ATTACHMENT B

ENERGY AND CLIMATE ACTION PLAN

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County of Santa Barbara

Energy and Climate Action Plan

May 2015







COUNTY OF SANTA BARBARA
ENERGY AND CLIMATE ACTION PLAN

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Abbreviations

AB	Assembly Bill
ABAU	Adjusted Business-As-Usual
ADC	Alternative Daily Cover
AG	Agriculture
APCD	Air Pollution Control District
BAU	Business-as-Usual
BE	Built Environment
BMP	Best Management Practices
BOS	Board of Supervisors
CalEPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CAS	Climate Action Strategy
CCE	Community Choice Energy
CEC	California Energy Commission
CEESP	California's Long-Term Energy Efficiency Strategic Plan
CEQA	California Environmental Quality Act
CH_4	Methane
CNRA	California Natural Resources Agency
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CO_2e	Carbon Dioxide Equivalent
COAST	Coalition for Sustainable Transportation
CPUC	California Public Utilities Commission
CRCD	Cachuma Resource Conservation District
CSI	California Solar Initiative
EAP	Energy Action Plan
ECAP	Energy and Climate Action Plan
EIR	Environmental Impact Report
EPA	US Environmental Protection Agency
ERM	Emission Reduction Measure
EIS	Environmental Impact Statement
EPP	Environmentally Preferred Purchasing
EV	Electric Vehicle
FTA	Federal Transit Administration
GBP	Green Business Program
GHG	Greenhouse Gas

GWP	Global Warming Potential
HFC	Hydrofluorocarbon
HVAC	Heating, Ventilation, and Air Conditioning
IEE	Industrial Energy Efficiency
IOUs	Investor-Owned Utilities
IPCC	Intergovernmental Panel on Climate Change
IVMP	Isla Vista Master Plan
kWh	Kilowatt hour
LCFS	Low Carbon Fuel Standard
LEED	Leadership in Energy and Environmental Design
LUD	Land Use Design
MMT	Million Metric Tons
MPO	Metropolitan Planning Organization
$MTCO_2e$	Metric Tons of Carbon Dioxide Equivalents
MW	Megawatt
NEPA	National Environmental Policy Act
NHTSA	National Highway Traffic Safety Administration
NO_2	Nitrogen Dioxide
NOx	Nitrogen Oxide
N_2O	Nitrous Oxide
OPR	Governor's Office of Planning and Research
PFC	Perfluorocarbon
PG&E	Pacific Gas & Electric
PACE	Property Assessed Clean Energy
PV	Photovoltaic
RE	Renewable Energy
RPS	Renewables Portfolio Standard
RRWMD	Resource Recovery and Waste Management Division
RTP	Regional Transportation Plan
SAP	Sustainability Action Plan
SB	Senate Bill
SB^2	Smart Build Santa Barbara
SBCAG	Santa Barbara County Association of Governments
SBCAPCD	Santa Barbara County Air Pollution Control District
SCE	Southern California Edison
SCEEP	South County Energy Efficiency Partnership
SCS	Sustainable Communities Strategy
SF_6	Sulfur Hexafluoride
SO_2	Sulfur Dioxide
SoCalGas	Southern California Gas Company
SPR	Sustainability Progress Report
T	Transportation
TDM	Transportation Demand Management

UCCE	University of California Cooperative Extension
VMT	Vehicle Miles Traveled
WE	Water Efficiency
WR	Waste Reduction
ZNE	Zero Net Energy

Executive Summary

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Executive Summary

In March 2009, the County of Santa Barbara Board of Supervisors (BOS) directed County staff "to take immediate, cost-effective and coordinated steps to reduce the County's collective GHG emissions."[1] Developed in response to this direction, the County's Climate Action Strategy (CAS) is a two-phase project comprising (1) a Climate Action Study, including a countywide greenhouse gas (GHG) inventory, forecast, and evaluation of potential emission reduction measures (ERMs), and (2) this Energy and Climate Action Plan (ECAP; Plan), which seeks to reduce the County's GHG emissions through implementation of selected ERMs with the goal of achieving a GHG reduction target of 15% below baseline emissions by the year 2020. This Plan will also assist the County with reducing GHG emissions consistent with Assembly Bill (AB) 32. In addition, the ECAP includes a forecast to 2035, which assumes steady progress after 2020 toward reducing the County's collective GHG emissions, based on continued implementation of the ERMs. Former Governor Arnold Schwarzenegger's Executive Order S-3-05 established the 2050 statewide GHG reduction target of 80 percent below 1990 levels. The state has not yet adopted 2035 targets other than per capita GHG reductions from passenger vehicles through SB 375. The ECAP identifies measures to effectively meet the GHG reduction target for 2020 at a minimum. Attainment and exceedance of the reduction target will require a continued commitment from the County to monitor progress and make plan updates when needed, continued implementation of federal and state mandates, and dedicated residents choosing to take individual actions to be a part of the solution. The County's commitment is demonstrated in the Energy Element in its Comprehensive Plan, which includes a policy that commits the County to monitor progress and update the community-wide GHG inventory at least every five years, along with updates to the ECAP as needed. Similar to the 2020 analysis, the County developed a framework for reducing emissions by 2035 that will work in the context of the unincorporated County. The measures developed for the 2020 scenario were also used in the 2035 scenario, but with increased rates of participation, where appropriate. **Appendix E** includes detailed assumptions for how the 2020 and 2035 scenarios can be achieved. Chapter 4 includes the anticipated GHG reductions in 2020 and 2035 with implementation of the proposed ERMs.

Chapter 1: Introduction

Chapter 1 provides a brief overview of the purpose and scope of this ECAP. While meeting local goals of the County BOS, the ECAP also supports statewide reduction goals established in AB 32 and Senate Bill (SB) 375. The ECAP will serve as a Qualified GHG Reduction Strategy consistent with the California Environmental Quality Act (CEQA) Guidelines, simplifying environmental review within the county. These outcomes further implement and build on the County's existing environmental stewardship and leadership.

[1] County of Santa Barbara. 2011a.

Chapter II: Environmental and Regulatory Setting

Chapter II describes the scientific and regulatory context guiding the preparation and implementation of this ECAP, and includes a brief overview of the science behind climate change and its potential implications. A summary of relevant federal, state, regional, and local regulatory frameworks explains the rationale and guidance for ECAP preparation. This context further describes the reasons why the County is acting to reduce GHG emissions.

While the State of California has passed landmark legislation related to climate change, such as AB 32 and SB 375, regulatory agencies are also implementing several other laws and programs at the state and local levels related to climate change that address land use and transportation, energy and renewable energy, water conservation, and waste and recycling. Local sustainability efforts additionally create opportunities to address climate change. The ECAP builds on these local planning efforts in the region, in addition to state and regulatory actions.

Chapter III: Santa Barbara County Greenhouse Gas Emissions Inventory

In order to develop appropriate GHG emissions reduction strategies, the County analyzed current, or baseline, and future GHG emissions. **Chapter III** provides an inventory of these community-wide emissions within the unincorporated county for baseline year 2007 and projects emissions for future years using assumptions about economic and demographic growth. **Table ES-1** shows that in 2007, transportation was the largest sector, contributing almost 44% of inventoried emissions.

Table ES-1. 2007 Unincorporated Santa Barbara County Community Emissions (Without Stationary and Oil Sources) in Metric Tons of Carbon Dioxide Equivalents (MTCO2e)

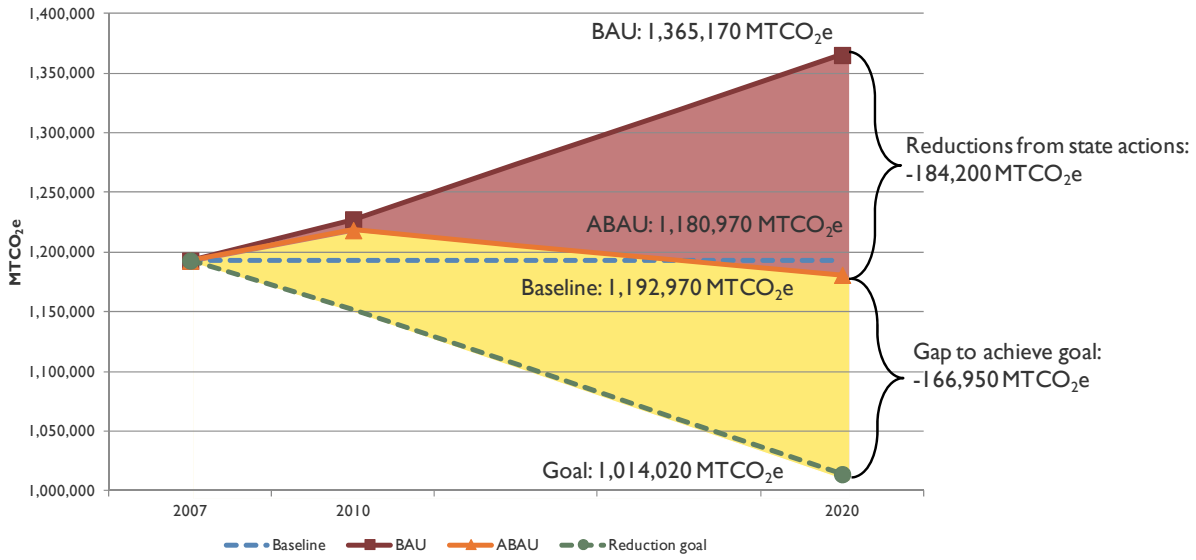
Sector	GHG Emissions ($MTCO_2e$/year)	Percentage of Total
Solid Waste	91,920	7.71%
Water and Wastewater	49,520	4.15%
Transportation	521,160	43.69%
Commercial Energy	121,580	10.19%
Off-Road	102,140	8.56%
Residential Energy	195,490	16.39%
Industrial Energy	46,780	3.92%
Agriculture	62,110	5.21%
Aircraft	2,270	0.19%
TOTAL	1,192,970	

The community-wide inventory includes GHG emissions caused by activities in the unincorporated county such as electricity use, natural gas use, on-road transportation, solid waste disposal, water and wastewater, off-road equipment, agriculture, and stationary sources. For the purposes of this ECAP, stationary source and direct landfill emissions are excluded from the ECAP because the County lacks

primary regulatory control over many of these facilities, as they are permitted and regulated by the Santa Barbara County Air Pollution Control District (SBCAPCD).

Community-wide GHG emissions were forecast for 2020 and 2035 using 2007 energy consumption rates, demographic and economic projections from the Santa Barbara County Association of Governments (SBCAG), and estimated growth in off-road equipment and vehicle miles traveled (VMT). This forecast was adjusted to include GHG reductions that will occur as a result of state programs and policies. With the adjusted forecast, the County can identify the GHG reductions needed to achieve the County's GHG reduction goal of 15% below 2007 baseline emissions by 2020. **Figure ES-1** shows both the business-as-usual estimations for the County alongside the adjusted forecast, both of which are compared to the baseline GHG emissions and overall reduction goal.

Figure ES-1. Comparison of Business-as-Usual and Adjusted Business-as-Usual Emissions ($MTCO_2e$), 2007–2020



Chapter IV: Greenhouse Gas Reduction Strategy

In order to achieve the County's reduction target of 15% below 2007 emission levels by 2020, the County will need to implement the goals, policies, and actions set forth in this document. The County's strategy is structured around the following topic areas discussed further in **Chapter IV**:

A) Community Choice Energy

B) Sustainable Communities Strategy

C) Land Use Design

D) Transportation

E) Built Environment

F) Renewable Energy

G) Industrial Energy Efficiency

H) Waste Reduction

I) Agriculture

J) Water Efficiency

K) Government Operations

For each topic, the ECAP presents the County's ERMs, the measures or strategies the County will implement to reduce GHG emissions. The ERMs included in the ECAP build upon existing efforts and provide a diverse mix of regulatory and incentive-based programs for both new and existing development. The ERMs also aim to reduce GHG emissions from each GHG emissions source to avoid reliance on any one strategy or sector to achieve the target. ERMs achieve a collective reduction of GHG emissions to 16.77% below baseline 2007 emissions by 2020. Beyond 2020, the County is committed to achieving continued GHG emissions reductions consistent with long-term state targets. To demonstrate consistency with long-term state targets beyond 2020, this Plan also includes a forecast and estimates of GHG emission reduction measures for 2035.

Chapter V: County Government Operations: Energy and Greenhouse Gas Reductions

The County's General Services Department prepared the Sustainability Action Plan (SAP) in 2010, after a BOS directive in 2009. The SAP places a strong focus on energy-efficiency in the County's municipal operations and illustrates ways the County is working to save energy in the short term, as well as provide projects for future consideration in efforts to save money and to protect the environment. This **Chapter V** discusses the SAP and other existing County policies and initiatives aimed at energy efficiency and GHG reductions, and further discusses the Government Operations measures that have been incorporated into this ECAP.

Chapter VI: Implementation

To ensure successful achievement in meeting the County's reduction target, **Chapter VI** presents the ECAP implementation plan. This chapter includes an implementation matrix with criteria specific to each ERM, including the responsible department, implementation time frame, and co-benefits. The implementation matrix will be a critical tool to monitor the County's progress toward implementing the ECAP.

Chapter VII: 2020 and Beyond

Chapter VII explains how the ECAP seeks to reduce the County's GHG emissions through implementation of selected ERMs with the goal of achieving a GHG reduction target of 15% below baseline emissions by the year 2020. It also explains that the Plan includes a forecast to 2035, which assumes steady progress after 2020 toward reducing the County's collective GHG emissions. In addition, the Chapter discusses the ECAP as it relates to CEQA and environmental review.

Glossary, Appendices, and Supplemental Materials

To streamline the main document, several technical appendices provide additional information to support the ECAP. Appendices address GHG emissions calculations, plan development, and sources. The appendices provided in this Plan include:

- Glossary of key terms used throughout the document (**Appendix A – Glossary**)
- A list of all policies within the Comprehensive Plan that the ECAP implements (**Appendix B – Comprehensive Plan Policies**)
- Technical memo on GHG emissions inventory results and methodologies (**Appendix C – Baseline and Forecasted Community GHG Emissions Inventory**)
- An assessment of cost and benefit considerations to provide staff and decision-makers with additional information relevant to the costs and benefits of the County's proposed ERMs (**Appendix D – Cost and Benefit Considerations**)
- Summary of sources and assumptions used to estimate GHG reductions for each reduction measure (**Appendix E – Technical Appendix**)
- A template for a checklist to be completed by project development applicants to demonstrate compliance with the ECAP (**Appendix F – ECAP Consistency Checklist Template**)
- References for the document (**Appendix G – References**)
- A summary of the role of Community Choice Energy in achieving the reduction target (**Appendix H – Community Choice Energy Comparison**)

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I. Introduction

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I. Introduction

1-1. Purpose

The purpose of this Energy and Climate Action Plan (ECAP; Plan) is to demonstrate the County of Santa Barbara's (County) continued commitment to reduce greenhouse gas (GHG) emissions while protecting the aesthetic qualities and unique resources of Santa Barbara County. The ECAP is intended to streamline future environmental review of projects within the unincorporated county by following California Environmental Quality Act (CEQA) Guidelines. Consistent with the County's land use authority, the Plan focuses on community-wide activities within the unincorporated portions of Santa Barbara County.

Strategies and measures identified in the ECAP build on the County's innovative work to date, serving to protect natural systems, reduce emissions and waste, improve energy and water efficiency, and ensure long-term access to reliable, clean, and affordable energy. The ECAP outlines the County's commitment and strategy to reduce GHG emissions, as well as to protect the built environment, public health and welfare, and natural resources from the vulnerabilities caused by changing climate conditions. Taking action on climate change can result in immediate health benefits and substantial economic savings. There is evidence of health impacts associated with climate change including heat stress, asthma, and physical injury. By working to address climate change, not only can health improve for all residents but savings can be realized in the form of fewer medical consultations and increased productivity. In addition, there are a number of other co-benefits that may be realized as a result of implementation of this ECAP including improved mobility, energy/cost savings, and reduced water use. Realization of these co-benefits aligns with the goals of many of the County's departments including Public Health, Public Works, Community Services, and General Services.

The ECAP will act as an implementation tool to identify actions to reduce GHG emissions. The reduction measures described in the ECAP are consistent with the policy provisions contained in the Santa Barbara County Comprehensive Plan and have been developed in order to successfully achieve a GHG reduction target of 15% reduction below the 2007 baseline emissions inventory by the year 2020. ECAP implementation will assist the State in meeting its statewide GHG reduction established by Assembly Bill (AB) 32, as well as the statewide energy reduction goals in California's Long-Term Energy-Efficiency Strategic Plan (CEESP). In addition, the ECAP includes a forecast to 2035, which assumes steady progress after 2020 toward reducing the County's collective GHG emissions, based on continued implementation of the ERMs. Former Governor Arnold Schwarzenegger's Executive Order S-3-05 established the 2050 statewide GHG reduction target of 80 percent below 1990 levels. The state has not yet adopted 2035 targets other than per capita GHG reductions from passenger vehicles through Senate Bill (SB) 375. The ECAP identifies measures to effectively meet the GHG reduction target for 2020 at a minimum. Attainment and exceedance of the reduction target will require a continued commitment from the County to monitor progress and make plan updates when needed, continued implementation of federal and state mandates, and dedicated residents choosing to take individual actions to be a part of the solution. The County's commitment is demonstrated in the Energy Element

in its Comprehensive Plan, which includes a policy that commits the County to monitor progress and update the community-wide GHG inventory at least every five years, along with updates to the ECAP as needed. Similar to the 2020 analysis, the County developed a framework for reducing emissions by 2035 that will work in the context of the unincorporated County. The measures developed for the 2020 scenario were also used in the 2035 scenario, but with increased rates of participation, where appropriate. **Appendix E** includes detailed assumptions for how the 2020 and 2035 scenarios can be achieved. Chapter IV includes the anticipated GHG reductions in 2020 and 2035 with implementation of the proposed ERMs.

1-2. Scope

Local governments play a primary role in reducing GHG emissions and mitigating the potential impacts of climate change. The County has a long-standing commitment to implementing sustainable policies, incentives, and programs to proactively reduce GHG emissions. This Plan provides the unincorporated county's strategy to reduce GHG emissions from numerous emission reduction measures (ERMs) and actions. The County recognizes the important assets of the characteristics of the unincorporated county's diverse communities and has worked with the public to ensure that the ECAP provides additional benefits to the community. In addition to reducing GHG emissions, implementation of the ERMs identified in the ECAP provide community benefits such as reduced utility bills, greater transportation options, natural resource protections, reduced water use, economic growth, and enhanced quality of life.

Specifically, the ECAP accomplishes the following:

- Provides a GHG emissions baseline from which to benchmark GHG emissions reductions.
- Demonstrates the County's strategy to reduce community-wide GHG emissions by 15% from baseline emissions by 2020, consistent with the reduction target of AB 32.
- Helps to increase the community's resilience to the effects of climate change.
- Provides a policy document with specific implementation measures to be considered as part of the planning process for future development projects.
- Provides a list of specific actions that will reduce GHG emissions, with the highest priority given to actions that provide the greatest reduction in GHG emissions and benefit the community at the least cost.
- Identifies the County's energy strategy to achieve energy efficiency goals and targets, in addition to the overall GHG emissions reductions.

- Implements programs that integrate with the State of California's long-term energy efficiency goals.

- Establishes a qualified GHG reduction plan consistent with CEQA Guidelines Section 15183.5(b) from which future development within the unincorporated county can tier and thereby streamline the environmental analysis necessary under CEQA.

1-3. Local Setting

Santa Barbara County covers 2,745 square miles and is located in the central coastal area of California, which is bounded by San Luis Obispo County to the north, Ventura County to the east, Kern County to the northeast, and the Pacific Ocean to the south and west. The geographic center of the county is about 300 miles south of San Francisco and 100 miles north of Los Angeles.

Santa Barbara County is known for its scenic mountains, picturesque coastline, mild climate, agricultural resources, and numerous parks and beaches. Key elements that define the county's resources include the coastal terraces between the Pacific Ocean and mountains, the aesthetic inland valleys with large expanses of cultivated farmlands and gently rolling hillsides, and the rugged Los Padres National Forest. The county is largely rural in character, with distinct compact urban communities separated by public open space and private grazing lands. The foothill elevations typically reach about 800 feet above sea level. The mountain ranges crest between 4 and 5 miles inland (north and east) from the coast and reach elevations between 3,200 and 3,800 feet above sea level.

Santa Barbara County contains five main geographical subregions: the South Coast Area, Santa Maria Valley, Lompoc Valley, Santa Ynez Valley, and Cuyama Valley.

i. South Coast Area

The South Coast Area subregion is the largest designated urbanized area in the county, covering approximately 130 square miles, and includes the Cities of Santa Barbara, Goleta, and Carpinteria. This coastal area is characterized by numerous canyons between the foothills of the Santa Ynez Mountains and the Pacific Ocean. The unincorporated communities of the South Coast Area include Summerland, Montecito, and Isla Vista.

ii. Santa Maria Valley

This subregion includes the Santa Maria Valley urbanized area. This urban area is the largest retail trade center in the North County. The valley is situated in the northwest corner of the county and is bounded by the Santa Maria River to the north, the Casmalia Hills to the west, the San Rafael Mountains to the east, and the Solomon Hills to the south. The unincorporated communities of Orcutt and Los Alamos are located in this area, as are the Cities of Santa Maria and Guadalupe.

iii. Lompoc Valley

The Lompoc Valley is located in the midwestern portion of the county, adjacent to Vandenberg Air Force Base, and is separated from the rest of the county by the Purisima, Santa Rita, Santa Rosa, and White hills. The Santa Ynez River also traverses the Lompoc Valley in a westerly direction and eventually drains into the Pacific Ocean. This area includes the City of Lompoc and the unincorporated communities of Vandenberg Village and Mission Hills.

iv. Santa Ynez Valley

The Santa Ynez Valley is located in the central portion of the county, adjacent to the Cachuma Lake Recreation Area. This valley is located at the base of several converging mountain ranges, including the San Rafael and Santa Ynez mountains, and the Purisima and Santa Rita hills. The Santa Ynez River is located to the south of this valley. This area includes the cities of Solvang and Buellton and the unincorporated communities of Los Olivos, Ballard, and Santa Ynez.

v. Cuyama Valley

The Cuyama Valley is isolated in the far northeastern portion of the county and is a large agricultural area bounded by the Caliente Mountain Range to the north and the Sierra Madre Mountains to the south. The San Andreas fault is located to the east of the Cuyama Valley and travels in a northwest direction. The valley is bisected by the Cuyama River and includes the communities of Cuyama and New Cuyama.

With these diverse geographic subregions, Santa Barbara County is located within three climate zones. These zones are described as follows:

- **Zone 4** (central coastal valley) is inland of the coast with some ocean influence, which keeps temperatures from hitting more extreme highs and lows. However, summers are hot and dry and require cooling, and many days of low temperatures in the winter require heating.

- **Zone 5** (central coastal) is characterized by warmer temperatures and moist air due to the proximity to the ocean and the southern latitude. This zone comes close to comfort standards, meaning little cooling is needed and heat is only necessary for part of the day, even in the winter.

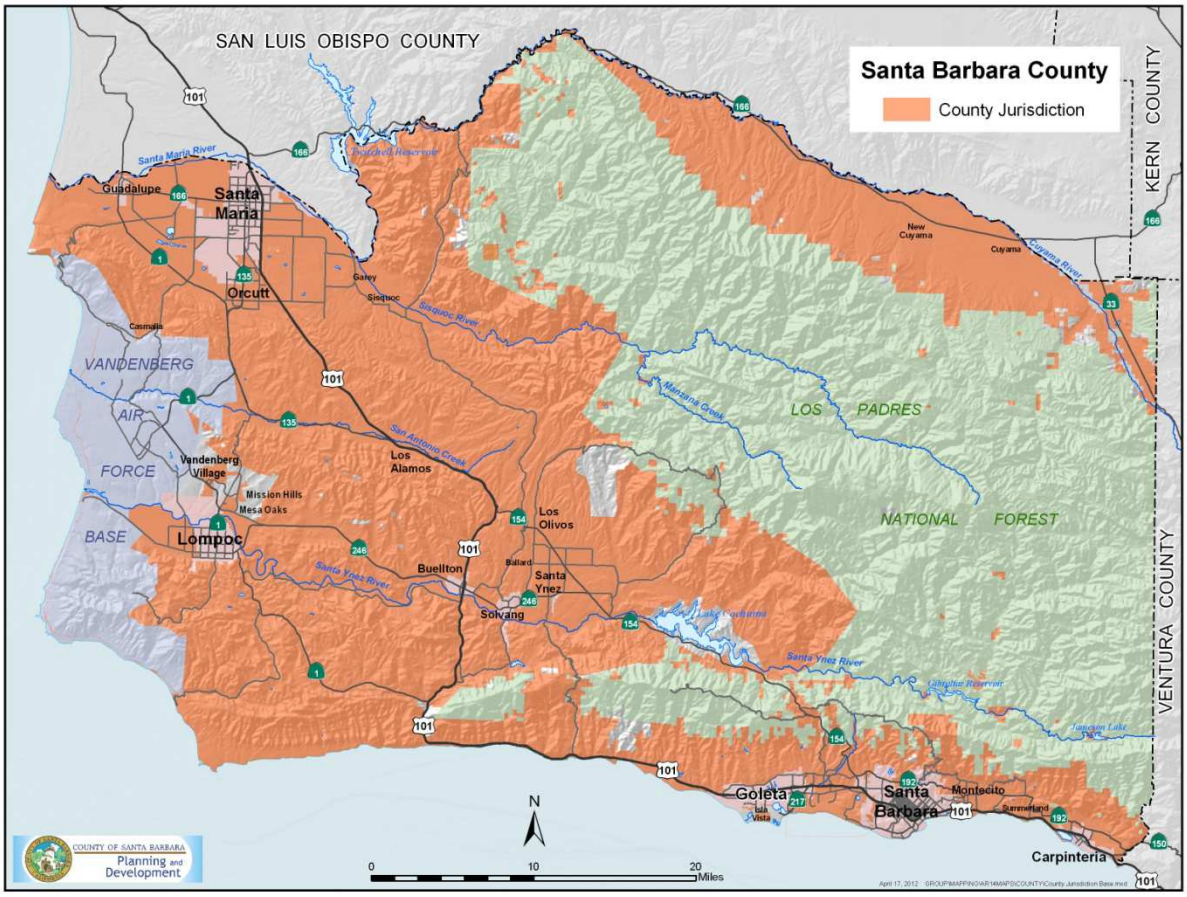
- **Zone 6** (south coastal – Los Angeles) includes beaches at the foot of the Southern California hills, where the ocean is relatively warm and keeps the climate very mild, and sunshine is plentiful—making solar equipment very advantageous. This zone requires the least energy of any region in California.

1-4. Jurisdiction

The Plan includes the unincorporated portions of Santa Barbara County, California, where the County retains land use permit authority (see **Figure 1-1**). Thus, the ECAP does not cover the portions of the unincorporated county that are within state and federal lands and waters. These portions of the

unincorporated county include the Los Padres National Forest, Vandenberg Air Force Base, the University of California, Santa Barbara, the Chumash reservation, and the offshore oil and gas production facilities in the Santa Barbara Channel. Similarly, the ECAP does not address incorporated areas within Santa Barbara County, such as the City of Santa Barbara.

Figure 1-1. County of Santa Barbara Jurisdiction



1-5. History of Climate Protection Efforts

Santa Barbara County has historically been at the forefront of environmental advocacy ever since the major Santa Barbara Oil Spill of 1969. This significant event helped facilitate stronger federal- and state-level environmental protection and awareness with the creation of the National Environmental Policy Act (NEPA), signed into effect in 1969, and CEQA in 1970. Local groups and government agencies have long been involved in the active protection of natural resources and efforts to mitigate the unincorporated county's impact on climate change. During development of the ECAP, the County has identified and implemented numerous proactive climate protection and energy-saving measures while working in conjunction with stakeholders to achieve common goals in support of a thriving, well-balanced, and sustainable community. **Appendix B** identifies policies in the Comprehensive Plan that are implemented by the ECAP. With strong motivations to reduce GHG emissions, because Santa Barbara County is a major coastal area, the County is also motivated to address anticipated climate change impacts. The potential impacts of climate change could threaten the safety, welfare, and livelihood of Santa Barbara County residents. For instance, according to the California Energy Commission, Santa Barbara County is projected to experience an increase in the number of wildfires, land vulnerable to a 100-year flood event, and temperature increases, even under a low-emissions scenario.[1]

In March 2009, the County Board of Supervisors (BOS) directed County staff "to take immediate, cost-effective and coordinated steps to reduce the County's collective greenhouse gas (GHG) emissions."[2] In response to this direction, the County's Climate Action Strategy (CAS) was developed, which includes a two-phase strategy to reduce GHG emissions comprising (1) the Climate Action Study, including a countywide GHG inventory, forecast, and evaluation of potential ERMs, and (2) an Energy and Climate Action Plan (ECAP), which, if adopted, would seek to reduce the county's GHG emissions through implementation of selected ERMs with the goal of achieving a GHG reduction target established by the BOS of 15% below baseline levels by 2020.

The County Long Range Planning Division prepared the Santa Barbara Climate Action Study in 2011.[3] The purpose of the study was to:

- Demonstrate the County's commitment to the Climate Change Guiding Principles, as adopted by the BOS, by identifying possible existing and future GHG reduction measures and programs.

