# 5 – COMMUNITY-WIDE GREENHOUSE GAS REDUCTION MEASURES

# COMMUNITY-WIDE REDUCTION MEASURE SUMMARY

The EnergyWise Plan seeks to reduce community-wide GHG emissions 15% by 2020.

## Reduction Measure Topic Areas and Goals

To achieve the community-wide GHG emissions reduction target of 15% below 2006 baseline levels by 2020, the County will need to implement the reduction measures presented in this chapter. The reduction measures are organized by topic area and goal to align the reduction measures with the sources of GHG emissions, as presented in the GHG Inventory (Chapter 3). Reduction measure topic areas include:

- Energy conservation
- Renewable energy
- Solid waste
- Land use and transportation
- Water conservation
- Agriculture

Each topic area includes a goal, reduction measures, and supporting actions to demonstrate how the goals will be achieved. The goal summaries include a discussion of how each reduction measure contributes to the achievement of each goal.

## Reduction Measure Organization

### *Policy and Supporting Actions*

Each reduction measure includes the measure language, supporting actions, and a description of what the program will include. Many of the reduction measures will assist in the implementation of the COSE policies. The COSE policies that will be implemented through this Plan are listed with each measure.

### *Implementation*

An implementation table is provided for each GHG reduction measure. This table identifies key information critical to the successful implementation of each policy including the County agency responsible for the implementation of the measure, the time frame for implementation, ranges of the costs and savings that will be associated with the measure, and the indicators that will be used to measure progress. The time frame and costs/savings ranges used throughout this chapter are provided below.

| Time Frame | |
|---|---|
| Ongoing | Continual |
| Immediate | 0–1 Year |
| Near-Term | 1–5 Years |
| Mid-Term | 5–10 Years |
| Long-Term | 10+ Years |

| Costs/Savings | |
|---|---|
| Minimal | 0 |
| Low | $1–$100,000 |
| Low-Mid | $100,000–$500,000 |
| Medium | $500,000–$1,000,000 |
| Medium-High | $1,00,000–$5,000,000 |
| High | Over $5,000,000 |

### *GHG Emissions Reduction*

When sufficient information is available, emissions reduction measures have been quantified to indicate the contribution that a measure will have to overall GHG reductions. This number is presented in $MTCO_2e$ reduced per year. In some cases, the GHG reduction benefit is not quantifiable on its own but is included in another strategy. Other measures may not have a direct GHG reduction benefit but are critical to the success of other GHG reduction strategies.

### *Co-Benefits*

In addition to reducing GHG emissions, many measures will provide numerous co-benefits to the community while furthering the sustainability goals of the County. These co-benefits are depicted in this document through the following graphic symbols.

Look for the co-benefit symbols with each GHG reduction measure.



**Conserves Energy**

**Improves Air Quality**

**Promotes Equity**

**Improves Public Health**

**Supports Local Economy**

**Reduces Water Use**

**Improves Mobility**

**Provides Educational Opportunities**

**Provides Monetary Savings**

**Implements State Policy**

The assumptions, sources, and methodology used for each measure are provided in a detailed technical appendix (Appendix C). Additional information about the implementation of each measure is included in Chapter 8.

The focus of this goal is on improving the energy efficiency of buildings.

Implementation of energy conservation measures will not only reduce GHG emissions but will also reduce household and business costs associated with energy consumption.

## ENERGY CONSERVATION

**GOAL: ADDRESS FUTURE ENERGY NEEDS THROUGH INCREASED CONSERVATION AND EFFICIENCY IN ALL SECTORS.**

Electricity and natural gas consumption support businesses, industrial facilities, and homes. Residents use natural gas to heat water and power natural gas cooking ranges. Industrial and commercial enterprises use natural gas for water heating in addition to on-site fuel combustion that supports manufacturing and industrial processes. Electricity powers appliances that are the cornerstones of daily life, from personal appliances to local infrastructure such as traffic signals. Greenhouse gas emissions are created by the consumption of electricity and natural gas. But greater efficiencies in existing levels of energy consumption can be realized while still supporting the needs of existing and future communities. Implementation of energy conservation measures will not only reduce GHG emissions but will also reduce household and business costs associated with energy consumption.

These measures target efficiencies in electricity and natural gas use in homes and nonresidential uses to reduce emissions. In San Luis Obispo County, where the majority of future GHG emissions will come from existing buildings, it is critical that this Plan include energy conservation measures that focus on improving the efficiency of existing buildings and ensuring that new construction projects utilize electricity and natural gas as efficiently as possible.

Since 2006, local utility providers like Pacific Gas and Electric (PG&E) and Southern California Gas have implemented several energy conservation outreach campaigns and developed programs to assist homeowners, businesses, and government agencies with implementing energy conservation measures within buildings. When possible, each measure includes an emissions reduction estimate for 2010 to demonstrate the progress already being made by businesses, homeowners, and government agencies to reduce energy consumption and save money.

When implemented, the eight GHG reduction measures focused on energy conservation will reduce GHG emissions in 2020 by 31,620 $MTCO_2e$ (Table 5-1) from residential and nonresidential energy use. GHG reductions from energy conservation measures account for 25% of the total emissions reductions from local actions by 2020 and 36% of total emissions reductions by 2035. These GHG reductions are in addition to the state policies associated with the implementation of Title 24 standards for new construction projects.

Local actions identified in this Plan will reduce energy use from electricity and natural gas by a total of 8% by 2035.

**Table 5-1.** Energy Conservation GHG Reductions Summary

| # | Measure | 2010 $MTCO_2e$/yr | 2020 $MTCO_2e$/yr | 2035 $MTCO_2e$/yr |
|---|---|---|---|---|
| 1. | Energy Conservation Programs | -860 | -2,870 | -4,100 |
| 2. | Low-Income Weatherization | 0 | -1,120 | -2,760 |
| 3. | Energy Efficiency Financing | 0 | -11,430 | -13,410 |
| 4. | Building Energy Scores | 0 | -9,580 | -29,250 |
| 5. | Workforce Training Programs | n/a | n/a | n/a |
| 6. | Smart Grid Technology | 0 | -7,930 | -13,180 |
| 7. | Energy-Efficient New Development | 0 | -3,780 | -9,460 |
| 8. | Community Forestry Program | -240 | -790 | -1,510 |
| **Total** | | **-1,100** | **-37,500** | **-73,670** |

Figure 5-1 and Figure 5-2 demonstrate how each reduction measure contributes to the overall goal of reducing emissions from energy consumption by 2020 and 2035.

75% of the houses in San Luis Obispo County were built before California's energy efficiency standards became more stringent in 1990.

**Figure 5-1.** 2020 Energy Conservation GHG Reduction Measures

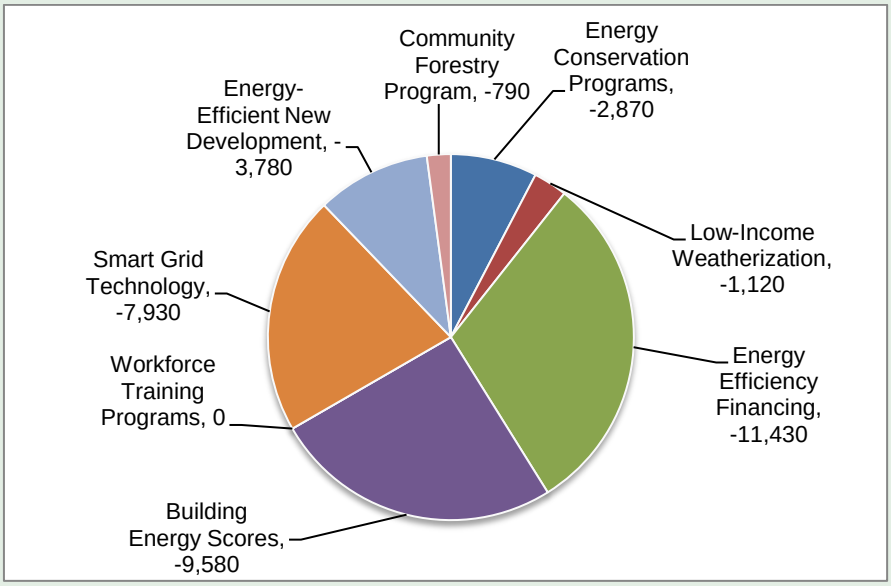
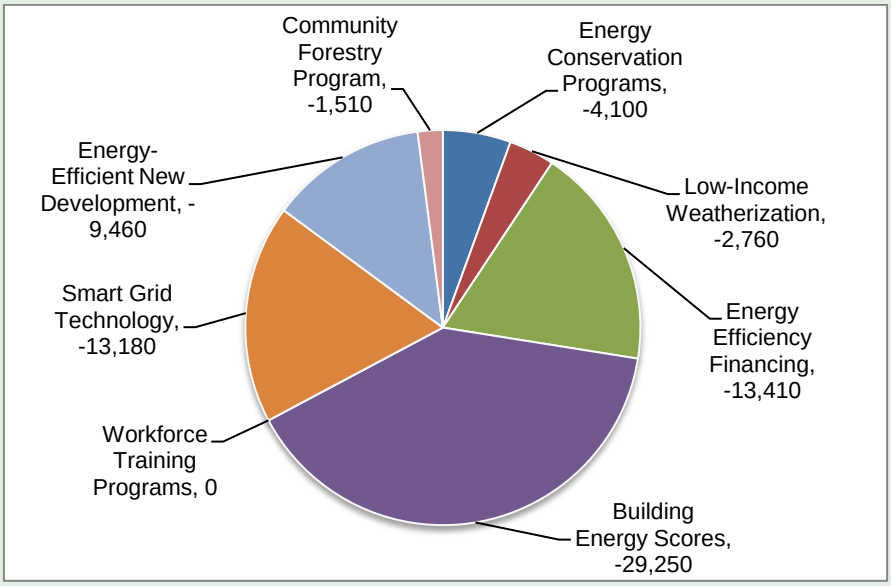



**Figure 5-2.** 2035 Energy Conservation GHG Reduction Measures



### 1. Energy Conservation Programs

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.

**Supporting Actions:**

- Work with local utility providers to develop a competition between the communities within SLO County to reduce total energy consumption over an extended period of time (6 months to 1 year).
- Continue to encourage and promote utility provider energy conservation programs for residential, commercial, industrial, agricultural, and governmental buildings.
- Develop and host a community web portal to streamline access to community and institutional sustainability websites.
- Continue to recognize and encourage conservation programs and educational outreach conducted by industry organizations, non-governmental entities, and government agencies.

**Program Description:**

This measure directs the implementation of a community-wide public outreach and education campaign to inform residents, businesses, and consumers about the ways that individuals can reduce their energy costs and GHG emissions. This includes informing the public about the benefits of using energy-efficient lighting, appliances, and electronics and reminding them of the easiest ways to reduce household and business energy use.

**Relevant COSE Policies:** E 3.4

**Implementation:**

**Emissions Reductions**

2010:

-860 $MTCO_2e/yr$

2020:

-2, 870 $MTCO_2e/yr$

2035:

-4,100 $MTCO_2e/yr$

Co-Benefits

| Responsible Department: | Planning and Building |
|---|---|
| Implementation Time Frame: | Near-Term |
| Applicability: | Existing development |
| County Costs: | Low-Mid |
| Community Costs: | Low |
| Community Savings: | Medium |
| Performance Indicators: | Number of households and businesses participating |

### 2. Low-Income Weatherization

Promote existing low-income energy conservation and weatherization programs and coordinate with local utility providers and nonprofit corporations to develop additional energy efficiency programs.

**Supporting Actions:**

- Continue to encourage investment in energy efficiency through Community Action Partnership (CAPSLO) and utility provider low-income weatherization programs.
- Support the Community Action Partnership's provision of free energy services to low-income households, including weatherization, furnace repair, and water heater replacement.

**Program Description:**

Several low-income weatherization programs already exist in SLO County and are administered through local utility providers and nonprofit organizations. The existing programs were developed to assist low-income households, recognizing that monetary constraints are significant barriers to purchasing and implementing energy-efficient technologies. This measure quantifies the benefit of those existing programs and advocates for continued funding of such programs in the future.

