinance No. 2008-3: An Ordinance Establishing Mandatory Recycling. San Luis Obispo, CA.

**15: Construction & Demolition Waste**

Measure:

Reduce construction and demolition waste by requiring a minimum of 75% of nonhazardous construction and demolition debris generated on site to be recycled or salvaged.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	0	50% construction and demolition diversion rate
2020 Reductions (MTCO <sub>2</sub> e):	-1,360	75% construction and demolition diversion rate
2035 Reductions (MTCO <sub>2</sub> e):	-2,220	85% Construction and demolition diversion rate

Assumptions:

Increased construction and demolition waste recycling will result in a higher waste diversion rate for unincorporated areas of the county. This measure relies on the currently required diversion rate of 50% and sets goals to achieve a 75% diversion rate by 2020 and 85% by 2035.

Sources:

California Integrated Waste Management Board. 2004. Statewide Waste Characterization Study. Sacramento: California Integrated Waste Management Board.

**16: Waste Hauling Fleet**

## Measure:

Encourage waste haulers on contract with the County to use clean, alternative fuels for waste collection vehicles.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	Supporting Measure – Not Quantified	Number of waste fleet vehicles using alternative fuels
2020 Reductions (MTCO <sub>2</sub> e):	Supporting Measure – Not Quantified	Number of waste fleet vehicles using alternative fuels
2035 Reductions (MTCO <sub>2</sub> e):	Supporting Measure – Not Quantified	Number of waste fleet vehicles using alternative fuels

## Assumptions:

The current size of the waste hauling fleet that serves residents and businesses in the unincorporated areas of the county is unknown.

## Sources:

Central Coast Clean Cities Coalition. 2006. C5's Compressed Natural Gas Symposium. Central Coast Clean Cities Coalition. [http://www.c-5.org/Archives/Other/CNG\\_2006/Agenda8.pdf](http://www.c-5.org/Archives/Other/CNG_2006/Agenda8.pdf).

Inform, Inc. 2006. New York City's Commercial Waste Hauling Fleets. New York, NY: Inform Inc.

**17: Landfill Methane Capture**

## Measure:

Increase methane capture rates at all operating landfills in the county.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	0	0
2020 Reductions (MTCO <sub>2</sub> e):	-13,120	Methane capture rate of 80% for Cold Canyon, Chicago Grade, and Paso Robles landfills
2035 Reductions (MTCO <sub>2</sub> e):	-17,800	Methane capture rate of 85% for Cold Canyon, Chicago Grade, and Paso Robles landfills

## Assumptions:

This measure will rely on each operating landfill in the unincorporated county achieving a methane capture rate of 80% by 2020 and 85% by 2035. The 2006 baseline methane capture rate was averaged between all three landfills at 58%.

Sources:

California Integrated Waste Management Board. 2008. Technologies and Management Options for Reducing Greenhouse Gas Emissions from Landfills. Sacramento: California Integrated Waste Management Board.

San Luis Obispo County. 2009. Cold Canyon Landfill Draft Environmental Impact Report. San Luis Obispo, CA.

**18: Strategic Growth**

Measure:

Continue to implement strategic growth strategies that direct the county’s future growth into existing communities and to provide complete services to meet local needs.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	Included in BAU Forecast	n/a
2020 Reductions (MTCO <sub>2</sub> e):	Included in BAU Forecast	n/a
2035 Reductions (MTCO <sub>2</sub> e):	Included in BAU Forecast	n/a

Assumptions:

The vehicle miles traveled (VMT) reductions associated with strategic growth initiatives were included in the business-as-usual forecast of transportation-related emissions. SLOCOG’s travel demand forecast model is designed to include the VMT from land uses with these strategic growth principles in place and therefore it is not possible to separate the GHG reduction benefit of these strategies being fully implemented from the forecast of the unincorporated County’s VMT.

Sources:

California Air Pollution Control Officers Association. 2010. Quantifying Greenhouse Gas Mitigation Measures.

Fehr & Peers. 2011. County of San Luis Obispo Climate Action Plan: Transportation Reduction Measures and Estimates.

**19: Transit Accessibility**

Measure:

Work with the San Luis Obispo Regional Transit Authority, San Luis Obispo Council of Governments, local cities, transit providers, and other agencies to identify transit nodes appropriate for mixed-use development and promote transit-oriented development where appropriate.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	Included in BAU Forecast	Percentage of residents within a 1/2 mile of a transit stop
2020 Reductions (MTCO <sub>2</sub> e):	Included in BAU Forecast	Percentage of residents within a 1/2 mile of a transit stop

2035 Reductions (MTCO <sub>2</sub> e):	Included in BAU Forecast	Percentage of residents within a 1/2 mile of a transit stop
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**Assumptions:**

The vehicle miles traveled (VMT) reductions associated with transit accessibility were included in the business-as-usual forecast of transportation-related emissions.