- Set the framework for the County to comply with the goals and requirements of AB 32 and Senate Bill (SB) 97, based on an inventory of the County's current and projected GHG emissions (the countywide GHG inventory and forecast are described below).

[1] California Energy Commission, Cal-Adapt, 2015.

[2] Santa Barbara County Climate Action Study, 2011.

[3] Santa Barbara County Climate Action Study, 2011.

- Identify the next steps toward meeting the state's GHG emissions reductions target.

After preparing the Climate Action Study in 2011, the Long Range Planning Division initiated the second phase of the County's CAS with preparation of this ECAP. Public outreach included a community visioning workshop, participation in the Santa Barbara Earth Day Festival, stakeholder meetings, and an online survey.

1-6. Public Participation

The County engaged the public in a process that provided community education about climate action planning and related implications for land use policy. As described above, outreach efforts for the ECAP included a mix of activities. The County convened four stakeholder meetings for focused discussions, in addition to hosting a community workshop and reaching out through an online survey and a booth at the Santa Barbara Earth Day Festival. A main goal of the public participation process was to build local capacity for project implementation. Methods for education and gathering community input during the planning process included a community visioning workshop, participation in a community event, four facilitated stakeholder meetings, and an online survey.

The overall outreach strategy was designed to ensure that balanced and effective communication occurred through an inclusive community-wide outreach and engagement campaign. County staff recognized that ongoing public involvement was critical to obtain representative input due to the diverse geography and numerous communities of the unincorporated county.

i. Public Engagement Goals

Several goals guided the County's outreach and engagement efforts for the ECAP. Each outreach activity reflected and responded to these overarching goals, as presented below.

- Educate the community about the purpose of the ECAP and clearly describe the process, impacts, and benefits of project implementation.
- Educate key target audiences and stakeholders about the importance of daily lifestyle choices and community-wide efforts to achieve ECAP goals.
- Provide opportunities for community members to provide input into ECAP development.
- Provide community members and other key stakeholders with a clear understanding of their role in the planning process.

ii. Summary of Key Findings

The public engagement process provided an opportunity for community members to present ideas and share feedback on the effort. As a result of this process, participant input identified several key issues to consider. Note that this input is not statistically representative of countywide

opinions; yet feedback from the community helped staff to vet opportunities and confirm strategies for the ECAP. A summary of input from all outreach events is outlined below, while additional information for specific outreach events follows in subsequent sections. In summary, overarching findings from the outreach include the following:

- Based on input at the ECAP outreach events, some event participants indicated that citizens of Santa Barbara County feel strongly about climate change planning. Many participants in the ECAP outreach efforts have already initiated steps to improve the energy-efficiency of their homes and are enthusiastic about the ECAP. Some participants also vocalized skepticism, requesting additional details about how the ECAP measures would affect them. Other participants identified apprehension about the idea of an ECAP. Regardless of individual positions, a key finding from the outreach program is the strong desire of stakeholders to be involved in the ECAP process to help shape the future of their community.

- Throughout multiple outreach events, participants identified higher levels of support for actions that the County government itself could undertake rather than personal actions to reduce GHG emissions. For example, potential County government actions to reduce GHG emissions could include provision of improved bicycle and transit infrastructure. Stakeholder input and the online survey results showed participants seemed more willing to support County-driven GHG measures, such as the improvement of bike networks.

- Participants at events generally agreed that improvements could be made to the county's transportation system.

- Participants who provided input and feedback also provided a range of opinions varying by GHG emissions topic regarding preferences for an incentive-based approach versus a regulatory approach to implementation.

- Some participants indicated that certain elements of the draft measures were perceived as barriers to economic growth. Participants considered such actions as unwise in an already depressed economy. Input also identified that measures with economic impacts could be unfair if the impact is to homeowners, homebuyers, and new development projects.

iii. Community Workshop

The County hosted a community workshop on the ECAP on April 4, 2012. This workshop introduced the project and provided an overview of the unincorporated county's community-wide GHG emissions inventory, the proposed GHG reduction target(s), the existing ECAP framework, and opportunities for countywide reduction strategies. The workshop provided participants with an opportunity to share their vision for a more sustainable Santa Barbara County and guide the

ECAP project toward this vision. Following a presentation by the County and consultant team, the participants were asked to take part in open house workshop activities to provide feedback on the project. The workshop materials allowed participants to share opinions on the feasibility of specific measure proposals. The County and consultant team provided additional information about the GHG inventory. Participants also had the opportunity to provide additional input using comment cards.

The results from the open house activities showed that many participants are already taking part in activities to reduce GHG emissions in Santa Barbara County. Participants showed the most interest in replacing old fixtures with more efficient models, recycling common materials, and purchasing locally produced food. Participants showed the least interest in greywater systems and making housing decisions based on proximity to services.

iv. Community Event – Earth Day Festival

County of Santa Barbara staff conducted ECAP outreach during Earth Day festivities in April 2012. At this event, County staff conducted intercept surveys and displayed interactive presentation boards to gather feedback.

Event attendees were asked about their level of interest in sustainability activities. Input collected at the Earth Day Festival indicated the following:

- Many of those who provided input already recycle at home and have replaced light bulbs with energy-efficient models.
- Many of the participants at the Earth Day event would be interested in driving hybrid vehicles or upgrading their home's heating and cooling system.
- None of the activities received negative feedback from participants, who also expressed interest in many methods to reduce GHG emissions in Santa Barbara County.

v. Stakeholder Meetings

The County held the first round of stakeholder engagement in northern Santa Barbara County on June 7, 2012, and in southern Santa Barbara County on June 8, 2012. The purpose of the meetings was to give interested stakeholders the opportunity to provide feedback on the proposed measures for the draft ECAP. Each workshop used the same approach and presentation, with introductory remarks from the County Planning Director followed by a presentation from the County's technical consultant, PMC, reviewing the proposed measures associated with the ECAP. Following these presentations, stakeholder groups collectively discussed each emissions sector (land use, transportation, and the built environment). Stakeholders at the June 8 meeting requested additional information on the proposed measures. County staff held a second meeting with this group on June 28, 2012, to continue the discussion.

The County's second round of stakeholder engagement on the ECAP was held on October 17, 2012. This meeting reintroduced draft measures from the ECAP in three potential approaches for implementation: voluntary, phased, and mandatory. Participants provided feedback on the approach most appropriate for Santa Barbara County. The workshop began with introductory remarks from the County's technical consultant, PMC, on the role of measures in the ECAP as well as a general discussion of GHG reduction targets and associated implementation mechanisms. The introduction was followed by a presentation of each measure that has the potential for voluntary, phased, and mandatory actions. Each scenario and the predicted outcome were shared with meeting participants, who indicated their preference using electronic polling. General comments about each measure were also recorded after the polling exercise. Measures that were not anticipated to vary between the three approaches were presented in handout form for stakeholder review and comment at a later point.

Key stakeholder discussion points are summarized below.

- Participants expressed an interest in understanding how the measures would affect unincorporated areas of the county.
- Participants expressed a desire for incentive-based regulations rather than mandatory actions, and noted that without incentives many of the household GHG improvements would be extremely expensive.
- Participants showed support for integrating the County's ECAP measures with already existing community plans and assets.
- Participants indicated more willingness to support County-driven GHG measures, such as the improvement of bike networks.
- Some elements of the draft measures are seen as barriers to economic growth and that is viewed as unfair, particularly if the impact is to homeowners, homebuyers, and new development projects.
- Participants were interested in the calculation of benefits and initial inventory findings.
- Measures with triggers or thresholds were the subject of discussion of the appropriateness of such figures. For example, participants discussed whether square feet or dollar amounts should be used as criteria to evaluate projects.
- Participants were interested in more specificity in measures and implementation actions.

Stakeholder engagement continued with interested parties including the Santa Barbara Association of Realtors and Halsell Builders in 2015.

vi. Online Survey

As a final tool for receiving community feedback, the County distributed an online survey that asked 35 questions about household energy use, sustainability practices in the workplace, and driving habits. Throughout the duration of the project, 85 people participated in the survey. The County promoted the survey through the following channels: the Community Workshop held in April 2012, the ECAP website, the County Planning and Development Earth Day booth, and e-mail distribution through the interested parties list.

The survey closed with an open-ended question: "What policies do you support to mitigate climate change?" to which a wide variety of responses were submitted. Many survey respondents expressed dislike toward the ECAP process, but there was more support for immediate action toward GHG reductions. Many residents indicated that they are already practicing sustainable habits, both in the home and at work.

Through the online survey, many respondents evaluated opportunities for transportation-related actions. Over 50% of the survey respondents still rely primarily on a personal vehicle for transportation. Respondents indicated that more convenient stops and speedier service would encourage them to use public transit and that safer and more prevalent bike lanes would encourage them to use bicycles rather than cars. There was little enthusiasm for pedestrian improvements, but participants felt that if more amenities were within walking distance, they would be encouraged to walk more. Finally, when asked what they would like to see for the future of Santa Barbara County, a majority of respondents noted increased economic activity and job growth.

1-7. Relationship to the Comprehensive Plan

The ECAP also supports the County's Comprehensive Plan. The ERMs described in the ECAP are consistent with the policy provisions contained in the Comprehensive Plan. Concurrent with the adoption of the ECAP, the County will amend its Comprehensive Plan to reflect the County's intent to reduce GHG emissions that are reasonably attributable to the County's discretionary land use decisions. The Comprehensive Plan amendment provides policy updates to the existing County Comprehensive Plan Energy Element to include a policy and research action requiring implementation of the ECAP, with provisions for monitoring and updating at least every five years. Together, these amendments identify a path to integrate ECAP objectives into the County's long-term planning framework. The proposed policy and research actions for the Comprehensive Plan are as follows:

- **Policy 8.3: ECAP Implementation**: The County shall implement the Energy and Climate Action Plan (ECAP) to reduce greenhouse gas (GHG) emissions from community-wide sources by a minimum of 15% from the 2007 baseline emissions by 2020.

- **Research 8.3.1:** Established in the ECAP, the County shall monitor progress toward achieving GHG reductions every five years. Monitoring of the County's ECAP shall include an update to

the GHG emissions from community-wide sources. If it is determined that the ECAP is not achieving specified levels of GHG emission reductions, the ECAP will be updated as needed.

1-8. CEQA and Environmental Review

One of the objectives of the proposed project is to adopt an ECAP that satisfies the requirements of Section 15183.5 of the CEQA Guidelines for a Qualified GHG Reduction Strategy, which provides a process to streamline the review of GHG emissions of specific projects.[4] Under this guideline, lead agencies can use adopted plans consistent with State CEQA Guidelines Section 15183.5(b) to analyze and mitigate the significant effects of GHGs under CEQA at a programmatic level by adopting a plan for the reduction of GHG emissions. Later, as individual projects are proposed, project-specific environmental documents may tier from and/or incorporate by reference that existing programmatic review in their cumulative impacts analysis.

A key intent of this ECAP is to allow project-specific environmental documents prepared for projects that are consistent with the ECAP to rely on this ECAP's programmatic analysis of GHG. This approach provides streamlined CEQA analysis of future projects that are consistent with the approved ECAP through 2020. Certain projects, such as stationary industrial sources, are not covered under the ECAP and would be subject to CEQA thresholds and/or project-specific analysis.

The ECAP is consistent with the CEQA Guidelines for a Qualified GHG Reduction Strategy to provide this streamlining benefit. Specifically the ECAP identifies a strategy, reduction measures, and implementation strategies the County will use to achieve the GHG emissions reduction target of 15% below 2007 emissions levels by 2020. This reduction target is consistent with the state's AB 32 goals of achieving 1990 emissions levels by 2020, which is generally interpreted as a 15% reduction below current (2005–2008) emissions levels by 2020.[5] The technical analysis provided in the ECAP identifies the emissions associated with specific actions and sets forth performance standards and indicators to achieve the specified emissions goals. The implementation actions of the ECAP further demonstrate the County's commitment to monitor ongoing progress to the reduction target.

The County has prepared environmental review documents in compliance with the requirements of CEQA through development of a Programmatic Environmental Impact Report (EIR). This EIR finds that the ECAP will have a less than significant environmental impact for all impacts analyzed. The Final EIR for the ECAP analyzed potential environmental impacts to 2020. Beyond 2020, tiering off the ECAP will be subject to further environmental impact analysis and/or plan updates. The implementation program will include plan updates and evaluation of post-2020 targets and emission reduction measures.

[4] CEQA (California Environmental Quality Act). 2014. Statutes and Guidelines.

[5] AB 32 Scoping Plan.

1-9. Energy and Climate Action Plan Preparation

In 2011, Southern California Edison (SCE) awarded the County Planning and Development Department California's Long-Term Energy-Efficiency Strategic Plan (CEESP) funding through its Flight #5.6: Local Government Strategic Plan Strategies Solicitation. The CEESP is funded by California utility ratepayers and is administered by SCE under the auspices of the California Public Utilities Commission (CPUC). The CPUC authorized SCE to conduct strategic plan activities centered on energy-efficiency and addressing the "Big, Bold" strategies and related local government goals found in the CEESP. The County used the CEESP funds for several projects which promote long-term energy-efficiency under the umbrella of the County's Climate Change Guiding Principles, including development of this Plan.

The purpose of SCE's funding for the ECAP was to promote long-term energy-efficiency, sustainability, and reduced GHG emissions for county residents, businesses, and agricultural operations. The ECAP achieves the intent of CEESP's Strategic Plan Goal 4 by creating a strategy to reduce community-wide energy use, reduce fuel combustion through more efficient transportation and land use patterns, and spur growth in local energy-efficiency industries.

Pacific Gas & Electric Company (PG&E) also provided funding to the County to prepare the ECAP. Funding provided by PG&E was applied to specific aspects of the project, including an update to the County's GHG Inventory and Forecast, public outreach, identification of best practices (leading to measure development), quantification of measures, development of a compliance checklist, and development of an implementation and monitoring tool.

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II. Environmental and Regulatory Setting

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II. Environmental and Regulatory Setting

Since the early 1990s, scientific consensus has held that the world's population is releasing greenhouse gases (GHGs) faster than the earth's natural systems can absorb them. These gases are released as byproducts of fossil fuel combustion, waste disposal, energy use, land use changes, and other human activities. This release of gases, which include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), creates a blanket around the earth that allows light to pass through but traps heat at the surface, preventing its escape into space. While this is a naturally occurring process known as "the greenhouse effect," there is strong evidence to support that human activities have accelerated the generation of GHGs beyond natural levels. The overabundance of GHGs in the atmosphere has led to a warming of the earth and has the potential to severely impact the earth's climate system. For instance, according to the California Energy Commission, Santa Barbara County is projected to experience an increase in the number of wildfires, land vulnerable to a 100-year flood event, and temperature increases, even under a low-emissions scenario.[1]

While often used interchangeably, there is a difference between the terms "climate change" and "global warming." According to the National Research Council, climate change refers to any significant, measurable change of climate lasting for an extended period of time that can be caused by both natural factors and human activities. Global warming, on the other hand, is an average increase in the temperature of the atmosphere caused by increased GHG emissions. The use of the term "climate change" is becoming more prevalent because it encompasses all changes to the climate, not just temperature.[2, 3]

2-1. Greenhouse Gases

To fully understand global climate change, it is important to recognize the naturally occurring greenhouse effect and define the GHGs that contribute to this phenomenon. Various gases in the earth's atmosphere, classified as atmospheric GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space and a portion of the radiation is absorbed by the earth's surface. The earth emits this radiation back toward space, but the properties of the radiation change from high-frequency solar radiation to lower-frequency infrared radiation. GHGs, which are transparent to solar radiation, are effective in absorbing infrared radiation. As a result, this radiation that otherwise would have escaped back into space is now retained, resulting in a warming of the atmosphere. This phenomenon is known as the greenhouse effect. Among the prominent GHGs contributing to the greenhouse effect are CO_2, CH_4, N_2O, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).

[1] California Energy Commission, Cal-Adapt, 2015.

[2] National Research Council, *Climate Change: Evidence, Impacts, and Choices*, 2012.

[3] Intergovernmental Panel on Climate Change, 2013.

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. Gases with high global warming potential (such as HFCs, PFCs, and SF_6) are the most heat-absorbent. Over 100 years, CH_4 traps over 21 times more heat per molecule than CO_2, and N_2O absorbs 310 times more heat per molecule than CO_2. Often, estimates of GHG emissions are presented in carbon dioxide equivalents (CO_2e), which weighs each gas by its global warming potential (GWP). Expressing GHG emissions in CO_2e takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted. **Table 2-1** shows the GWPs for different GHGs for a 100-year time horizon. Note that the Energy and Climate Action Plan (ECAP; Plan) uses GWPs available at the time of technical analysis, as established in the Intergovernmental Panel on Climate Change's (IPCC) Second Assessment Report and used by the County's inventory of baseline 2007 emissions, prepared in 2010.[4]

Table 2-1. Global Warming Potential for Greenhouse Gases

Greenhouse Gas	Global Warming Potential
Carbon Dioxide (CO_2)	1
Methane (CH_4)	21
Nitrous Oxide (N_2O)	310
Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs)	6,500*
Sulfur Hexafluoride (SF_6)	23,900

Source: California Climate Action Registry 2009a.

* The 100-year Second Assessment Report GWPs are 140 to 11,700 for HFCs and 7,000 to 8,700 for PFCs. This number (6,500) is meant to be an average of a range of values, not an absolute figure. http://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html.

As the name implies, global warming is a worldwide problem. GHGs are global pollutants, unlike criteria air pollutants and toxic air contaminants, which are pollutants of regional and local concern, respectively. California is a significant global emitter of CO_2 and produced 452 million gross metric tons of CO_2e ($MTCO_2e$) in 2010.[5] Consumption of fossil fuels in the transportation sector was the single largest source of California's GHG emissions in 2010, accounting for 38.3% of total GHG emissions in the state. This category was followed by the electric power sector (including both in-state and out-of-state sources) (20.7%) and the industrial sector (19.0%).

2-2. Effects of Global Climate Change

California can draw on substantial scientific research conducted by experts at various universities and research institutions. With more than a decade of concerted research, scientists have established

[4] In 2014, the California Air Resources Board (CARB) adjusted the statewide 2020 GHG emissions limit for AB 32 in the First Update to the Climate Change Scoping Plan based on GWPs from the IPCC 4th Assessment Report. CARB is now using the IPCC 4th Assessment Report GWPs for the 2000–2012 statewide GHG inventory, while the Environmental Protection Agency (EPA) will transition the 4th Assessment GWPS in the next national inventory.

[5] CARB, 2013.

that the early signs of climate change are already evident in the state—as shown, for example, in increased average temperatures, changes in temperature extremes, reduced snowpack in the Sierra Nevada, sea level rise, and ecological shifts. Many of these changes are accelerating locally, across the country, and around the globe. As a result of emissions already released into the atmosphere, California will face intensifying climate change in coming decades.[6]

The State of California has identified climate change as a threat to the ongoing societal, economic, and environmental well-being of California communities. To prepare for these threats, California is developing numerous strategies to both mitigate climate change and adapt to climate change impacts. The 2012 Adaptation Planning Guide demonstrates the State's emphasis on facilitating local government-focused climate adaptation.[7] Climate change-related impacts pose numerous complex and interrelated threats to the State of California that are anticipated to affect both natural and societal systems.

Generally, research indicates that California should expect overall hotter and drier conditions, with a continued reduction in winter snow (with concurrent increases in winter rains), as well as increased average temperatures and accelerating sea level rise. In addition to changes in average temperatures, sea level, and precipitation patterns, the intensity of extreme weather events is also changing. Climate change temperature projections identified in the 2009 California Climate Adaptation Strategy suggest the following:

- Average temperature increase is expected to be more pronounced in the summer than in the winter season.
- Inland areas are likely to experience more pronounced warming than coastal regions.
- Heat waves are expected to increase in frequency, with individual heat waves also showing a tendency toward becoming longer and extending over a larger area, thus more likely to encompass multiple population centers in California at the same time.
- As GHGs remain in the atmosphere for decades, temperature changes over the next 30 to 40 years are already largely determined by past emissions. By 2050, temperatures are projected to increase by an additional 1.8 to 5.4°F (an increase one to three times as large as that which occurred over the entire 20th century).
- By 2100, the models project temperature increases between 3.6 and 9°F.

In addition to these direct impacts, studies identify the numerous potential indirect threats posed by climate change. Secondary impacts of climate change range from potential effects on economic growth and specific industries such as agriculture, to the vulnerability of certain populations to food

[6] California Natural Resources Agency (CNRA), 2009.

[7] CNRA, 2012.

insecurity and increases in cardiorespiratory morbidity. According to the 2009 California Climate Adaptation Strategy, the impacts of climate change in California have the potential to include, but are not limited to, both the indirect and direct effects discussed in below.

i. Public Health

Climate change is expected to lead to an increase in ambient (i.e., outdoor) average air temperature, with greater increases expected in summer than in winter months. Larger temperature increases are anticipated in inland communities as compared to the California coast. The potential health impacts from sustained and significantly higher than average temperatures include heat stroke, heat exhaustion, and the exacerbation of existing medical conditions such as cardiovascular and respiratory diseases, diabetes, nervous system disorders, emphysema, and epilepsy. Numerous studies have indicated that there are generally more deaths during periods of sustained higher temperatures, and these are due to cardiovascular causes and other chronic diseases. The elderly, infants, and socially isolated people with pre-existing illnesses who lack access to air conditioning or cooling spaces are among the most at risk during heat waves.

ii. Floods and Droughts

The impacts of flooding can be significant. Results may include population displacement, severe psychosocial stress with resulting mental health impacts, exacerbation of pre-existing chronic conditions, and infectious disease. Additionally, impacts can range from a loss of personal belongings, and the emotional ramifications from such loss, to direct injury and/or mortality.

Drinking water contamination outbreaks in the United States are associated with extreme precipitation events. Runoff from rainfall is also associated with coastal contamination that can lead to contamination of shellfish and contribute to foodborne illness. Floodwaters may contain household, industrial, and agricultural chemicals, as well as sewage and animal waste. Flooding and heavy rainfall events can wash pathogens and chemicals from contaminated soils, farms, and streets into drinking water supplies. Flooding may also overload storm and wastewater systems, or flood septic systems, leading to possible contamination of drinking water systems.

Drought impacts develop more slowly over time. Risks to public health that Californians may face from drought include impacts on water supply and quality, food production (both agricultural and commercial fisheries), and risks of waterborne illness. As surface water supplies are reduced as a result of drought conditions, the amount of groundwater pumping is expected to increase to make up for the water shortfall. The increase in groundwater pumping has the potential to lower the water tables and cause land subsidence. Communities that utilize well water will be adversely affected by drops in water tables or through changes in water quality. Groundwater supplies have higher levels of total dissolved solids compared to surface waters. This introduces a set of effects for consumers, such as repair and

maintenance costs associated with mineral deposits in water heaters and other plumbing fixtures, and on public water system infrastructure designed for lower salinity surface water supplies. Drought may also lead to increased concentration of contaminants in drinking water supplies.

iii. Water Resources

The state's water supply system already faces challenges to provide water for California's growing population. Climate change is expected to exacerbate these challenges through increased temperatures and possible changes in precipitation patterns. The trends of the last century, especially increases in hydrologic variability, will likely intensify in this century. The state can expect to experience more frequent and larger floods and deeper droughts. Rising sea level will threaten the Delta water conveyance system and increase salinity in near-coastal groundwater supplies. Planning for and adapting to these simultaneous changes, particularly their impacts on public safety and long-term water supply reliability, will be among the most significant challenges facing water and flood managers this century.

iv. Forests and Landscapes

Global climate change has the potential to intensify the current threat to forests and landscapes by increasing the risk of wildfire and altering the distribution and character of natural vegetation. If temperatures rise into the medium warming range, wildfire occurrence statewide could increase from 57% to 169% by 2085. However, since wildfire risk is determined by a combination of factors, including precipitation, winds, temperature, and landscape and vegetation conditions, future risks will not be uniform throughout the state.

2-3. Regulatory Setting

The adoption of recent legislation has provided a clear guidance for addressing climate change. As identified by the CEQA Guidelines, local governments must analyze project impacts on climate change in the environmental review for projects subject to CEQA. However, other legislation also provides additional directives and motivators for the County to address GHG emissions.

I. Federal Regulations

In the past, the US Environmental Protection Agency (EPA) has not regulated GHGs under the Clean Air Act because it asserted that the act did not authorize the EPA to issue mandatory regulations to address global climate change and that such regulation would be unwise without unequivocally establishing a causal link between GHGs and the increase in global surface air temperatures. However, the US Supreme Court held that the EPA must consider regulation of motor vehicle GHG emissions. In *Massachusetts v. Environmental Protection Agency*, 12 states and cities, including California, together with several environmental organizations, sued to require the EPA to regulate greenhouse gases as pollutants under the Clean Air Act.[8] The US Supreme Court held that the EPA was authorized by the Clean Air Act to regulate CO_2 emissions from

[8] *Massachusetts et al v. Environmental Protection Agency et al.,* 2006, Supreme Court of the United States.

new motor vehicles. The court did not mandate that the EPA enact regulations to reduce GHG emissions, but found that the only instances in which the EPA could avoid taking action were if it found that GHG emissions do not contribute to climate change or if it offered a "reasonable explanation" for not determining that GHG emissions contribute to climate change.

On December 7, 2009, the EPA issued an "endangerment finding" under the Clean Air Act, concluding that GHG emissions threaten the public health and welfare of current and future generations and that motor vehicles contribute to GHG pollution.[9] These findings provide the basis for adopting new national regulations to mandate GHG emissions reductions under the federal Clean Air Act. The EPA's endangerment finding paves the way for federal regulation of GHG emissions.

Legislation to establish a federal regulatory system for GHGs, including cap-and-trade programs, has previously been introduced in both the House of Representatives and the Senate. However, to date, no major climate change bill has passed both houses of Congress and been adopted into law. Under the Consolidated Appropriations Act of 2008 (HR 2764), Congress has established mandatory GHG reporting requirements for some emitters of GHGs. In addition, on September 22, 2009, the EPA issued the Final Mandatory Reporting of Greenhouse Gases Rule. The rule requires annual reporting to the EPA of GHG emissions from large sources and suppliers of GHGs, including facilities that emit 25,000 metric tons or more a year of GHGs.

In June 2014, the EPA, under President Obama's Climate Action Plan, proposed a rule that would create state-specific rate-based goals and guidelines to reduce GHG emissions from existing fossil fuel–fired power plants. This Clean Power Plan will maintain an affordable, reliable energy system, while cutting pollution and protecting our health and environment now and for future generations, leading to an estimate of public health benefits worth $55 billion to $93 billion in 2030.[10]

i. EPA and National Highway Traffic Safety Administration Joint Rulemaking for Vehicle Standards

In response to the *Massachusetts v. EPA* ruling discussed above, the George W. Bush Administration issued an Executive Order on May 14, 2007, directing the EPA, the Department of Transportation, and the Department of Energy to establish regulations that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines by 2008.

On May 7, 2010, the EPA and the NHTSA issued a final rule regulating fuel-efficiency and GHG pollution from motor vehicles for cars and light-duty trucks for model years 2012–

[9] EPA, 2009.

[10] EPA, 2014.

2016.[11] On May 21, 2010, President Obama issued a memorandum to the Secretaries of Transportation and Energy and to the Administrators of the EPA and the NHTSA calling for the establishment of additional standards regarding fuel-efficiency and GHG reduction, clean fuels, and advanced vehicle infrastructure. In response to this directive, the EPA and the NHTSA issued a Supplemental Notice of Intent announcing plans to propose stringent, coordinated federal GHG and fuel economy standards for model year 2017–2025 light-duty vehicles. The agencies' proposed standards projected to achieve 163 grams per mile of CO_2 in model year 2025, on an average industry fleet-wide basis, which is equivalent to 54.5 miles per gallon if this level were achieved solely through fuel-efficiency. California has announced its support of this national program. The final rule was adopted in October 2012, and the NHTSA intends to set standards for model years 2022–2025 in a future rulemaking.

II. State Regulations

California has adopted various regulations and programs related to climate change, in addition to enacting a variety of legislation that sets aggressive goals for GHG emissions reductions. Lead agencies are also responsible for GHG emissions during the environmental review process, pursuant to the requirements of CEQA.

Revisions to CEQA in 2010 provided guidance to lead agencies to encourage consistency in the analysis and mitigation of GHG emissions at the programmatic and project levels. While the CEQA Guidelines do not require or identify specific methodologies for performing an assessment or specific thresholds of significance and do not specify GHG reduction mitigation measures, statutes and precedents established by legal rulings provide guidance for the scope and approach to quantifying GHG emissions and identifying significance levels. The CEQA Guidelines allow lead agencies to choose appropriate methodologies and make significance determinations based on substantial evidence, as discussed in further detail below.

The discussion below provides a brief overview of California Air Resources Board (CARB) and Office of Planning and Research (OPR) documents and of the primary legislation relating to climate change that may affect the emissions associated with the proposed ECAP.

i. Executive Order S-3-05 (Statewide GHG Targets)

California Executive Order S-03-05 mandates a reduction of GHG emissions to 2000 levels by 2010, to 1990 levels by 2020, and to 80 percent below 1990 levels by 2050. Although the 2020 target has been incorporated into legislation (AB 32), the 2050 target remains only a goal of the Executive Order.