**Implementation:**

**Emissions Reductions**

2020:

-1,120 $MTCO_2e/yr$

2035:

-2,760 $MTCO_2e/yr$

**Co-Benefits**

| Responsible Department: | Planning and Building |
|---|---|
| Implementation Time Frame: | Ongoing |
| Applicability: | Existing development |
| County Costs: | Minimal |
| Community Costs: | Minimal |
| Community Savings: | Low-Mid |
| Performance Indicators: | Number of households retrofitted |

### 3. Energy Efficiency Financing

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

**Supporting Actions:**

- Develop an energy efficiency financing program (through PACE, Energy Upgrade California, or other mechanisms) allowing property owners to invest in energy efficiency upgrades for their buildings.
- Encourage and assist voluntary actions including financing programs, by owners of existing commercial and residential buildings for energy efficiency retrofits, such as the installation of solar panels, wind turbines, green roofs, cool roofs, natural lighting, and other long-term, permanent energy conservation installations.

**Program Description:**

In SLO County, the existing building stock is often the largest contributor to energy emissions. This is especially true for buildings built before the 1990s when California's energy efficiency standards were less stringent than modern standards. As these buildings age, they become increasingly reliant on large amounts of energy for heating and cooling due to little or no insulation, window technology, older air conditioning and heating technologies, roofing, and more.

**Emissions Reductions**

2020:

-11,430 $MTCO_2e/yr$

2035:

-13,410 $MTCO_2e/yr$

**Co-Benefits**

**Relevant COSE Policies:** Goal E 4, E 3.2, E 3.4

**Implementation:**

| **Responsible Department:** | **Planning and Building** |
|---|---|
| Implementation Time Frame: | Mid-Term |
| Applicability: | Existing development |
| County Costs: | Low-Mid |
| Community Costs: | Medium |
| Community Savings: | Medium-High |
| Performance Indicators: | Number of households and businesses participating |

### 4. Energy Efficiency in Existing Buildings

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.

**Supporting Actions:**

- Seek funding and financing options.
- Explore options for energy audits conducted by the property owner, a certified building inspector, buyer or seller.
- Comply with State Law, AB 1103, to require all non-residential properties to provide buyers or tenants with the previous years' energy use by documenting use through the EPA's Energy Star Portfolio Manager or through some other mechanism.
- Allow in-lieu fees for new development to be utilized for retrofitting existing buildings with energy-efficient fixtures in lieu of energy efficiency measures for new buildings.

- Evaluate options for an energy conservation ordinance. For example, implement energy efficiency measures identified in energy audits:
  - By a date certain for residential and non-residential buildings; and/or
  - For major remodels or additions; and/or
  - For pre-1990 structures or structures in certain climate zones; or
  - At the time of sale.

**Emissions Reductions**

2020:

-9,580 $MTCO_2e/yr$

2035:

-29,250 $MTCO_2e/yr$

Co-Benefits

**Program Description:**

Understanding the current energy use and inefficiencies in a home or commercial building is the first step in identifying cost-effective measures to improve the energy efficiency of a building. By providing new building owners or occupants with a record of current or historic energy use, the new occupants can easily compare the building's energy performance with other similar buildings. Energy use information allows the owner to make renovations keeping in mind options for improving energy efficiency of a building.

**Relevant COSE Policies:** E 3.2.2

**Implementation:**

| **Responsible Department:** | **Planning and Building** |
|---|---|
| Implementation Time Frame: | Near-Term |
| Applicability: | Existing development |
| County Costs: | Low |
| Community Costs: | Medium-High |
| Community Savings: | Medium-High |
| Performance Indicators: | Number of residential and nonresidential buildings audited |

**Emissions Reductions**

2020:

Supporting Measure – Not Quantifiable

2035:

Supporting Measure – Not Quantifiable

**Co-Benefits**

### 5. Workforce Training Programs

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.

**Supporting Actions:**

- Support existing workforce training programs.
- Continue to educate staff and the public about green building through partnerships with local nonprofit organizations (SLO Green Build), professional planning and building organizations (USGBC C4), and local agencies.

**Program Description:**

Workforce training programs like the SLO County Workforce Investment Board's Green Jobs Training Program provide classroom and hands-on training to local unemployed, underemployed, or new workforce entrants. The program covers the basic construction practices of home weatherization retrofits, water efficiency retrofits, and alternative landscaping methods. Providing training to local contractors on efficiency retrofit and installation methods will ensure that property owners investing in such retrofits can achieve their energy or water savings goals.

**Relevant COSE Policies:** E 4.1.1

**Implementation:**

| **Responsible Department:** | **Planning and Building** |
|---|---|
| Implementation Time Frame: | Ongoing |
| Applicability: | n/a |
| County Costs: | Minimal |
| Community Costs: | Minimal |
| Community Savings: | Minimal |
| Performance Indicators: | Number of workforce training participants |

### 6. Smart Grid Technology

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

**Supporting Actions:**

- Encourage expedited installation of real-time energy monitoring (such as smart meters) for natural gas, electricity, and water meters on all residential and nonresidential buildings consistent with Board of Supervisors Resolution 2011-62.
- Work with the utility companies to develop a web-based application or install energy monitors to provide customers with real-time feedback on their energy consumption and related costs.
- Encourage building users to install smart grid integrated appliances that can be automated to run when electricity costs are lowest and controlled remotely through a web or phone application.
- Encourage the installation of energy monitors and smart grid appliances in new residential and nonresidential buildings as such appliances become commercially available and economically feasible.

**Program Description:**

The integration of smart grid technology and implementation of dynamic pricing programs will provide energy users with detailed information about their energy use and the costs of energy. Energy customers will be able to use these technologies to track and monitor energy use in real time to understand the relationship between energy consumption patterns and energy costs. Smart grid technology equips individuals to alter behaviors to use less energy and shift higher energy uses to times when the costs are lowest. Research on consumer energy use and the rate of feedback on those patterns has shown that the more frequently consumers are

**Emissions Reductions**

2020:

-7,930 $MTCO_2e/yr$

2035:

-13,180 $MTCO_2e/yr$

**Co-Benefits**

reminded of the level of energy they are using, the more they will change their behaviors to consume less energy. Utility companies have demonstrated that when providing instantaneous energy data in addition to monthly utility bills with total energy consumption and costs, consumers are equipped to more effectively manage energy consumption. PG&E has already begun the process of installing smart meters on customer buildings in San Luis Obispo County, which will be completed by mid-2012. This measure will be consistent with the Board of Supervisor's direction regarding the installation of Smart Meters.

In addition to behavioral changes, the development of new household appliances that can be programmed or timed to operate when energy prices fall below a certain point will also promote energy-saving behaviors. Requirements for new residential and commercial development to include these appliances will further reduce the community's energy use, and such requirements may yield a larger impact when coupled with incentives to encourage current energy users to purchase smart grid appliances when replacing washers, dryers, dishwashers, and other appliances.

**Implementation:**

| **Responsible Department:** | **Planning and Building** |
|---|---|
| Implementation Time Frame: | Near-Term |
| Applicability: | New and existing development |
| County Costs: | Minimal |
| Community Costs: | Minimal |
| Community Savings: | High |
| Performance Indicators: | Number of homes and businesses utilizing energy monitoring programs |

### 7. Energy-Efficient New Development

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

**Supporting Actions:**

- Require the use of energy-efficient equipment in all new development, including but not limited to Energy Star appliances, high-energy efficiency equipment, heat recovery equipment, and building energy management systems.
- Amend community design plans, guidelines, and other documents to promote the following design techniques to maximize solar resources:
  - Passive solar design, thermal mass, and insulation to reduce space heating and cooling needs;
  - Shading on east, west, and south windows with overhangs, awnings, or deciduous trees; and
  - Sustainable site design and landscaping to create comfortable microclimates.
- Encourage new projects to provide ample daylight within the structure through the use of lighting shelves, exterior fins, skylights, atriums, courtyards, or other features to enhance natural light penetration.
- Minimize the use of dark materials on roofs by requiring roofs to achieve a minimum solar reflectivity index (SRI) of 10 for high-slope roofs and 64 for low-slope roofs (CALGreen 5.1 Planning and Design).
- Minimize heat gain from surface parking lots by utilizing the following strategies for a minimum of 50% of the site's hardscape:
  - Provide shade from the existing tree canopy or within five years of landscape installation;

**Emissions Reductions**

2020:

-3,780 $MTCO_2e/yr$

2035:

-9,460 $MTCO_2e/yr$

**Co-Benefits**

- Provide shade from structures covered by solar panels;
- Provide shade structures or hardscape materials with a minimum SRI of 29;
- Use an open-grid pavement system (at least 50% pervious).

- Use light-colored aggregate in new road construction and repaving projects adjacent to existing cities and in some of the communities north of the Cuesta Grade.

**Program Description:**

SLO County has been proactive in supporting voluntary green building practices throughout the community and has been encouraging energy-efficient development in the county through the provision of rebates to projects that exceed Title 24 energy efficiency standards by more than 15%.

As of January 2011, the California Building Standards Commission requires all new buildings to comply with the California Green Building Standards (CALGreen). The CALGreen standards require new residential and commercial buildings to comply with mandatory measures under the topics of planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental quality. CALGreen also provides voluntary tiers and measures that local governments may adopt that encourage or require additional measures in the five green building topics. The GHG reductions that will occur through implementation of the mandatory minimum requirements of CALGreen are included in the Business As Usual Forecast. This measure quantifies the GHG benefit of buildings that go beyond the minimum requirements of CALGreen and Title 24 Energy Efficiency Standards.

**Relevant COSE Policies:** E 4.1, E 4.4

**Implementation:**

| **Responsible Department:** | **Planning and Building** |
|---|---|
| Implementation Time Frame: | Mid-Term |
| Applicability: | New development |
| County Costs: | Low-Mid |
| Community Costs: | Medium |
| Community Savings: | Medium |
| Performance Indicators: | Percentage of buildings exceeding CALGreen minimum standards |

### 8. Community Forestry Program

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.

**Supporting Actions:**

- Continue tree replacement and mitigation requirements when removing trees with new development.
- Work with County and other government agencies and unincorporated communities to identify public lands suitable for large- and small-scale planting programs.
- Continue to require the protection of native trees on land proposed for development.
- Form partnerships with local advocacy and community groups to fund the planting and maintenance of street trees.
- Partner with government agencies and nongovernmental organizations to provide expertise, maintenance, incentives, and free/low-cost trees to urban and rural property owners and agriculturists.

**Emissions Reductions**

2010:

-240 $MTCO_2e/yr$

2020:

-790 $MTCO_2e/yr$

2035:

-1,510 $MTCO_2e/yr$

**Co-Benefits**

**Strategic Growth Principle**

Maintain and protect a living environment that is safe, healthful, and pleasant for all residents.

- Participate in community greening projects in five unincorporated communities through grants and community plans.
- Establish a website to disseminate tree planting information, solicit donations, and educate the public regarding the multiple benefits of tree planting programs.

**Program Description:**

The energy and greenhouse gas benefits of this measure result from increased shading on buildings and pavements and carbon sequestered by new trees. Increased shading causes lower urban temperatures, thus reducing the urban "heat island" effect. Each tree planted absorbs carbon in the atmosphere.

**Relevant COSE Policies:** BR 3.2

**Implementation:**

| **Responsible Department:** | **Planning and Building, Public Works** |
|---|---|
| Implementation Time Frame: | Ongoing |
| Applicability: | New development |
| County Costs: | Low |
| Community Costs: | Low-Mid |
| Community Savings: | Low-Mid |
| Performance Indicators: | Number of new trees planted |

## RENEWABLE ENERGY

**GOAL: INCREASE THE PRODUCTION OF RENEWABLE ENERGY FROM SMALL-SCALE AND COMMERCIAL-SCALE RENEWABLE ENERGY INSTALLATIONS TO ACCOUNT FOR 10% OF TOTAL LOCAL ENERGY USE BY 2020.**

While energy efficiency in the built environment is the first step to reducing energy consumption and GHG emissions, only so much energy consumption can be eliminated. A minimum level of energy is necessary to support a functioning built environment. The intent of this goal is to shift energy consumption that cannot be reduced through energy efficiency away from traditional electricity and natural gas to renewable energy sources.

Both natural gas and electricity can be offset with renewable sources of energy that are profitable, yield cost savings to users, and spur local energy independence. Through this goal, the County will reduce greenhouse gas emissions from traditional electricity production and natural gas by promoting the production of on-site renewable energy for both residential and nonresidential uses.