**Sources:**

California Air Pollution Control Officers Association. 2010. Quantifying Greenhouse Gas Mitigation Measures.

Fehr & Peers. 2011. County of San Luis Obispo Climate Action Plan: Transportation Reduction Measures and Estimates.

**20: Affordable Housing****Measure:**

Continue to increase the amount of affordable housing provided in San Luis Obispo County. Affordable and below-market-rate housing provides greater opportunity for lower-income families to live closer to job and activity centers, providing residents with greater access to transit and alternative modes.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	0	0
2020 Reductions (MTCO <sub>2</sub> e):	-2,390 to -4,000	1,000 new below-market-rate housing units
2035 Reductions (MTCO <sub>2</sub> e):	-2,850 to -6,670	2,300 new below-market-rate housing units

**Assumptions:**

This measure relies on San Luis Obispo County's Regional Housing Needs Allocation numbers, assuming that 25% of the county's new housing units will be available to extremely low-, very low-, low-, and moderate-income households.

**Sources:**

California Air Pollution Control Officers Association. 2010. Quantifying Greenhouse Gas Mitigation Measures.

Fehr & Peers. 2011. County of San Luis Obispo Climate Action Plan: Transportation Reduction Measures and Estimates.

**21: Bicycle & Pedestrian Network****Measure:**

Improve access to community-wide pedestrian and bicycle networks by removing barriers and providing additional bike- and pedestrian-oriented infrastructure.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	0	0
2020 Reductions (MTCO <sub>2</sub> e):	-1,600 to -8,050	Miles of bike lane and sidewalks
2035 Reductions (MTCO <sub>2</sub> e):	-1,910 to -9,510	Miles of bike lane and sidewalks

**Assumptions:**

Public and private investment in the improvement of bicycle and pedestrian networks through this measure will result in a 2% decrease in vehicle miles traveled.

Sources:

California Air Pollution Control Officers Association. 2010. Quantifying Greenhouse Gas Mitigation Measures.

Fehr & Peers. 2011. County of San Luis Obispo Climate Action Plan: Transportation Reduction Measures and Estimates.

**22: Parking Supply Limits**

Measure:

Revise County parking requirements to ensure development meets the County’s strategic growth objectives while providing alternative transportation choices to project residents and employees and efficient design options, as well as flexibility to project applicants. Specifically, reduce parking requirements in areas where a variety of uses and services are planned in close proximity to each other and to transit.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	0	Average shared parking reductions
2020 Reductions (MTCO <sub>2</sub> e):	-2,010 to -19,670	Average shared parking reductions
2035 Reductions (MTCO <sub>2</sub> e):	-2,360 to -23,250	Average shared parking reductions

Assumptions:

This measure relies on the Institute of Transportation Engineers (ITE) parking generation rates based on proposed land uses in the unincorporated county and assumes a 10% reduction in parking spaces compared to ITE rates.

Sources:

California Air Pollution Control Officers Association. 2010. Quantifying Greenhouse Gas Mitigation Measures.

Fehr & Peers. 2011. County of San Luis Obispo Climate Action Plan: Transportation Reduction Measures and Estimates.

Institute of Transportation Engineers. 2010. Parking Generation, 4th Edition: An ITE Informational Report. Washington, DC: Institute of Transportation Engineers.

**23: Unbundle Parking Costs**

Measure:

Parking and property costs will be separated to require those who choose to utilize a parking space to do so at an additional cost separate from the cost of the property.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	0	n/a
2020 Reductions (MTCO <sub>2</sub> e):	-170 to -4,030	n/a

2035 Reductions (MTCO <sub>2</sub> e):	-180 to -4,750	n/a
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## Assumptions:

This measure assumes that an average parking charge of \$10 per month will result in a 1.0% reduction in vehicle miles traveled.

## Sources:

California Air Pollution Control Officers Association. 2010. Quantifying Greenhouse Gas Mitigation Measures.

Fehr & Peers. 2011. County of San Luis Obispo Climate Action Plan: Transportation Reduction Measures and Estimates.