[11] EPA, 2010.

ii. Assembly Bill 32, the California Global Warming Solutions Act of 2006

The California Global Warming Solutions Act of 2006 (AB 32) was signed into law in September 2006 after considerable study and expert testimony before the legislature. The law instructs CARB to develop and enforce regulations for the reporting and verifying of statewide GHG emissions. The act directed CARB to set a GHG emissions limit based on 1990 levels, to be achieved by 2020. The bill set a timeline for adopting a scoping plan for achieving GHG reductions in a technologically and economically feasible manner.

The heart of the bill is the requirement that statewide GHG emissions be reduced to 1990 levels by 2020. Based on CARB's calculations of emissions levels, California must reduce GHG emissions by approximately 15% below 2005 levels to achieve this goal.

The bill required CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions. On December 11, 2008, CARB adopted the Scoping Plan to achieve the goals of AB 32. The Scoping Plan establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. It establishes local governments as key partners in achieving GHG reductions, and considers reducing GHG emissions to 1990 levels to be comparable to a reduction of 15% below "current" levels (generally interpreted to be 2005–2008 levels) for local communities. The Scoping Plan identifies specific strategies to achieve the 2020 emissions reduction target, including:

- A cap-and-trade program that covers sources of approximately 85% of California's GHG emissions.[12]
- The Renewables Portfolio Standard which requires utilities to achieve a statewide renewable energy mix of 33%.
- Measures that reduce emissions from the transportation sector, including the Low Carbon Fuel Standard and clean car standards established by AB 1493 (the Pavley Standard or Clean Car Standard) that reduces GHG emissions from noncommercial passenger vehicles and light-duty trucks of model years 2009–2016.

iii. Senate Bill 375

SB 375 (codified in the Government Code and Public Resources Code[13]), signed in September 2008, provides for a new planning process to coordinate land use planning, regional transportation plans, and funding priorities in order to help California meet the GHG reduction goals established in AB 32. The Senate Bill includes provisions for

[13] Senate Bill 375 is codified at Government Code Sections 65080, 65400, 65583, 65584.01, 65584.02, 65584.04, 65587, 65588, 14522.1, 14522.2, and 65080.01 as well as Public Resources Code Sections 21061.3 and 21159.28 and Chapter 4.2.

streamlined CEQA review for some infill projects such as transit-oriented development. SB 375 also requires metropolitan planning organizations (MPOs) to incorporate a sustainable communities strategy (SCS) in their regional transportation plans (RTP) that will achieve GHG emissions reduction targets by reducing vehicle miles traveled (VMT) from light-duty vehicles through the development of more compact, complete, and efficient communities. The MPO with jurisdiction in the project area is the Santa Barbara County Association of Governments (SBCAG).

SB 375 is similar to the Regional Blueprint Planning Program, established by the California Department of Transportation (Caltrans), which provides discretionary grants to fund regional transportation and land use plans voluntarily developed by MPOs working in cooperation with councils of governments. The Scoping Plan relies on the requirements of SB 375 to implement the carbon emissions reductions anticipated from land use decisions.

On September 23, 2010, CARB adopted regional targets for the reduction of GHGs applying to the years 2020 and 2035.[14] For the area under SBCAG jurisdiction, CARB adopted regional targets for reduction of GHG emissions by 6% for 2020 and by 4% for 2035.[15] On February 15, 2011, CARB's executive officer approved the final targets.[16]

III. Local Regulations

At the current time, the County continues to follow an interim approach to evaluating GHG emissions. At the time of Plan preparation, the Santa Barbara County Air Pollution Control District (SBCAPCD) has not adopted formal thresholds for the evaluation of GHG emissions. The SBCAPCD participates in the CEQA review process as both a responsible agency and a concerned agency. While the SBCAPCD comments on environmental documents and suggests mitigation measures to reduce air quality impacts, SBAPCD guidance currently does not provide formal thresholds for considering GHG emissions. Until formal adoption of the ECAP, the County follows established GHG criteria adopted by the San Luis Obispo County Air Pollution Control District. As dictated by the County's interim thresholds, residential and commercial projects need to be evaluated in terms of project compliance with a numeric threshold of 1,150 $MTCO_2e$, or an efficiency threshold of 4.9 $MTCO_2e$ per service population annually (where the service population equals project residents and employees). Industrial/stationary source projects need to be evaluated in terms of project compliance with a numeric threshold of 10,000 $MTCO_2e$. If it is the case that project-generated GHG emissions surpass significance thresholds, the GHG evaluation must identify appropriate actions the

[14] CARB, 2011a.
[15] CARB, 2010b.
[16] CARB, 2011b.

proposed project must include in order to mitigate GHG impacts to a level below the threshold.

At the time that the ECAP is formally adopted, the County's interim GHG thresholds will no longer be applied to projects covered by the ECAP. Instead, the County will use a programmatic approach to review new development. Any project-specific environmental document that relies on this ECAP for its cumulative impacts analysis must identify specific ERMs applicable to the project and demonstrate the project's incorporation of the measures. Certain projects, such as industrial stationary sources and certain commercial or residential projects outside the scope of this ECAP, will continue to be subject to GHG thresholds and/or project-specific analysis. The process for determining compliance with the ECAP is described in further detail in subsequent chapters.

III. Santa Barbara County Greenhouse Gas Emissions Inventory

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III. Santa Barbara County Greenhouse Gas Emissions Inventory

In 2007, the County of Santa Barbara completed a greenhouse gas (GHG) emissions inventory for the unincorporated county using 2007 as the base year. The inventory acts as a foundation for the County's ECAP by informing the County and the community of the sources of GHG emissions, and, thus, the opportunities for GHG reductions. The inventory focuses on community-wide emissions in unincorporated Santa Barbara County only and provides a baseline against which future progress can be measured. Therefore, the inventory excludes incorporated cities, the University of California, Santa Barbara, the Chumash reservation, and state and federal lands including Los Padres National Forest, Vandenberg Air Force Base, and offshore oil and gas production facilities. The inventory consists of emissions from six primary GHGs that were identified in AB 32. The gases are all expressed in terms of carbon dioxide equivalent (CO_2e), which is a unit of measurement that accounts for the varying potency of different GHGs relative to that of carbon dioxide (CO_2). For example, while 1 ton of CO_2 is equal to 1 ton of CO_2e, another GHG, methane (CH_4) is about 21 times as potent as CO_2 in trapping heat, and so 1 ton of CH_4 is equal to 21 tons of CO_2e. The six primary greenhouse gases are:

- Carbon dioxide (CO_2)
- Methane (CH_4)
- Nitrous oxide (N_2O)
- Hydrofluorocarbon (HFCs)
- Perfluorocarbon (PFCs)
- Sulfur hexafluoride (SF_6)

In 2010, the County updated the 2007 emissions inventory as a result of changes to the regulatory structure since the creation of the initial inventory, including an update to the CEQA Guidelines. SB 97, adopted in 2007 by the State of California, directed the OPR to amend the CEQA Guidelines to address GHG emissions. The revised CEQA Guidelines became effective on March 18, 2010. Per CEQA Guidelines Section 15183.5, local governments may use adopted plans consistent with the CEQA Guidelines to assess the cumulative impacts of projects on climate change, if the adopted plan includes a certified EIR. In order to benefit from the streamlining provisions discussed in this section of the legislation, a plan for the reduction of GHG emissions must accomplish the following:

- Quantify GHG emissions, both existing and projected, over a specified time period, resulting from activities within a defined geographic area.
- Establish a level, based on substantial evidence, below which the contributions to GHG emissions from activities covered by the plan would not be cumulatively considerable.
- Identify and analyze the GHG emissions resulting from specific actions or categories of actions anticipated within the geographic area.

- Specify measures or a group of measures, including performance standards, which substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level.
- Establish a mechanism to monitor the plan's progress toward achieving the level and to require an amendment if the plan is not achieving specific levels.
- Be adopted in a public process following environmental review.

To create a Qualified GHG Reduction Strategy in compliance with the CEQA Guidelines, the County hired a consultant to conduct a peer review and to update the existing baseline GHG inventory. The updated baseline inventory used methodologies recommended by CARB and ICLEI-Local Governments for Sustainability, and industry best practices. The inventory analyzes the following emissions sources:

- **Energy** – Residential, commercial, and industrial electricity and natural gas consumed in the unincorporated county.
- **Transportation** – Vehicle miles traveled (VMT) to, from, or within the unincorporated county.
- **Waste** – Methane emissions from waste sent to landfills from the community.
- **Stationary sources** – Direct emissions from industrial, commercial, and office processes that are permitted by the County of Santa Barbara.
- **Off-road** – Emissions from agricultural, construction, lawn and garden, and other industrial equipment/vehicles.
- **Agriculture** – Emissions from livestock and from fertilizer application.
- **Aircraft** – Emissions from operations at Santa Ynez Airport in unincorporated Santa Barbara County.
- **Water and Wastewater** – The energy required to extract, filter, move, and treat the water consumed and/or treated in the county.

Emissions from stationary sources are unique and will require special attention and collaboration with the SBCAPCD since the County has limited permit authority. As a result, the updated inventory does not include emissions from stationary sources in the community total or in future reduction goals. Emissions from stationary sources, identified for informational purposes only, are included in Section 3-2.

3-1. 2007 Inventory Summary

Emissions from unincorporated county sources totaled 1,192,970 $MTCO_2e$ in the baseline year 2007 as follows:

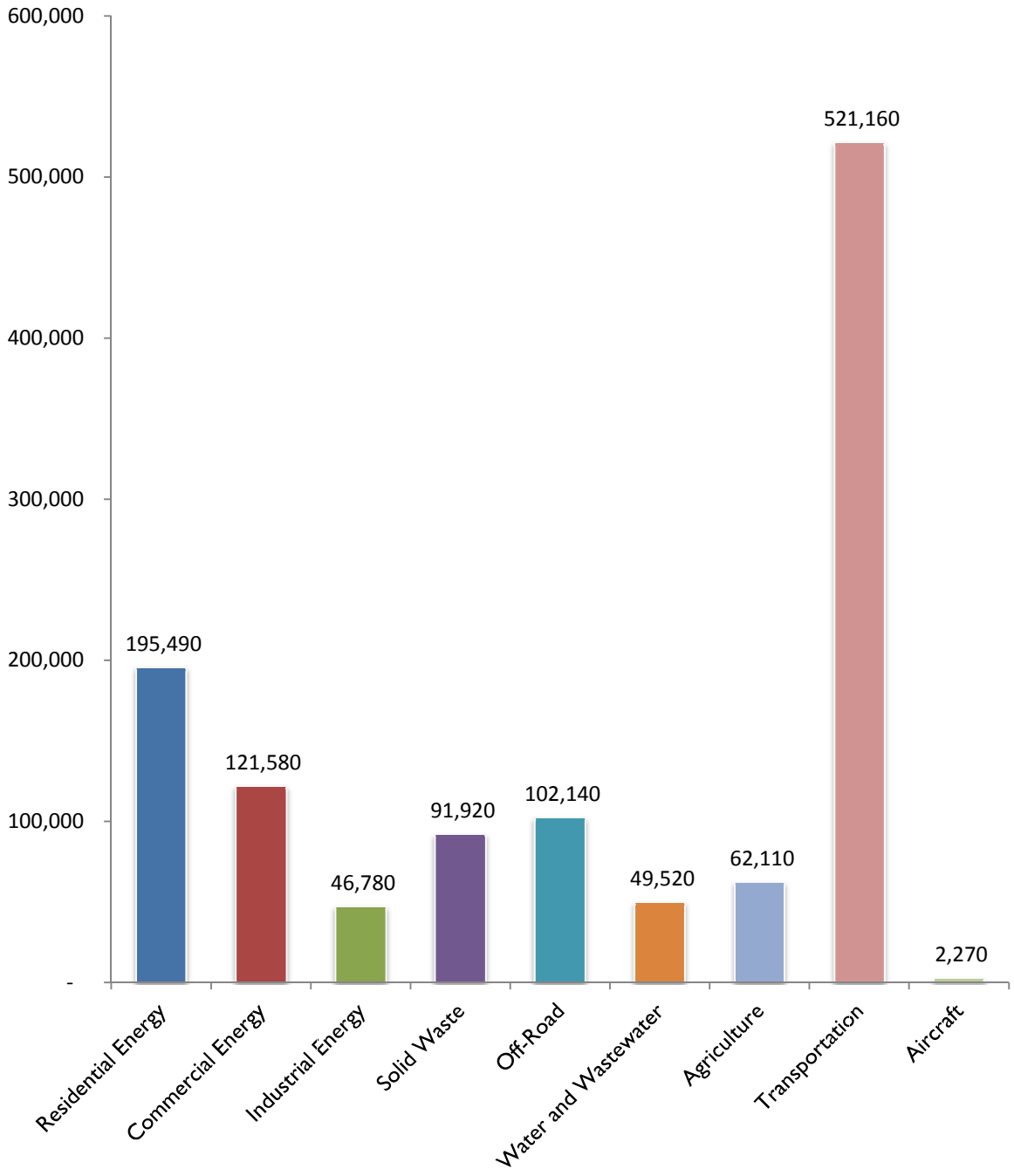
- Transportation: 521,160 $MTCO_2e$
- Residential energy: 195,490 $MTCO_2e$
- Commercial energy: 121,580 $MTCO_2e$
- Off-road: 102,140 $MTCO_2e$
- Solid waste: 91,920 $MTCO_2e$
- Agriculture: 62,110 $MTCO_2e$
- Water and wastewater: 49,520 $MTCO_2e$
- Industrial energy: 46,780 $MTCO_2e$
- Aircraft: 2,270 $MTCO_2e$

Table 3-1 identifies the sector and subsectors of GHG emissions from activities within the unincorporated county in 2007 and identifies the County's relative degree of influence to affect GHG emissions. Relative degree of influence is determined by identifying whether the County has jurisdictional, financial, permitting, or operational control to implement policies or programs to reduce a particular GHG emissions source. **Figure 3-1** represents unincorporated Santa Barbara County GHG emissions by sector. As both **Table 3-1** and **Figure 3-1** illustrate, transportation is the largest source of emissions within the unincorporated county.

Table 3-1. 2007 Unincorporated Santa Barbara County GHG Emissions by Sector

Sector	Subsector	Activity	Unit	$MTCO_2e$	County Degree of Influence
Transportation	On-Road Transportation from Trips Beginning and/or Ending in the Unincorporated County	1,075,523,400	Annual VMT	521,160	High
Residential Energy	Residential Electricity	293,717,600	kWh	85,610	High
	Residential Natural Gas	20,655,500	Therms	109,880	High
Commercial Energy	Commercial Electricity	143,963,000	kWh	41,960	High
	Commercial Natural Gas	14,967,900	Therms	79,620	High
Off-Road	Agricultural Equipment	6,878,600	Gallons	67,500	Medium
	Construction and Mining Equipment	2,882,600	Gallons	28,560	Medium
	Industrial Equipment	309,800	Gallons	2,490	Medium
	Lawn & Garden Equipment	373,700	Gallons	2,560	Medium
	Light Commercial Equipment	130,400	Gallons	1,030	Medium
Solid Waste	Landfilled Waste	115,390	Tons	90,440	High
	Alternative Daily Cover	2,380	Tons	1,480	High
Agriculture	Fertilizer Emissions	116,400	Acres of Crops	34,080	Medium
	Livestock Emissions	26,200	Livestock	28,030	Low
Water and Wastewater	Electricity Used by Water Systems	85,710	Million Gallons	42,680	Medium
	Wastewater Emissions	2,580	Million Gallons	1,550	Medium
	Septic Tanks	8,750	Septic Tanks	5,290	Medium
Industrial Energy	Industrial Electricity	114,914,400	kWh	33,490	Medium
	Industrial Natural Gas	2,497,800	Therms	13,290	Medium
Aircraft	Landings and Takeoffs from Santa Ynez Airport	70	Daily Flights	2,270	Low

Figure 3-1. 2007 Unincorporated Santa Barbara County GHG Emissions by Sector



3-2. GHG Emissions Not Included in County Inventory

While there are other sources of emissions occurring within Santa Barbara County, the sources identified below in **Table 3-2** and **Figure 3-2** are excluded from the County's baseline GHG emissions inventory for one or more of the following reasons:

i. Lack of jurisdictional control

There are areas of the unincorporated county in which the County lacks jurisdictional control or permitting authority to influence GHG emissions-generating activities. Examples include Vandenberg Air Force Base, the Chumash Casino, US Forest Service Land, the University of California, Santa Barbara, and the Santa Barbara Channel.

ii. Limited ability to influence or reduce GHG emissions

In cases where the County is limited in its ability to influence the emissions-generating activity, the County has excluded the source from the GHG inventory. Examples of such sources include large stationary facilities that are permitted by the SBCAPCD, state and federal regulatory agencies, and vehicle and rail travel that does not stop in the county but uses fuel and generates GHG emissions while in the county.

iii. GHG emissions are considered biogenic in nature

Biogenic sources of GHG emissions would occur with or without human intervention and therefore cannot be managed or influenced by the County. An example of a biogenic emissions source would be the naturally occurring oil and gas seeps in the Santa Barbara Channel.

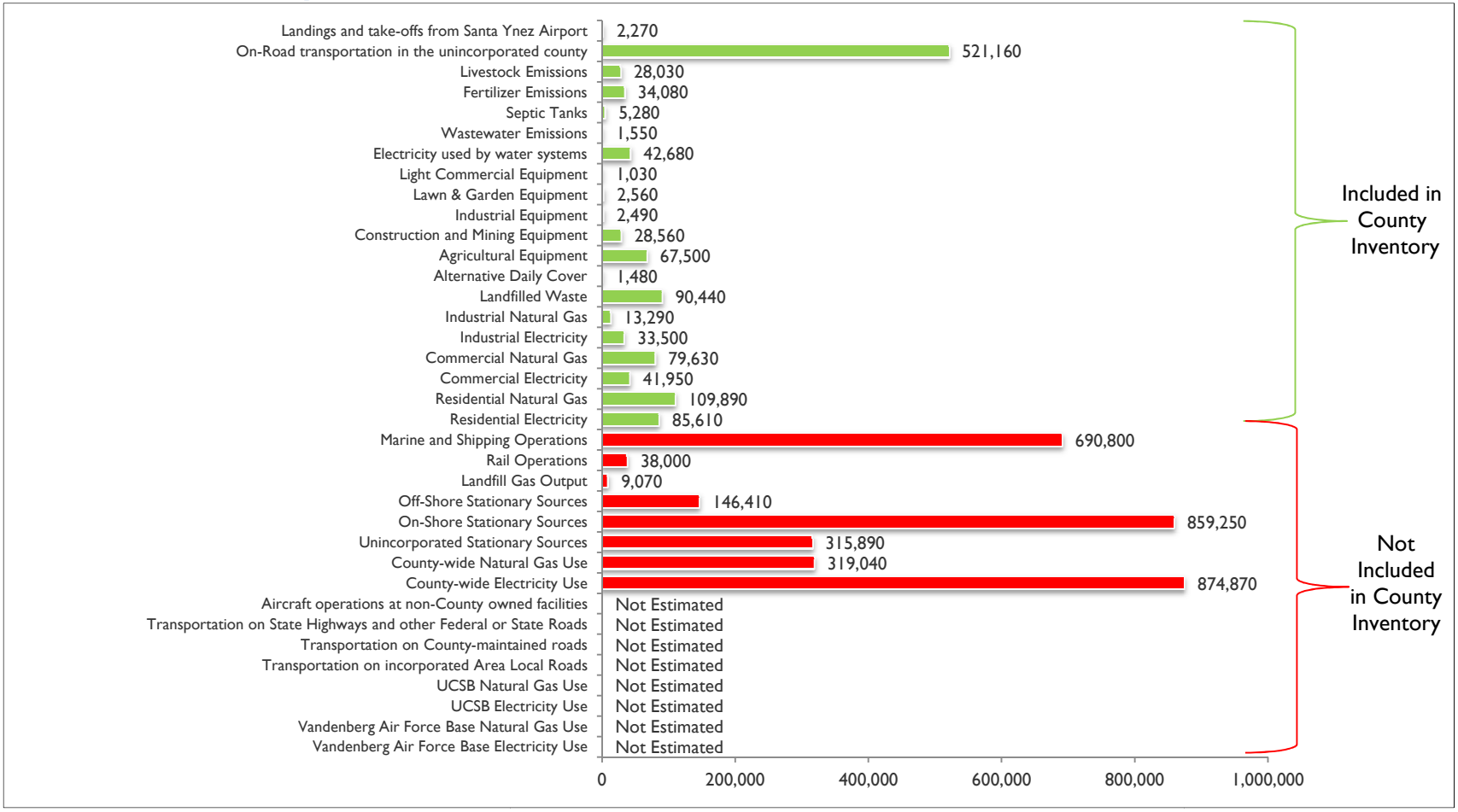
iv. Lack of means to estimate GHG emissions

In cases where the activity data needed to determine GHG emissions are not reasonably available or methods to estimate activity data have not yet been developed, the activity has been excluded from the GHG inventory. An example of an emissions source that lacks clear methods or cannot be reasonably estimated includes the manufacture or processing, transportation, and disposal outside the county of products used within the community, often called life-cycle emissions.

Table 3-2. GHG Emissions Sources Excluded from the County GHG Inventory

Sector	Subsector	Activity	Unit	$MTCO_2e$	County Degree of Influence
Energy Use	Countywide Electricity Use (incorporated areas)	3,242,000,000	kWh	874,870	Low
	Countywide Natural Gas Use (incorporated areas)	130,756,020	Therms	319,040	Low
	Vandenberg Air Force Base Electricity Use	Not Available		Not Estimated	Low
	Vandenberg Air Force Base Natural Gas Use	Not Available		Not Estimated	Low
	UCSB Electricity Use	69,217,570	kWh	Not Estimated	Low
	UCSB Natural Gas Use	2,426,110	Therms	Not Estimated	Low
Stationary Sources	Unincorporated Stationary Sources	Not Available		315,890	Low
	Onshore Stationary Sources	Not Available		859,250	Low
	Offshore Stationary Sources	Not Available		146,410	Low
Solid Waste	Landfill Gas Output	Not Available		9,070	Medium
Off-Road	Rail Operations	Not Available		38,000	Low
	Marine and Shipping Operations	Not Available		690,800	Low
Transportation	Transportation on Incorporated Area Local Roads	285,843,800	VMT	Not Estimated	Low
	Transportation on County-Maintained Roads Not Originating or Terminating in the County	309,849,200	VMT	Not Estimated	Low
	Transportation on State Highways and Other Federal or State Roads	271,480,800	VMT	Not Estimated	Low
Aircraft	Aircraft Operations at Non-County-Owned Facilities	Not Available		Not Estimated	Low

Figure 3-2. Comparison of GHG Emissions Sources Included and Excluded from the County GHG Inventory



3-3. GHG Emissions by Sector Activity

i. Transportation

On-road transportation generates GHG emissions from the combustion of gasoline and diesel fuel by vehicles operating on roads within Santa Barbara County. Consistent with the majority of California communities, travel by on-road motorized vehicles constitutes the greatest percentage of GHG emissions in the unincorporated county. Three types of vehicle trips were tracked:

1. Internal-Internal: vehicle trips that remained in the unincorporated county
2. Internal-External: vehicle trips that have an ending or a beginning in the unincorporated county and the other within an incorporated city or outside of Santa Barbara County
3. External-External: vehicle trips that occur within an incorporated city or outside of Santa Barbara County

The VMT analysis resulted in 1.1 billion miles traveled annually and approximately 24 miles per person per day in unincorporated Santa Barbara County, generating approximately 521,160 $MTCO_2e$.

ii. Residential, Commercial, and Industrial Energy

Energy use includes natural gas and electricity consumption. Electricity is provided to residential, commercial, and industrial customers in Santa Barbara County by PG&E in the North County and by SCE on the South Coast. Residential, commercial, and industrial natural gas is provided in Santa Barbara County by the Southern California Gas Company.

In 2007, residential energy use included approximately 294 million kilowatt-hours of electricity and 20.7 million therms of natural gas, generating approximately 195,490 $MTCO_2e$. Commercial energy use included 144 million kilowatt-hours of electricity and 15 million therms of natural gas, generating approximately 121,580 $MTCO_2e$. Industrial energy use included 114 million kilowatt-hours of electricity and 2.5 million therms of natural gas, generating approximately 46,780 $MTCO_2e$.

iii. Off-Road Equipment

Gasoline and diesel fuel are used to power off-road equipment in Santa Barbara County. Off-road equipment incorporated in this inventory includes agricultural, construction and mining, lawn and garden, and light commercial equipment. Total emissions from off-road equipment for 2007 are estimated to be approximately 102,140 $MTCO_2e$.

iv. Solid Waste

Solid waste emissions include waste generated by residential, commercial, and industrial uses in the unincorporated county that are disposed of at Tajiguas Landfill, a managed landfill in Santa Barbara County. Approximately 115,390 tons of solid waste and 2,380 tons of green waste and sludge used as alternative daily cover (ADC) were sent to the Tajiguas Landfill from the unincorporated county in 2007, resulting in approximately 91,920 $MTCO_2e$. Alternative daily cover is material that is

spread on a landfill, used to help reduce odor, control litter, and protect public health in compliance with state and federal standards.

v. Agriculture

Agricultural processes account for 62,110 $MTCO_2e$ of the 2007 inventory. The agriculture sector includes an analysis of the GHG emissions occurring from fertilizer application on crops, as well as from livestock which produces methane through digestive processes. In 2007, the unincorporated county's agricultural economy included 116,400 acres of cultivated cropland and 26,200 livestock animals. Crops in Santa Barbara County include vegetables, berries, fruit, row crops, and wine grapes. Livestock populations in Santa Barbara County include dairy cattle, grazing cattle, sheep, goats, horses, llamas, and alpacas.

vi. Water and Wastewater

Water and wastewater emissions accounted for 49,520 $MTCO_2e$ of total GHG emissions in 2007. This inventory includes two types of water-related emissions: (1) direct process emissions, which include methane generated from septic systems and wastewater treatment plants; and (2) emissions from the electricity and natural gas used to extract, process, treat, and deliver water and wastewater to, from, and within Santa Barbara County.

In 2007, the unincorporated county used approximately 85,710 million gallons of water, 90% of which was used for agricultural purposes and extracted through private groundwater wells. Wastewater treatment plants throughout the county also utilized energy to treat approximately 2,580 million gallons of wastewater generated by uses in the unincorporated county. There are approximately 8,750 septic systems in unincorporated Santa Barbara County, which are used to treat wastewater from private properties that are not connected to sewer and wastewater treatment systems.

vii. Aircraft

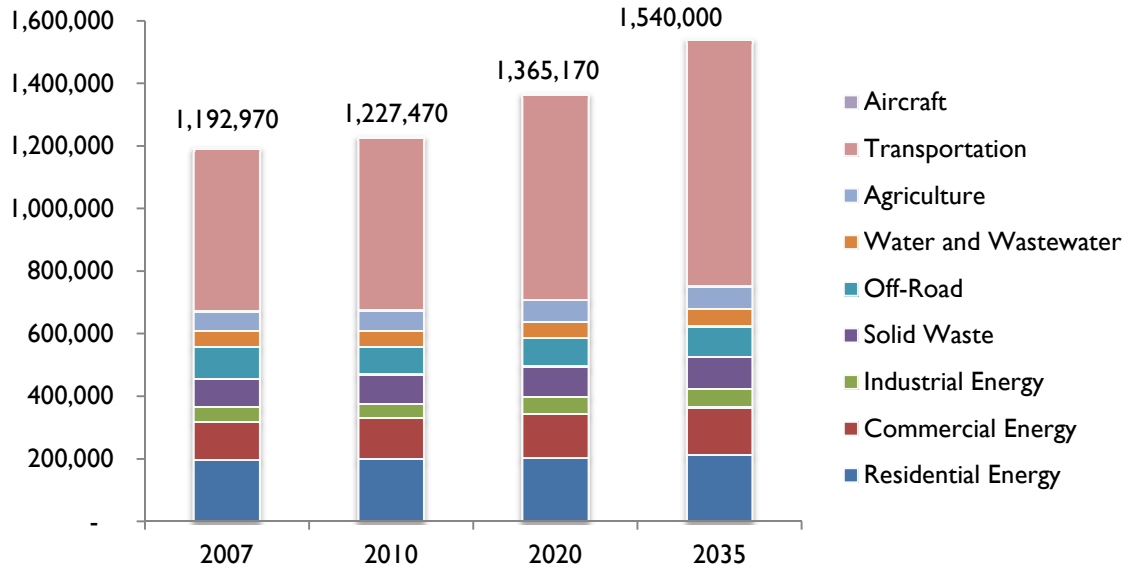
Aircraft emissions include the fuel used during landings and take-offs at Santa Ynez Airport. While there are six airports in Santa Barbara County (Santa Barbara, Santa Maria, Santa Ynez, Lompoc, New Cuyama, and Vandenberg), only Santa Ynez Airport is operated by Santa Barbara County. The airport averages approximately 70 operations per day, all of which are civil flights using piston or jet aircrafts. In 2007, Santa Ynez Airport was responsible for approximately 2,270 $MTCO_2e$.