The Conservation and Open Space Element includes the goal to produce enough renewable energy to account for 10% of total local energy use by 2020. To achieve this goal, the County will rely on small-scale or distributed renewable energy sources as well as the development of larger commercial facilities, like those proposed in the eastern portion of the county. Distributed renewable energy systems will be installed through the development of a financing program and continued partnerships with local and state government agencies to install renewable energy systems on appropriate facilities. In 2007, the State of California began the California Solar Initiative (CSI), providing rebates and incentives to residents and businesses installing photovoltaic and solar thermal renewable energy systems on their properties. Between 2007 and 2010, over 180 systems were installed on buildings in the unincorporated areas of the county to produce more than 3.5 million kWh annually. The GHG reduction benefit from the CSI is included in the state policy reductions identified in Chapter 4.

**How much power is 10 megawatts?**

**Approximately the energy used in 2,000 single-family homes each year**

**What is distributed renewable energy?**

- Less than 10 MW
- Serves the facility it is attached to
- Feeds surplus energy back into the grid for other local use

**SLO-RESCO (Renewable Energy Secure Community) group is inventorying the renewable energy resource opportunities in San Luis Obispo County and is investigating pathways to develop those renewable resources.**

The development of additional large-scale renewable energy facilities within the county will also be pursued. However, the energy produced by these facilities will be purchased by the state's investor-owned electric utility companies to help achieve their renewable portfolio standard requirements; therefore, the GHG emissions reduction benefit of these facilities is already incorporated into the state policy measure identified in Chapter 4. Table 5-2 provides a summary of GHG emissions reductions from the renewable energy goal and measures.

**Table 5-2.** Renewable Energy GHG Emissions Reduction Summary

| # | Measure | 2010 $MTCO_2e/yr$ | 2020 $MTCO_2e/yr$ | 2035 $MTCO_2e/yr$ |
|---|---|---|---|---|
| 9. | Countywide Energy Collaborative | 0 | 0 to -20,680 | 0 to -36,530 |
| 10. | Commercial-Scale Renewable Energy | Included in the Renewable Portfolio Standard | Included in the Renewable Portfolio Standard | Included in the Renewable Portfolio Standard |
| 11. | Small-Scale Renewable Energy | n/a | -19,850 | -20,130 |
| 12. | Renewable Energy Partnerships | -450 | -760 | -1,260 |
| **Total** | | **-450** | **-20,610 to -41,290** | **-21,390 to -57,920** |

Figure 5-3 and Figure 5-4 illustrate how each reduction measure contributes to the overall goal of reducing emissions by installing renewable energy systems by 2020 and 2035.

**Figure 5-3.** 2020 Renewable Energy GHG Emissions Reductions

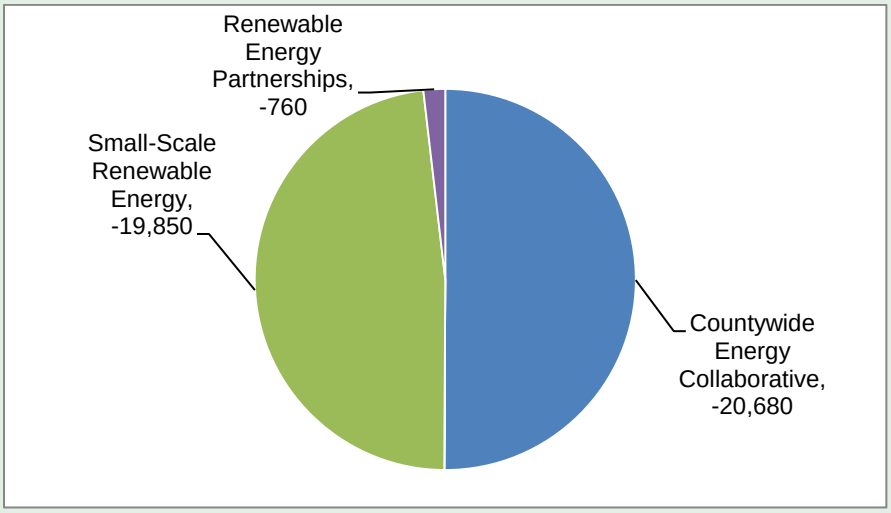
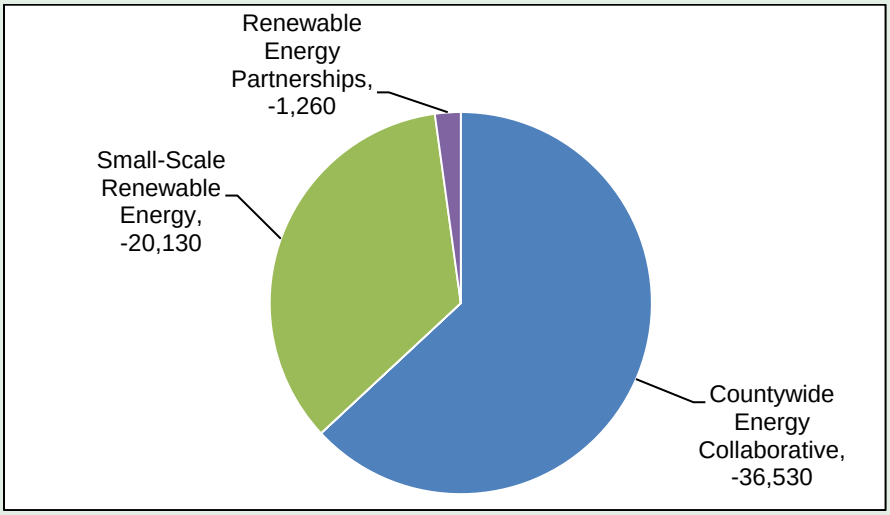



**Figure 5-4.** 2035 Renewable Energy GHG Emissions Reductions



**Emissions Reductions**

2020:

0 to -20,680

2035:

0 to -36,530

**Co-Benefits**

### 9. Countywide Energy Collaborative

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.

**Supporting Actions:**

- Increase County participation and Energy Watch funding to localize existing programs such as commercial and residential direct install.
- Form a regional energy authority or other organizational structure that will include cities, the County, and state and local agencies.
- Evaluate a local "feed in tariff" for renewable energy distributed generation.
- Work with the utilities to establish other local energy-related programs such as public agency energy efficiency programs.
- Evaluate the development of a Community Choice Aggregation program with the incorporated cities in San Luis Obispo County to procure up to 50% of the region's electricity use from renewable resources by 2020.
- Establish a countywide energy office that will serve as a centralized location for energy efficiency and generation, energy financing, water conservation, green building and other sustainability programs.

**Program Description:**

The Countywide office will be dedicated to promoting sustainable energy programs and practices throughout the county. It will work with the incorporated cities to evaluate options for securing

electricity from renewable resources beyond the State's Renewable Portfolio Requirements.

**Relevant COSE Policies:** E 1.2

**Implementation:**

| **Responsible Department:** | **Planning and Building** |
|---|---|
| Implementation Time Frame: | Mid-Term |
| Applicability: | Other |
| County Costs: | High |
| Community Costs: | Minimal |
| Community Savings: | Minimal |
| Performance Indicators: | 50% of electricity from renewable sources by 2020 and 75% by 2035 |

### 10. Commercial-Scale Renewable Energy

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

**Supporting Actions:**

- Complete the Renewable Energy Secure Community (RESCO) contract project by 2012.
- Use state, federal, or other available data to map areas that contain renewable energy resources by 2015.
- Designate and protect areas that contain renewable energy resources such as wind, solar, geothermal, and small hydroelectric.
- Continue participation in the Energy Watch Partnership.
- Amend the Land Use Ordinance to apply renewable energy overlay designations to areas identified in COSE Implementation Strategy E 6.8.1.

**Emissions Reductions**

2020:

Included in the State's Renewable Portfolio Standard

2035:

Included in the State's Renewable Portfolio Standard

**Co-Benefits**

**Program Description:**

The development of large-scale renewable energy projects within San Luis Obispo County will be pursued by California's investor-owned utilities as they seek to achieve the State's renewable portfolio standard requirements. This measure aims to identify and protect the potential renewable energy resources available in the county and to remove any unnecessary barriers to the development of renewable energy projects.

**Relevant COSE Policies:** E 1.2, E 6.8

**Implementation:**

| **Responsible Department:** | **Planning and Building** |
|---|---|
| Implementation Time Frame: | Long-Term |
| Applicability: | Other |
| County Costs: | Minimal |
| Community Costs: | Minimal |
| Community Savings: | Minimal |
| Performance Indicators: | Megawatts of solar installed |

**Emissions Reductions**

2020:

-19,850 $MTCO_2e/yr$

2035:

-20,130 $MTCO_2e/yr$

**Co-Benefits**

### 11. Small-Scale Renewable Energy

Implement a financing program to provide property owners with low-interest loans for the installation of renewable energy resources (refer to Measure 3).

**Supporting Actions:**

- Revise County policies and regulations as needed to eliminate barriers to or unreasonable restrictions on the use of renewable energy.
- Designate and protect areas that contain potential small-scale renewable energy resources such as wind, solar, geothermal, and small hydroelectric.
- Amend the Land Use Ordinance to apply small-scale renewable energy overlay designations to areas identified in

the RESCO study. Also see COSE Implementation Strategy E 6.8.1 for commercial scale.

- Promote the development of sustainable energy sources and renewable energy projects through streamlined planning and development rules, codes, processing, and other incentives.
- Collaborate with stakeholder groups, including business and property owners, wineries, and other agricultural operations, to increase awareness of renewable energy systems, to streamline the permitting process, and to identify incentives.
- Assign a single point of contact within the County Planning and Building Department for energy efficiency and renewable energy project questions.

**Program Description:**

The goal of this measure is to reduce GHG emissions from residential and commercial energy use by facilitating the development of small-scale distributed renewable energy production. This will be accomplished through (1) adoption of incentives, such as permit streamlining and fee waivers, as feasible; (2) amendments to development codes, design guidelines, and zoning ordinances, as necessary; and (3) creation of a financing program to remove the up-front cost barriers to property owners interested in installing distributed renewable energy systems.

**Relevant COSE Policies:** E 1.2, E 3.1, E 6.1, E 6.6

**Implementation:**

| **Responsible Department:** | **Planning and Building** |
|---|---|
| Implementation Time Frame: | Mid-Term |
| Applicability: | New and existing development |
| County Costs: | Low |
| Community Costs: | High |
| Community Savings: | High |
| Performance Indicators: | Megawatts of renewable energy installed |

The County can partner with other state and local agencies to implement renewable energy projects at these facilities.

**Emissions Reductions**

2010:

-450 $MTCO_2e/yr$

2020:

-760 $MTCO_2e/yr$

2035:

-1,260 $MTCO_2e/yr$

**Co-Benefits**

## 12. Renewable Energy Partnerships

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.

**Supporting Actions:**

- Work with PG&E, Cal Poly, and other organizations or businesses as appropriate to sponsor demonstration projects for community solar photovoltaic power, wind energy, and light-emitting diode (LED) lights for roads and parking lots.
- Seek funding and low-interest loan opportunities for local and state agencies to purchase and install renewable energy systems, with a goal of achieving 10% of total local and state agency energy use from on-site renewable energy installations by 2020.

**Program Description:**

This measure aims to support local government and state facilities located in the unincorporated county in their efforts to implement sustainable practices. When these agencies and facilities incorporate sustainability into their operations, they not only lead by example but often save taxpayer money by reducing their energy or water costs.

**Relevant COSE Policies:** E 6.4

**Implementation:**

| **Responsible Department:** | **Planning and Building** |
|---|---|
| Implementation Time Frame: | Ongoing |
| Applicability: | Government facilities |
| County Costs: | n/a |
| Community Costs: | n/a |
| Community Savings: | n/a |
| Performance Indicators: | Megawatts of renewable energy installed |

## SOLID WASTE

**GOAL: REDUCE METHANE EMISSIONS FROM DISPOSED WASTE BY ACHIEVING AS CLOSE TO ZERO WASTE AS POSSIBLE THROUGH INCREASED DIVERSION RATES, METHANE CAPTURE AND RECOVERY, AND OTHER STRATEGIES.**

Both the consumption and disposal of resources require energy and emit greenhouse gases. As waste is sent to the landfill, it decomposes and emits methane gas. By providing additional opportunities to recycle and compost, waste disposal trends within the community can be reduced, thereby reducing GHG emissions associated with waste disposal. Additionally, the impact of transporting waste from homes and businesses by waste fleet vehicles can be reduced through increased diversion and cleaner vehicle fleets.