**24: Commute Trip Reduction Programs**

## Measure:

Continue to support voluntary commute trip reduction programs.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	0	0
2020 Reductions (MTCO <sub>2</sub> e):	-1,700 to -3,850	Participation in SLO Regional Rideshare programs and events
2035 Reductions (MTCO <sub>2</sub> e):	-2,010 to -4,510	Participation in SLO Regional Rideshare programs and events

## Assumptions:

Additional participation in commute trip reduction programs will result in a 4.8% reduction in commute-related VMT or 0.96% of all unincorporated county VMT.

## Sources:

California Air Pollution Control Officers Association. 2010. Quantifying Greenhouse Gas Mitigation Measures.

Fehr & Peers. 2011. County of San Luis Obispo Climate Action Plan: Transportation Reduction Measures and Estimates.

**25: Alternative Fuels**

## Measure:

Continue to expand the use and availability of alternative and low carbon fuels for vehicles and equipment.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	0	0
2020 Reductions (MTCO <sub>2</sub> e):	-5,280	Number of alternative fueling stations and participation in car-share programs
2035 Reductions (MTCO <sub>2</sub> e):	-11,170	Number of alternative fueling stations and participation in car-share programs

Assumptions:

This measure quantifies the VMT and fuel savings impacts of expanded use of alternative fuel vehicles. These vehicles include neighborhood electric vehicles, hybrid electric vehicles, and all-electric vehicles. Benefits would also be gained from the increased use and availability of local car-sharing programs.

Sources:

California Air Pollution Control Officers Association. 2010. Quantifying Greenhouse Gas Mitigation Measures.

Department of Transportation. 2001. National Household Travel Survey. Washington, D.C.

Idaho National Laboratory. 2006. Full Size Electric Vehicles: Advanced Vehicle Testing Reports.

**26: Water Conservation: New Construction**

Measure:

Reduce potable water use by 20% in all newly constructed buildings by using the prescriptive or performance method provided in the California Green Building Code to demonstrate compliance.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	0	0
2020 Reductions (MTCO <sub>2</sub> e):	-80	20% water savings from new development
2035 Reductions (MTCO <sub>2</sub> e):	-180	20% water savings from new development

Assumptions:

GHG emissions from electricity use related to water transmission delivery and treatment were estimated using California Energy Commission information related to the energy intensity of water operations. As required by CALGreen, all new structures will be required to reduce water use by 20% from baseline levels, decreasing energy use related to water.

Sources:

California Energy Commission. 2005. California’s Water-Energy Relationship.

<http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF> .

———. 2006. Refining Estimates of Water-Related Energy Use in California.

<http://www.energy.ca.gov/2006publications/CEC-500-2006-118/CEC-500-2006-118.PDF>.

City of Morro Bay. 2008. Water Management Plan Status Report. Morro Bay, CA.

City of Paso Robles. 2008. North County Forum: Draft Pumping Update.

City of San Luis Obispo. 2005. Urban Water Management Plan. San Luis Obispo, CA.

Natural Resources Defense Council. 2004. Energy Down the Drain: The Hidden Costs of California's Water Supply.

San Luis Obispo County. 2010. San Luis Obispo County Water Demand Analysis Methodology and Results. San Luis Obispo, CA.

**27: Water Conservation Retrofit**

Measure:

Continue to enforce retrofit upon sale requirements in Los Osos and the Nipomo Mesa and facilitate compliance with SB 407 in residential and commercial properties in other unincorporated areas of the County.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	Included in Water Conservation: Existing Buildings	0
2020 Reductions (MTCO <sub>2</sub> e):	Included in Water Conservation: Existing Buildings	Number of homes and businesses retrofitted
2035 Reductions (MTCO <sub>2</sub> e):	Included in Water Conservation: Existing Buildings	Number of homes and businesses retrofitted

Sources:

San Luis Obispo County. 2008. Los Osos Groundwater Basin Retrofit Ordinances.

<http://www.slocounty.ca.gov/Assets/PL/pdfs/LORetrofitTitle8.pdf>.

———. 2010. San Luis Obispo County Water Demand Analysis Methodology and Results. San Luis Obispo, CA.

## 28: Tiered Water Rates

Measure:

Implement tiered water rate structures to incentivize water conservation.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	Included in Water Conservation: Existing Buildings	0
2020 Reductions (MTCO <sub>2</sub> e):	Included in Water Conservation: Existing Buildings	Gallons of water saved
2035 Reductions (MTCO <sub>2</sub> e):	Included in Water Conservation: Existing Buildings	Gallons of water saved

Sources:

San Luis Obispo County. 2010. San Luis Obispo County Water Demand Analysis Methodology and Results. San Luis Obispo, CA.