3-4. Santa Barbara County GHG Emissions Forecast

After conducting the 2007 baseline GHG emissions inventory, the County prepared a GHG emissions forecast for key target years. A GHG emissions forecast demonstrates the anticipated future conditions in comparison to the 2007 baseline year. As the County implements GHG reduction measures, it will be possible to compare actual emissions to projected emissions to track reduction progress. The community-wide GHG emissions have been forecast to the year 2020 for consistency with AB 32. For consistency with other County and regional planning efforts such as the Sustainable Communities Strategy, a second emissions forecast year of 2035 is also included. The basis for all growth scenarios is a "business-as-usual" (BAU) projection. The BAU projection forecasts emissions to reflect the County's growth projections without regulatory or technical intervention or changes in behaviors to reduce GHG

emissions. The BAU projection is then used as a starting point for the County to determine the level of emissions reductions needed to reach a reduction target. In order to complete a BAU forecast for unincorporated Santa Barbara County, a clear picture of the county's anticipated growth in population, housing, and jobs is important. The growth estimates used in the forecast came from the SBCAG's Regional Growth Forecast (2007) and incorporated 2010 Census data when available. The population, housing, and job forecast indicators are applied to the 2007 GHG emissions inventory to determine a BAU growth scenario, assuming that emissions per the applicable indicator for each sector remain constant (for example, that the amount of electricity used per household in 2007 will be unchanged in 2020 and 2035). Under the BAU scenario, community-wide emissions will grow by approximately 14% by the year 2020 and by approximately 29% by 2035 relative to 2007 levels (refer to **Figure 3-3**).

Figure 3-3. 2007–2035 Business-as-Usual GHG Emissions ($MTCO_2e$)



3-5. Adjusted Business-as-Usual Forecast

State-led or -induced reduction strategies included in the AB 32 Scoping Plan are factored into the adjusted 2020 and 2035 emissions forecast. Strategies include all state actions that are approved, programmed, and/or adopted, and require no additional local action or are implemented through existing local processes. Incorporating these strategies into the forecast and reduction assessment to create an adjusted business-as-usual (ABAU) forecast provides a more accurate picture of future growth in emissions. This method also provides a more accurate assessment of the responsibility of local governments once state measures to reduce GHG emissions have been implemented. State programs that are still uncertain are not included in the ABAU forecast. One example is the state's cap-and-trade program. Although cap-and-trade has begun to be implemented, the market mechanisms employed by facilities to meet the cap-and-trade requirements have not yet been studied at the depth necessary to identify an achievable local GHG reduction to Santa Barbara County's stationary sources. Additionally,

since stationary sources are excluded from the inventory (**Figure 3-2**), it would not be appropriate to take credit for reductions in that sector.

A brief description of each of these state-led or -induced reduction strategies, along with the methodology used to incorporate the strategy into the adjusted emissions forecast, is presented below. The overall effect of these strategies is also summarized in **Table 3-3**.

Table 3-3. GHG Reduction Impact of State Policies on Santa Barbara County ($MTCO_2e$)

	2010	2020	2035
Renewables Portfolio Standard	8,620	43,880	46,710
Pavley (Clean Car Standard)	0	97,550	173,850
Low Carbon Fuel Standard	0	40,300	44,160
Title 24 Standards	310	2,230	8,270
California Solar Initiative	130	240	240
TOTAL	**9,060**	**184,200**	**273,230**

i. Renewables Portfolio Standard

California's Renewables Portfolio Standard (RPS) is one of the most ambitious renewable energy standards in the country, mandating that 33% of electricity delivered in California be generated by renewable sources such as solar, wind, and geothermal by 2020. The California RPS was first codified in 2002 by SB 1078, requiring a 20% renewable electricity mix by 2010, and further strengthened in April 2011 with the adoption of SB 2, requiring a 33% renewable electricity mix by 2020. This analysis assumes that both PG&E and SCE will achieve the goal of a 33% renewable energy mix by 2020. No additional increase in a renewable energy mix is assumed for 2035.

ii. Pavley Standard

Signed into law in 2002, AB 1493, also known as the Pavley standard, requires car manufacturers to reduce GHG emissions from new passenger cars and light trucks beginning in 2011. CARB adopted regulations in 2004, which took effect in 2009 with the release of a waiver from the EPA granting California the right to implement the bill. The ABAU inventory anticipates that the Pavley standards will reduce GHG emissions from new passenger vehicles in Santa Barbara County by about 15% in 2020 and 22% in 2035 compared to the BAU scenario, all while improving fuel-efficiency and helping to reduce motorists' costs.

iii. Low Carbon Fuel Standard

Because transportation is the largest single source of GHG emissions in California, the State is taking an integrated approach to reducing emissions from this sector. Beyond improving vehicle-efficiency standards and lowering vehicle miles traveled, the State is proposing to reduce the carbon intensity of transportation fuels consumed in California. To reduce the carbon intensity of transportation fuels, CARB is developing a Low Carbon Fuel Standard (LCFS). The LCFS will reduce the carbon intensity of California's transportation fuels by at least 10% by 2020 as called for by Governor Schwarzenegger in Executive Order S-01-07. The LCFS will also incorporate

compliance mechanisms that provide flexibility to fuel providers in how they meet the requirements to reduce GHG emissions.

On December 29, 2011, the US District Court for the Eastern District of California issued several rulings in the federal lawsuits challenging the LCFS. One of the district court's rulings preliminarily enjoined CARB from enforcing the regulation. In January 2012, CARB appealed that decision to the Ninth Circuit Court of Appeals and then moved to stay the injunction pending resolution of the appeal. On April 23, 2012, the Ninth Circuit granted CARB's motion for a stay of the injunction while it continues to consider CARB's appeal of the lower court's decision. In September 2013, the Ninth Circuit Court of Appeals vacated the lower court injunction against the LCFS regulation. The Ninth Circuit concluded that such regulation does not constitute extraterritorial regulation prohibited by the dormant Commerce Clause. The Ninth Circuit's ruling was appealed by the plaintiffs to the US Supreme Court, which declined to review the case in June 2014 and let the decision by the Ninth Circuit allowing the LCFS to move forward. Further challenges to the LCFS are pending in the US District Court for the Eastern District of California as of July 2014.

iv. Title 24 Standards

Title 24 of the California Code of Regulations mandates how each new home and business is built in California. It includes requirements for the structural, plumbing, electrical, and mechanical systems of buildings and for fire and life safety, energy conservation, green design, and accessibility in and around buildings. The two parts of Title 24 that most directly apply to a GHG emissions forecast are Part 6 (the California Energy Code) and Part 11 (the California Green Building Standards Code or CALGreen Code). These two codes require direct savings of electricity, natural gas, and water for every new home or business built in California. Title 24 is a statewide standard applied at the local level by local agencies through project review. The most recent update to Title 24 Part 6, the California Energy Code, went into effect on July 1, 2014, for both residential and nonresidential new construction. Part 6 also includes requirements for lighting and insulation upgrades to nonresidential buildings undergoing a major retrofit.

v. California Solar Initiative

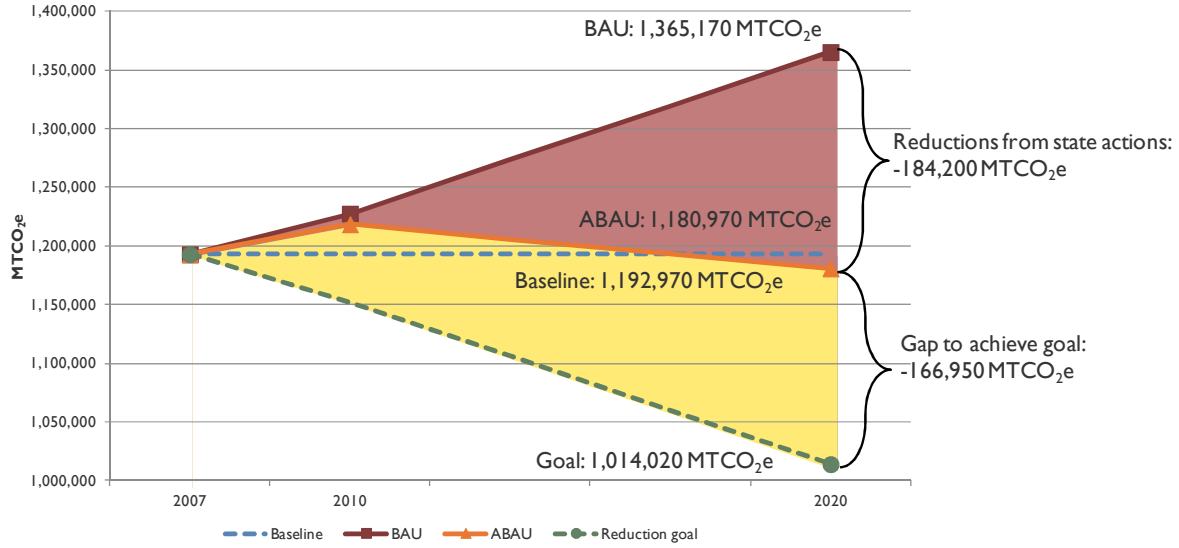
The California Solar Initiative (CSI) was authorized in 2006 under SB 1. CSI allows the CPUC to provide incentives to install solar technology on existing residential, commercial, nonprofit, and governmental buildings if they are customers of the state's investor-owned utilities (IOUs): PG&E, San Diego Gas & Electric, or SCE.

The CSI program has a budget of $2.167 billion to expend by 2016 with an initial goal to reach 1,940 megawatts (MW) of installed power through solar facilities throughout the state by that year. As of July 2014, over 2,200 MW of power had been installed through the CSI program. The CSI program has several components including the Research and Development, Single-family Affordable Solar Housing, Multifamily Affordable Solar Housing, and Solar Water Heating Pilot programs, each of which provides incentives to further the development and installation of new solar technology on California's buildings.

3-6. Greenhouse Gas Reduction Target

As shown in **Figure 3-4**, state policies and programs will reduce GHG emissions by approximately 12% below the BAU forecast by 2020. **Figure 3-4** demonstrates the gap between the ABAU forecast and the ECAP GHG reduction target of 15% reduction below baseline emissions by 2020 that will need to be closed by local actions if the County is to achieve the target. Overall, the ECAP seeks to achieve an overall emissions reduction of 15% below the baseline consistent with the guidance to local governments in the AB 32 Scoping Plan to "move toward establishing similar goals for community emissions that parallel the State commitment to reduce greenhouse gas emissions by approximately 15% from current levels by 2020." To achieve a 15% reduction below baseline 2007 emissions by 2020, the County would be responsible for reducing the remaining emissions amounting to 166,950 $MTCO_2e$. The County's ECAP is intended to identify regulatory and incentive-based policies to close that gap and meet the GHG reduction target.

Figure 3-4. Comparison of Business-as-Usual and Adjusted Business-as-Usual Emissions ($MTCO_2e$), 2007–2020



IV. Greenhouse Gas Reduction Strategy

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IV. Greenhouse Gas Reduction Strategy

In order to achieve the community-wide greenhouse gas (GHG) emissions reductions necessary to meet the County's GHG reduction target, a suite of emissions reduction measures (ERMs) has been identified across multiple sectors. When implemented, these measures will collectively provide a reduction in both GHG emissions and energy use in Santa Barbara County. Additionally, these measures will assist the State in meeting its GHG reduction and energy use goals. Each reduction measure identified in this chapter includes the measure language and the supporting actions that would implement the measure. Some ERMs have been quantified to indicate the contribution that a measure will have to the overall GHG reductions. Sources for these calculations are included in **Appendix E**. This approach meets the minimum criteria for a Qualified GHG Reduction Strategy, per CEQA Guidelines Section 15183.5(b), and allows the County to use the ECAP for programmatic CEQA tiering of future development. The County's GHG reduction strategy is structured around the following 11 topic areas:

1. Community Choice Energy (CCE)
2. Sustainable Communities Strategy (SCS)
3. Land Use Design (LUD)
4. Transportation (T)
5. Built Environment (BE)
6. Renewable Energy (RE)
7. Industrial Energy Efficiency (IEE)
8. Waste Reduction (WR)
9. Agriculture (AG)
10. Water Efficiency (WE)
11. Government Operations (GO)

Each topic area includes a goal for that topic. The reduction measures included in each topic are designed to reach that goal and contribute to an overall reduction in community-wide GHG emissions. This ECAP builds on and incorporates measures from the County's Sustainability Action Plan (SAP)—a separate, more detailed reduction strategy for County operations that identifies operational changes, capital projects, and equipment or vehicle upgrades necessary to create the desired emissions reductions—as well as other County initiatives such as the Energy Action Plan (EAP) for County facilities. The Santa Barbara County SAP and EAP are more fully discussed in Chapter V of this ECAP and can be found at:

http://longrange.sbcountyplanning.org/programs/climateactionstrategy/climateaction.php

4-1. Method of Preparation of Reduction Measures

A database of ERMs was compiled from multiple governmental and nongovernmental organizations. A total of 311 measures were identified, which were synthesized into 53 final community-wide measures through grouping measures into common themes and rephrasing them into one measure, as well as by deleting measures that were not applicable to Santa Barbara County. The GHG reduction benefit of each measure is determined by a change in operation, activity, or efficiency. In general, there are three types of reductions in climate action plans: (1) avoided emissions, (2) greater efficiency, and (3) sequestration. GHG reduction estimates are identified for 2020 and 2035.

The 2007 baseline GHG inventory and forecast serve as the foundation for quantifying the County's GHG reduction measures. Activity data from the inventory, such as vehicle miles traveled (VMT) or kilowatt-hours (kWh) of electricity, is combined with the performance targets and indicators identified in this ECAP to calculate the GHG reduction benefit of each measures. This approach ensures that the County's GHG reductions are tied to the baseline and future activities that are actually occurring in Santa Barbara County. In fact, this ECAP incorporates many of the County's existing operations and goals into the ERMs.

Whenever possible, emissions reduction estimates are based on tools and reports provided by government agencies, such as the U.S. Environmental Protection Agency (EPA), the California Energy Commission (CEC), the California Air Resources Board (CARB), California EPA (CalEPA), California Air Pollution Control Officers Association (CAPCOA), and local air districts. If accurate reduction estimates are not available through these tools, a case study may be used if the case study is comparable to the conditions in Santa Barbara County. Finally, for more long-range reduction measures that lack actual on-the-ground testing or analysis, current scholarly and peer-reviewed research is combined with knowledge of existing County practices to create a defensible estimate of future emissions reductions.

The method for determining the GHG reduction benefit from each measure is detailed in **Appendix E**, which summarizes the sources and assumptions used to estimate the GHG reductions from each measure.

4-2. ECAP 15% GHG Reduction Target

One of the ECAP's primary goals is to achieve a community-wide GHG reduction target of 15% below 2007 baseline emissions by the year 2020. Implementation of the ECAP, including both community and government operations measures, can reduce emissions by approximately 17% below baseline levels by 2020, based on reasonable goals and assumptions and conservative participation rates. Achieving these reductions requires a broad mix of creative and effective measures that meet local priorities. The largest reductions result from the SCS and waste reductions (WR 1), achieving reductions of 31,920 $MTCO_2e$ and 19,020 $MTCO_2e$, respectively. **Table 4-1** provides a summary of the ECAP's reduction measures, and **Figure 4-1** summarizes the total reductions by topic. Voluntary reduction measures alone may not achieve a 15% GHG emission reduction. Because of this, the ECAP includes a mix of voluntary, phased (i.e. potential to be mandatory in the future or occurring in phases), and mandatory ERMs. Mandatory measures include those measures with specific, new regulatory requirements:

- Alternative-Fuel Vehicles and Incentives (T 3)
- Energy Efficient Renovations (BE 2)
- Community Forestry (BE 5)
- Alternative Energy Development (RE 1)

Phased measures include the SCS, energy efficiency education and outreach to nonresidential building owners (BE 4), and the energy upgrade incentive (IEE 3). Implementation of SCS would likely require rezones and a General Plan amendment to comply with the infill development approach proposed by the Santa Barbara County Association of Governments (SBCAG). Rezones of individual parcels would

require Board approval. Potential rezones will be presented as part of Community Plan updates that are in the pipeline.

The estimated GHG reductions from the measures shown in **Table 4-1**, below, do not assume implementation of CCE. Implementation of CCE will change the county's power mix for 2020 and 2035 as it would result in approximately 50% renewable energy as a result of CCE by 2020 and 75% by 2035. While overall emissions will be lower in the future with CCE, individual measures that affect electricity use may see lower GHG reductions. **Appendix H** provides more detail on the effect of CCE on individual measures and the Adjusted Business-as-Usual Forecast (ABAU) as a whole.

Table 4-1. Summary of GHG Reduction Measures

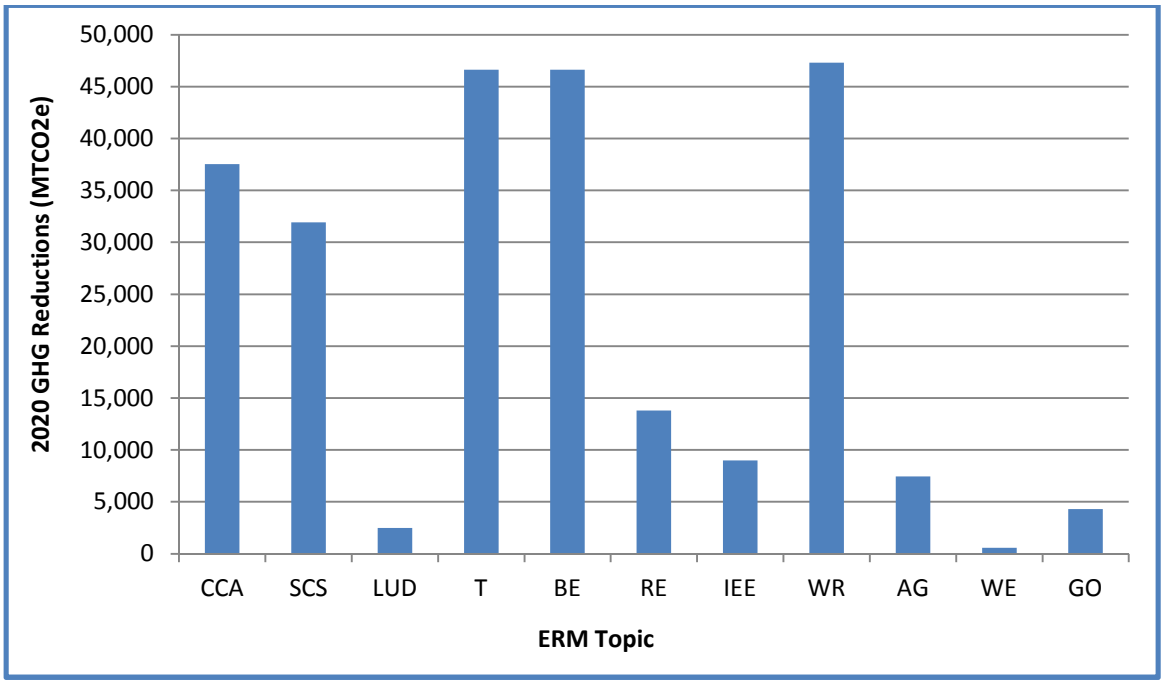
Measure #	Measure Title	2020 GHG Reduction ($MTCO_2e$)	2035 GHG Reduction ($MTCO_2e$)
CCE	Community Choice Aggregation	-37,520[1]	-98,620[1]
SCS	Sustainable Communities Strategy	-31,920	-60,922
LUD 1	Infill Development	-460	-1,050
LUD 2	Transit-Oriented Development	-1,240	-2,550
LUD 3	Affordable Housing	-780	-1,760
T 1	Car Sharing and Ride Sharing	-5,770	-9,280
T 2	Commuter Incentives	-3,460	-6,810
T 3	Alternative-Fuel Vehicles and Incentives	-1,670	-3,650
T 4	Alternative and Active Transportation	-1,330	-2,430
T 5	Integrated Bikeway System	-1,720	-2,480
T 6	Pedestrian Improvements	-2,020	-3,280
T 7	Vehicle Idling	-6,590	-13,330
T 8	Traffic Signal Efficiencies	Supportive Measure [2]	Supportive Measure
T 9	Commuter Rail Connections	-2,030	-5,560
BE 1	Energy Efficiency Education and Outreach	-3,150	-4,060
BE 2	Energy-Efficient Renovations	-15,480	-32,460
BE 3	Green Business Participation	-1,960	-3,100
BE 4	Energy Efficiency Education and Outreach to New Homeowners and Nonresidential Building Owners	-20,670	-35,790
BE 5	Community Forestry	-640	-1,610
BE 6	Smart Grid Technology	-3,350	-5,620
BE 7	Lawn and Garden Equipment	-50	-80
BE 8	Energy Efficiency and Green Building Standards	-2,110	-3,010
BE 9	Efficient Building Design	Supportive Measure	Supportive Measure
BE 10	Construction Equipment Operations	-990	-980
BE 11	Energy Code Training	Supportive Measure	Supportive Measure

Measure #	Measure Title	2020 GHG Reduction ($MTCO_2e$)	2035 GHG Reduction ($MTCO_2e$)
RE 1	Alternative Energy Development	-1,660	-4,790
RE 2	Water Heaters	-40	-290
RE 3	Alternative Energy Incentives	-1,480	-1,220
RE 4	Utility-Scale Renewable Energy Projects	-10,610	-25,880
IEE 1	Efficient Equipment Incentives	-1,710	-3,730
IEE 2	Energy Management Programs	-310	-310
IEE 3	Efficient Upgrade Incentives	-5,910	-10,410
IEE 4	Efficient Equipment	-1,050	-2,750
WR 1	Waste Reduction	-19,020	-31,560
WR 2	Increased Recycling Opportunities	-16,360	-27,150
WR 3	Construction and Demolition Waste Recycling	-10,330	-17,140
WR 4	Landfill Disposal Reductions	-870	-1,300
WR 5	Clean Waste Collection Vehicles	-730	-810
AG 1	Local Food Programs	Supportive Measure	Supportive Measure
AG 2	Agricultural Conservation Practices	Supportive Measure	Supportive Measure
AG 3	Agriculture Equipment	-5,800	-8,930
AG 4	Energy-Efficient Agriculture Operations	Supportive Measure	Supportive Measure
AG 5	Agriculture Irrigation Improvements	-1,660	-2,300
AG 6	Agriculture and Open Space Easements	Supportive Measure	Supportive Measure
WE 1	Water Conservation Programs	-290	-430
WE 2	Water-Efficient Building and Landscape Standards	-20	-50
WE 3	Water-Efficient Landscaping	-270	-460
GO 1	Energy Efficiency and Retrofits, Education, and Financing[3]	-2,260	-6,000
GO 2	Zero Net Energy	-970	-930
GO 3	Fuel-Efficient and Alternative Fuel Vehicle Fleet	-100	-350
GO 4	Commute Trip and Fuel Use Reductions	-980	-1,540
GO 5	Environmentally Preferable Procurement	Supportive Measure	Supportive Measure
GO 6	Water Efficiency and Conservation[4]	0	-10
Local Reductions Needed to Achieve 2020 Target		-166,950	N/A
Total Local Reductions		-188,030	-348,152

Measure #	Measure Title	2020 GHG Reduction ($MTCO_2e$)	2035 GHG Reduction ($MTCO_2e$)
Percentage Total Reductions below Baseline (State and Local)		16.77	23.86

Notes:
1. The reductions from CCE are not included in the total at the bottom of this table.
2. A supportive measure is a measure which contributes to overall reductions but is not quantifiable.
3. See Chapter V for a discussion of the GO measures.
4. Actual reductions in the table have been rounded to the nearest 10 $MTCO_2e$; the actual 2020 GHG reduction for GO 6 is approximately 4 $MTCO_2e$.

Figure 4-1. GHG Reductions by Topic[1, 2]



Notes:
1. The effect of CCE on individual measures is not captured in this figure.
2. See **Appendix H** for more information on the effect of CCE on each GHG measure.

4-3. Co-Benefits

Community co-benefits add value and highlight the beneficial impacts that the ERMs identified in this Plan can have on local or regional economic, social, and environmental conditions such as public health, economic vitality, or resource conservation. The ERMs will result in significant additional benefits to the community and some of the major benefits are noted throughout this chapter with icons, as shown below.

Reduces Energy Use

Supports Local Economy

Improves Mobility

Informs Public

Improves Public Health

Reduces Water Use

Provides Monetary Savings

Conserves Natural Resources

4-4. Community Choice Energy

Measure CCE

2020 GHG Reduction
37,520

2035 GHG Reduction
98,620

Responsible Department(s)
Planning and Development

Co-Benefits

CCE allows communities to offer procurement service to electric customers within their boundaries. This can include developing and owning electric-generating resources, such as County-owned utility-scale solar plants, but is not required. The environmental benefit from a CCE is driven from the CCE having the ability to procure energy from a portfolio of sources of its choosing, allowing it to increase the amount of renewable energy beyond what the investor-owned utility offers. Customers within a CCE boundary may "opt out" and continue to receive electricity from the investor-owned utility. Other benefits of a CCE include:

- Ability to locally control electric rates.
- Ability to know exactly where/how the electricity is created (and increase the use of renewable energy).
- Ability for communities to develop electric generation projects that increase local employment.

The City of Santa Barbara included a CCE in its Climate Action Plan and General Plan update. It proposes to complete a feasibility study to include a cost-benefit analysis of the measure. The feasibility study being completed is contingent upon other agencies partnering with the City on the effort, such as Santa Barbara County or Ventura County. The first step for Santa Barbara County to implement such a program would be to complete a feasibility study. A CCE could be developed as a new program or in partnership with an existing CCE.

CCEs are currently active in Marin and Sonoma Counties. Other communities in California that are developing or exploring CCEs include the City of Lancaster (nearing implementation), the City and County of San Francisco, Alameda County, and the Counties of Santa Cruz, Monterey, and San Benito.

As CCEs require a multistep approach to implementation, which could delay the GHG reduction benefits of CCE, it is helpful to present the forecast and GHG reduction measures with and without CCE. **Appendix H** of this ECAP provides detail on the effect a CCE program will have on future emissions and reduction measures.

Action Items:

1) Increase the amount of renewable energy used to a minimum of 50% by 2020 through a CCE program or other renewable energy procurement programs.

4-5. Sustainable Communities Strategy

Measure SCS

2020 GHG Reduction
31,920

2035 GHG Reduction
60,922

Responsible Department(s)
Planning and Development

Co-Benefits

SBCAG developed the SCS as a component of the Regional Transportation Plan. The SCS is the outcome of SB 375, which requires the Metropolitan Planning Organizations (MPOs) to tie land use planning with transportation planning in order to reduce GHG emissions from passenger vehicles. In October 2012, the SBCAG Board approved the preferred scenario of transit-oriented development/infill, plus an enhanced transit strategy. The SCS was adopted by SBCAG in August 2013 and accepted by CARB in November 2013. The adopted SCS sets out a plan to meet SBCAG's goal of a zero net increase per capita in GHG emissions from passenger vehicles by 2020. By fully implementing the SCS in the unincorporated county, the County can take credit for reductions achieved through SCS implementation in the ECAP. Such a commitment would involve upzonings of some properties in the county to allow for increased densities. Rezones of individual parcels would require a separate County BOS approval. Potential rezones will be presented as part of Community Plan updates that are in the pipeline.

Action Items:

1) Support SBCAG's implementation of the 2040 Regional Transportation Plan and SCS to reduce per-capita GHG emissions from transportation.

4-6. Land Use Design

Goal: Maximize the efficient use of local land resources through the implementation of policies and programs that promote mixed-use and infill development and reduce dependency on automobiles.

The distribution of land uses throughout the county influences transportation choices for county residents, employees, and visitors. Where housing, business centers, shopping centers, medical offices, and schools are placed has an impact on transportation choices. Designing communities with well-planned land use patterns can dramatically decrease the amount of VMT and therefore have a direct effect on GHG emissions. The measures presented are designed to affect where jobs and housing are located. These measures complement the measures identified in the Transportation section, which are designed to affect how people get from their homes to work and community centers.

Infill Development (LUD 1)

Measure – Promote infill development.

Promoting infill development will allow for efficient use of land resources currently available in Santa Barbara County.

The Isla Vista Master Plan (IVMP) encourages mixed-use development and community revitalization, and provides urban design standards. For more information on the IVMP, visit: http://longrange.sbcountyplanning.org/planareas/islavista/islavista.php

Action Items:

1) Support strategies for sustainable new development by adopting principles and policies that encourage and expedite the permitting of mixed-use, infill, and transit-oriented development, with jobs and housing co-located together, where feasible, or in close proximity (walking/biking distance) to transit facilities.

2) Review the Comprehensive Plan to determine the extent to which it promotes GHG emissions reductions. Recommend amendments to improve policies and implementation measures to promote GHG emissions reductions.

3) Integrate complete streets policies and projects into updates of the Land Use and Circulation Elements and into new and existing community plans.

4) 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.

Measure LUD 1

2020 GHG Reduction
460

2035 GHG Reduction
1,050

Responsible Department(s)
Planning and Development

Co-Benefits

5) Encourage new residential development to be within walking distance (half-mile or less) of public activity centers such as schools, libraries, parks, and community centers.

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

7) Consider developing a program where energy-efficient mixed-use, infill, and transit-oriented development projects can trade GHG credits.