This goal includes the expansion of curbside recycling opportunities, expansion of curbside green waste to all communities, the expansion of curbside collection of food waste, expanded requirements for construction and demolition waste diversion, and an increase in the amount of methane captured at landfills in the county. These measures will be implemented in partnership with the SLO County Integrated Waste Management Authority and are anticipated to reduce emissions from waste decomposition by 23,880 $MTCO_2e$ by 2020.

Table 5-3 presents a summary of GHG emissions reductions from the solid waste goal and reduction measures. Figure 5-5 and Figure 5-6 illustrate how each reduction measure contributes to the overall solids waste goal of reducing emissions by 2020 and 2035.

**Table 5-3.** Solid Waste GHG Emissions Reduction Summary

| # | Measure | 2020 $MTCO_2e$/yr | 2035 $MTCO_2e$/yr |
|---|---|---|---|
| 13. | Recycling | -6,170 | -7,170 |
| 14. | Composting & Green Waste | -3,230 | -4,560 |

Reduce, Reuse, and Recycle!

As waste decomposes, landfills release methane, a greenhouse gas 21 times as strong as carbon dioxide at trapping heat in our atmosphere.

| # | Measure | 2020 $MTCO_2e/yr$ | 2035 $MTCO_2e/yr$ |
|---|---|---|---|
| 15. | Construction & Demolition Waste | -1,360 | -2,220 |
| 16. | Waste Hauling Fleet | n/a | n/a |
| 17. | Landfill Methane Capture | -13,120 | -17,800 |
| | **Total** | **-23,880** | **-31,750** |

**Figure 5-5.** 2020 Solid Waste GHG Emissions Reductions

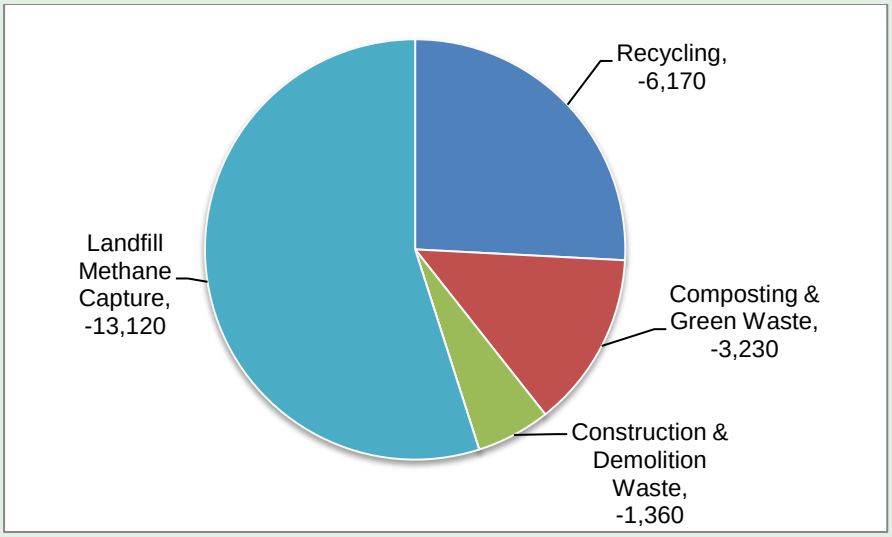
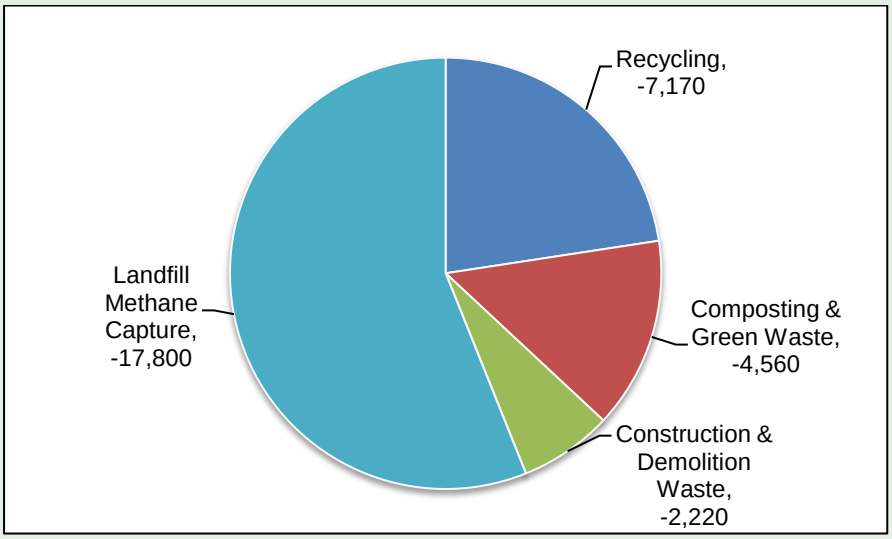



**Figure 5-6.** 2035 Solid Waste GHG Emissions Reductions



**Emissions Reductions**

2020:

-6,170 $MTCO_2e/yr$

2035:

-7,170 $MTCO_2e/yr$

### 13. Recycling

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

**Supporting Actions:**

- Incorporate new standards for trash collection enclosures in County ordinances. At a minimum, enclosures should accommodate two 4-yard containers.
- Support, promote, and recognize ongoing efforts of the business community, schools, universities, and nonprofit organizations to develop additional products and uses that expand the range of materials that can be recycled.
- Nominate businesses and institutions for recognition through CalRecycle's Waste Reduction Awards Program (WRAP).
- Maximize collection and participation in curbside recycling through weekly collection of recyclables in all areas with recycling service.

**Program Description:**

This measure supports the efforts of the SLO County Integrated Waste Management Authority (IWMA) to ensure that all residents and businesses will have the opportunity to recycle cardboard, glass, paper, and plastic products at little or no cost. Recycling these products instead of disposing them in the landfill reduces methane emissions associated with the decomposition of these materials.

**Relevant COSE Policies:** E 5.1

**Implementation:**

| **Responsible Department:** | **Public Works, Planning and Building** |
|---|---|
| Implementation Time Frame: | Mid-Term |
| Applicability: | New and existing development |

| | |
|---|---|
| County Costs: | Minimal |
| Community Costs: | Minimal |
| Community Savings: | Minimal |
| Performance Indicators: | Percentage of residents and businesses with access to recycling opportunities |

**Emissions Reductions**

2020:

-3,230 $MTCO_2e/yr$

2035:

-4,560 $MTCO_2e/yr$

### 14. Composting & Green Waste

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

**Supporting Actions:**

- Encourage the development of biomass, green waste, and food waste composting facilities (agricultural, residential, food service, commercial, industrial sources) for the proper management of organics in locations where land use conflicts can be minimized.
- Work with IWMA, Cal Poly, the school districts, and other state and local agencies to develop a Countywide Food Waste Composting Program for businesses, schools, and residents.
- Implement a curbside green waste and food waste pickup in combination with existing green waste pickup, where feasible.
- In locations where curbside green waste and food waste pickup is not feasible, encourage residents to install home composting equipment.
- Partner with IWMA to develop a public education campaign for residents and businesses about composting and green waste opportunities.
- Amend the County's Land Use and Coastal Zone Land Use Ordinances (22.30.610) to require events that require a discretionary land use permit, to strive to achieve zero

waste (or as close as possible) by recycling and composting the waste from each event.

**Program Description:**

Food and plant waste currently makes up almost 22% of the waste disposed at landfills. By implementing programs to collect and compost this waste instead of disposing it into a landfill, the County will be able to reduce GHG emissions associated with food and plant waste.

**Relevant COSE Policies:** E 5.1, E 5.3

**Implementation:**

| **Responsible Department:** | **Public Works** |
|---|---|
| Implementation Time Frame: | Mid-Term |
| Applicability: | New and existing development |
| County Costs: | Minimal |
| Community Costs: | Minimal |
| Community Savings: | Minimal |
| Performance Indicators: | Percentage of residents and businesses with access to food waste and green waste opportunities |

### 15. Construction & Demolition Waste

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

**Supporting Actions:**

- Update the Construction and Demolition Debris Recycling Ordinance to require increased C&D diversion rates that are phased in over the next 10 years.
- Promote the continued use and development of material re-use facilities and programs like Habitat for Humanity's

**Emissions Reductions**

2020:

-1,360 $MTCO_2e/yr$

2035:

-2,220 $MTCO_2e/yr$

**Co-Benefits**

ReStore and other private enterprises. Encourage the reuse of salvaged architecturally significant materials.

- Work with the construction community to identify additional recycling opportunities needed to reach C&D diversion rates (e.g., painted lumber, Styrofoam packaging).
- Encourage the use of post-consumer recycled content and/or certified sustainable production in building materials.
- Encourage building design and materials production that minimize waste.

**Program Description:**

The current construction and demolition waste ordinance requires all projects with a construction or demolition permit to demonstrate that 50% of the materials removed from the site (exclusive of hazardous materials) are recycled or reused. Increasing the amount of waste to be recycled or reused to 75% for residential and 80% for nonresidential projects will keep over 5,900 additional tons of construction-related waste out of local landfills.

**Relevant COSE Policies:** CR 3.3, E 5.4

**Implementation:**

| **Responsible Department:** | **Public Works** |
|---|---|
| Implementation Time Frame: | Mid-Term |
| Applicability: | New development |
| County Costs: | Low |
| Community Costs: | Low |
| Community Savings: | Low |
| Performance Indicators: | Construction and demolition waste diversion rate |

### 16. Waste Hauling Fleet

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

**Supporting Actions:**

- Encourage the installation of alternative fueling stations and sites that are available for use by public and private vehicles, including waste fleets.
- Support the Air Pollution Control District and other agencies in securing funding (through grants or other mechanisms) to continue to convert waste hauling fleets to cleaner, more efficient fuels like biodiesel or compressed natural gas.

**Program Description:**

By providing additional alternative fueling stations, utilizing alternative fuels will become a more viable option for waste hauling fleets. For example, the Cold Canyon Landfill recently installed a compressed natural gas (CNG) fueling station for use by Waste Management's expanding CNG fleet. As of January 2011, Waste Connections, Inc. had replaced 11 of their waste fleet trucks with new vehicles to run on CNG, with assistance from the SLO County Air Pollution Control District.

**Relevant COSE Policies:** AQ 2.4

**Implementation:**

| **Responsible Department:** | **Public Works, Planning and Building** |
|---|---|
| Implementation Time Frame: | Mid-Term |
| Applicability: | Other |
| County Costs: | Minimal |
| Community Costs: | n/a |
| Community Savings: | n/a |
| Performance Indicators: | Number of waste fleet vehicles using alternative fuels |

**Emissions Reductions**

2020:

Supporting Measure - Not Quantified

2035:

Supporting Measure - Not Quantified

**Co-Benefits**

**Emissions Reductions**

2020:

-13,120 $MTCO_2e/yr$

2035:

-17,800 $MTCO_2e/yr$

### 17. Landfill Methane Capture

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

**Supporting Actions:**

- Ensure landfills continue to apply best management practices for landfill design, operations, and closure/post-closure practices in compliance with state regulations.
- Increase recovery of landfill gas for use as a biomass renewable energy source to replace energy from nonrenewable fossil fuel sources.
- Assist landfills in developing best management practices and new technologies for reducing GHG emissions from active landfills.

**Program Description:**

As waste decomposes within a landfill, methane gas is released. While local landfills all have methane capture mechanisms in place to capture a portion of the gas, there is opportunity to implement additional measures at each landfill to capture additional methane gas and utilize that gas to produce energy.

**Relevant COSE Policies:** E 1.4

**Implementation:**

| **Responsible Department:** | **Public Works** |
|---|---|
| Implementation Time Frame: | Long-Term |
| Applicability: | Landfills |
| County Costs: | Low |
| Community Costs: | n/a |
| Community Savings: | n/a |
| Performance Indicators: | Methane capture rate at each landfill |

## LAND USE & TRANSPORTATION

**GOAL: REDUCE TRANSPORTATION EMISSIONS THROUGH IMPROVEMENTS IN VEHICLE FUEL EFFICIENCY, EXPANSION OF NON-AUTO MODES OF TRAVEL, AND IMPLEMENTATION OF STRATEGIC GROWTH LAND USE POLICIES.**

The distribution of land uses throughout the county shapes community transportation choices. In order to take part in the tasks of daily living, each day people must make choices about transportation that have a direct impact on GHG emissions.