## 29: Water Conservation: Existing Buildings

Measure:

Work with local CSDs to continue to implement indoor and outdoor conservation and rebate programs.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	-10	0
2020 Reductions (MTCO <sub>2</sub> e):	-40	Gallons of water saved
2035 Reductions (MTCO <sub>2</sub> e):	-70	Gallons of water saved

Assumptions:

GHG emissions from electricity use related to water transmission delivery and treatment were estimated using California Energy Commission information related to the energy intensity of water operations. The reduced water use for each jurisdiction or region within the county was identified in the San Luis Obispo County Water Demand Analysis Methodology and Results report. These reductions and water use have been translated into reduced energy use in this measure.

Sources:

California Energy Commission. 2005. California's Water-Energy Relationship.

<http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF> .

— — — . 2006. Refining Estimates of Water-Related Energy Use in California.

<http://www.energy.ca.gov/2006publications/CEC-500-2006-118/CEC-500-2006-118.PDF>.

City of Morro Bay. 2008. Water Management Plan Status Report. Morro Bay, CA.

City of Paso Robles. 2008. North County Forum: Draft Pumping Update.

City of San Luis Obispo. 2005. Urban Water Management Plan. San Luis Obispo, CA.

Natural Resources Defense Council. 2004. Energy Down the Drain: The Hidden Costs of California's Water Supply.

San Luis Obispo County. 2010. San Luis Obispo County Water Demand Analysis Methodology and Results. San Luis Obispo, CA.

**30: Water-Efficient Landscape**

Measure:

Reduce outdoor water use in new landscapes through compliance with the County's Water-Efficient Landscape Ordinance.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	Included in Water Conservation: New Development	0
2020 Reductions (MTCO <sub>2</sub> e):	Included in Water Conservation: New Development	Gallons of water saved
2035 Reductions (MTCO <sub>2</sub> e):	Included in Water Conservation: New Development	Gallons of water saved

Sources:

California Building Standards Commission. 2010. 2010 California Green Building Standards Code.

Sacramento: California Building Standards Commission.

### 31: Recycled Water

Measure:

Increase the availability and use of recycled water for use in outdoor landscaping areas.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	Supporting Action – Not Quantified	0
2020 Reductions (MTCO <sub>2</sub> e):	Supporting Action – Not Quantified	Acre-feet of recycled water used
2035 Reductions (MTCO <sub>2</sub> e):	Supporting Action – Not Quantified	Acre-feet of recycled water used

### 32: Greywater & Rainwater

Measure:

Encourage the installation and use of greywater and rainwater harvesting systems to reduce outdoor potable water use.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	Supporting Action – Not Quantified	0
2020 Reductions (MTCO <sub>2</sub> e):	Supporting Action – Not Quantified	Number of greywater and rainwater harvesting systems installed
2035 Reductions (MTCO <sub>2</sub> e):	Supporting Action – Not Quantified	Number of greywater and rainwater harvesting systems installed

### 33: Agriculture Resource Conservation

Measure:

Encourage voluntary energy conservation through appropriate and practicable efficient energy, water, and resource management practices.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	Supporting Action – Not Quantified	Participation in conservation programs sponsored by UCCE, RCD, and NGOs.
2020 Reductions (MTCO <sub>2</sub> e):	Supporting Action – Not Quantified	Participation in conservation programs sponsored by UCCE, RCD, and NGOs.
2035 Reductions (MTCO <sub>2</sub> e):	Supporting Action – Not Quantified	Participation in conservation programs sponsored by UCCE, RCD, and NGOs.

**34: Soil & Crop Management**

Measure:

The County will collaborate with Cal Poly, agriculturalists, the University of California Cooperative Extension (UCCE), and the County’s resource conservation districts (RCDs) to develop and disseminate appropriate voluntary management practices for the application of pesticides and fertilizers, tillage practices, cover crops, and other techniques to reduce nitrous oxide emissions, maximize carbon sequestration, and reduce fuel use.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	Supporting Action – Not Quantified	Crop fertilization rates per acre
2020 Reductions (MTCO <sub>2</sub> e):	Supporting Action – Not Quantified	Crop fertilization rates per acre
2035 Reductions (MTCO <sub>2</sub> e):	Supporting Action – Not Quantified	Crop fertilization rates per acre

Sources:

University of California Cooperative Extension, San Luis Obispo County. 2011. University of California Cooperative Extension. <http://cesanluisobispo.ucdavis.edu/>.