Transit-Oriented Development (LUD 2)

Measure – Coordinate office, commercial, industrial, and high-density residential developments with mass transit service and existing or proposed bikeways.

Providing more mass transit services and improving the county's bikeways will work in tandem with the promotion of infill development to encourage the use of mass transit.

Action Items:

1) Encourage employers to provide funding for reliable mass transit.

2) Coordinate new, proposed, and existing commuter rail, mass transit service, and bikeways so that alternative transportation modes complement one another.

3) Expand the existing bike network around existing development as proposed in the Santa Barbara County Bicycle Master Plan.

Measure LUD 2

2020 GHG Reduction
1,240

2035 GHG Reduction
2,550

Responsible Department(s)
Planning and Development
Public Works

Co-Benefits

Affordable Housing (LUD 3)

Measure – Work to increase workforce and affordable housing in Santa Barbara County.

Increasing affordable housing in Santa Barbara County will reduce GHG emissions, as more residents will travel shorter distances between work and their place of residence.

Action Items:

1) Continue to provide programs, incentives, and regulations for affordable housing through the County's affordable housing requirements and inclusionary housing program.

Measure LUD 3

2020 GHG Reduction
780

2035 GHG Reduction
1,760

Responsible Department(s)
Planning and Development
Community Services

Co-Benefits

4-7. Transportation

Goal: Decrease the overall use of combustion engine vehicles and the number of single-passenger vehicle trips.

Measure T 1

2020 GHG Reduction
5,770

2035 GHG Reduction
9,280

Responsible Department(s)
Public Works
Planning and Development

Co-Benefits

Transportation is the largest contributor of GHG emissions in the county. Transportation emissions can be reduced through three basic approaches:

a. Producing more fuel-efficient vehicles.

b. Requiring stricter fuel standards.

c. Decreasing the amount of VMT.

The State is working on programs, measures, and standards that accomplish the first two approaches. This section presents measures that seek to accomplish the third approach. The measures are meant to complement the Land Use design measures identified in the previous section through the development of a multimodal transportation system that is convenient and user-friendly, as well as through increased use of alternative-fuel vehicles.

Car Sharing and Ride Sharing (T 1)

Measure – Create new or additional or improve existing car-sharing and ride-sharing programs.

Increasing car- and ride-sharing programs will lead to a reduction in GHG, as well as a decrease in the number of single-passenger vehicle trips.

Ride-sharing is promoted countywide for residents who are interested in carpooling during their work week and is available to residents with and without cars. For more information on this free program, visit:
http://www.trafficsolutions.info/carpool.htm

Action Items:

1) Work with Traffic Solutions to expand North County Santa Barbara carpool/vanpool programs and increase bus line options.

2) Explore expanding car-sharing options in Santa Barbara County with Traffic Solutions and the Community Environmental Council.

3) Work to effectively implement the CalVans program in Santa Barbara County.

4) Support SBCAG's Park and Ride Program, such as by coordinating with SBCAG during the County's land use approval process.

Commuter Incentives (T 2)

Measure – Work cooperatively with major local employers and/or Traffic Solutions to offer incentives and services that decrease single-occupant automobile commuting.

Employers can offer incentives (such as discounted bus passes, vacation accrual for those who carpool, etc.) as a way to assist in the decrease in reliance on single-occupant automobile commuting. This, in turn, reduces GHG.

Action Items:

1) Encourage and support employers, especially small and medium-sized employers, to voluntarily prepare and implement a Transportation Demand Management (TDM) program for their employees.

2) Provide TDM program education and community briefings annually and/or semi-annually.

Measure T 2

2020 GHG Reduction
3,460

2035 GHG Reduction
6,810

Responsible Department(s)
Planning and Development

Co-Benefits

Transportation Demand Management, or TDM, is a set of programs intended to reduce the number of unique vehicle trips. TDM measures can be applied for individual buildings or developments, neighborhoods, or entire communities. Employer-run TDM programs can include carpools, incentives for public transit and bicycling, and telecommuting, among other strategies.

Alternative-Fuel Vehicles and Incentives (T 3)

Measure – Increase the use of alternative-fuel vehicles, and plan for the development of alternative-fuel infrastructure.

In 2014, the County of Santa Barbara received a grant from the CEC to draft an Alternative Fuels Readiness Plan for the region, with the assistance of the Community Environmental Council, the EV Communities Alliance, and other nonprofit organizations.

Measure T 3

2020 GHG Reduction
1,670

2035 GHG Reduction
3,650

Responsible Department(s)
Planning and Development

Co-Benefits

Action Items:

1) Develop new electric vehicle (EV) ready ordinance requiring new one- and two-family dwellings to install conduit for future installation of an EV charging station.

2) Support efforts to plan for and deploy electric vehicle and alternative-fuel infrastructure in Santa Barbara County.

3) Encourage public and new commercial developments to include designated stalls for low-emitting, fuel-efficient vehicles and carpool/vanpool vehicles and to pre-wire stalls for future electric vehicle charging stations.

4) Amend zoning ordinance to ensure that alternative-fuel stations and support facilities are allowed uses in land use designations that currently allow gas and service stations.

5) Identify alternative-fuel projects to seek funding through the CEC, for example.

Measure T 4

2020 GHG Reduction
1,330

2035 GHG Reduction
2,430

Responsible Department(s)
Public Works
Planning and Development

Co-Benefits

The Alternative Fuels Readiness Plan aims to increase alternative-fuel vehicle infrastructure throughout the county. This will be accomplished through educational workshops, green car shows, and ride-and-drive events. An alternative fuels "task force" will also be created to provide input on increasing usage.

Alternative and Active Transportation (T 4)

Measure – Enhance alternative and active transportation.

By enhancing alternative and active transportation methods, residents of Santa Barbara County can utilize other options instead of relying solely on fuel combustion vehicles or single-occupant vehicles.

Action Items:

1) Continue to promote the efforts of the Santa Barbara Car Free program.

2) Continue to require reduced-fare or free transit passes to residents or employers as mitigation of significant traffic impacts for projects.

3) Continue to require projects to include mass transit improvements, such as bus stops, pullouts, and shelters, or funding to assist in the installation of mass transit improvements as mitigation for significant impacts.

4) Continue to identify alternative transportation projects for funding under Measure A.

5) Continue to expand transit opportunities in northern Santa Barbara County and explore expansion in agricultural communities.

There are nine chambers of commerce in Santa Barbara County: Buellton, Carpinteria, Goleta Valley, Guadalupe, Lompoc, Santa Barbara, Santa Barbara Hispanic, Santa Maria, and Solvang.

6) Encourage bus service providers in the county to provide more frequent service and to purchase alternative-fuel and articulated buses for greater capacity.

7) Work with the Chambers of Commerce to encourage alternative and active transportation opportunities within the tourism industry.

8) Collaborate with interested organizations to establish a bike-sharing program.

Integrated Bikeway System (T 5)

Measure – Complete an integrated bikeway system, linking residences with commercial centers, work locations, schools, parks, and mass transit facilities, considered to be a high priority for promoting the use of the bicycle as a primary mode of transportation.

Improving the transportation linkages between residential and commercial uses and transit centers could increase the number of bicycle users and reduce the use of combustion vehicles.

Action Items:

1) Continue to implement the Santa Barbara County Bicycle Master Plan.

2) Continue to support educational programs for safe and lawful biking, such as through the Santa Barbara Bicycle Coalition and the Coalition for Sustainable Transportation (COAST).

3) Install signage to promote safe biking and discourage actions such as biking on sidewalks.

4) Continue to seek funding to expand the existing bicycle network, especially in the North County.

Measure T 5

2020 GHG Reduction
1,720

2035 GHG Reduction
2,480

Responsible Department(s)
Public Works

Co-Benefits

5) Continue to add more Class I and II bike lanes through local Measure A funding and innovative treatments for buffered and protected lanes.

Pedestrian Improvements (T 6)

Measure – Improve pedestrian convenience, comfort, and safety.

If walking and/or biking are made safer and more convenient, residents will be more likely to choose alternative or active modes of transportation, as opposed to relying on combustion vehicles for travel.

Measure T 6

2020 GHG Reduction
2,020

2035 GHG Reduction
3,280

Responsible Department(s)
Public Works
Planning and Development

Co-Benefits

Action Items:

1) Update the Circulation Element countywide and community plan design guidelines to create maximum connectivity between neighborhoods, streets, and projects for pedestrian and bicycle travel.

2) Work with COAST to support the expansion of Safe Routes to School programs to all elementary and middle schools in the county, and assess potential roadway improvements for increased safety in school zones.

3) Where appropriate, direct new development to construct walkable paths that connect land uses and other non-motorized routes and provide safe, marked, high-visibility crosswalks at major intersections.

4) Provide and ensure well-lit, safe, accessible connections (e.g. walkways and sidewalks) to commercial nodes, schools, and recreation areas to increase the walkability of communities in the county, especially considering the needs of the growing senior population.

5) Continue to complete gaps in the existing sidewalk system and improve pedestrian crossings at intersections with roadways and train tracks.

6) Support enforcement of the need for vehicles to yield for pedestrians in crosswalks.

Vehicle Idling (T 7)

Measure – Reduce vehicle idling through enforcement and education targeted toward commercial vehicle operators, school parents, and government employees.

Reducing the amount of vehicle idling can help lower the amount of GHG emissions throughout the county.

Action Item:

1) Support enforcement and education to reduce vehicle idling.

Measure T 7

2020 GHG Reduction
6,590

2035 GHG Reduction
13,330

Responsible Department(s)
Public Works

Co-Benefits

Traffic Signal Efficiencies (T 8)

Measure – Implement traffic signal synchronization and detection technologies or traffic calming measures to reduce idling emissions.

This measure is supportive of other measures that promote the use of non-motorized transit, including T 5 and T 6, and measures that reduce vehicle idling time, including T 7. There are no assumptions, GHG reductions, or performance indicators for supportive measures.

Action Item:

1) Continue to review traffic signal synchronization and video signal detection technologies to facilitate the flow of cyclists, pedestrians, and traffic through intersections.

2) Continue to transition to LED lights in both traffic signals and overhead lamps where feasible.

The County has installed video detection systems at 90% of its signals, and at 100% of feasible locations since some intersections have obstructions that make the technology infeasible at those locations.

Measure T 8

2020 GHG Reduction
N/A

2035 GHG Reduction
N/A

Responsible Department(s)
Public Works

Co-Benefits

Commuter Rail Connections (T 9)

Measure – Develop commuter rail connections between employment centers.

Emphasizing commuter rail as an option for transportation will assist in reduced reliance on combustion and single-passenger vehicles.

Action Items:

1) Continue to support SBCAG in working with Union Pacific to accommodate commuter rail.

2) Work with local jurisdictions and transit providers to provide connecting (e.g. jitney) services from station to final destination.

3) Work with Amtrak to provide amenities at rail stations such as comfort stations and bike racks.

Measure T 9

2020 GHG Reduction
2,030

2035 GHG Reduction
5,560

Responsible Department(s)
Planning and Development

Co-Benefits

4-8. Built Environment

Goal: To foster development and renovations that increase energy efficiency through location, design, construction, and systems.

Energy consumption, both gas and electric, by businesses and homes represents a significant source of GHG emissions in the county. Residents use natural gas to heat water and power natural gas appliances. Commercial enterprises also use natural gas for water heating, cooking, and other activities. Electricity powers appliances that have become essential for daily life—from residential appliances to local infrastructure, such as streetlights. Promoting and achieving energy conservation and more efficient use of energy offers one of the most readily achievable and cost-effective means of GHG reduction. Implementation of energy-saving measures will not only reduce GHG emissions but will also reduce household and business costs associated with energy consumption.

These measures target efficiencies and conservation in electricity and natural gas use in homes and nonresidential buildings to reduce emissions. In Santa Barbara County, which is a low growth area, the majority of future GHG emissions will come from existing buildings. For this reason, it is critical that energy-saving measures focus on improving efficiency and conservation in existing buildings, and ensuring that new construction projects utilize electricity and natural gas as efficiently as possible.

Energy Efficiency Education and Outreach (BE 1)

Measure – Increase public energy conservation and awareness; provide information and education to the general public, businesses, and organizations on the importance of energy conservation and available programs, products, and incentives regarding energy efficiency and alternatives; promote existing low-income energy conservation and weatherization programs; and coordinate with local utility providers and nonprofits to develop additional energy efficiency programs.

Increasing awareness and bolstering existing educational programs related to energy efficiency will help to change consumer behavior regarding energy use.

Action Items:

1) Continue to work with public utilities, private businesses, organizations, and governmental agencies to develop guidelines on energy-efficient design. These guidelines should be disseminated as early in the planning process as possible (e.g., include the guidelines with all initial permit applications, disseminate at the permit zoning counter and at pre-application meetings).

2) Continue to work with public utilities, educational facilities, County departments, city departments, and others that have existing outreach programs to disseminate materials about energy conservation and programs available to the general public, particularly via a new countywide sustainability website.

3) Continue to work with public utilities, private businesses, organizations, and

Energy Upgrade California is a state program that encourages GHG emissions reduction through a decrease in energy consumption. The program is focused on education and outreach. For more information, visit:

www.energyupgradeca.org

Measure BE 1

2020 GHG Reduction
3,150

2035 GHG Reduction
4,060

Responsible Department(s)
Community Services

Co-Benefits

The South County Energy Efficiency Partnership (SCEEP) is a collaboration between local municipalities, utilities, and the Community Environmental Council. The goal is to offer energy-efficient solutions and incentives to consumers in the area, as well as educational events to increase public awareness. For more information, visit:

http://www.southcoastenergywise.org/

The Santa Barbara County Energy Watch Partnership provides information on energy upgrades at

http://www.sbcenergywatch.com/

governmental agencies to develop outreach programs designed to inform the general public about the cost and benefits of energy efficiency, including technical options, funding, and incentive programs.

The Community Action Commission offers a Home Energy Assistance Program, as well as home energy improvement services, to low-income residents in order to ease the burden of rising utility costs. For more information, visit: http://www.cacsb.com/

4) Continue public outreach (elementary school component, public workshops, etc.) and employee education mechanisms (e.g. lunch and learns) to teach about energy efficiency and other climate-related initiatives.

5) Continue to encourage and promote utility provider energy conservation programs for residential, commercial, industrial, agricultural, and governmental buildings.

6) Continue to encourage the development of green building and weatherization training programs.

7) Continue to encourage builders to make all new construction solar-ready and to inform their clients about the option to install both solar water heating and photovoltaics.

8) Continue to support programs like the Community Action Commission of Santa Barbara County, which provide free energy services to low-income households, including weatherization, furnace repair, and water heater replacement.

Energy-Efficient Renovations (BE 2)

Measure – Incentivize homeowners and commercial and industrial building owners to improve the energy efficiency of existing buildings upon renovation or alteration; support and provide resources for tax credits, grants, loans, and other incentives to assist the public, businesses, and local agencies with the purchase of energy-efficient equipment.

By providing education and/or incentives to owners who complete energy renovations, the energy efficiency of buildings will improve across the county and, ultimately, contribute to the reduction of GHG emissions.

Measure BE 2

2020 GHG Reduction
15,480

2035 GHG Reduction
32,460

Responsible Department(s)
Planning and Development
Community Services

Co-Benefits

Action Items:

1) Maintain a countywide website with resources for tax credits, grants, loans, and other incentives for the purchase of energy-efficient equipment that can build on existing department websites.

Property-Assessed Clean Energy (PACE) is a financing mechanism that allows building owners to pay for energy efficiency, water efficiency, and renewable energy retrofits over multiple years through a temporary increase in their property taxes. Examples of established PACE programs in California include Home Energy Retrofit Opportunity (HERO) and CaliforniaFIRST.

2) Require energy checklist for residential building permits for additions and/or alterations, excluding repair and maintenance. Offer tutorial on how to complete the energy checklist. Provide information on potential cost savings and available rebates or other incentives. Explore expedited building permit plan check or a waiver of building permit fees for implementing checklist recommendations. Applicants will also be directed to emPower's Energy Coach program, which provides free home energy site visits.

Energy checklists are available from Santa Barbara County's Building and Safety Division (free of charge). Participants may also utilize emPower's free Energy Coach program, Building Performance Institute, Inc. (BPI)-certified energy auditors, Home Energy Rating System (HERS) ratings, or energy assessments offered by local utilities.

3) Provide energy information on different residential building types in each community. These pilot audits will provide general information about efficient retrofits in different building types without requiring each building to complete an audit.

4) Continue to incentivize energy-efficient retrofits through direct rebates and financing, and investigate additional incentives, such as property tax rebates.

5) Encourage participation in the County's emPower Central Coast Program and Energy Upgrade California.

6) Reconsider pursuing participation in an established program or development of a County program, such as commercial PACE, to incentivize energy efficiency upgrades in commercial and multi-family buildings.

Green Business Participation (BE 3)

Measure – Increase participation in the Santa Barbara County Green Business Program (GBP).

The Santa Barbara County GBP encourages local businesses to serve as models of sustainability and to integrate environmental responsibility into their operations.

Action Items:

1) Highlight the efforts of businesses participating in the Santa Barbara County Green Business Program.

2) Provide information about the Santa Barbara County Green Business Program when new business licenses are received by the County Treasurer/Tax Collector.

3) Support the Green Business Program.

Measure BE 3

2020 GHG Reduction
1,960

2035 GHG Reduction
3,100

Responsible Department(s)
Public Works

Co-Benefits

The GBP is administered by the Resource Recovery and Waste Management Division (RRWMD) and has been building momentum for over 15 years, recognizing environmental responsibility and green practices that not only benefit the environment but hold promise of increased efficiency and greater profit. Certification is free. For more information, visit www.greenbizsbc.org

Energy Efficiency Education and Outreach to New Homeowners and Nonresidential Building Owners (BE 4)

Measure – Promote energy efficiency upgrades of buildings, and encourage disclosure of energy use history when nonresidential buildings are leased or sold.

Action Items:

1) Develop an outreach program to encourage new homeowners to make energy-efficient upgrades when remodeling or repairing their homes. Outreach will include coordination with local contractors and realtor associations. New homeowners will be encouraged to utilize emPower's Energy Coach program, which provides free energy site visits.

2) Encourage all nonresidential properties, even those not covered by AB 1103, to

Measure BE 4

2020 GHG Reduction
20,670

2035 GHG Reduction
35,790

Responsible Department(s)
Planning and Development
Community Services

Co-Benefits

provide buyers or tenants with the previous year's energy use by documenting use through the EPA's EnergyStar Portfolio Manager with a 50% participation rate goal by 2016. If a 50% participation rate is not achieved by 2016, the County will consider requiring participation of building owners by 2020.

emPower Central Coast was developed to help homeowners overcome obstacles to making energy-saving improvements to their homes through incentives, financing, and expert energy advice in the counties of Santa Barbara, Ventura, and San Luis Obispo. emPower has also partnered with both Energy Upgrade California and the California Solar Initiative to offer more utility rebates. They have conducted over 100 outreach events to date, with 35 trainings and 500 attendees, and will continue to offer building performance trainings. emPower also provides referrals for low-income individuals and energy efficiency education, and connects customers with participating contractors who are licensed and specially trained to perform energy upgrades. For more information, visit: http://www.empowersbc.org

3) Provide resources for individuals self-auditing their home or business energy efficiency.

Measure BE 5

2020 GHG Reduction
640

2035 GHG Reduction
1,610

Responsible Department(s)
Planning and Development
Public Works

Co-Benefits

Community Forestry (BE 5)

Measure – Maintain and expand the drought-tolerant and native tree population.

Increasing the drought-tolerant and native tree population will not only enhance cooling benefits but will also help to capture and reduce GHG emissions and conserve water in the county.

Action Items:

1) Consider developing a shade tree program that provides free drought-tolerant or native trees to residents and businesses for planting adjacent to buildings to reduce building heat gain.

2) Amend zoning ordinance to require landscape plans to include shade trees in parking lots and street trees, where appropriate.

3) Assess existing trees on a proposed project site to determine compatibility with landscaping, shading, and solar access goals, and protect existing trees to the maximum extent feasible.

4) Develop a comprehensive community tree program or adopt the Street Tree Policy for planting and maintaining drought-tolerant or native trees on County-maintained roads, medians, and public parking lots.

5) Continue tree replacement and mitigation when removing trees with new development.

6) Continue to require the protection of native trees on land with proposed development.

7) Form partnerships with local advocacy and community groups to fund the planting and maintenance of native or drought-tolerant street trees.

Measure BE 6

2020 GHG Reduction
3,350

2035 GHG Reduction
5,620

Responsible Department(s)
Planning and Development

Co-Benefits

Smart Grid Technology (BE 6)

Measure – Support the local utility providers' implementation of smart grid technology in new and existing residential and nonresidential properties.

Smart meters are electronic devices that record the consumption of electricity use and communicate this information to the utility for monitoring and billing purposes. Smart meters also allow the consumer to view how much energy they are consuming and, if desired, make changes to their consumption patterns to reduce utility bills.

Smart grid technology allows energy users to access real-time data regarding energy usage and to make conscious consumer choices about when to use versus not use energy.

Action Items:

1) Encourage the installation of real-time energy monitoring (such as smart meters) for natural gas, electricity, and water meters on all residential and nonresidential buildings.

2) Work with the utility companies to develop a web-based application to provide customers with real-time feedback on their energy consumption and related costs.

3) 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.

4) 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.

Lawn and Garden Equipment (BE 7)

Measure – Increase the use of electric or alternative-fuel lawn and garden equipment through the development of an exchange or rebate program.

The SBCAPCD's Cash for Cleaner Engines program includes off-road heavy-duty equipment replacement, off-road heavy-duty engine re-power, marine engine re-power, and agricultural stationary engine re-power. The replacement of these heavy diesel engines aids in the reduction of air pollution. For more information, visit: http://www.sbcapcd.org/itg/itg.htm

By switching to electric lawn and garden equipment (or with technologies that support the use of alternative fuels), residents can make an easy change to help reduce GHG emissions.

Measure BE 7

2020 GHG Reduction
50

2035 GHG Reduction
80

Responsible Department(s)
Planning and Development
SBCAPCD

Co-Benefits

Action Items:

1) Work with the Santa Barbara County Air Pollution Control District (SBCAPCD) to include lawn and garden equipment in the Cash for Cleaner Engines program.

2) Discourage the use of lawn and garden equipment with two-stroke engines.

Energy Efficiency and Green Building Standards (BE 8)

Measure – Implement energy efficiency and green building practices in new and existing developments to exceed the California Green Building Standards Code (Title 24) standards.

The County of Santa Barbara's green building program (Smart Build Santa Barbara) is updated as state building requirements, such as Title 24, are updated. These updates influence building practices throughout the county.

Smart Build Santa Barbara (SB^2) is a free program that advises developers on how to make their developments more energy efficient. For more information, visit: http://longrange.sbcountyplanning.org/programs/energyelement/smartbuildSB.php

Action Items:

1) Continue to use the Smart Build Santa Barbara (SB^2) Committee, designated by the County Building Official, to incentivize green building practices. The committee will

function on a voluntary basis and comprise professionals with specific expertise in energy-efficient building, including the gas and electric utilities, as well as architects and energy specialists. Its membership will be approved by the County Building Official.

2) Encourage applicants to exceed the California Energy Standards Code (Title 24, Part 6) by 15% and earn 25 points for residential buildings or 15 points for nonresidential buildings from the County's SB2 checklist.

3) Encourage the installation of energy-efficient materials and equipment that exceed the requirements of Title 24 for all new and existing development.

Measure BE 8

2020 GHG Reduction
2,110

2035 GHG Reduction
3,010

Responsible Department(s)
Planning and Development
Community Services

Co-Benefits

4) Explore providing incentives such as expedited building permit plan check and energy plan check fee reductions to development projects that achieve CALGreen's Tier 2 standard or beyond. Consider providing additional incentives for implementing energy efficiency and green building practices.

5) Continue to provide homeowners and commercial building owners with information on costs and benefits for energy-efficient measures and available audit and rebate programs. The information would be disseminated early in the planning process and may be available via a countywide sustainability website.

emPower provides information on energy efficiency and rebates and other incentives to homeowners. emPower's Energy Coach also provides onsite advising visits and connects homeowners to contractors who can complete the upgrades.

6) Continue to encourage energy-efficient upgrades on all development projects.

7) Encourage the use of post-consumer recycled content and/or certified sustainable production in building materials.

8) Encourage building design, materials production, and construction practices that minimize waste.

9) Continue to provide resources and explore providing incentives to residents and businesses on carbon-reduction actions in existing buildings, including energy efficiency, renewable energy, choice of materials, and building reuse.

Efficient Building Design (BE 9)

Measure – Assist architects, builders, and others in using state-of-the-art energy technology, design, and spatial orientation for more efficient buildings; increase the use of passive solar design and daylighting in existing and new structures.

Choosing a building design that takes advantage of elements such as passive solar design and daylighting is an inexpensive way to help reduce energy use and can be easily incorporated into the early stages of design. Supportive measures do not produce direct, measurable GHG reductions. There are no sources for GHG reduction calculations for supportive measures.

Measure BE 9

2020 GHG Reduction
N/A

2035 GHG Reduction
N/A

Responsible Department(s)
Planning and Development
Community Services

Co-Benefits

Action Items:

1) Continue to encourage the use of energy-efficient equipment, including but not limited to EnergyStar appliances, high-efficiency equipment, heat recovery equipment, and building energy management systems, in all new and existing development.

2) Encourage new development projects to utilize cool pavement materials, provide shade from structures covered by solar panels, or use an open-grid pavement system to reduce the heat island effect.

3) Encourage the use of alternative, energy-efficient construction types (straw bale, insulated block, rammed earth, pumice-create, etc.), especially using locally available materials.

4) Encourage projects to install solar energy systems for heating swimming pools.

5) Encourage the installation of green roofs or cool roofs or minimizing the use of dark materials on roofs to achieve a minimum solar reflectivity.

6) Continue to encourage the replacement of inefficient appliances, such as natural gas and propane space and water heating/furnaces, with more efficient and/or alternative-fuel appliances.

7) 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.
- Sustainable site design and landscaping to create comfortable microclimates.
- Use of lighting shelves, exterior fins, skylights, atriums, courtyards, or other features to enhance natural light penetration.

8) Develop an informational sheet that describes passive solar designs (orientation of buildings, vegetative shading, light-colored roofs, daylighting, etc.) and other energy efficiency features. This sheet would be disseminated early in the planning process and should refer applicants to the SB2 Program for further information and guidance.

Measure BE 10

2020 GHG Reduction
990

2035 GHG Reduction
980

Responsible Department(s)
Planning and Development
Public Works

Co-Benefits

Construction Equipment Operations (BE 10)

Measure – Implement best management practices (BMPs) for construction equipment operation; examples of BMPs include reduced equipment idling, use of alternative fuels or electrification of equipment, and proper maintenance and labeling of equipment.

Implementing BMPs for construction equipment will help with a comprehensive reduction in energy use throughout the county.

Action Item:

1) Develop informational resources, such as a brochure, for best practices for construction equipment operation.

Measure BE 11

2020 GHG Reduction
N/A

2035 GHG Reduction
N/A

Responsible Department(s)
Planning and Development
Community Services

Co-Benefits

Energy Code Training (BE 11)

Measure – Maintain and strengthen the existing training of Planning and Development, Building and Safety Division personnel to remain proficient and consistent in reviewing plans for compliance with the energy code.

By educating staff on up-to-date legislation relating to building compliance, staff will be able to assist in energy reduction throughout the county. Supportive measures do not produce direct, measurable GHG reductions. There are no sources for GHG reduction calculations for supportive measures.

Action Item:

1) Continue to educate staff and the public about green building through partnerships with local nonprofit organizations and professional planning and building organizations.

4-9. Renewable Energy

Goal: To promote the use of alternative energy for economic and environmental benefits, and facilitate opportunities for businesses that develop or market alternative energy technologies.

emPower provides California Energy Commission (CEC) and Investor Owned Utilities (IOU) code compliance trainings to the contractor community.

While energy efficiency and conservation in the built environment is the first step to reducing energy use, energy consumption cannot be eliminated. Emissions can be further reduced by generating the energy needed through renewable sources. Natural gas can be replaced with renewable fuels, and electricity can be generated by renewable sources that are cost-effective and help contribute to local energy independence. Through this goal, the County can reduce GHGs from traditional electricity and natural gas use by promoting the production of renewable energy.

Measure RE 1

2020 GHG Reduction
1,660

2035 GHG Reduction
4,790

Responsible Department(s)
Community Services
Planning and Development

Co-Benefits

Alternative Energy Development (RE 1)

Measure – Increase the use of alternative energy technology as appropriate in new and existing development.

Alternative energy can help to reduce dependence on traditional energy sources, and encouraging the development of such technologies will lead to a reduction in GHGs throughout the county.

Action Items:

1) Support the establishment of federal and state funds to provide low-interest loans for alternative energy technology.

2) Expand emPower Central Coast to allow funding of multi-family housing and alternative energy packages, such as solar-only projects on single-family housing.

3) Where appropriate and feasible, remove impediments (e.g., prolonged review due to a proposal including a new or different technology) to the utilization of alternative energy technologies that are cost-effective and contribute to improved environmental conditions.

emPower works closely with CEC's Solarize program, and is collecting information on collaborative procurement best practices in the state and potential funding opportunities. emPower also actively promote increased incentives and financing for solar water heating.