Transportation is the largest contributor of GHGs within the county and one of the most complex sectors to address. Economic considerations, political boundaries, and other factors can complicate actions to optimize land use and transportation options. Expansion of mode choices within and between communities and expanded diversity of land uses can replace single-driver trips with low- or zero-emissions modes like walking, biking, transit, and carpooling.

In addition to the expansion of transportation alternatives, GHG emissions reductions will rely on increases in vehicle fuel efficiency and expansion of alternative fuel uses through California's Clean Car Standards (AB 1493) and the Low Carbon Fuel Standard.

Reducing emissions from transportation will require a multifaceted approach that includes an improved mixture of land uses; improved connectivity and circulation in existing neighborhoods; expansion of bicycle, pedestrian, and transit networks; parking reduction strategies; provision of affordable housing; and expansion of alternative fuel uses. It is important to note that these strategies may be interdependent and that when combined, the GHG emissions reductions may reach 43,470 $MTCO_2e$ annually by 2020.

Table 5-4 provides a summary of the contribution that each strategy will have on reducing transportation-related GHG emissions. Figure 5-7 and Figure 5-8 illustrate the contribution of each measure

**Transportation-related emissions can be reduced in one of three ways:**

- Improving vehicle fuel efficiency
- Replacing vehicle trips with alternative modes such as biking, carpooling, or transit
- Reducing the miles traveled by vehicle through implementation of Strategic Growth Principles.

category to the overall land use and transportation reductions for 2020 and 2035.

**Table 5-4.** Land Use and Transportation GHG Emissions Reduction Summary

| # | Measure | 2020 $MTCO_2e/yr$ | 2035 $MTCO_2e/yr$ |
|---|---|---|---|
| 18. | Strategic Growth | n/a | n/a |
| 19. | Transit Accessibility | n/a | n/a |
| 20. | Affordable Housing | -2,390 to -4,000 | -2,850 to -6,670 |
| 21. | Bicycle & Pedestrian Network | -1,600 to -8,050 | -1,910 to -9,510 |
| 22. | Parking Supply Limits | -2,010 to -19,670 | -2,360 to -23,250 |
| 23. | Unbundle Parking Costs | -170 to -4,030 | -180 to -4,7540 |
| 24. | Commute Trip Reduction Programs | -1,700 to -3,850 | -2,010 to -4,510 |
| 25. | Alternative Fuels | -5,280 | -11,170 |
| | **Total** | **-11,740 to -43,470[1]** | **-16,890 to -56,280[1]** |

1. Due to rounding of decimals, the sum of all values may not equal the total.

**Figure 5-7.** 2020 Land Use and Transportation GHG Emissions Reductions

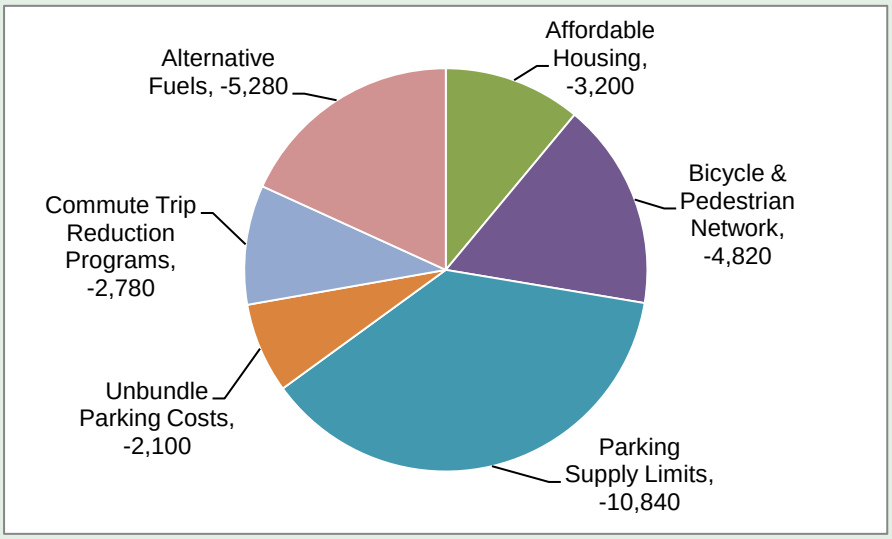


**Figure 5-8.** 2035 Land Use and Transportation GHG Emissions Reductions

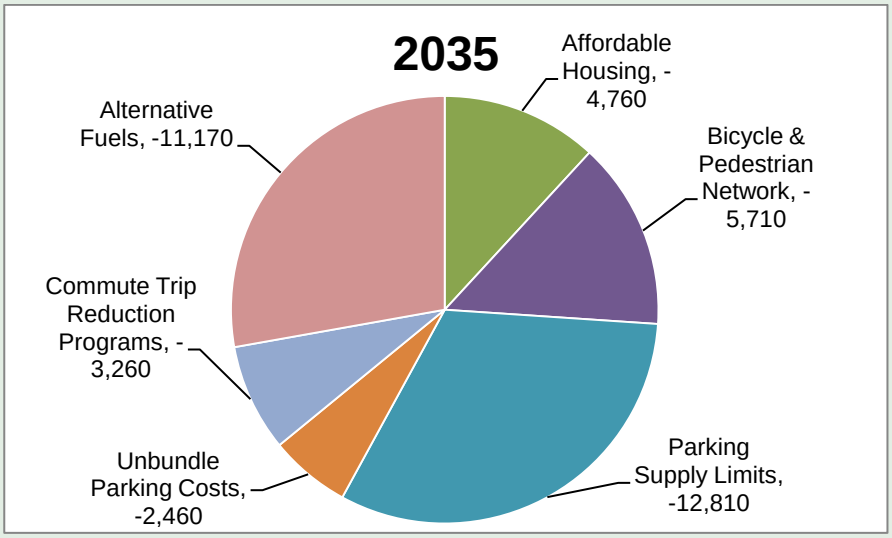


**Table 5-5.** San Luis Obispo County's Strategic Growth Principles

| | Land Use and Transportation Strategies | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Strategic Growth Principles** | **Strategic Growth** | **Transit Accessibility** | **Affordable Housing** | **Bicycle & Pedestrian Network** | **Parking Supply Limits** | **Unbundle Parking Costs** | **Commute Trip Reduction Programs** | **Alternative Fuels** |
| Strengthen Regional Cooperation | X | X | X | X | | | X | X |
| Preserve Open Space, Natural Beauty & Natural Resources. Conserve Energy. Protect Agricultural land and Resources. | X | | | X | X | | | X |
| Strengthen & Direct Development Toward Existing and Strategically Planned Communities. | X | | | | X | X | | |
| Foster Distinctive, Attractive Communities with a Strong Sense of Place. | X | | | X | | | | |
| Provide a Variety of Transportation Choices. | | X | X | X | | | X | X |
| Create a Range of Housing Opportunities and Choices. | X | X | X | | | X | | |
| Encourage Mixed Land uses. | X | | X | | X | | | |
| Create Walkable Neighborhoods & Towns. | X | X | | X | X | | X | |
| Take Advantage of Compact Building Design. | X | | X | | X | | | |
| Make Development Decisions Predictable, Fair & Cost-Effective. | X | | | X | X | X | | |
| Encourage Community & Stakeholder Collaboration. | | X | X | X | | | X | X |

### 18. Strategic Growth

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.

**Supporting Actions:**

- Integrate higher-density development within existing communities using vacant or underutilized infill parcels and lands adjacent to existing development.
- Establish minimum residential densities in the residential multi-family (RMF) land use category where resources are available.
- Integrate complete streets policies and projects into updates of the Land Use and Circulation Element updates, Area Plans, and Community Plans.
- Amend applicable ordinances to facilitate pedestrian circulation within and between commercial and mixed-use sites and nearby residential areas.
- Update the countywide design guidelines to create maximum connectivity between neighborhoods, streets, and projects for pedestrian and bicycle travel.
- Promote the use of ground-floor or street-oriented space in commercial and mixed-use centers for retail, food service, financial institutions, and other high-volume commercial uses.
- Encourage new residential development to be within walking distance (1/2 mile or less) of public activity centers such as schools, libraries, parks, and community centers.
- Provide incentives for mixed-use development and land banking strategies that encourage strategic growth and infill development.

**Emissions Reductions**

2020:

Included in BAU Forecast

2035:

Included in BAU Forecast

**Co-Benefits**

- Retrofit existing, older neighborhoods to improve connectivity, redesign circulation, and create walkable streets.

**Program Description:**

Increased density, improved design, land use diversity, and improved access to destinations play a critical role in reducing the distance traveled in vehicles and expands opportunities to utilize non-auto modes of transportation. Density, design, diversity, and destination accessibility, known as the 4-Ds, are measurements of the urban and built environment, which indicate the distance people travel and the mode used to travel.

**Relevant COSE Policies:** AQ 1.1, AQ 1.2

**Implementation:**

| **Responsible Department:** | **Planning and Building** |
|---|---|
| Implementation Time Frame: | Long-Term |
| Applicability: | New development |
| County Costs: | Medium-High |
| Community Costs: | n/a |
| Community Savings: | n/a |
| Performance Indicators: | n/a |

### 19. Transit Accessibility

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.

**Supporting Actions:**

- Amend applicable ordinances and policies to direct most new residential development away from rural areas and to concentrate new residential development in higher-density

residential areas located near major transportation corridors and transit routes, where resources and services are available.

- Add transit routes that provide intercity express services to provide efficient alternatives to auto trips.
- Allocate adequate funding for long-term transit operations to ensure higher-density residential developments have access to transit opportunities.

**Program Description:**

This measure will direct the County to identify transit nodes in conjunction with local transit providers and the San Luis Obispo Council of Governments (SLOCOG) and will rely on the density, diversity, and accessibility improvements from the strategic growth measure.

**Relevant COSE Policies:** AQ 1.5, AQ 1.6

**Implementation:**

| **Responsible Department:** | **Planning and Building** |
|---|---|
| Implementation Time Frame: | Long-Term |
| Applicability: | New and existing development |
| County Costs: | Low-Mid |
| Community Costs: | n/a |
| Community Savings: | n/a |
| Performance Indicators: | Percentage of residents within a ½ mile of a transit stop |

**Emissions Reductions**

2020:

Included in BAU Forecast

2035:

Included in BAU Forecast

**Co-Benefits**

## 20. Affordable Housing

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.

**Emissions Reductions**

2020:

-2,390 to -4,000 $MTCO_2e/yr$

2035:

-2,850 to -6,670 $MTCO_2e/yr$

**Co-Benefits**

**Supporting Actions:**

- Provide programs, incentives, and regulations for affordable mixed-use housing.
- Encourage mixed-use development through affordable housing programs and regulations.

**Program Description:**

Income has a statistically significant effect on the probability that a person will take transit or walk to destinations. By developing affordable and below-market-rate housing, greater opportunities are afforded to lower-income families to live closer to job centers and provide a greater balance of jobs and housing within the unincorporated communities.

**Implementation:**

| **Responsible Department:** | **Planning and Building** |
|---|---|
| Implementation Time Frame: | Ongoing |
| Applicability: | New development |
| County Costs: | Medium |
| Community Costs: | Medium |
| Community Savings: | Medium-High |
| Performance Indicators: | Number of affordable housing units developed |

## 21. Bicycle & Pedestrian Network

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

**Supporting Actions:**

- Amend applicable ordinances to direct new development to construct paths that connect land uses and other non-

motorized routes and safe road crossings at major intersections.

- Amend applicable ordinances to direct new development to provide secure, weatherproof bicycle parking and storage facilities and ensure the long-term maintenance of such facilities.
- Identify abandoned rail rights-of-way not planned for transit or freight use, analyze the feasibility of their use for non-motorized transportation, and incorporate them into the County's Parks and Recreation Element, the Bikeways Plan, and the Non-Motorized Transportation Program of the Regional Transportation Plan as appropriate.
- Support SLOCOG and local cities in the implementation of bicycle and pedestrian master plans to facilitate non-auto travel within and between communities.
- Incorporate complete streets policies into the Circulation Element and implement complete streets policies on all future County roadway projects.
- Support the expansion of Safe Routes to School Programs to all elementary and middle schools within the county and assess potential roadway improvements for increased safety within school zones.
- Implement, monitor, and update the County Bikeways Plan.
- Support SLO Regional Rideshare and SLO County Bicycle Coalition activities and programs that promote the increased use of bicycles for transportation and recreation.