**35: Livestock Management**

Measure:

Implement a voluntary fermentation and manure management program.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	Supporting Action – Not Quantified	none
2020 Reductions (MTCO <sub>2</sub> e):	Supporting Action – Not Quantified	none
2035 Reductions (MTCO <sub>2</sub> e):	Supporting Action – Not Quantified	none

Sources:

U.S. Environmental Protection Agency. 2010. Agriculture. Pasture, Rangeland, and Grazing Operations – Best Management Practices (BMPs). <http://www.epa.gov/oecaagct/anprgbmp.html>.

**36: Off-Road Equipment**

Measure:

Reduce fuel use and GHG emissions from off-road agricultural equipment.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	0	0
2020 Reductions (MTCO <sub>2</sub> e):	-2,810	5% of all tractors will be zero-emissions vehicles
2035 Reductions (MTCO <sub>2</sub> e):	-5,270	10% of all tractors will be zero-emissions vehicles

**Assumptions:**

This measure relies on activity data from CARB's OFFROAD2007 software program related to agricultural equipment. It is estimated that agricultural tractors have an initial lifespan of 4,000 to 5,000 operating hours, or 10 years, before engines need to be overhauled or equipment is replaced. As equipment is replaced or retrofitted, it is expected that the fuel efficiency and emissions output from these engines will decrease and that the availability of zero-emissions vehicles result in fewer GHG emissions from agricultural equipment. This quantification conservatively assumes that by 2020, Zero emissions tractors will be available and approximately 5% of all tractors will utilize this new technology.

**Sources:**

California Air Resources Board. 2006. Off Road Emissions Inventory. OFFROAD2007, Version 1.

Sacramento: California Air Resources Board.

—. 2011. AB 118 Air Quality Improvement Program. <http://www.arb.ca.gov/msprog/aqip/aqip.htm>.

**37: Local Foods****Measure:**

Reduce emissions from transport of agriculture-related products within the county through the encouragement of local food programs.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	Supporting Action – Not Quantified	
2020 Reductions (MTCO <sub>2</sub> e):	Supporting Action – Not Quantified	Number of community gardens Number of farmers markets
2035 Reductions (MTCO <sub>2</sub> e):	Supporting Action – Not Quantified	Number of community gardens Number of farmers markets

**Sources:**

U.S. Department of Agriculture. 2011. Know Your Farmer, Know Your Food Program.

<http://www.usda.gov/wps/portal/usda/knownyourfarmer?navid=KNOWYOURFARMER>.

**38: Agricultural Employee Transportation****Measure:**

Reduce VMT associated with commuting by agricultural workers.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	Supporting Measure – Included in Commute Trip Reduction Programs	Participation in SLO Regional Rideshare programs
2020 Reductions (MTCO <sub>2</sub> e):	Supporting Measure – Included in Commute Trip Reduction Programs	Participation in SLO Regional Rideshare programs

2035 Reductions (MTCO <sub>2</sub> e):	Supporting Measure – Included in Commute Trip Reduction Programs	Participation in SLO Regional Rideshare programs
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Sources:

San Luis Obispo Council of Governments. 2008. SLOCOG Staff Report Agricultural Workers Transportation Program. [http://library.slocog.org/PDFs/Agency\\_Mtgs\\_Agendas/TTAC\\_CTAC/2008/January%202008%20TTAC%20&%20CTAC%20Agendas/E-7%20Agricultural%20Workers%20Transportation%20Program.pdf](http://library.slocog.org/PDFs/Agency_Mtgs_Agendas/TTAC_CTAC/2008/January%202008%20TTAC%20&%20CTAC%20Agendas/E-7%20Agricultural%20Workers%20Transportation%20Program.pdf).

**39: Sequestration**

Measure:

Identify opportunities for terrestrial and aquatic sequestration in the county, including but not limited to County lands, reclaimed mining lands, agricultural lands, and other areas as appropriate.

Target Year	MTCO <sub>2</sub> e/yr	Performance Indicator
2010 Reductions (MTCO <sub>2</sub> e):	Supporting Measure – Not Quantified	0
2020 Reductions (MTCO <sub>2</sub> e):	Supporting Measure – Not Quantified	Acres of land used to sequester carbon
2035 Reductions (MTCO <sub>2</sub> e):	Supporting Measure – Not Quantified	Acres of land used to sequester carbon