4) Reconsider commercial PACE programs to finance energy efficiency and renewable energy improvements.

5) Encourage the use of anaerobic digesters in agriculture, wastewater treatment, and solid waste management.

The Building & Safety Division offers a 10-day review for photovoltaic projects.

6) Identify policies and practices to attract businesses that develop or market alternative energy technologies.

7) Develop the solar photovoltaic (PV) ready construction ordinance to require new single-family dwelling units to be built to accommodate future solar PV system installation. The ordinance will include regulations requiring electric panel sizing to accommodate future improvements, the installation of conduit for future roof-mounted solar PV system, and the reservation of a minimum of 250 square feet of the south-facing roof for future installation of a solar PV or solar water-heating system.

Water Heaters (RE 2)

Measure – Increase the replacement of existing water heaters with high-efficiency, tankless, or solar water heaters.

These types of water heaters can aid in the reduction of energy use in residential and commercial buildings.

Action Item:

1) Continue to require new residential development to use high-efficiency water

Measure RE 2

2020 GHG Reduction
40

2035 GHG Reduction
290

Responsible Department(s)
Community Services
Planning and Development

Co-Benefits

heaters or tankless heaters and continue to encourage new and existing development to participate in the State's CSI-Thermal program, which provides rebates to utility customers who install solar thermal systems to replace water-heating systems powered by electricity or natural gas.

Measure RE 3

2020 GHG Reduction
1,480

2035 GHG Reduction
1,220

Responsible Department(s)
Community Services
Planning and Development

Co-Benefits

Alternative Energy Incentives (RE 3)

Measure – Adopt a policy or program that offers incentives (such as streamlined permitting, permit waivers, or fee waivers) to encourage a switch in electricity generation from fossil fuels to renewable sources through small-scale renewable electricity generation.

The County of Santa Barbara's green building program (Smart Build Santa Barbara) offers incentives to applicants to encourage builders to implement renewable energy sources in building design.

Action Items:

1) Continue to expedite review of solar projects by the Building and Safety Division.

2) Pursue updates to the small wind ordinance to include areas subject to Coastal Commission review.

3) Provide information on group purchasing programs of solar equipment and other funding options to encourage renewable energy installations.

4) Consider implementing a group purchasing program in partnership with local solar installers, green builders, or nonprofit organizations to implement solar electricity on single-family residential, multi-family residential, and commercial properties.

Measure RE 4

2020 GHG Reduction
10,610

2035 GHG Reduction
25,880

Responsible Department(s)
Planning and Development
Public Works

Co-Benefits

Utility-Scale Renewable Energy Projects (RE 4)

Measure – Promote the use of clean alternative

energy production by encouraging development of utility-scale renewable electrical generation facilities.

Utility-scale renewable electrical generation facilities will aid in the reduction of traditional electricity use and encourage residents to use a robust suite of options when using electricity.

Action Items:

1) Support the use of renewable energy sources such as sun, wind, and wave, and waste-to-energy production (such as the Resource Recovery Project using anaerobic digestion).

2) Consider expanding ordinance allowing installation of photovoltaic solar systems on agricultural land.

Southern California Gas Company (SoCalGas) provides optional tariffs to customers that allow SoCalGas to construct natural gas infrastructure and equipment on customer property. These tariffs are fully compensatory services. For example, the Biogas Conditioning/Upgrading Services Tariff allows customers to plan, design, procure, construct, own, operate, and maintain biogas conditioning and upgrading equipment on customer premises. For more information, visit: http://socalgas.com/innovation/power-generation/green-technologies/biogas/

4-10. Industrial Energy Efficiency

Goal: To improve the efficiency of industrial sector energy uses and processes.

Similar to the Built Environment measures, this area attempts to reduce emissions from the use of natural gas and electricity specific to the industrial sector. Industrial facilities use natural gas and electricity for water heating, on-site fuel combustion that support industrial and manufacturing processes, and to operate appliances and equipment. The energy used at industrial facilities is unique when compared to the residential and commercial sectors. For this reason, reductions from industrial sources are contained in a separate section.

Efficient Equipment Incentives (IEE 1)

Measure – Support legislation for tax credits, grants, loans, and other incentives to assist the public, businesses, and local agencies with the purchase of energy-efficient industrial equipment.

By reducing the fees required for the purchase of energy-efficient industrial equipment, interested parties can access such equipment and aid in increased energy efficiency throughout the county.

Measure IEE 1

2020 GHG Reduction
1,710

2035 GHG Reduction
3,730

Responsible Department(s)
Planning and Development
Community Services

Co-Benefits

Action Items:

1) Continue to support the development of state and federal resources such as tax credits, loans, and other incentives for the purchase of energy-efficient industrial equipment.

2) Provide outreach and education, particularly via a countywide sustainability website, to large industrial energy users to increase awareness of utility-sponsored incentive and rebate programs specific to large equipment and operations.

Energy Management Programs (IEE 2)

Measure – Increase industrial energy user participation in energy management programs such as the EnergyStar Benchmarking Program to ensure the efficient use of energy resources and proper operation of equipment and facilities.

Encouraging participation in energy management programs will aid in the practice of energy-efficient behaviors throughout the county.

Action Item:

1) Provide resources (such as a countywide sustainability website), educational programs, and incentives for energy management programs to ensure efficient use of energy resources and proper operation of equipment and facilities.

Measure IEE 2

2020 GHG Reduction
310

2035 GHG Reduction
310

Responsible Department(s)
Planning and Development

Co-Benefits

Efficient Upgrade Incentives (IEE 3)

Measure – Implement energy efficiency upgrades at industrial facilities through streamlining permit review, providing rebates for audits, and highlighting best practices among similar energy users.

Highlighting BMPs for operators of industrial facilities can assist in increasing energy efficiency in such businesses.

Action Items:

1) Pursue incentives to encourage energy efficiency upgrades at industrial facilities. Evaluate program participation and consider

Measure IEE 3

2020 GHG Reduction
5,910

2035 GHG Reduction
10,410

Responsible Department(s)
Planning and Development

Co-Benefits

a mandatory program if participation falls below 10% of total industrial facilities.

2) Develop informational resources for energy-efficient best practices among industrial facilities.

Efficient Equipment (IEE 4)

Measure – Increase the use of energy-efficient or EnergyStar-rated equipment at new or renovated industrial facilities.

By encouraging the use of energy-efficient equipment, interested parties can access such equipment and aid in the increase of energy efficiency throughout the county.

Action Items:

1) Provide education, resources, and assistance, such as via a countywide sustainability website, for the installation of energy-efficient equipment at new or renovated industrial facilities.

2) Support or partner with state agencies or nonprofit groups to implement an energy efficiency retrofit program to increase energy efficiency in existing industrial facilities.

Measure IEE 4

2020 GHG Reduction
1,050

2035 GHG Reduction
2,750

Responsible Department(s)
Planning and Development
Public Works

Co-Benefits

4-11. Waste Reduction

Goal: To exceed the state's required diversion rate of 75% by 2020.

Disposing of materials and products at the end of their useful life requires energy and emits GHGs. When organic waste is sent to the landfill, it decomposes and emits methane gas. Improved waste management at the local jurisdictional level and individual level are both necessary parts of a successful reduction strategy. The increased conservation of resources through reusing and recycling materials results in less demand for raw materials and indirectly results in fewer GHGs generated from future production and transportation of new materials. Additionally, the impact of transporting waste from homes and businesses by waste fleet vehicles can be reduced through reduced consumption and cleaner vehicle fleets. This goal seeks to decrease the amount of organic waste and recyclable material that is being deposited in landfills and to develop energy from the waste which does get landfilled. These measures would be implemented through the Resource Recovery and Waste Management Division (RRWMD) of the County Public Works Department.

Waste Reduction (WR 1)

Measure – Continue to support the programs associated with efficient waste collection and recycling, public school education, and composting.

Supporting the RRWMD of the County Public Works Department will aid in waste reduction.

Action Items:

1) Continue to enhance community understanding of resource recovery and waste management programs such as by placing stickers on recycling bins, distributing refrigerator magnets, maintaining a website, and distributing brochures.

2) Continue the home composting education campaign and the discounted sale of composting bins.

3) Continue to look for opportunities to remove food waste from landfills, such as curbside composting for restaurants.

4) Continue to implement recycling programs for schools and businesses.

5) Support environmentally preferable purchasing programs.

6) Support waste reduction regulations such as a plastic bag ban.

7) Continue to implement an evaluation mechanism to measure waste prevented by reduction, reuse, and thoughtful consumption and recycling.

One proactive program run by the RRWMD since 1992 is the Green Waste program, which oversees the collection and diversion of approximately 40,000 tons of green waste every year. In the North County, the material is transformed into compost by Engel and Gray. On the South Coast, the material is turned into mulch. This converted waste is able to find a new home in local gardens, orchards, farms, and vineyards.

Measure WR 1

2020 GHG Reduction
19,020

2035 GHG Reduction
31,560

Responsible Department(s)
Public Works

Co-Benefits

The Public Works Department, in collaboration with the Cities of Santa Barbara, Goleta, Solvang, and Buellton, is proposing to develop the Resource Recovery Project that would process municipal solid waste currently disposed at the County-owned and -operated Tajiguas Landfill. The processing of waste would include diverting over 98% of organics and over 90% of recyclables still being buried at the landfill. Currently, the diversion rate for the county (North and South County) is approximately 73%. This project provides the opportunity to bring it closer to 85%.

Increased Recycling Opportunities (WR 2)

Measure – Seek additional opportunities for county residents to recycle cardboard, glass, paper, and plastic products.

Increasing recycling and expanding the ways in which residents can recycle will aid in waste reduction throughout the county.

Measure WR 2

2020 GHG Reduction
16,360

2035 GHG Reduction
27,150

Responsible Department(s)
Public Works
Planning and Development
Community Services

Co-Benefits

Action Items:

1) Consider amending the zoning ordinance to require all public and private events subject to a temporary use or special event permit to implement a waste management plan that meets County approval for providing recycling and composting opportunities at such events.

2) Implement the Resource Recovery Project's centralized processing facility for waste, or other mechanism for increasing the diversion rate.

3) Consider addition of new materials to comingled recyclable materials as markets develop.

Construction and Demolition Waste Recycling (WR 3)

Measure – Increase the recycling and reuse of construction waste to reduce energy consumption associated with extracting and manufacturing virgin materials.

By reusing materials that have already been made, the County can avoid the energy-intensive process of creating new building materials, while also reducing the waste produced by the single use of such materials.

Measure WR 3

2020 GHG Reduction
10,330

2035 GHG Reduction
17,140

Responsible Department(s)
Public Works
Planning and Development

Co-Benefits

Action Items:

1) Continue to require all demolition projects requiring a discretionary permit to implement a viable recycling plan that meets County approval and includes provisions to maximize recycling of asphalt, concrete, and equipment, and to minimize disposal of wastes into hazardous waste and solid waste management facilities to the maximum extent feasible.

2) Continue to promote the reuse of

construction waste by educating the public about material reuse facilities and programs.

3) Maintain and update as needed guidelines for managing construction-generated wastes.

4) Continue to encourage asphalt removal from roads and paved structures to be recycled to the maximum extent feasible for all projects.

4) Continue to encourage the use of recycled materials in roadway and paved surface construction to the maximum extent feasible for all projects.

Landfill Disposal Reductions (WR 4)

Measure – Reduce or minimize GHG emissions from waste materials deposited into landfills.

Landfills are a large producer of GHGs, and implementing best management practices at these facilities could lead to the capture of GHGs in certain areas around the county.

Action Items:

1) Continue to implement and promote programs for waste reduction, reuse, and recycling, including backyard composting program, green waste collection and mulch program, and the County's new Food Forward program to reduce commercially generated food waste.

2) Continue to develop programs and facilities, such as the Resource Recovery Project, that target the diversion and recycling of organic waste, which is the primary cause of methane gas production at landfills.

Measure WR 4

2020 GHG Reduction
870

2035 GHG Reduction
1,300

Responsible Department(s)
Public Works

Co-Benefits

Clean Waste Collection Vehicles (WR 5)

Measure – Reduce GHG emissions from waste collection vehicles through the use of alternative fuels.

Implementing alternative fuels throughout the waste collection fleet of vehicles in Santa Barbara County will aid in the reduction of GHG emissions.

Action Items:

1) Continue to require the installation of particulate filters on pre-2007 waste collection vehicles to reduce particulate emissions. Older trucks that are not good candidates for retrofit should be phased out of operation.

Measure WR 5

2020 GHG Reduction
730

2035 GHG Reduction
810

Responsible Department(s)
Public Works

Co-Benefits

2) Continue to require alternative-fuel vehicles in all contracts with waste haulers, per existing waste hauler franchise agreements.

4-12. Agriculture

Goal: To promote science-based and economically sound strategies to lower greenhouse gas emissions from agricultural production.

Agriculture is another GHG emissions source to be considered and quantified at local, state, and federal levels. The County recognizes that agriculture is one of its most important resources and critical economic drivers in the county. The County encourages application of science-based strategies that emerge from field and laboratory studies and supports dissemination of these strategies through agencies including Natural Resource Conservation Service, Cachuma Resource Conservation District (CRCD), and University of California Cooperative Extension (UCCE). The County will seek funding for strategies proven to lower GHG emissions that may not economically benefit agriculturalists recognizing that preserving agriculture provides a public benefit by maintaining ecosystem services and providing food safety.

The inventory of local GHG emissions from agricultural 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, measures, and reduce local GHG emissions. These measures provide an

opportunity for the County to recognize and support ongoing efforts and to facilitate future activities to the extent practicable.

Local Food Programs (AG 1)

Measure – Increase local food production and distribution.

Increasing local food production will not only help to bolster the local economy but will also help reduce GHG emissions. Supportive measures do not produce direct, measurable GHG reductions. GHG emission reductions from supportive measures are not tracked, quantified or relied upon to meet the ECAP's reduction target.

Action Items:

1) Pursue funding to research and identify education and outreach opportunities to support and enhance local food programs.

Measure AG 1

2020 GHG Reduction
N/A

2035 GHG Reduction
N/A

Responsible Department(s)
Planning and Development
UCCE/Agricultural Commissioner

Co-Benefits

The Cachuma Resource Conservation District (CRCD) works with local landowners and groups throughout the County to conserve and improve natural resources such as water, soil, and habitat. Projects are often related to water quality, irrigation and nutrient management, agricultural community education and outreach, and habitat restoration.

Agricultural Conservation Practices (AG 2)

Measure – Promote the use of science-based agricultural practices.

Responsible agricultural practices can help to both conserve natural resources and reduce GHG emissions produced via agriculture. Supportive measures do not produce direct, measurable GHG reductions. GHG emission reductions from supportive measures are not tracked, quantified or relied upon to meet the ECAP's reduction target.

Action Item:

1) Research, identify, and pursue funding for organizations such as the UCCE and CRCD that have the capacity to develop and disseminate voluntary agricultural management practices and contribute to funding voluntary implementation of those practices.

Measure AG 2

2020 GHG Reduction
N/A

2035 GHG Reduction
N/A

Responsible Department(s)
Planning and Development
UCCE/Agricultural Commissioner

Co-Benefits

Agriculture Equipment (AG 3)

Measure – Work with the SBCAPCD to increase the use of alternatively-fueled equipment in agricultural operations through education, incentives, or revisions to existing regulations.

Incorporating agricultural equipment that runs on alternative fuel into the existing fleet will help in the reduction of GHGs throughout the county.

Action Items:

1) Continue to support the SBCAPCD's participation in the Carl Moyer Program to provide rebates for retrofitting or replacing off-road equipment.

2) Encourage the use of non-fuel alternatives for vegetation management.

Measure AG 3

2020 GHG Reduction
5,800

2035 GHG Reduction
8,930

Responsible Department(s)
SBCAPCD
Agricultural Commissioner

Co-Benefits

Energy-Efficient Agriculture Operations (AG 4)

Measure – Increase agriculture-related energy conservation through appropriate technology.

Integrating BMPs into agricultural operations can help conserve natural resources. Supportive measures do not produce direct, measurable GHG reductions. GHG emission reductions from supportive measures are not tracked, quantified or relied upon to meet the ECAP's reduction target.

Action Items:

1) Pursue funding sources and/or provide seed funding for local organizations such as UCCE and CRCD to research and identify opportunities to encourage landowners to participate in voluntary energy conservation programs through the provision of incentives.

Measure AG 4

2020 GHG Reduction
N/A

2035 GHG Reduction
N/A

Responsible Department(s)
UCCE/Agricultural Commissioner
Public Works

Co-Benefits

Agriculture Irrigation Improvements (AG 5)

Measure – Continue to support the programs of the USDA Natural Resource Conservation Service, Resource Conservation Districts, UCCE/Farm Advisor, utility companies, and others that address efficient irrigation because of its associated energy benefits.

Improving irrigation can help to conserve water throughout the county, which is especially important in the dry climate of Santa Barbara County as well as in times of drought.

Measure AG 5

2020 GHG Reduction
1,660

2035 GHG Reduction
2,300

Responsible Department(s)
UCCE/Agricultural Commissioner
Planning and Development

Co-Benefits

Action Items:

1) Support the voluntary installation of energy-efficient irrigation systems and other energy conservation system devices.

2) Evaluate potential efficiency improvements in agriculture-related groundwater delivery.

3) Investigate funding sources and mechanisms such as grants, mitigation tools, and other options to offset the costs of installing efficient irrigation.

Agriculture Protection and Preservation (AG 6)

Measure – Facilitate the increased use of policies to protect carbon-sequestering environments and to support local resource-based industries.

Carbon-sequestering environments can help to mitigate GHG emissions by acting as a local carbon dioxide "sink." Supportive measures do not produce direct, measurable GHG reductions. GHG emission reductions from supportive measures are not tracked, quantified or relied upon to meet the ECAP's reduction target.

Measure AG 6

2020 GHG Reduction
N/A

2035 GHG Reduction
N/A

Responsible Department(s)
UCCE/Agricultural Commissioner
Planning and Development

Co-Benefits

Action Items:

1) Support development of carbon sequestration programs.

2) Support development of a GHG credit system.

3) Support the County's Agricultural Preserve Program.

4) Investigate establishing a mitigation fund for open space easements.

4-13. Water Efficiency

Goal: To increase the efficiency of water use to reduce energy consumption associated with various phases of using resources (pumping, distribution, treatment, heating, etc.).

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 for both reducing energy-related water use and preparing for times of water shortages. This section analyzes the energy use related to water through new construction and existing development. Implementing water conservation in existing and new development through water-efficient features and native drought-tolerant landscaping will ensure that communities will help maintain a consistent water supply.

Water Conservation Programs (WE 1)

Measure – Decrease energy use associated with pumping, distribution, heating, and treating of water and wastewater.

Conservation programs will help to reduce water use and its associated energy use.

Action Items:

1) Continue to provide resources for water-efficient plumbing fixture retrofit programs.

2) Encourage and assist in the use of water-efficient technologies in the residential, commercial, and industrial sectors.

3) Increase coordination and streamline standards or regulations with local water districts that serve unincorporated areas of the county to improve water efficiency.

Measure WE 1

2020 GHG Reduction
290

2035 GHG Reduction
430

Responsible Department(s)
Public Works

Co-Benefits

4) Identify per capita water use baselines from water purveyors to determine the need for more indoor and outdoor conservation and rebate programs.

5) Encourage water conservation before development of new water resources.

Water-Efficient Building and Landscape Standards (WE 2)

Measure – Maximize end-user water efficiency by encouraging the implementation of prescriptive or performance measures included in the California Green Building Standards Code (CALGreen) in all new and existing development.

Meeting (or exceeding) the measures detailed in CALGreen will aid in the reduction of water use throughout the county.

Action Items:

1) Encourage the installation of dual plumbing for greywater systems in new and existing buildings.

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

Measure WE 2

2020 GHG Reduction
20

2035 GHG Reduction
50

Responsible Department(s)
Public Works
Planning and Development

Co-Benefits

emPower promotes water efficiency improvements and refers customers to WaterWise.

Water-Efficient Landscaping (WE 3)

Measure – Increase the use (per Government Code Section 65590, Article 10.8) of native or drought-tolerant landscaping and smart irrigation technologies in new and renovated developments and at public parks and facilities.

Implementing drought-tolerant techniques will be highly beneficial in Santa Barbara County, as droughts occur with regularity in the region.

Action Items:

1) Encourage native or drought-tolerant landscaping and smart irrigation technologies while discouraging hardscape in all new and existing developments.

2) Provide informational resources on

Measure WE 3

2020 GHG Reduction
270

2035 GHG Reduction
460

Responsible Department(s)
Public Works
Planning and Development

Co-Benefits

water purveyors' incentives for installing native or drought-tolerant landscaping and smart irrigation technologies.

3) Continue to require proposed projects to reduce outdoor water use in new landscapes through compliance with the California Water Conservation in Landscaping Act.

4) Facilitate the availability and use of recycled water in outdoor landscaped areas, and explore additional markets and opportunities for use of recycled water.

5) Encourage the installation of turf on no more than 20% of the total site area on parcels 1 acre or less and 20% of landscaped areas on parcels greater than 1 acre.

6) Promote the treatment of stormwater runoff on-site through the installation of rain gardens, green roofs, and rain barrels.

7) Continue to investigate funding opportunities for water efficiency improvement projects.

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V. County Government Operations: Energy and Greenhouse Gas Reductions

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V. County Government Operations: Energy and Greenhouse Gas Reductions

The County of Santa Barbara (County) recognizes that local government can play a significant role with respect to state and national policy efforts addressing the effects of greenhouse gas (GHG) emissions. In March of 2009, the Santa Barbara County Board of Supervisors (BOS) adopted Resolution 09-059, which committed the County to take immediate, cost-effective, and coordinated steps to reduce the County's collective GHG emissions in order to protect its communities from the effects of climate change and implement programs to comply with the State of California's GHG reduction goals.[1] The Resolution maintains that the benefits of creating a coordinated plan (with measurements, evaluation, and reporting requirements) to reduce GHG emissions can outweigh the costs. As a producer and regulator of GHG reduction efforts, the County is providing leadership across the region by implementing a multi-pronged strategy to reduce GHG emissions.

5-1. Sustainability Action Plan

In September of 2009, the BOS directed the General Services Department to develop the Sustainability Action Plan (SAP, Plan) for County operations. The SAP, along with the Energy and Climate Action Plan (ECAP), will address the County's role as a producer of GHG emissions, and as a regulator of community wide production of GHG emissions.

Developed in 2010, the SAP addresses the first role: that of a producer of GHG emissions. The Plan places a strong focus on energy efficiency in its own municipal operations. The County, like many local governments, has a diverse organization with numerous departments responsible for the various aspects of operations. Due to the many overlapping uses of energy among the County's 24 departments, the SAP evaluates eight primary types of energy consuming groups versus each individual department to illustrate the different ways the County is working to save energy now as well as provide sample projects for the County's future consideration in its efforts to save money and protect the environment. These groups include:

- Building Energy
- Landfill Generation
- Mobile Workforce
- Resource Recovery
- Vehicle Fuels
- Grounds Management & Sequestration

[1] State climate change legislation of local significance includes AB 32, SB 97, and SB 375.

- Public Works Infrastructure
- Printing & Reprographic

In evaluating these eight groups, the SAP determines the location and type of energy that is being used throughout the County, as well as the amount of GHG emissions emitted, as a whole, by all County departments. A GHG emissions inventory was conducted to identify and quantify the sources of emissions generated as a result of the County governmental operations. The inventory served two purposes:

1. To construct an emissions baseline against which the County government can establish immediate emissions reduction targets and quantify future progress.

2. To document where the greatest percentages of emissions are generated in the County's internal governmental operations, and thereby identify the greatest opportunities for reductions in emissions.

To separately account for direct and indirect emissions, to improve transparency, and to provide utility for different types of climate policies and goals, the California Air Resources Board (CARB) — Local Government Reporting Protocol developed a reporting structure based around major categories. **Table 5-1** identifies the categories relevant to County government operations and their emissions. The emission inventory does not include Scope 3 emissions from employee business travel, production emissions of goods used by government operations, or emissions generated by contracted services. The baseline GHG emissions in 2008 for County government operations are 134,003 metric tons of carbon dioxide equivalent ($MTCO_2e$).

The Plan also identifies past, current, and future technologies and approaches to reduce GHG emissions and reduce energy use. The inventory and identified technology and approaches represent the first step to reduce the County's emissions, reduce costs, increase efficiencies, and be more resourceful in its energy use and transportation and waste management practices.

Table 5-1. County Government Operations and Associated Emissions

Emission Category	$MTCO_2e$
Buildings & Facilities	64,978
Street Lights & Traffic Signals	2,949
Wastewater Facilities	7,573
Vehicle Operations	9,797
Solid Waste Facilities	9,797
Other Fugitive Emissions	11,941
Total	134,003

To learn more about the SAP, please visit:
http://longrange.sbcountyplanning.org/programs/climateactionstrategy/docs/Appendix%20A.pdf

5-2. Energy Action Plan

In 2013, the General Services Department developed the Energy Action Plan: Efficient Electricity Use in County Facilities (EAP) to establish goals for electricity reduction by identifying actual electricity-efficiency projects at County facilities, with a primary focus on electricity consumption. The EAP leverages the efforts of the SAP by defining specific projects and their associated cost and electricity savings that can be implemented throughout the County, particularly since electric energy is a major component of reducing GHG emissions and has a direct effect on most of the emissions categories established by the County's GHG emissions inventory.

The EAP provides analysis into energy efficiency opportunities projected across the County's entire portfolio of facilities in order to establish the following metrics:

- A 25% electricity reduction goal by 2020, using a 2008 baseline, which is reasonably attainable;
- Potential electricity-efficiency projects that can apply to the County facility portfolio and contribute to the electricity reduction goal;
- Cost and payback analysis to implement projects, taking into account electricity cost savings and applicable incentives/rebates;
- Milestones for prioritizing projects to reach the established goal by 2020; and
- Implementation and funding strategies to successfully reach the adopted electricity reduction goal.

Establishing an independent baseline and reductions target specifically for electricity consumption allows the County to understand opportunities for electric energy savings that can later be translated into GHG emissions projections.

The EAP sets a goal of a 25% reduction in energy consumption from the 2008 baseline. The result is a reduction in electricity consumption of 6,027,060 kWh, or GHG emissions savings of approximately 1,733 $MTCO_2e$.

The EAP is a long-term planning document with the purpose of establishing goals for electrical usage reduction and serves as a catalyst for energy-related projects that will provide tangible benefits to residents and workers in the following ways: reduced electricity costs; reduced pollution and fossil fuel usage; less vulnerability to changes in electricity cost, availability, and reliability; and increased benefits to the private sector through energy-related projects. The EAP will also garner cooperation, information sharing, and the development of best practices for other counties and cities throughout California.

To learn more about EAP, please visit:
http://longrange.sbcountyplanning.org/programs/climateactionstrategy/climateaction.php

5-3. The Benchmarking Policy

In 2013, the County created a Benchmarking Policy as a component of the SAP that serves as a decision making tool to identify energy reduction projects that will be implemented between 2013 and 2020. The benchmarking policy will enable the County to understand the relative energy efficiency of buildings or campuses owned and operated by the County, set energy savings goals, and regularly evaluate progress. The policy leverages the U.S. Environmental Protection Agency's (EPA) Energy Star Portfolio Manager Software as the policy's main implementation tool and requires the County to benchmark every year. Benchmarking provides a means of measuring progress on a building level towards the County's energy, utility bill reduction and GHG goals, and of prioritizing efficiency opportunities that best achieve the County's goals. Benchmarking will be used to:

- Inform the County about the relative energy performance of its facilities;
- Provide a methodology to support future energy performance measurement and management initiatives; and
- Inform the ongoing development of energy and environmental policies and programs in Santa Barbara County.

Benchmarking sets the criteria for developing policies and procedures that will result in more efficient use of County resources and provide direction for cost savings. Benchmarking also provides the reference points necessary to evaluate the progress towards the County's energy and greenhouse gas reduction goals, and compares that to other similar facilities throughout the County.

5-4. 2014 Sustainability Progress Report

This 2014 Sustainability Progress Report (SPR) is an update to the 2010 SAP and provides: 1) an overview of the County of Santa Barbara's sustainability goals and accomplishments and 2) details the Zero Net Energy (ZNE) Resolution.

Zero Net Energy (ZNE) Resolution

Zero Net Energy (ZNE) applies to any building that produces as much energy as it uses. On an annual basis, a ZNE building will consume as much energy as it produces from renewable sources while maintaining an acceptable level of service and functionality. ZNE buildings can exchange energy with the power grid as long as the net energy balance is zero on an annual basis.

In September 2008, the California Public Utilities Commission (CPUC) adopted California's first Long Term Energy Efficiency Strategic Plan for the years 2008 through 2020. The Strategic Plan includes several big, bold energy efficiency strategies to guide market transformation efforts in the state of California. These strategies include the following goals:

- All new residential construction in California will be Zero Net Energy by 2020; and
- All new commercial construction in California will be Zero Net Energy by 2030.

To implement ZNE facilities and reduce water consumption, the County must implement four actions:

1. Improve its facilities' energy efficiency;
2. Train staff how to be energy conscious;
3. Generate renewable energy; and
4. Report on energy usage.