**Program Description:**

Providing a safe and accessible network of bicycle and pedestrian facilities will offer greater opportunities for people to walk or bike between destinations instead of driving. A complete network of facilities will include sidewalks, bike lanes, paths, and routes, as

**Emissions Reductions**

2020:

-1,600 to -8,050 $MTCO_2e/yr$

2035:

-1,910 to -9,510 $MTCO_2e/yr$

**Co-Benefits**

well as support facilities like secure bike parking, changing facilities, enhanced intersection crossings, and traffic calming improvements.

**Relevant COSE Policies:** AQ 1.3, AQ 1.4, AQ 1.7

**Implementation:**

| **Responsible Department:** | **Planning and Building, Public Works** |
|---|---|
| Implementation Time Frame: | Long-Term |
| Applicability: | New and existing development |
| County Costs: | High |
| Community Costs: | Low-Mid |
| Community Savings: | High |
| Performance Indicators: | Miles of bike lanes and sidewalks |

### 22. Parking Supply Limits

**Emissions Reductions**

2020:

-2,010 to -19,670 $MTCO_2e/yr$

2035:

-2,360 to -23,250 $MTCO_2e/yr$

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, consistent with the General Plan, reduce parking requirements in areas where a variety of uses and services are planned in close proximity to each other and to transit.

**Supporting Actions:**

- Reduce minimum parking requirements in areas such as central business districts.
- Work with developers to utilize in-lieu parking fees to develop concentrated parking where needed.
- Amend applicable ordinances and codes to provide parking options and flexibility for mixed-use development.
- Allow more affordable units without parking for project residents who do not wish to pay for it.

- Revise parking requirements for public and new commercial developments to include designated stalls for low-emitting, fuel-efficient vehicles and carpool/vanpool vehicles for a minimum of 8% of total parking capacity and to pre-wire stalls for future electric vehicle charging stations for 2% of total parking capacity.

**Program Description:**

Parking requirements will be changed to encourage and facilitate strategic growth development and alternative transportation choices by eliminating or reducing minimum parking requirements, creating maximum parking requirements, and providing shared parking for non-conflicting uses.

**Relevant COSE Policies**: AQ 1.2

**Implementation:**

| **Responsible Department:** | **Planning and Building** |
|---|---|
| Implementation Time Frame: | Mid-Term |
| Applicability: | New development |
| County Costs: | Low-Mid |
| Community Costs: | Low-Mid |
| Community Savings: | High |
| Performance Indicators: | Average shared parking reductions |

### 23. Unbundle Parking Costs

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

**Emissions Reductions**

2020:

-170 to -4,030 $MTCO_2e/yr$

2035:

-180 to -4,750 $MTCO_2e/yr$

**Co-Benefits**

**Supporting Actions:**

- Amend applicable land use ordinances and policies to separate parking costs from development costs in appropriate places and sites.
- Modify the land use ordinance to allow more affordable units without parking for residents who do not wish to pay for it.

**Program Description:**

Unbundling separates parking costs from the property costs, enabling those who wish to purchase parking spaces to do so at an additional cost from the property cost. This separation removes the burden from those who do not wish to utilize a parking space and passes the actual cost of providing parking spaces to those who use them.

**Relevant COSE Policies**: AQ 1.2

**Implementation:**

| **Responsible Department:** | **Planning and Building** |
|---|---|
| Implementation Time Frame: | Mid-Term |
| Applicability: | New development |
| County Costs: | Low-Mid |
| Community Costs: | Low-Mid |
| Community Savings: | High |
| Performance Indicators: | none |

### 24. Commute Trip Reduction Programs

Continue to support voluntary commute trip reduction programs.

**Supporting Actions:**

- Support regional work centers and identify appropriate locations for shared-use, regional work centers for public and private use.

- Require new residential multi-family projects subject to discretionary review to create a transportation demand management (TDM) plan, which may include:
  - Reduced parking for affordable, workforce, or senior housing
  - Subsidized public transportation passes
  - Car sharing, vanpools, shuttles, or ride-matching programs
- Require new or expanded commercial, industrial, public, or mixed-use projects with 25 employees or more to create a TDM plan, which may include:
  - Parking cash-out,
  - Subsidized public transportation passes,
  - Car sharing, vanpools, shuttles, or ride-matching programs,
  - Bicycle parking and storage facilities, and
  - Alternative work schedules, when applicable.
- Consider revisions to required traffic mitigation fees where vehicle trip reduction programs will be effectively implemented over the long term.
- Require new or expanded mixed-use, industrial, commercial, office, or residential development (with a minimum of 15 units per acre and/or 25 employees) to provide transit passes valid for at least one year to each resident or employee for the first year of project occupancy.
- Continue to support SLO Regional Rideshare and the SLO County Air Pollution Control District's programs and events.

**Program Description:**

Trips associated with commuting will be reduced through a multi-strategy approach encompassing transit fare subsidies, rideshare programs, parking permit programs, alternative work schedules, and other commute-related strategies. San Luis Obispo Regional Rideshare and the Air Pollution Control District already provide

**Emissions Reductions**

2020:

-1,700 to -3,850 $MTCO_2e/yr$

2035:

-2,010 to -4,510 $MTCO_2e/yr$

**Co-Benefits**

programs to encourage and incentivize employees' and businesses' trip reductions throughout the county.

**Relevant COSE Policies:** AQ 1.2, AQ 1.5, AQ 1.8

**Implementation:**

| **Responsible Department:** | **Planning and Building** |
|---|---|
| Implementation Time Frame: | Ongoing |
| Applicability: | Other |
| County Costs: | Low |
| Community Costs: | Low |
| Community Savings: | Medium-High |
| Performance Indicators: | Participation in SLO Regional Rideshare programs and events |

### 25. Alternative Fuels

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

**Supporting Actions:**

- Create a Neighborhood Electric Vehicle (NEV) network by identifying streets and locations appropriate for NEV use in the Circulation Element.
- Encourage existing car-sharing companies in San Luis Obispo County to expand to additional communities within the county.
- Participate in countywide efforts to establish an alternative fuel infrastructure network.
- Support and facilitate the development of alternative fuel technologies such as the installation of new or retrofit of electric vehicle charging stations and alternative fueling stations.

**Emissions Reductions**

2020:

5,280 $MTCO_2e/yr$

2035:

-11,170 $MTCO_2e/yr$

**Co-Benefits**

- Ensure that alternative fuel stations and support facilities are allowed uses in land use designations that currently allow gas and service stations.
- Revise parking requirements for public and new commercial developments to include designated stalls for low-emitting, fuel-efficient vehicles and carpool/vanpool vehicles for a minimum of 8% of total parking capacity and to pre-wire stalls for future electric vehicle charging stations for 2% of total parking capacity.
- Continue to participate in the Air Pollution Control District's Central Coast Clean Cities Coalition (C5) program.

**Program Description:**

The expanded use and purchase of alternative fuel vehicles within San Luis Obispo County will rely heavily on the availability of these fuels. By creating a network of alternative fuel and electric vehicle charging stations and by promoting the available incentives to purchase alternative fuel vehicles, the County will ensure that there is a market demand for these vehicles that produce little or no direct GHG emissions.

**Relevant COSE Policies:** AQ 2.5, AQ 2.6

**Implementation:**

| **Responsible Department:** | **Planning and Building** |
|---|---|
| Implementation Time Frame: | Long-Term |
| Applicability: | Other |
| County Costs: | Medium |
| Community Costs: | Medium |
| Community Savings: | Medium-High |
| Performance Indicators: | Number of alternative fueling or charging stations<br>Participation in car-share programs |

## WATER CONSERVATION

**GOAL: REDUCE EMISSIONS FROM POTABLE WATER USE BY 20% FROM PER CAPITA BASELINE LEVELS BY 2020 BY PRIORITIZING WATER CONSERVATION BEFORE DEVELOPMENT OF NEW WATER RESOURCES.**

The use of water requires energy to pump, treat, distribute, collect, and discharge water as it is used by the community. Conservation of water is an important strategy to both reducing energy-related water use and adapting to reduced water availability that may occur due to a changing climate.

Urban water use under this goal analyzes the energy use related to water through new construction and existing development. By reducing water use in new buildings by 20%, the need to procure additional water sources in the future will be reduced. Additionally, water conservation in existing development through appliance rebate programs, retrofit requirements, and native landscaping encouragement will ensure that communities will have an adequate water supply to continue to grow. Table 5-6, Figure 5-9, and Figure 5-10 present summaries of the GHG emissions reductions from water conservation measures presented in this section.

**The Weight of Water**

One gallon of water weighs approximately 8.35 pounds. According to the 2011 Master Water Plan, approximately 200,000 acre-feet of water is pumped around the county each year for urban, rural, and agricultural uses. This amount of water weighs over 272 million tons.

**Table 5-6.** Water Conservation GHG Emissions Reduction Summary

| # | Measure | 2010 $MTCO_2e/yr$ | 2020 $MTCO_2e/yr$ | 2035 $MTCO_2e/yr$ |
|---|---|---|---|---|
| 26. | Water Conservation: New Construction | 0 | -80 | -180 |
| 27. | Retrofit Upon Sale | n/a | n/a | n/a |
| 28. | Tiered Water Rates | n/a | n/a | n/a |
| 29. | Water Conservation: Existing Buildings | -10 | -40 | -70 |
| 30. | Water-Efficient Landscape | n/a | n/a | n/a |
| 31. | Recycled Water | n/a | n/a | n/a |

| # | Measure | 2010 $MTCO_2e/yr$ | 2020 $MTCO_2e/yr$ | 2035 $MTCO_2e/yr$ |
|---|---|---|---|---|
| 32. | Greywater & Rainwater | n/a | n/a | n/a |
| **Total** | | **-10** | **-120** | **-250** |

**Figure 5-9.** 2020 Water Conservation GHG Reductions

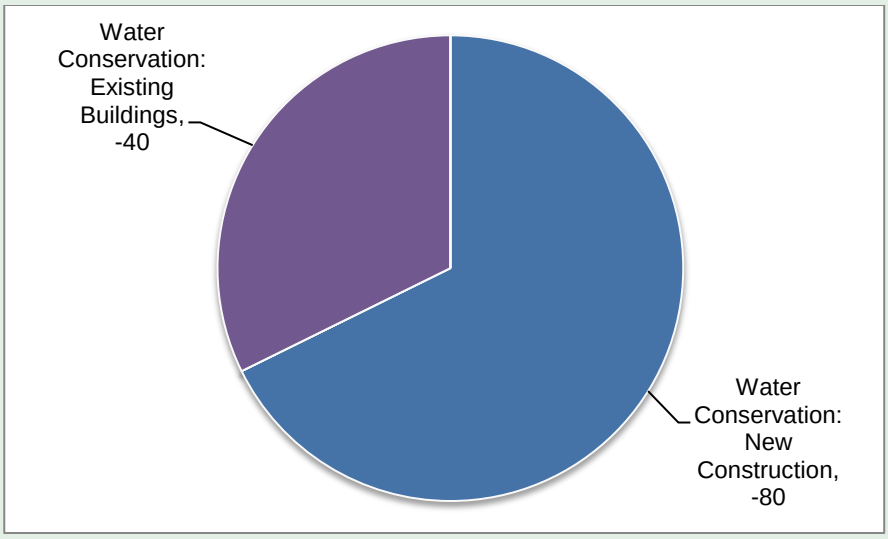
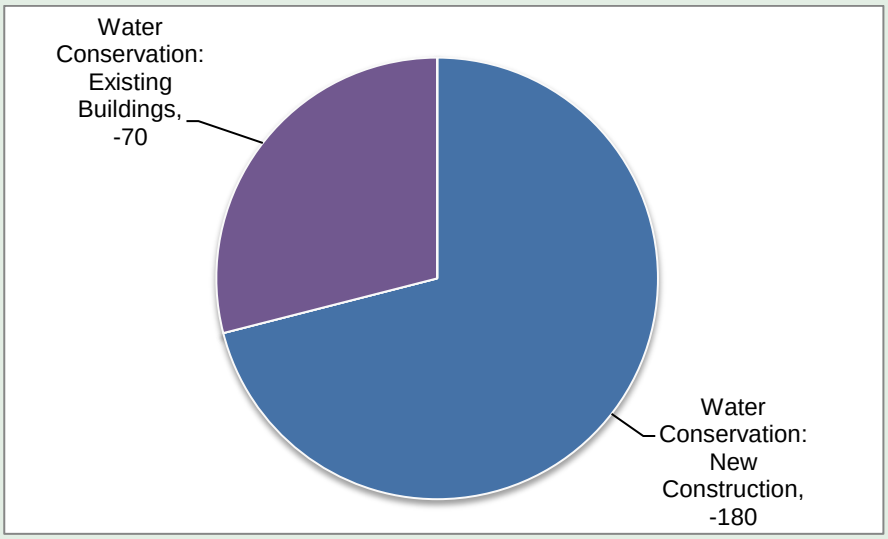



**Figure 5-10.** 2035 Water Conservation GHG Reductions




**Water Use in SLO County**

Urban, rural, and agriculture uses in the county utilize approximately 200,000 acre-feet of water every year. That's equivalent to 65 billion gallons of water each year.