The actions identified in the SPR focus on the reduction of the County's facility energy consumption, transportation energy consumption, and landfills, and the conservation of County resources and other sustainability activities. The actions benefit all inhabitants of the County by improving the community's health, reducing public costs, and creating a cleaner and healthier environment for all.

To learn more about SPR, please visit:
http://longrange.sbcountyplanning.org/programs/climateactionstrategy/climateaction.php

5-5. Governmental Facilities & Operations Measures

Goal: Provide for cost-effective and efficient use of energy in the facilities and operations owned by the County of Santa Barbara to reduce operating costs, mitigate adverse environmental impacts, and set a good example in the community.

As discussed earlier with the SAP and SPR, the County has identified a number of measures that will assist in GHG reduction. When combined with the emissions reduction measures (ERMs) identified in Chapter IV, these measures will help the County to meet its community-wide GHG reduction goal.

i. Energy Efficiency and Retrofits, Education, and Financing (GO 1)

Measure – County facilities shall be retrofitted and designed to improve energy efficiency, particularly where a reasonable return on investment can be realized. Promote energy conservation through educational and competition-based programs and expand efforts to finance energy efficiency projects.

Action Items:

1) Implement the Energy Action Plan (EAP) with the goal of a 25 percent reduction in electricity use in County facilities by 2020. Aim for a 75 percent reduction by 2035; the increase is in support of the County's Zero Net Energy Resolution.

2) Audit all County Facilities to identify and prioritize potential energy-efficient improvements.

3) Implement the Benchmarking Policy and use energy usage data to track energy use by building/campus and help prioritize buildings for energy-efficient improvements.

The County adopted a Benchmarking Policy in 2013 that will allow County buildings to systematically be benchmarked according to the federal ENERGY STAR building benchmarks standards as County building data is collected and analyzed.

4) Use the Utility Manager System (Energy CAP software) to evaluate energy usage per building (select buildings), identify

Measure GO 1

2020 GHG Reduction
2,260

2035 GHG Reduction
6,000

Responsible Department(s)
General Services

Co-Benefits

In January 2015, the Board of Supervisors adopted the Santa Barbara County Commissioning and Retro-Commissioning Policy for County-owned facilities. This policy will ensure that all new applicable County construction and major renovation projects are commissioned prior to occupancy/operation; existing County buildings will be assessed on an ongoing basis for suitability to be retro-commissioned and/or re-commissioned; and the commissioning process becomes an integrated function of the County's facility construction and management team's budgets and regular activities. The Policy calls for the retro-commissioning of existing buildings: the County's nine largest buildings within five years of Policy implementation, and 20 percent of the remaining buildings every year thereafter. The Policy requires that all County-owned and -operated buildings report energy generation and utility consumption through the County's Utility Manager System. California Green Building Standards Code (Title 24 Part 11) and the California Energy Code (Title 24, Part 6) form the basis for the County's minimum requirement for the commissioning of County-owned and operated buildings.

"normal" usage patterns, and take action when anomalies take place.

5) Continue to retrofit governmental facilities with energy-efficient equipment and designs including: efficient lighting, dual pane windows, efficient HVAC systems, weatherization, and solar designs.

6) Continue South County Energy Efficiency Partnership training of County Facility Maintenance staff members to become "Certified Building Operators."

7) Continue to expand efforts to finance greater energy-efficiency of County facilities and operations where a reasonable return on investment can be realized.

The County's Commissioning and Retro-Commissioning Policy directed staff to develop a methodology of funding the retro- and re-commissioning services for existing buildings for inclusion in the 2016-17 County Budget process.

8) Continue to partner with utility providers to take advantage of rebates or programs funding energy efficiency. Rebates on energy projects shall be reinvested into the utility Internal Service Fund to complete additional energy efficiency projects.

9) Consider pursuing third party Power Purchase Agreements (PPA) as a means to procure "green power" from Renewable Power Generating (RPG) Systems using a collaborative procurement process.

10) Continue to promote energy conservation through education and competition-based programs, such as by:

a. Continuing to investigate opportunities to hold competitions among County departments or facilities to conserve energy. The County is considering holding a competition among the Fire Stations. If that competition is successful, then competitions will be held among other County departments.

b. Continuing to incorporate demonstration and energy conservation education into County facilities improvements such as by providing information on energy generation and greenhouse gas offsets on project web pages.

Below is a list of some of the actions the County has already taken, with corresponding information from General Services:

a. Since 2008, five County buildings (Rooky Nock Park Office, La Morada, Goleta Transition Homes at Fire Station 11, and the Battered Women's Shelter) have been upgraded with energy-efficient windows, insulation, and appliances.

b. Since 2008, County buildings have been retrofitted with energy-efficient lighting, HVAC units, and/or elevators; The retrofits in these buildings include the following: Hall of Records (electricity savings of 156 kWh), San Antonio Building, Fire Station, Aero Squadron in Santa Ynez (electricity savings of 40,039 kWh), Election Division, Santa Barbara Veterans Memorial building (electricity savings of 29,022 kWh), Santa Barbara Mural Room (electricity savings of 8,078 kWh), Building 3 on the Calle Real Campus, Administrative Building Elevators (electricity savings of 108,152 kWh), Betteravia Building C HVAC units (electricity savings of 210,292 kWh), and Social Services Santa Barbara Building HVAC units (electricity savings of 287,954 kWh).

c. Filtration motors for the swimming pools at Lake Cachuma were replaced with energy-efficient motors.

d. Between 2008 and 2013, additional energy-efficient measures taken at County facilities include: installing Energy Star compliant computers, printers, and monitors; installing motion detectors at workstations to power off computer and lights when not in use; de-lamping or removal of excess lighting in areas where bright lighting is not required; installing energy efficient electrical devices on vending machines; installing photocell sensors for night lighting; installing a variable-Frequency Drive at the County Courthouse Cooling Tower; and replacing incandescent bulbs with CFLs or LEDS; replacing T12 fluorescent lighting with energy-efficient T8 lighting; and replacing of exit signs with energy-saving LED signs. These projects provided electricity savings of 1,815,708 kWh.

e. In 2013 and 2014, the County upgraded

c. A website will be created to publish the energy consumption characteristics of County facilities and provide information for staff to develop energy consumption reduction strategies.

ii. Zero Net Energy (GO 2)

Measure – In 2014, the County Board of Supervisors adopted a Zero Net Energy (ZNE) Resolution as part of the County's Sustainability Progress Report (SPR). All new Santa Barbara County-owned facilities and major renovations beginning design after 2025 must be constructed as ZNE facilities with an interim target for 50 percent of new facilities beginning design after 2020 to be ZNE. Santa Barbara County departments shall also take measures toward achieving ZNE for 50 percent of the square footage of existing County-owned facilities by 2025 and the remaining 50 percent by 2035. This measure is working in conjunction with GO 1.

Action Items:

1) Improve facilities' energy efficiency: All new energy-consuming equipment installed in County facilities shall be highly efficient.

2) Train staff how to be energy conscious: A website will be created to publish the energy consumption characteristics of County facilities and will provide information for staff to develop energy consumption reduction strategies.

3) Generate renewable energy: The ongoing policy for County-owned facilities shall require new construction, heavily renovated buildings, and buildings undergoing roof replacement to install renewable energy systems and/or install appropriate conduit (electrical and/or plumbing) and supports for viable renewable energy installation.

4) Report on energy usage: Energy reporting software is utilized to track energy use for the County's buildings. The reporting software will interlink the County's existing facilities maintenance software and sub-metering software systems, allowing County staff to make regular improvements to the way County building operations are performed based on real-time data.

lighting at twenty-three facilities and saved an additional 249,149 kWh.

f. Two future energy efficiency projects are funded: 1) LED Project 1 would add approximately 161,000 kWh of power by Spring 2015 and 2) LED Project 2 would add approximately 314,000 kWh of power by December 2015.

Measure GO 2

2020 GHG Reduction
970

2035 GHG Reduction
930

Responsible Department(s)
General Services

Co-Benefits

Below is a list of some of the photovoltaic (PV) systems that the County has installed.

a. In 2012, the County installed a 1 MW Solar PV Renewable Energy Power Generation Plant at its County Calle Real/San Antonio Campus. The project has generated over 2 million kWh to help power the County Jail, Sheriff Administration, 911 Call Center, Public Health Hospital, Public Health, Administration, Mental Health Hospital, Mental Health Administration, Agricultural Commissioner, Environmental Health, Veteran Hospital, Elections Office, and Clerk Recorder Assessor buildings. The greenhouse gas emissions savings from this project are 1.6 million pounds of CO_2e per year.

b. In 2012, the County installed a 1 MW Solar PV Renewable Energy Power Generation Plant at the Laguna Sanitation District. The PV system generates an additional 1,786,628 kWh

iii. Fuel-Efficient and Alternative Fuel Vehicle Fleet (GO 3)

Measure – The County shall purchase fuel-efficient and alternative fuel vehicles for the County fleet, to the maximum extent feasible.

Action Items:

1) Aim to increase the number of fuel-efficient and alternative fuel vehicles (i.e. hybrids and electric vehicles) such that 5% of the County's fleet are alternative fuel vehicles by 2020, increasing up to 20% by 2035. This assumption assumes that purchases would be for replacement vehicles, rather than additions to the fleet.

2) Continue to facilitate the establishment of fueling and recharging centers for County alternative fuel vehicles.

The County currently has 9 stations with a total of 20 chargers, with plans to add 3 more stations with 6 chargers and 2 fast chargers in 2015. Some of the stations are open for public use.

3) Continue use of re-refined oil in County vehicles and the purchasing of flex-fuel vehicles.

In 2001, the County purchased the first of its hybrid vehicles. Since then, as part of the Green Fleet Management Plan, the County has been transitioning from conventional gasoline-powered vehicles to hybrid-powered vehicles and has included 18 hybrid-powered vehicles, four electric vehicles, and seven neighborhood electric vehicles.

iv. Commute Trip and Fuel Use Reductions (GO 4)

Measure – The County shall continue to make every effort to meet its Transportation Demand Management (TDM) objectives to reach its designated rate of participation specified in the TDM Ordinance, and to reduce fuel use during business activities.

Action Items:

1) Aim to reduce fuel use during business activities by 10% by 2020 and by 15% by 2035 (compared with forecasted levels). For example, continue the County's ride share program and continue to discourage vehicle idling.

annually for the County and reduces carbon emissions by 1.4 million pounds of CO_2e per year.

c. In 2011, a 38.64 kW Solar PV System was installed at the County's Emergency Operations Center. This system generates approximately electricity savings of approximately 60,000 kWh.

d. In 2011, an 11.97 kW Solar PV System was installed on the Public Works building located at Foster Road.

e. In 2009, a 20.0 kW Solar PV System was installed in the Downtown Isla Vista parking lot.

f. In 2012 and 2013, Solar Photovoltaic System lighting systems were installed on County bike paths, the County Road Yard, and in several County Parks.

Measure GO 3

2020 GHG Reduction
100

2035 GHG Reduction
350

Responsible Department(s)
General Services

Co-Benefits

2) Strengthen the County's telecommuting policy to encourage and support expanded use of telecommuting.

Numerous Departments have telecommuting policies and use webinars for meetings.

3) Continue to provide incentives under the Commuter Benefit Program, such as by offering pre-tax contributions toward eligible commuting expenses, additional vacation accrual for using alternative commuting methods, and free parking for carpools.

4) Investigate changing County hours of operation to provide greater access to the public (before 8 a.m. and after 5 p.m.) while potentially closing County services every Friday or every other Friday.

5) Establish and promote the use of a County bicycle fleet that can be used for County business.

6) Continue to install secured bike racks in new and renovated County facilities and, when feasible, continue to provide bicycle lockers and shower facilities.

Measure GO 4

2020 GHG Reduction
980

2035 GHG Reduction
1,540

Responsible Department(s)
General Services

Co-Benefits

v. Environmentally Preferable Procurement (GO 5)

Measure – The County shall procure products made from recycled materials to the maximum extent possible and as budget constraints allow. (This measure is supportive and not quantified in terms of GHG reductions).

In an effort to promote local economic vitality and sustainability, the County of Santa Barbara supports Local Vendors through its Outreach Program. The goal of the Program is to spend 60% of its discretionary revenue with Local Vendors. In 2013, the County spent approximately $100 million locally.

Action Items:

1) Develop and implement an environmentally preferable purchasing (EPP) policy to purchase recycled content and toxic-free products for County supplies, equipment, and services. The County's Board of Supervisors has directed the County Purchasing Manager to purchase paper and paper products containing recycled materials and to give preference to the suppliers of recycled paper and paper

Measure GO 5

2020 GHG Reduction
N/A

2035 GHG Reduction
N/A

Responsible Department(s)
General Services

Co-Benefits

products, if the bids of these suppliers do not exceed by more than 12% of the cost of the lowest bid or price quoted by vendors offering unrecycled paper or paper products. All bidders shall specify the percentage of recycled paper content in the appropriate space provided in the bid."Recycled paper" means all paper and woodpulp products containing not less than 30% of its total weight of secondary and postconsumer waste and with not less than 10% of its total weight consisting of postconsumer waste.

2) Continue to implement paperless records management and reduce the amount of paper purchased.

vi. Water Efficiency & Conservation (GO 6)

Measure – Reduce water use in County facilities by 20% over forecasted levels by 2020 following SBX7 (the Water Conservation Act of 2009) and by 20% over forecasted levels by 2035.

Action Items:

1) Replace County-maintained turf landscapes (not including park recreational fields or areas) with water-efficient, native landscapes, and demonstration gardens.

2) Continue to retrofit governmental facilities with water-efficient equipment including: water-efficient plumbing fixtures, weather tech irrigation controllers, on-demand water heaters, and waterless urinals.

The County is currently implementing water efficiency retrofitting at certain facilities and proposing to implement it at all facilities, where feasible.

3) Continue to evaluate existing irrigation systems to identify leaks and replace irrigation heads with more efficient fixtures or install drip irrigation if feasible.

Measure GO 6

2020 GHG Reduction
4

2035 GHG Reduction
6

Responsible Department(s)
General Services

Co-Benefits

The County General Services Department and Parks Division assesses, maintains, and repairs existing irrigation systems to minimize water use, including parking lot landscaping, public restrooms and parks, golf courses, and other recreational facilities. Currently, the County Parks Division practices the following water conservation activities: turning off irrigation systems, minimizing water use for irrigation, or using smart irrigation controllers.

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VI. Implementation

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Chapter VI. Implementation

This section contains information regarding implementation and monitoring of the ECAP. The County of Santa Barbara will track ECAP implementation to confirm whether proposed reduction measures are successfully reducing emissions as estimated and planned and to allow potential reevaluation of the reduction measures as may be needed. These monitoring procedures are consistent with the requirements identified in State CEQA Guidelines Section 15183.5(b) for a Qualified GHG Reduction Strategy. The following discussion outlines the steps that Santa Barbara County will take to successfully monitor and implement the ECAP.

6-1. Annual Monitoring and Reporting

- Begin implementation of the ECAP within the first fiscal year of adoption, and conduct annual monitoring and reporting to track progress toward achieving the GHG reduction target.

- Prepare an annual ECAP progress report for review and consideration by the Board of Supervisors, and use the monitoring and reporting tool to assist with annual reports.

- Incorporate the goals, policies, and actions of the ECAP into other County plans, programs, and activities.

- Integrate ECAP monitoring and reporting into the annual reporting process, using the ECAP's monitoring and reporting tool to provide metrics and key data points.

6-2. Update the GHG Emissions Inventory and ECAP

- Update the baseline GHG emissions inventory and ECAP.

- In the calendar year 2017, prepare an inventory for the most recent year with complete available data.

- Update the ECAP no later than the year 2018 to include the GHG inventory prepared in 2017. The ECAP update should also reflect the adoption and implementation of any new technologies, programs, and policies to reduce GHG emissions, and include any amendments to the ECAP if the County finds that individual measures are not achieving the intended GHG reductions.

6-3. Education and Outreach

- Continue to develop and expand collaborative partnerships with community groups and agencies that support ECAP implementation.

- Continue to participate and be a formal member of local and regional organizations that provide tools and support for energy efficiency and conservation, water conservation, renewable energy, alternative transit, GHG emission reductions, climate change adaptation, public information, and other organizations that may contribute to the successful implementation of the ECAP.

- Work closely with nongovernmental agencies and local community groups for ongoing implementation and development of the programs and efforts contained in the ECAP.

- Collaborate with other local jurisdictions to support the implementation of regional GHG reduction efforts.

6-4. Research Grants and Pursue Funding

- Secure necessary funding to implement the ECAP.

- Identify potential grants and other funding sources to implement the ECAP as part of the annual reporting. Pursue local, regional, state, and federal sources of funding as appropriate to support ECAP implementation.

- Integrate implementation of ECAP reduction measures into County department budgets and work plans, the Capital Improvement Program, and other programs and projects.

6-5. ECAP Implementation Tools

i. ECAP Consistency Checklist

County staff will develop an ECAP consistency checklist using the template in **Appendix F** to identify applicable ECAP measures when reviewing ministerial and discretionary projects. This checklist will serve as a tool for County staff to identify required mitigation standards for new projects. The checklist will also help project applicants understand additional voluntary measures that can support Santa Barbara County's sustainability goals. County staff will use the checklist to help encourage optimal development patterns within the unincorporated areas.

The checklist will serve as the summary of project-level standards from the ECAP, acting as a "one-stop shop" for the County for GHG analysis and mitigation under CEQA. The checklist will help ensure appropriate use of the ECAP under CEQA by identifying voluntary and mandatory measures to integrate into the project design or other standards. For discretionary projects seeking to use CEQA streamlining provisions, Santa Barbara County may require measures in this ECAP as mandatory conditions of approval, or as mitigation identified in a mitigated negative declaration or in an environmental impact report, as appropriate, on a project-by-project basis. This will allow the County to ensure that new development will benefit from CEQA streamlining provisions while also assisting the County to implement the measures in the ECAP and achieve its GHG reduction goal.

While the checklist is an important tool to assist County staff with ECAP implementation, staff will use it in conjunction with the monitoring tool (described below) to allow the County to track compliance for projects through the plan review process.

ii. Monitoring Tool

An Excel-based monitoring tool has been developed to support effective monitoring and implementation of the ECAP. This tool allows the County to track its progress in reducing GHG emissions and activity data, including VMT, energy use, and waste generation, using readily available data reports. This tool can be used to collect data, track GHG emissions, and assess the effectiveness of the ECAP measures.

The ECAP consistency checklist, described above, will allow the County to track ECAP measure compliance for development projects, which can be entered into the monitoring tool. Other ECAP measures that are not implemented through plan review, such as energy efficiency behavioral changes or increases in public transit ridership, will need to be estimated or determined from other data sources.

iii. Implementation Matrix

The ECAP implementation matrix presented as **Table 6-1** presents key criteria to guide County staff members as they prioritize and program ECAP measures to achieve GHG reductions. In addition to the estimated GHG reductions and the performance targets necessary to achieve the reductions, the implementation matrix also identifies the following items:

- Responsible County agency
- Applicability
- Time frame

a. Responsible County Agency

While County departments will play various roles in implementing the ECAP, each measure specifically identifies one or two agencies as being directly responsible for the strategy. The following County organizations have responsibility for at least one reduction measure in the ECAP:

- Planning and Development Department
- Community Services Department
- Public Works Department
- Air Pollution Control District
- Agricultural Commissioner's Office

- General Services Department

The principally responsible agency will likely need to work with other departments in the County to successfully implement the measure. Additional participation by stakeholders, partners, and community members is also required to fully implement the GHG reduction strategy.

b. Cost and Savings

See **Appendix D** for information related to potential overall costs and benefits, funding sources, and participant savings and payback periods for certain measures.

c. Applicability

Applicability refers to the type of development that the measure applies to. The measures in the implementation matrix are applicable to one of five development types:

- New development
- Existing development
- New and existing development
- Government operations
- Other (such as other programs or partnerships not directly applicable to any one development type)

d. Time Frame

The implementation time frames for each measure are based on community priorities, local goals, and the availability of technical innovations and resources necessary to support the measure. The time frames presented in the implementation matrix correlate to the following periods, relative to adoption of the ECAP:

- **Ongoing:** Immediate
- **Near-term:** Within 1 years (by 2016)
- **Mid-term:** Within 5 years (by 2020)
- **Long-term:** Within 7 years (by 2022)

It should be noted that actions within each measure may have different time frames. It will be important as part of the implementation process for each responsible agency to prioritize those actions that are most cost-effective (i.e. may have the greatest GHG reductions for the least cost). The time frames that are presented in the matrix below are intended to represent the time it would take to implement each measure overall.

VI. IMPLEMENTATION

Table 6-1. Reduction Measure Implementation Matrix

Measure		GHG Reduction ($MTCO_2e$)		Performance Targets		Responsible Agencies	Applicability	Time Frame
		2020	2035	2020	2035			
LUD 1	Promote infill development.	460	1,050	420 total infill units	910 total infill units	Planning and Development	New development	Long-term
LUD 2	Coordinate office, commercial, industrial, and high-density residential developments with mass transit service and existing or proposed bikeways.	1,240	2,550	508,510 square feet of mixed-use buildings	1,271,280 square feet of mixed-use buildings	Planning and Development	New development	Long-term
LUD 3	Work to increase workforce and affordable housing in Santa Barbara County.	780	1,760	850 affordable housing units	1,820 affordable housing units	Planning and Development; Community Services	New development	Ongoing
T 1	Create new or additional or improve existing car-sharing and ride-sharing programs.	5,770	9,280	8,380 car-share/vanpool participants	10,900 car-share/vanpool participants	Planning and Development; Public Works	New and existing development	Near-term
T 2	Work cooperatively with major local employers and/or Traffic Solutions to offer incentives and services that decrease single-occupant automobile commuting.	3,460	6,810	8,380 car-share/vanpool participants	10,900 car-share/vanpool participants	Planning and Development	Other	Near-term
T 3	Increase the use of alternative-fuel vehicles, and plan for the development of alternative-fuel infrastructure.	1,670	3,650	1,400 EV charging stations	3,500 EV charging stations	Planning and Development	New and existing development	Mid-term
T 4	Enhance alternative and active transportation.	1,330	2,430	65% of residents within ¼ mile of transit, 85% of jobs within ¼ mile of transit	75% of residents within ¼ mile of transit, 90% of jobs within ¼ mile of transit	Planning and Development; Public Works	New and existing development	Ongoing
T5	Complete an integrated bikeway system, linking residences with commercial centers, work locations, schools, parks, and mass transit facilities to be a high priority for promoting the use of the bicycle as a primary mode of transportation.	1,720	2,480	1,060 new bike commuters	1,700 new bike commuters	Public Works	New and existing development	Long-term

Measure		GHG Reduction ($MTCO_2e$)		Performance Targets		Responsible Agencies	Applicability	Time Frame
		2020	2035	2020	2035			
T 6	Improve pedestrian convenience, comfort, and safety.	2,020	3,280	3,260 students using alternative modes	3,390 students using alternative modes	Public Works; Planning and Development	New and existing development	Mid-term
T 7	Reduce vehicle idling through enforcement and education targeted toward commercial vehicle operators, school parents, and government employees.	6,590	13,330	5% reduction in commercial vehicle idling	10% reduction in commercial vehicle idling	Public Works	Other	Ongoing
T 8	Implement traffic signal synchronization technologies or traffic calming measures to reducing idling emissions.	Supportive measure		N/A	N/A	Public Works	New development	Ongoing
T 9	Develop commuter rail connections between employment centers.	2,030	5,560	290 daily train riders	870 daily train riders	Planning and Development	Other	Long-term
BE 1	Increase public energy conservation and awareness.	3,160	4,060	27,840 people participating in education programs	36,170 people participating in education programs	Community Services	New and existing development	Ongoing
BE 2	Incentivize homeowners and commercial and industrial building owners to improve the energy efficiency of existing buildings upon renovation or alteration.	15,480	32,460	4,530 retrofitted homes, 120 retrofitted nonresidential parcels	14,080 retrofitted homes, 200 retrofitted nonresidential parcels	Planning and Development; Community Services	Existing development	Mid-term
BE 3	Increase participation in the Santa Barbara County Green Business Program.	1,960	3,100	100 certified green businesses	150 certified green businesses	Public Works	New and existing development	Ongoing
BE 4	Promote energy efficiency upgrades of buildings, and encourage disclosure of energy use history when nonresidential buildings are leased or sold.	20,670	35,790	6,120 cumulative residential retrofits, 75% of businesses complying with AB 1103	21,416 cumulative residential retrofits, 75% of businesses complying with AB 1103	Planning and Development; Community Services	Existing development	Near-term

Measure		GHG Reduction ($MTCO_2e$)		Performance Targets		Responsible Agencies	Applicability	Time Frame
		2020	2035	2020	2035			
BE 5	Maintain and expand the drought-tolerant and native tree population.	640	1,610	23,000 existing street trees, 35,188,950 square feet covered by street trees	26,000 existing street trees, 39,778,810 square feet covered by street trees	Public Works; Planning and Development	New and existing development	Near-Term
BE 6	Support the local utility providers' implementation of smart grid technology in new and existing residential and nonresidential properties.	3,350	5,620	85% of customers with Smart Meter technology, 50% of Smart Meter customers participating in energy monitoring programs	90% of customers with Smart Meter technology, 75% of Smart Meter customers participating in energy monitoring programs	Planning and Development	New and existing development	Near-Term
BE 7	Increase the use of electric or alternative-fuel lawn and garden equipment through the development of an exchange or rebate program.	50	80	2,690 lawn mowers replaced	4,660 lawn mowers replaced	Planning and Development; Santa Barbara County Air Pollution Control District	New and existing development	Mid-term
BE 8	Implement energy efficiency and green building practices in new and existing developments to exceed the California Green Building Standards Code (Title 24) standards.	2,110	3,010	420 new homes exceeding Title 24, 10 new nonresidential building exceeding Title 24	2,880 new homes exceeding Title 24, 50 new nonresidential buildings exceeding Title 24	Planning and Development; Community Services	New development	Ongoing
BE 9	Assist architects, builders, and others in using state-of-the-art energy technology, design, and spatial orientation for more efficient buildings.	Supportive measure		N/A	N/A	Planning and Development; Community Services	New development	Near-term

Measure		GHG Reduction ($MTCO_2e$)		Performance Targets		Responsible Agencies	Applicability	Time Frame
		2020	2035	2020	2035			
BE 10	Implement best management practices for construction equipment operation.	990	980	90% of projects implementing BMPs	90% of projects implementing BMPs	Planning and Development; Public Works	New development	Near-term
BE 11	Maintain and strengthen the existing training of Planning and Development, Building and Safety Division personnel to remain proficient and consistent in reviewing plans for compliance with the energy code.	Supportive measure		N/A	N/A	Planning and Development; Community Services	Government operations	Ongoing
RE 1	Increase the use of alternative energy technology as appropriate in new and existing development.	1,660	4,790	300 residential renewable energy systems installed, 200 nonresidential renewable energy systems installed	1,050 residential renewable energy systems installed, 500 nonresidential renewable energy systems installed	Community Services; Planning and Development	New and existing development	Near-Term
RE 2	Increase the replacement of existing water heaters with high-efficiency, tankless, or solar water heaters.	40	290	60 solar water heaters installed	420 solar water heaters installed	Planning and Development; Community Services	New and existing development	Ongoing
RE 3	Adopt a policy or program that offers incentives to encourage a switch in electricity generation from fossil fuels to renewable sources through small-scale renewable electricity generation.	1,480	1,220	700 unincorporated county participants in Solarize Santa Barbara	580 unincorporated county participants in Solarize Santa Barbara	Community Services; Planning and Development	New and existing development	Ongoing
RE 4	Promote the use of clean alternative energy production by encouraging development of utility-scale renewable electricity generation facilities.	10,610	25,880	10 mid-sized projects installed to date with average size of 3 MW, 1 MW County Calle Real/San Antonio Campus PV project	25 mid-sized projects installed to date with average size of 3 MW, 1 MW County County Calle Real/San Antonio Campus PV project	Planning and Development; Public Works	Other	Ongoing

Measure		GHG Reduction ($MTCO_2e$)		Performance Targets		Responsible Agencies	Applicability	Time Frame
		2020	2035	2020	2035			
IEE 1	Support legislation for tax credits, grants, loans, and other incentives to assist the public, businesses, and local agencies with the purchase of energy-efficient equipment.	1,710	3,730	25% of industrial facilities to date to install new equipment	50% of industrial facilities to date to install new equipment	Planning and Development; Community Services	New and existing development	Near-term
IEE 2	Increase industrial energy user participation in energy management programs.	310	310	25% participation rate	50% participation rate	Planning and Development	New and existing development	Near-Term
IEE 3	Implement energy efficiency upgrades at industrial facilities through streamlining permit review, providing rebates for audits, and highlighting best practices among similar energy users.	5,910	10,410	50% of facilities audited date, 90% of audited facilities completing renovations	80% of facilities audited to date, 90% of audited facilities completing renovations	Planning and Development	New and existing development	Mid-term
IEE 4	Increase the use of energy-efficient or EnergyStar-rated equipment at new or renovated industrial facilities.	1,050	2,750	10% of additional facilities to upgrade equipment	25% of additional facilities to upgrade equipment	Planning and Development; Public Works;	New and existing development	Long-term
WR 1	Continue to support the programs associated with efficient waste collection and recycling, public school education, and composting.	19,020	31,560	85% diversion rate	95% diversion rate	Public Works	New and existing development	Ongoing
WR 2	Seek additional opportunities for county residents to recycle cardboard, glass, paper, and plastic products.	16,360	27,150	85% diversion rate	95% diversion rate	Public Works; Planning and Development; Community Services	New and existing development	Near-Term
WR 3	Increase the recycling and reuse of construction waste to reduce energy consumption associated with extracting and manufacturing virgin materials.	10,330	17,140	85% diversion rate	95% diversion rate	Public Works; Planning and Development	New development	Ongoing
WR 4	Reduce or minimize GHG emissions from waste materials deposited into landfills.	870	1,300	7.6 million kWh of renewable energy generation	10.4 million kWh of renewable energy generation	Public Works	New and existing development	Ongoing