### 26. Water Conservation: New Construction

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.

**Program Description:**

This measure relies on CALGreen's requirement that all new buildings reduce water use by a minimum of 20% through a variety of installation choices. Builders may comply with the requirements by installing fixtures that do not exceed maximum flow rates or by demonstrating that the building will achieve a 20% reduction in water use through alternative methods.

**Relevant COSE Policies:** WR 1.2, WR 4.1

**Implementation:**

| **Responsible Department:** | **Planning and Building** |
|---|---|
| Implementation Time Frame: | Ongoing |
| Applicability: | New development |
| County Costs: | Low |
| Community Costs: | Low |
| Community Savings: | Medium-High |
| Performance Indicators: | 20% water savings from new development |

**Emissions Reductions**

2020:

-80 $MTCO_2e/yr$

2035:

-180 $MTCO_2e/yr$

**Co-Benefits**

### 27. Water Conservation Retrofit

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.

**Program Description:**

In an effort to conserve water from old and outdated plumbing fixtures, the County has implemented a retrofit upon sale requirement for residents and businesses on the Nipomo Mesa and in Los Osos. This requirement ensures that buildings utilizing inefficient water fixtures will be updated over time as buildings are sold. In addition to enforcing the existing retrofit upon sale programs, the County will work with residential and commercial property owners to comply with the requirements of Senate Bill 407, which requires:

- By 1-1-14 specified improvements to single family residences will require water conserving fixtures.
- By 1-1-14 specified improvements to multifamily and commercial buildings will require water conserving fixtures.
- On or after 1-1-17 sellers of single family residences must disclose requirements for replacing plumbing fixtures and the property's compliance with the requirement.
- On or after 1-1-19 sellers of multifamily and commercial buildings must disclose requirements for replacing plumbing fixtures and the property's compliance with the requirement.
- By January 1, 2019, all noncompliant plumbing fixtures in multifamily residential real property and commercial real property, as defined, must be replaced with water conserving plumbing fixtures.

**Relevant COSE Policies:** WR 4.1

**Emissions Reductions**

2020:

Included in Water Conservation: Existing Buildings

2035:

Included in Water Conservation: Existing Buildings

**Co-Benefits**

**Implementation:**

| **Responsible Department:** | **Planning and Building** |
|---|---|
| Implementation Time Frame: | Near-Term |
| Applicability: | Existing development |
| County Costs: | Low-Mid |
| Community Costs: | Low-Mid |
| Community Savings: | Medium |
| Performance Indicators: | Number of homes and businesses retrofitted |

## 28. Tiered Water Rates

Implement tiered water rate structures to incentivize water conservation.

**Supporting Actions:**

- Evaluate existing tiered water rates for incorporated cities and CSDs within the county to determine the most effective rate structures to incentivize water conservation in County Service Areas.
- Through the Resource Management System, the County will track the use of tiered water rates in all water supplier areas in the county.

**Program Description:**

The implementation of tiered water rates will encourage water conservation by charging less per unit for lower-volume water users and charging high-volume water users at a higher rate per unit. Tiered water rates reward customers that use water efficiently, and many water providers throughout California and the southwest have implemented tiered water rates to promote water conservation. This measure would only be applicable to water users that are provided with water from San Luis Obispo County.

**Relevant COSE Policies:** WR 4.2

**Emissions Reductions**

2020:

Included in Water Conservation: Existing Buildings

2035:

Included in Water Conservation: Existing Buildings

**Co-Benefits**

**Implementation:**

| **Responsible Department:** | **Public Works** |
|---|---|
| Implementation Time Frame: | Mid-Term |
| Applicability: | New and existing development |
| County Costs: | Medium |
| Community Costs: | Low-Mid |
| Community Savings: | Low-Mid |
| Performance Indicators: | Gallons of water saved |

### 29. Water Conservation: Existing Buildings

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

**Supporting Actions:**

- Identify per capita water use baselines, using subregional or community data where available.
- Encourage homeowners, landlords, and tenants to install energy- and water-efficient fixtures and equipment.

**Program Description:**

Many of the CSDs within San Luis Obispo County are already actively promoting water conservation efforts by providing residents with water conservation kits and rebates to exchange washers, and providing rebates to replace turf lawns with low-irrigation native landscaping.

**Relevant COSE Policies:** WR 4.1

**Emissions Reductions**

2010:

-10 $MTCO_2e/yr$

2020:

-40 $MTCO_2e/yr$

2035:

-70 $MTCO_2e/yr$

**Co-Benefits**

**Implementation:**

| **Responsible Department:** | **Planning and Building** |
|---|---|
| Implementation Time Frame: | Ongoing |
| Applicability: | Existing development |
| County Costs: | Low |

**Emissions Reductions**

2020:

Included in Water Conservation: New Development

2035:

Included in Water Conservation: New Development

**Co-Benefits**

| | |
|---|---|
| Community Costs: | Low |
| Community Savings: | Low-Mid |
| Performance Indicators: | Gallons of water saved |

### 30. Water-Efficient Landscape

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

**Supporting Actions:**

- Turf will not exceed 20% of the total site area on parcels 1 acre or less and 20% of landscaped areas on parcels greater than 1 acre.
- Irrigation controllers will have rain sensors.
-

**Program Description:**

This measure will apply to all new buildings with landscaping areas and all renovated landscapes larger than 1,000 square feet. By limiting the amount of turf and installing irrigation controls for landscaped areas, water used to irrigate landscapes will be minimized.

**Implementation:**

| **Responsible Department:** | **Planning and Building** |
|---|---|
| Implementation Time Frame: | Immediate |
| Applicability: | New development and renovated landscapes |
| County Costs: | Low |
| Community Costs: | Low-Mid |
| Community Savings: | Low-Mid |
| Performance Indicators: | Gallons of water saved |

### 31. Recycled Water

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

**Program Description:**

Using non-potable water for landscape and irrigation purposes is less energy-intensive than the process of treating and pumping potable water. Recycled water can be sent to the water treatment plant and then sent to properties with dual plumbing for irrigation purposes. Using recycled water will help to preserve the local water supply and reduce the amount of electricity needed to convey, pump, and treat the water used in households and businesses.

**Relevant COSE Policies:** WR 1.4

**Implementation:**

| **Responsible Department:** | **Public Works** |
|---|---|
| Implementation Time Frame: | Mid-Term |
| Applicability: | New and existing development |
| County Costs: | Medium-High |
| Community Costs: | Minimal |
| Community Savings: | Minimal |
| Performance Indicators: | Acre-feet of recycled water used |

**Emissions Reductions**

2020:

Supporting Action – Not Quantified

2035:

Supporting Action – Not Quantified

### 32. Greywater & Rainwater

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

**Supporting Actions:**

- Develop and adopt a graywater ordinance and program, including public education that showcases successful local examples of graywater systems that facilitate the reuse of domestic wastewater for on-site irrigation and other water conservation measures, as appropriate.

**Emissions Reductions**

2020:

Supporting Action – Not Quantified

2035:

Supporting Action – Not Quantified

**Program Description:**

Using greywater and rainwater for landscape and irrigation purposes is less energy-intensive than the process of treating and pumping potable water. Greywater is treated and reused on site, while rainwater is collected for use in fixtures with dual plumbing or for landscape irrigation. Using greywater or rainwater will help to preserve the local water supply and reduce the amount of electricity needed to convey, pump, and treat the water used in households and businesses.

**Relevant COSE Policies:** WR 1.4

**Implementation:**

| **Responsible Department:** | **Planning and Building** |
|---|---|
| Implementation Time Frame: | Ongoing |
| Applicability: | New and existing development |
| County Costs: | Minimal |
| Community Costs: | Low |
| Community Savings: | Low-Mid |
| Performance Indicators: | Number of greywater and rainwater systems installed |

## AGRICULTURE

**GOAL: REDUCE EMISSIONS IN AGRICULTURAL PRACTICES THROUGH ENERGY CONSERVATION, UPGRADE OF EQUIPMENT TECHNOLOGY, AND USE OF BEST MANAGEMENT PRACTICES.**

Agriculture is an important GHG emissions source to be considered and quantified at local, state, and federal levels. In 2008, agriculture contributed approximately 6% of California's total GHG emissions,[1] approximately equivalent to the proportion of emissions resulting from agriculture nationwide (6%).[2] These seemingly small percentages should not obscure agriculture's direct impact on GHG emissions. Nationwide, agricultural activities were the single largest source of all nitrous oxide ($N_2O$) emissions, contributing almost 68% of all $N_2O$. Further, agriculture contributes approximately 35% of all methane ($CH_4$) emissions nationwide.[3]

The County recognizes that agriculture is one of its most important resources and critical economic drivers. Integrating agriculture into the County's inventory and GHG reduction strategies allows the County and local agriculturalists to retain a higher degree of local control (where appropriate). Inventorying local GHG emissions from agriculture sources follows the best available protocol with the recognition that methodologies and assumptions will change and improve over time. The existing GHG inventory is a valuable foundation, setting the stage for engagement and an ongoing dialogue about the best methods to identify, measure, and reduce local GHG emissions.

The local agricultural community has been actively engaged to understand their impact on climate change and develop self-propelled initiatives. This Plan is an opportunity for the County to support ongoing efforts, to facilitate future activities to the extent practicable, and to become a resource on climate change and energy efficiency.

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[1] California Air Resources Board. 2010.

[2] U.S. Environmental Protection Agency. 2011.

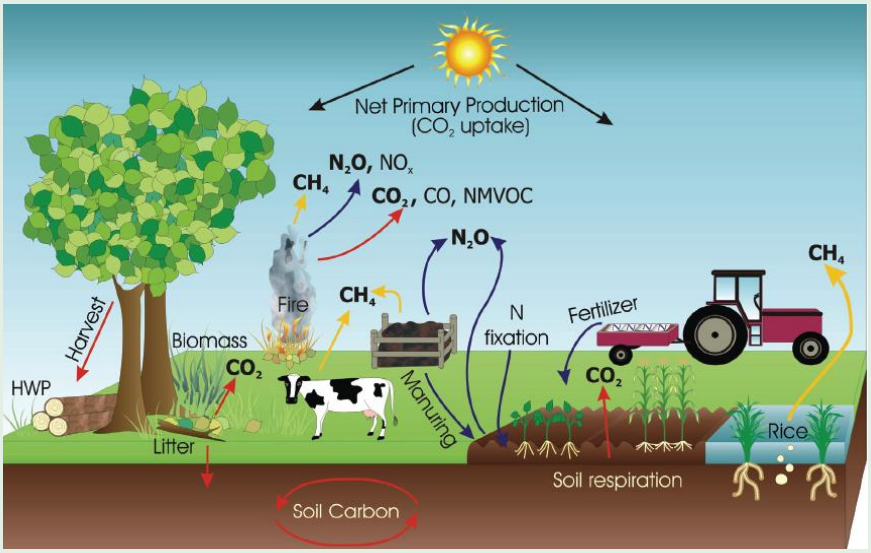
[3] Ibid.

Agriculture is a managed form of land use where human intervention affects both biological processes that involve the transformation of carbon and nitrogen and physical processes such as leaching and runoff. Agricultural activities create direct and indirect GHG emissions through multiple processes including fuel combustion in agricultural off-road equipment, crop and soil management practices, including soil fertilization and pest management, and emissions from cattle and other livestock.

Local and statewide agriculture related GHG emissions result from a highly intensive modern industry sustained by ongoing human activities. Crop yields are dependent on inputs of fertilizer, manure, and pesticides that both directly and indirectly release GHGs. Other practices, such as the application of lime to the soil, work to achieve targeted levels of nutrients in the soil necessary to support agriculture. Practices vary by crop type, soil type, and terrain, among other factors. Note that while there has been a rise in organic farming and less intensive agricultural practices throughout the state, most agricultural enterprise is characterized by a reliance on synthetic fertilizers.

**Figure 5-11** depicts the agricultural cycle. Although each process of the cycle is unique, for the purposes of the community-wide GHG inventory and GHG reduction strategy, they can be grouped into three categories: (1) crop production, (2) livestock, and (3) agricultural equipment. These categories capture the primary agricultural activity or source that creates local GHG emissions.

**Figure 5-11.** Primary Greenhouse Gas Emissions Sources and Removals in an Agricultural System




Source: Intergovernmental Panel on Climate Change. 2006. Guidelines for National Greenhouse Gas inventories, Volume 4: Agriculture, Forestry, and Other Land Use.

All components of the cycle are not appropriate for inclusion in the County's GHG inventory and reduction strategy. The inventory and reduction strategy are focused on the following components.

- **Crop production** includes any process emissions pertaining to the establishment, harvesting, or decomposition of crops. Crop production includes the application of fertilizer and pesticides, and though not typical in SLO County, crop burning. These human-induced activities result in direct emissions within a local government's geographical boundary and are classified as Scope 1 emissions.

- **Livestock** includes the emissions from all ruminant animals. GHGs result from the special process of enteric fermentation that takes place within ruminant digestive systems, and through manure decomposition. Once livestock exists in any given place, livestock emissions take place apart from human intervention. These are classified as Scope 3 emissions, those which the local government has an interest in but no direct control over.

Collaboration and research among agency, institutional, and agricultural organizations are necessary to assess opportunities for sequestration to serve as a local mitigation opportunity.

- **Agricultural equipment** includes the combustion of fuel in all off-road agricultural equipment, including tractors and other types of fuel-powered farm machinery.

This Plan recognizes that there are other emissions and reduction opportunities directly or indirectly related to agricultural activity. Additional emission sources include GHGs resulting from the energy consumed to treat, move, and dispose of water as well as energy and water needed to support other on-site activities related to crop production and agricultural operations. At this time, energy emissions are included in the larger energy sector of the County's inventory; however, energy-related reduction measures are included in this section for reference and best practice.

Opportunities related to GHG emissions and the agriculture sector include storage and sequestration of $CO_2$. Sequestration is an emerging field of research in agriculture and natural resource management. At this time, the exact role of local resources, including agriculture, is largely unknown. Collaboration and research among agency, institutional, and agricultural organizations are necessary to assess opportunities for sequestration to serve as a local mitigation opportunity.

The inclusion of the agriculture sector as emissions source in the County's baseline GHG inventory presents an opportunity to recognize the diverse and proactive local resource protection and energy efficiency programs in place as well as the suite of state and federal regulatory mechanisms in place. The intent of the following reduction measures is to complement and support ongoing activities and to clearly identify those existing or anticipated programs that support the reduction of GHGs. Table 5-7 presents the summary of GHG emissions estimated from the agriculture sector. The detailed measures and actions follow.

**Table 5-7.** Agriculture GHG Emissions Reduction Summary

| # | Measure | 2020 | 2035 |
|---|---|---|---|
| 33. | Agriculture Resource Conservation | n/a | n/a |
| 34. | Soil & Crop Management | n/a | n/a |
| 35. | Livestock Management | n/a | n/a |
| 36. | Off-Road Equipment | -2,810 | -5,270 |
| 37. | Local Foods | n/a | n/a |
| 38. | Agricultural Employee Transportation | Included in Commute Trip Reduction programs | Included in Commute Trip Reduction programs |
| 39. | Sequestration | n/a | n/a |
| | **Total** | **-2,810** | **-5,270** |

**Sustainability in Agriculture**

Agricultural organizations in SLO County have a long history of implementing sustainable practices and programs. Education, self-assessments, and certification programs are valuable resources agriculturalists can use to conserve resources on their land. Examples of current programs available include:

1. Workshops through UC Cooperative Extension and PG&E;
2. Self-assessment programs such as the Ranching Sustainability Analysis developed by UCCE; and
3. Certifications programs such as Sustainability in Practice (SIP) Certification for vineyards or the VeriFlora program for nurseries.

**Emissions Reductions**

2020:

Supporting Action – Not Quantified

2035:

Supporting Action – Not Quantified

**Co-Benefits**

### 33. Agriculture Resource Conservation

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

**Supporting Actions:**

- Support the voluntary installation of energy-efficient irrigation systems and other energy conservation system devices.
- Encourage the U.C. Cooperative Extension to continue its public information and research program describing water conservation techniques that may be appropriate to agricultural practices in this county which may reduce the use of combustible fuels.
- Encourage landowners to participate in voluntary energy conservation programs through the provision of incentives.
- Evaluate potential efficiency improvements in agriculture-related groundwater delivery.
- Encourage the State to enact legislation that promotes environmentally sustainable farming practices.
- Encourage participation in self-assessments and certification programs.

**Program Description:**

The County will continue to work with organizations such as UCCE, Resource Conservation Districts, non-governmental organizations, and agriculturists to conserve energy, water, and other resources through educational, self-assessment, and certification programs. By offering a breadth of programs and events, the agriculture community can participate in the programs that are most appropriate and will have the highest value to their operations.

**Implementation:**

| **Responsible Department:** | **Planning and Building** |
|---|---|
| Implementation Time Frame: | Near-Term |
| Applicability: | Agriculture operations |
| County Costs: | Low |
| Community Costs: | Low |
| Community Savings: | Low-Mid |
| Performance Indicators: | Participation in conservation programs sponsored by UCCE, RCD and NGOs. |

**Emissions Reductions**

2020:

Supporting Action – Not Quantified

2035:

Supporting Action – Not Quantified

### 34. Soil & Crop Management

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.

**Supporting Actions:**

- Explore conservation and stewardship programs and specialty crop research initiatives to fund GHG reduction programs.

**Program Description:**

The County and UCCE will research and develop recommendations for reducing GHG emissions associated with soil and crop management, and encourage agriculture operators to continue to implement management practices without compromising the agricultural productivity of these lands.

**Implementation:**

**Emissions Reductions**

2020:

Supporting Action – Not Quantified

2035:

Supporting Action – Not Quantified

| **Responsible Department:** | **Agricultural Commissioner** |
|---|---|
| Implementation Time Frame: | Mid-Term |
| Applicability: | Agriculture operations |
| County Costs: | Minimal |
| Community Costs: | Low |
| Community Savings: | Low |
| Performance Indicators: | Crop fertilization rates per acre |

### 35. Livestock Management

Implement a voluntary fermentation and manure management program.

**Supporting Actions:**

- Support research and pilot programs to implement best practices.

**Program Description:**

Methane from livestock accounts for roughly 10% of total community-wide emissions. Technical providers will work with researchers to identify technologies and best practices to reduce methane emissions from livestock. These best practices may include manure collection methods, grazing management, nutrient supplements, or other innovative methods.

**Implementation:**

| **Responsible Department:** | **Agricultural Commissioner** |
|---|---|
| Implementation Time Frame: | Mid-Term |
| Applicability: | Livestock operations |
| County Costs: | Minimal |
| Community Costs: | Low |
| Community Savings: | Low |
| Performance Indicators: | none |

### 36. Off-Road Equipment

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

**Supporting Actions:**

- Support SLO County Air Pollution Control District (APCD) programs to fund equipment upgrades, retrofits, and replacement through the Carl Moyer heavy-duty vehicle and equipment program or other funding mechanisms.
- Work with the APCD and agriculturalists to identify practical and feasible options for fuel-efficient agricultural equipment.

**Program Description:**

This program will support the existing efforts of the APCD to provide rebates or financing for retrofitting and replacing both on- and off-road heavy-duty equipment and vehicles through the Carl Moyer program. Additional education will be provided through the APCD on best maintenance and operations practices of off-road vehicles to maximize fuel efficiency

**Implementation:**

| **Responsible Department:** | **Planning and Building** |
|---|---|
| Implementation Time Frame: | Long-Term |
| Applicability: | Agriculture operations |
| County Costs: | Medium |
| Community Costs: | Medium-High |
| Community Savings: | Medium |
| Performance Indicators: | Number of zero-emissions and fuel-efficient tractors |

**Emissions Reductions**

2020:

-2,810MT$CO_2$e/yr

2035:

-5,270 MT$CO_2$e/yr

**Co-Benefits**

**Emissions Reductions**

2020:

Supporting Action – Not Quantified

2035:

Supporting Action – Not Quantified

**Co-Benefits**

### 37. Local Foods

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

**Supporting Actions:**

- Support food systems/food shed program and develop implementation policies.
- Support the development of community garden programs in unincorporated communities.
- Continue support of local initiatives to increase local sales of produce grown in SLO County and other agricultural products, including but not limited to the "SLO Grown" campaign and the permitting of local farmers markets.
- Encourage procurement of locally grown and/or produced food for all county events.
- Encourage County vendors and concessionaires to procure and provide locally grown and/or produced food.
- Support and promote the USDA "Farm to School Initiative" and "Know Your Farmer, Know Your Food" programs.
- Create a local foods program to support food security, local economic development, health, and other benefits.

**Program Description:**

The County recognizes that encouraging relationships between local producers and consumers is an important component of maintaining a vibrant local economy and in building on existing agricultural assets. Local and accessible farmers markets are a valuable strategy to build community identity, provide opportunities for local entertainment, and encourage healthier eating. Farmers markets or other agricultural-based events will strengthen the local identity with the local agricultural heritage; these forums also

provide an important opportunity for educational and outreach programs that are outlined elsewhere in this Plan.

**Implementation:**

| **Responsible Department:** | **Planning and Building** |
|---|---|
| Implementation Time Frame: | Mid-Term |
| Applicability: | Other |
| County Costs: | Low |
| Community Costs: | Low |
| Community Savings: | Low |
| Performance Indicators: | Number of community gardens<br>Number of farmers markets |

### 38. Agricultural Employee Transportation

Reduce VMT associated with commuting by agricultural workers.

**Supporting Actions:**

- Support rideshare programs for agricultural worker transit, shuttles, and ride matching.
- Publicize the availability of this program to the agricultural community.

**Program Description:**

In 2008, SLOCOG was awarded a grant from Caltrans to implement a vanpool program for farm workers to provide safe, reliable, and affordable transportation options to commute to and from rural worksites. The grant will allow SLOCOG to purchase and operate eight 15-passenger vans to transport farm workers and provides funding to market and promote the program.

**Relevant COSE Policies:** AQ 1.5

**Implementation:**

**Emissions Reductions**

2020:

Supporting Measure – Included in Commute Trip Reduction Programs

2035:

Supporting Measure – Included in Commute Trip Reduction Programs

**Co-Benefits**

| Responsible Department: | SLOCOG |
|---|---|
| Implementation Time Frame: | Ongoing |
| Applicability: | Agriculture operations |
| County Costs: | Minimal |
| Community Costs: | Low |
| Community Savings: | Low-Mid |
| Performance Indicators: | Participation in SLO Regional Rideshare programs |

**Emissions Reductions**

2020:

Supporting Action – Not Quantified

2035:

Supporting Action – Not Quantified

**Co-Benefits**

### 39. Sequestration

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.

**Supporting Actions:**

- Support preparation of a countywide sequestration assessment of agricultural and open space lands, forests, and aquatic resources.
- Support research and implementation through the development of a working group to convene agriculturalists, researchers, and other experts to explore local opportunities and best practices to capture and store carbon.
- Explore opportunities for carbon sequestration to be integrated with existing open space acquisition for conservation programs.
- Explore opportunities for carbon sequestration to be integrated with natural resource or conservation-based mitigation banking and offset programs.

**Program Description:**

Carbon sequestration is the net removal of $CO_2$ from the atmosphere. This may occur through the enhancement of natural processes (i.e., terrestrial sequestration—the uptake of carbon by

trees, vegetation, and soils) or through technological processes, such as the placement of $CO_2$ into a geologic repository (geologic sequestration) in such a way that it will remain permanently sequestered. The term "carbon sinks" is also used to describe agricultural and forestry lands that absorb $CO_2$. This measure directs the County to explore opportunities to sequester carbon from the atmosphere.

**Relevant COSE Policies:** AQ 4.5

**Implementation:**

| **Responsible Department:** | **Planning and Building** |
|---|---|
| Implementation Time Frame: | Long-Term |
| Applicability: | Other |
| County Costs: | Medium |
| Community Costs: | Low-Mid |
| Community Savings: | Low-Mid |
| Performance Indicators: | Acres of land used to sequester carbon |