Measure		GHG Reduction ($MTCO_2e$)		Performance Targets		Responsible Agencies	Applicability	Time Frame
		2020	2035	2020	2035			
WR 5	Reduce GHG emissions from waste collection vehicles through the use of alternative fuels.	730	810	120 vehicles converted	130 vehicles converted	Public Works	Other	Ongoing
AG 1	Increase local food production and distribution.	Supportive measure		N/A	N/A	Planning and Development; UCCE/Agricultural Commissioner	New and existing development	Long-term
AG 2	Promote the use of science-based agricultural practices.	Supportive measure		N/A	N/A	Planning and Development; UCCE/Agricultural Commissioner	Other	Ongoing
AG 3	Work with the SBCAPCD to increase the use of alternatively fueled equipment in agricultural operations through education, incentives, or revisions to existing regulations.	5,800	8,930	35% of tractor equipment to be replaced	50% of tractor equipment to be replaced	Santa Barbara County Air Pollution Control District; Agricultural Commissioner	Other	Long-term
AG 4	Increase agriculture-related energy conservation through appropriate technology.	Supportive measure		N/A	N/A	UCCE/Agricultural Commissioner; Public Works	Other	Ongoing
AG 5	Continue to support the programs of the USDA Natural Resources Conservation Service, Resource Conservation Districts, UC Cooperative Extension/Farm Advisor, utility companies, and others that address efficient irrigation because of their associated energy benefits.	1,660	2,300	270 participating farms	390 participating farms	UCCE/Agricultural Commissioner; Planning and Development	Other	Ongoing
AG 6	Facilitate the increased use of policies to protect carbon-sequestering environments and to support local-resource-based industries.	Supportive measure		N/A	N/A	Planning and Development; UCCE/Agricultural Commissioner	Other	Long-term
WE 1	Decrease energy use associated with pumping, distribution, heating, and treating of water and wastewater.	290	430	125 average community gallons per person per day	118 average community gallons per person per day	Public Works	Existing development	Near-term

Measure		GHG Reduction ($MTCO_2e$)		Performance Targets		Responsible Agencies	Applicability	Time Frame
		2020	2035	2020	2035			
WE 2	Maximize end-user water efficiency by encouraging the implementation of prescriptive or performance measures included in the California Green Building Standards Code in all new and existing development.	20	50	20% water reduction target	20% water reduction target	Public Works	New and existing development	Near-term
WE 3	Increase the use of native or drought-tolerant landscaping and smart irrigation technologies in new and renovated developments and at public parks and facilities.	270	460	20% water reduction for landscaping uses	35% water reduction for landscaping uses	Public Works; Planning and Development	New development	Near-term
GO 1	Energy efficiency and retrofits, education, and financing.	2,260	6,000	25% electricity reduction in government operations, 15% natural gas reduction in government operations	75% electricity reduction in government operations, 20% natural gas reduction in government operations	General Services	Government operations	Ongoing
GO 2	Zero net energy	970	930	4,080,310 kWh produced from solar	7,288,350 kWh produced from solar	General Services	Government operations	Ongoing
GO 3	Fuel-efficient and alternative fuel vehicle fleet	100	350	26 new hybrids, 6 new EVs, 10 new NEVs, and 5% of all new vehicles to be efficient	102 new hybrids, 23 new EVs, 40 new NEVs, and 20% of all new vehicles to be efficient	General Services	Government operations	Ongoing
GO 4	Commute trip and fuel use reductions	980	1,540	10% reduction in emissions from TDM efforts	15% reduction in emissions from TDM efforts	General Services	Government operations	Ongoing
GO 5	Environmentally preferable procurement	Supportive measure		N/A	N/A	General Services	Government operations	Ongoing
GO 6	Water efficiency & conservation	0	10	20% reduction in indoor water use	25% reduction in indoor water use	General Services	Government operations	Ongoing

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VII. 2020 and Beyond

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VII. 2020 and Beyond

7-1. Purpose

In March 2009, the County of Santa Barbara Board of Supervisors (BOS) directed County staff "to take immediate, cost-effective, and coordinated steps to reduce the County's collective GHG emissions."[1] Developed in response to this direction, the County's Climate Action Strategy (CAS) is a two-phase project comprising (1) a Climate Action Study, including a countywide greenhouse gas (GHG) inventory, forecast, and evaluation of potential emission reduction measures (ERMs), and (2) this Energy and Climate Action Plan (ECAP; Plan), which seeks to reduce the County's GHG emissions through implementation of selected ERMs with the goal of achieving a GHG reduction target of 15% below baseline emissions by the year 2020. This Plan will also assist the County with reducing GHG emissions consistent with Assembly Bill (AB) 32.

In addition, the ECAP includes a forecast to 2035, which assumes steady progress after 2020 toward reducing the County's collective GHG emissions, based on continued implementation of the ERMs. Former Governor Arnold Schwarzenegger's Executive Order S-3-05 established the 2050 statewide GHG reduction target of 80 percent below 1990 levels. The state has not yet adopted 2035 targets other than per capita GHG reductions from passenger vehicles through SB 375. The ECAP identifies measures to effectively meet the GHG reduction target for 2020 at a minimum. Attainment and exceedance of the reduction target will require a continued commitment from the County to monitor progress and make plan updates when needed, continued implementation of federal and state mandates, and dedicated residents choosing to take individual actions to be a part of the solution. The County's commitment is demonstrated in the Energy Element in its Comprehensive Plan, which includes a policy that commits the County to monitor progress and update the community-wide GHG inventory at least every five years, along with updates to the ECAP as needed. Similar to the 2020 analysis, the County developed a framework for reducing emissions by 2035 that will work in the context of the unincorporated County. The measures developed for the 2020 scenario were also used in the 2035 scenario, but with increased rates of participation, where appropriate. **Appendix E** includes detailed assumptions for how the 2020 and 2035 scenarios can be achieved. Chapter 4 includes the anticipated GHG reductions in 2020 and 2035 with implementation of the proposed ERMs.

7-2. CEQA and Environmental Review

One of the objectives of the proposed project is to adopt an ECAP that satisfies the requirements of Section 15183.5 of the CEQA Guidelines for a Qualified GHG Reduction Strategy, which provides a process to streamline the review of GHG emissions of specific projects.[2] Under this guideline, lead agencies can use adopted plans consistent with State CEQA Guidelines Section 15183.5(b) to analyze and mitigate the significant effects of GHGs under CEQA at a programmatic level by adopting a plan for

[1] County of Santa Barbara. 2009a.

[2] CEQA (California Environmental Quality Act). 2014. Statutes and Guidelines.

the reduction of GHG emissions. Later, as individual projects are proposed, project-specific environmental documents may tier from and/or incorporate by reference that existing programmatic review in their cumulative impacts analysis.

A key intent of this ECAP is to allow project-specific environmental documents prepared for projects that are consistent with the ECAP to rely on this ECAP's programmatic analysis of GHG through 2020. This approach provides streamlined CEQA analysis of future projects that are consistent with the approved ECAP through 2020. Certain projects, such as stationary industrial sources, are not covered under the ECAP and would be subject to CEQA thresholds and/or project-specific analysis.

The County has prepared a Programmatic Environmental Impact Report (EIR) in compliance with the requirements of CEQA. This EIR finds that the ECAP will have a less than significant environmental impact for all impacts analyzed. The Final EIR for the ECAP analyzed potential environmental impacts to 2020. Beyond 2020, tiering off the ECAP will be subject to further environmental impact analysis and/or plan updates. The implementation program will include plan updates and evaluation of post-2020 targets and emission reduction measures.

The ECAP is consistent with the CEQA Guidelines for a Qualified GHG Reduction Strategy to provide this streamlining benefit for projects that are covered by the ECAP. Specifically, the ECAP identifies an inventory and forecast, reduction measures, and implementation strategies the County will use to achieve the GHG emissions reduction target of 15% below 2007 emissions levels by 2020. This reduction target is consistent with the state's AB 32 goals of achieving 1990 emissions levels by 2020, which is generally interpreted as a 15% reduction below current (2005–2008) emissions levels by 2020.[3] The technical analysis provided in the ECAP identifies the emissions associated with specific actions and sets forth performance standards and indicators to achieve the specified emissions goals. The implementation actions of the ECAP, such as newly adopted ordinances and amendments to the Energy Element of the Comprehensive Plan requiring monitoring and updates at least every five years, further demonstrate the County's commitment to reduce GHG to 2020 and beyond.

[3] AB 32 Scoping Plan.

Appendix A: Glossary

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Appendix A. Glossary

Air Pollutants: Amounts of foreign and/or natural substances occurring in the atmosphere that may result in adverse effects to humans, animals, vegetation, and/or materials.

Assembly Bill 32 (AB 32), California Global Warming Solutions Act of 2006: Establishes a comprehensive program of regulatory and market mechanisms to achieve real, quantifiable, cost-effective reductions of greenhouse gases (GHGs) for the State of California. AB 32 designates the California Air Resources Board as the responsible agency for monitoring and reducing statewide GHG emissions to reduce emissions to 1990 levels by 2020.

Baseline: The quantification of historical energy usage of the building against which to measure energy and/or greenhouse gas emissions performance over time. The baseline can be used to track improvements over time, such as when energy efficiency retrofits or operations and maintenance updates are taken.

Benchmarking: Tracks key energy consumption, energy performance and utility cost information of a building or group of buildings and compares it with other similar structures. Benchmarking can help set action priorities, identify underperforming buildings, verify performance improvements, and earn Environmental Protection Agency recognition for superior energy performance.

Business-As-Usual (BAU): A business-as-usual projections forecasts greenhouse gas emissions without regulatory or technical intervention to reduce greenhouse gas emissions.

California Air Resources Board (CARB): A division of the California Environmental Protection Agency charged with protecting public health, welfare, and ecological resources through the reduction of air pollutants.

California Environmental Quality Act (CEQA): A state law requiring state and local agencies to regulate activities with consideration for environmental protection. If a proposed activity has the potential for a significant adverse environmental impact, an environmental impact report (EIR) must be prepared and certified as to its adequacy before action can be taken on the proposed project. General plans require the preparation of a program EIR.

California Green Building Standards Code (CALGreen): The 2010 California Green Building Standards Code, commonly referred to as the CALGreen Code, is a statewide mandatory construction code that was developed and adopted by the California Building Standards Commission and the Department of Housing and Community Development. 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.

California Solar Initiative (CSI): Allows the California Public Utilities Commission to provide incentives to install solar technology on existing residential, commercial, nonprofit, and governmental buildings if they are customers of the state's investor-owned utilities: Pacific Gas and Electric, San Diego Gas & Electric, or Southern California Edison.

Carbon Dioxide (CO_2): A colorless, odorless gas that occurs naturally in the earth's atmosphere. Significant quantities are also emitted into the air via fossil fuel combustion.

Carbon Dioxide Equivalent (CO_2e): A metric measure used to compare the emissions from various greenhouse gases based on their global warming potential (GWP). The CO_2e for a gas is derived by multiplying the tons of the gas by the associated GWP.

Carbon Sequestration: The process through which agricultural and forestry practices remove carbon dioxide from the atmosphere. The term "carbon sinks" is also used to describe agricultural and forestry lands that absorb carbon dioxide.

Clean Air Act: Requires the Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards for six common air pollutants, known as "criteria pollutants," that are found all over the United States: particle pollution (particulate matter), ground-level ozone, carbon monoxide, sulfur oxides, nitrogen oxides, and lead. The EPA regulates the pollutants by developing human health-based and/or environmentally based criteria (science-based guidelines) for setting permissible levels.

Clean Car Fuel Standards (AB 1493, Pavley): Signed into law in 2002 and commonly referred to as Pavley standards. Requires carmakers to reduce greenhouse gas emissions from new passenger cars and light trucks beginning in 2011. The California Air Resources Board anticipates that the Pavley standards will reduce greenhouse gas emissions from new California passenger vehicles by about 22% in 2012 and about 30% in 2016, all while improving fuel-efficiency and reducing motorists' costs.

Climate Change: The term "climate change" is sometimes used to refer to all forms of climatic inconsistency, but because the earth's climate is never static, the term is more properly used to imply a significant change from one climatic condition to another. In some cases, climate change has been used synonymously with the term "global warming"; scientists, however, tend to use the term in the wider sense to also include natural changes in climate.

Community Choice Energy (CCE): Community Choice Energy (CCE) allows communities to offer procurement service to electric customers within their boundaries. CCE can include developing and owning electric generating resources, such as county owned utility-scale solar plants, but is not required.

Compressed Natural Gas (CNG): A fossil fuel substitute for gasoline, diesel, or propane that can be used in passenger and heavy-duty vehicles.

Conservation: Planned management of a natural resource to prevent exploitation, destruction, or neglect.

Construction and Demolition Waste (C&D): C&D materials consist of the waste generated during the construction, demolition, or renovation of buildings, roads, and other construction projects. C&D materials may include heavy, bulky materials such as concrete, glass, wood, and metal, among other materials.

Easement: A non-possessory right of use and/or entry onto the property of another without possessing it. Frequently used for conservation purposes (also known as a "conservation easement").

Emission Standard: The maximum amount of pollutant legally permitted to be discharged from a single source, either mobile or stationary.

Energy Conservation: Reducing energy waste, such as turning off lights, heating, and motors when not needed.

Energy Efficiency: Doing the same or more work with less energy, such as replacing incandescent light bulbs with compact fluorescent light bulbs or buying an EnergyStar appliance to use less energy for the same or greater output.

Energy Efficiency Standards (Title 24, Part 6): Title 24 standards were first adopted in 1978 and established minimum energy efficiency standards for residential and nonresidential buildings. These standards are updated continually by providing more stringent energy budgets for new buildings in an effort to reduce California's energy consumption.

EnergyStar: A joint program of the Environmental Protection Agency and the US Department of Energy to provide consumers with information and incentives to purchase the most energy-efficient products available.

EnergyStar Portfolio Manager: A secure online interactive energy management tool developed and maintained by the Environmental Protection Agency (EPA) that allows users to assess and track energy and water consumption of commercial buildings or portfolio of buildings, and benchmark energy consumption to the building or to statistical norms. It enables users to track multiple energy and water meters, benchmark facilities relative to past performance, view percent improvement in normalized source energy, monitor energy and water costs, verify building energy performance, and determine energy performance ratings. For some qualifying building types, it also rates the performance of a qualifying building, relative to similar buildings, accounting for the impacts of year-to-year weather variations, building size, location, and several operating characteristics, using the EPA's national energy performance rating system. For the purpose of this benchmarking policy, the EPA's EnergyStar Portfolio Manager tool is the recommended benchmarking tool.

Environment: In the California Environmental Quality Act, "the physical conditions which exist within the area which will be affected by a proposed project, including land, air, water, mineral, flora, fauna, noise, and objects of historic or aesthetic significance."

Environmental Impact Report (EIR): A report required by the California Environmental Quality Act that assesses all the environmental characteristics of an area and determines what effects or impacts will result if the area is altered or disturbed by a proposed action or project. See California Environmental Quality Act.

Environmental Protection Agency (EPA): The EPA, or sometimes USEPA, is an agency of the federal government of the United States charged to protect human health and the environment by writing and enforcing regulations based on laws passed by Congress.

Global Warming Potential (GWP): An index used to translate the level of emissions of various gases into a common measure in order to compare the relative potency of different gases without directly calculating the changes in atmospheric concentrations. Greenhouse gases are expressed in terms of carbon dioxide equivalent. GWPs are expressed in terms relative to carbon dioxide, which has a GWP of 1.

Greywater: Wastewater collected from showers, bathtubs, bathroom sinks, and clothes washing machines that is reused on-site for irrigation purposes.

Green Building: Sustainable or "green" building is a holistic approach to design, construction, and demolition that minimizes the building's impact on the environment, the occupants, and the community. See the California Green Building Standards Code for green building regulations in California.

Greenhouse Gas(es) (GHG): Gases which cause heat to be trapped in the atmosphere, warming the earth. GHGs are necessary to keep the earth warm, but increasing concentrations of these gases are implicated in global climate change. GHGs include all of the following: carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. The majority of GHGs come from natural sources, although human activity is also a major contributor.

Greenhouse Gas (GHG) Inventory: A GHG inventory provides estimates of the amount of GHGs emitted to and removed from the atmosphere by human activities. A city or county that conducts an inventory looks at both community emission sources and emissions from government operations. A base year is chosen and used to gather all data from that year. Inventories include data collection from such things as vehicle miles traveled, energy usage from electricity and gas, and waste. Inventories include estimates for carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, hydrofluorocarbons, and perfluorocarbons, which are referred to as the six Kyoto gases.

Green Waste: Refers to lawn, garden, or park plant trimmings and materials and can be used in home composters or picked up curbside by municipal waste haulers.

LEED: Leadership in Energy and Environmental Design, a standard established by the US Green Building Council.

Low-Carbon Fuel Standard (S-1-07): An executive order from former Governor Schwarzenegger, the Low Carbon Fuel Standard established the goal of reduction the carbon intensity of transportation fuels in California by 10% by 2020.

Low Impact Development (LID): An innovative stormwater management approach with a basic principle to design the built environment to remain a functioning part of an ecosystem rather than exist apart from it. LID's goal is to mimic a site's predevelopment hydrology by using design techniques that infiltrate, filter, store, evaporate, and detain runoff close to its source.

Mixed Use: Properties on which various uses (such as office, commercial, institutional, and residential) are combined in a single building or on a single site in an integrated development project with significant functional interrelationships and a coherent physical design. A single site may include contiguous properties.

Native Species: A species within its natural range or natural zone of dispersal, i.e., within the range it would or could occupy without direct or indirect introduction and/or care by humans.

Nonattainment: The condition of not achieving a desired or required level of performance. Frequently used in reference to air quality.

Nonrenewable Energy: Energy from sources that use a nonrenewable natural resource, such as uranium or fossil fuels (including coal, oil, or natural gas).

Ordinance: A law or regulation set forth and adopted by a governmental authority, usually a city or county.

Ozone: Produced when gases or vapors created by cars, solvents, factories, and pesticides mix and react in the presence of sunlight. This results in certain health effects, such as breathing difficulties, lung damage, coughing, and chest pains.

Property Assessed Clean Energy (PACE) program: Passed as a part of Assembly Bill 811, a voluntary program allowing on-site renewable energy generation and energy efficiency improvements to be financed through property taxes.

Recycled Water: Wastewater from tubs, toilets, and sinks inside homes and offices that is cleaned through a treatment process, producing non-potable water that is safe for landscapes, raw vegetable crops, and agricultural crops.

Reduction Measure: A goal, strategy, program, or set of actions that target and reduce a specific source of greenhouse gases.

Renewable Energy: Energy from sources that regenerate and are less damaging to the environment, such as solar, wind, biomass, and small-scale hydroelectric power.

Renewables Portfolio Standard (RPS): A regulation requiring utility companies in California to increase the production of renewable energy from solar, wind, or biomass, or geothermal sources.

Santa Barbara County Association of Governments (SBCAG): A regional planning agency comprising Santa Barbara County and all eight incorporated cities within the county. SBCAG distributes local, state, and federal transportation funds and acts as a forum for addressing regional and multi-jurisdictional issues.

Santa Barbara County Air Pollution Control District (SBCAPCD): A local government agency that works to protect the people and the environment of the county from harmful effects of air pollution.

Smart Grid: The smart grid delivers electricity from supplies to consumers using two-way digital communications. The smart grid is envisioned to overlay the ordinary electrical grid with an information and net metering system, which includes smart meters. Smart meters will allow consumers to become more aware of their energy use and, in the future, will allow smart grid-enabled appliances to be pre-programmed to operate at a time when electricity use or costs are lowest.

Sustainability: Community use of natural resources in a way that does not jeopardize the ability of future generations to live and prosper.

Sustainable Communities Strategy (SCS): SCS is the outcome of Senate Bill 375, which requires the metropolitan planning organizations to tie land use planning with transportation planning in order to reduce greenhouse gas emissions from passenger vehicles. The adopted SCS sets out a plan to meet Santa Barbara County Association of Government's goal of a zero net increase per capita in greenhouse gas emissions from passenger vehicles by 2020.

Transportation Demand Management (TDM) Plan: A voluntary or mandatory program developed by local agencies, large employers, or high traffic commercial services to limit the amount of congestion and pollution related to transportation demand. TDM plans may include incentives, regulations, and education about transportation alternatives.

Vehicle Miles Traveled (VMT): A key measure of overall street and highway use. Reducing VMT is often a major objective in efforts to reduce vehicular congestion and achieve regional air quality goals.

Volatile Organic Compounds (VOCs): A variety of chemicals with both short- and long-term adverse health effects. VOCs are emitted as gases from a wide array of products, such as paints, lacquers, cleaning supplies, markers, and office equipment and furnishings.

Water Conservation: Reducing water use, which can include turning off taps, shortening shower times, and reducing outdoor irrigation demand.

Zero Net Energy: Buildings with a greatly reduced energy load such that, averaged over a year, 100% of the building's energy use can be met with on-site renewable energy technologies.

Appendix B: Comprehensive Plan Policies

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Appendix B. Comprehensive Plan Policies

Table B-1. Comprehensive Plan Policies Impacted by the ECAP

Policies & Recommendations	Adopted Language	Reduction Category
Agricultural Element		
Policy I.D	The use of the Williamson Act (Agricultural Preserve Program) shall be strongly encouraged and supported. The County shall also explore and support other agricultural land protection programs.	Resource Conservation
Conservation Element		
Energy Recommendation 2	Identify the potential for energy conservation measures and for the promotion of policies to convert to non-fossil fuel energy sources.	Air and Energy
Energy Recommendation 4	Implement an aggressive conservation and alternative energy program for County and public facilities.	Air and Energy
Energy Recommendation 5	Establish on-going public education energy conservation outreach programs.	Air and Energy
Energy Recommendation 6	Actively participate in the energy conservation programs of the local, state, and federal agencies.	Air and Energy
Energy Element		
Policy 2.1	Establish mechanisms and incentives to encourage architects and builders to exceed the energy efficiency standards of the California Building Code (Title 24) in new and existing buildings by implementing energy efficiency measures.	Green Building
Policy 2.2	Assist architects, builders, and others in using state-of-the-art energy technology, design and spatial orientation for more efficient buildings.	Green Building
Policy 2.3	Provide information and education to the general public, businesses, and organizations on the importance of energy conservation, and available programs, products, and incentives regarding energy efficiency and alternatives.	Air and Energy
Policy 2.4	Encourage increased use of passive, solar design and daylighting in existing and new structures.	Green Building
Policy 2.5	The County shall maintain and strengthen the existing training of Planning & Development, Building & Safety Division personnel to remain proficient in reviewing plans for compliance with the energy code	Green Building

Policy 2.6	Encourage homeowners, and commercial and industrial building owners to improve energy efficiency upon renovation of buildings.	Green Building
Policy 2.7	The County shall maintain and expand the tree population to enhance the cooling benefits.	Resource Conservation
Policy 3.1	Enhance opportunities for alternative transportation.	Land Use and Transportation
Policy 3.2	The County should continue to research and support opportunities for telecommunication and computer-based communication that reduce the need for travel.	Land Use and Transportation
Policy 3.3	Reduce vehicular miles traveled and peak traffic trips by encouraging employers to voluntarily prepare and implement a Transportation Demand Management Program for their employees. (This policy is focused at areas not governed by Tier 3 of the TDM Ordinance.)	Land Use and Transportation
Policy 3.4	Encourage coordination of scheduling recreational events (e.g., organized sports, arts and handicrafts for minors) at locations that would reduce recreation-related transportation by automobile	Land Use and Transportation
Policy 3.5	The County shall consider the completion of an integrated bikeway system, linking residences with commercial centers, work locations, schools, parks and mass transit facilities to be a high priority for promoting the use of the bicycle as an alternative mode of transportation.	Land Use and Transportation
Policy 3.6	The County shall improve the convenience, comfort and safety for pedestrians.	Land Use and Transportation
Policy 3.7	Planning efforts shall focus on mixed-use development to reduce vehicular trips, where appropriate.	Land Use and Transportation
Policy 3.8	The County shall coordinate office, commercial and industrial developments with mass transit service and existing or proposed bikeways.	Land Use and Transportation
Policy 3.9	The County shall coordinate high density residential developments with mass transit service and existing or proposed bikeways.	Land Use and Transportation
Policy 4.1	Encourage recycling and reuse of construction waste to reduce energy consumption associated with extracting and manufacturing virgin materials.	Resource Conservation

Policy 4.2	The County shall require adequate areas for collecting and loading recyclable materials in development projects, and shall further address recycling logistics in its zoning ordinance.	Resource Conservation
Policy 4.3	Promote reuse of asphalt removed from roads and paved structures within the county and use of recycled materials in roadway and paved surface construction.	Resource Conservation
Policy 4.4	The County shall procure products made from recycled materials to the maximum extent feasible, and as budget constraints allow.	Resource Conservation
Policy 4.5	The County shall continue to support the programs associated with efficient waste collection and recycling, public school education, and composting.	Resource Conservation
Policy 4.6	The County shall continue to support the programs of the Soil Conservation Service, Resource Conservation District, U.C. Cooperative Extension/Farm Advisor, utility companies, and others that address efficient irrigation because of their associated energy benefits.	Resource Conservation
Policy 4.7	The County shall encourage water purveyors and water customers to continue their efforts to install more efficient options to increase energy benefits associated with reduced pumping, distribution, heating and treatment of water and wastewater.	Resource Conservation
Policy 5.1	In the consideration of alternative energy, the County shall consider the full life-cycle environmental effects and embedded energy requirements to provide such alternative energy. The County shall encourage the use of those alternatives determined to present sufficient environmental benefits.	Air and Energy
Policy 5.2	The County shall encourage the use of alternative energy technology in appropriate new and existing development.	Air and Energy
Policy 5.3	The County shall encourage installation and use of cogenerating systems where they are cost-effective and appropriate.	Air and Energy
Policy 5.5	The County shall continue to investigate means to install methane recovery systems at landfills and sewage treatment plants, where appropriate.	Air and Energy
Policy 5.7	During the regulatory review of a proposed project, when appropriate, use mobile alternative energy projects as mitigation for impacts to air quality.	Air and Energy

Policy 5.8	Support the efforts of transit providers to develop electric shuttle programs.	Land Use and Transportation
Policy 5.9	Encourage electric vehicle recharging infrastructure.	Land Use and Transportation
Policy 5.10	The County shall encourage the use of alternatively fueled vehicles by individuals.	Land Use and Transportation
Policy 5.11	Encourage the use of fuel cells in appropriate new development, consistent with sound community planning principles. Hotels, resorts, condominiums, apartments, governmental and industrial facilities are potential candidates for fuel cells.	Air and Energy
Housing Element		
Policy 6.2	To reduce the negative environmental, economic, and social effects of commuting, the County shall promote the inclusion of affordable housing units as part of residential land use and development	Land Use and Transportation
LUE: Air Quality Supplement		
Policy C	Increase the attractiveness of bicycling, walking, transit, and ridesharing.	Land Use and Transportation
Policy D	Restrict the development of auto-dependent facilities.	Land Use and Transportation
Policy E	Improve the integration of long-range planning and project approval procedures with air quality planning requirements.	Land Use and Transportation

Table B-2. General Services-Related Energy Element Policies

Policy #	Adopted Policy Language
Policy 1.1	The County shall expand its efforts to finance greater energy efficiency of County facilities and operations where a reasonable return on investment can be realized.
Policy 1.2	County facilities shall be retrofitted to improve energy efficiency where improvements offer full return on investment in 5 years or less by way of energy savings.
Policy 1.3	Promote a reduction in artificial lighting, heating and cooling, and other energy use in all new or major remodeling of County structures by using passive solar design and other techniques.
Policy 1.4	The County shall promote purchasing of energy-efficient equipment based on a fair return on investment, and shall use energy-savings estimates as one basis for purchasing decisions for major energy-using devices.

Policy 1.5	The County shall purchase fuel-efficient and alternatively fueled vehicles for the County fleet, to the maximum extent feasible.
Policy 1.6	Promote coordination of new public facilities with mass transit service and other alternative transportation services, including bicycles, and design structures to enhance mass transit, bicycle, and pedestrian use.
Policy 5.4	The County shall use solar photovoltaic equipment in county applications when it is cost-effective on a life-cycle.

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Appendix C: Baseline and Forecasted Community GHG Emissions Inventory

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Baseline and Forecasted Community GHG Emissions Inventory

County of Santa Barbara
Long Range Planning Division

March 2012

Revised August 2012

Revised January 2013

Revised October 2014

Prepared with assistance from:

PMC®

Baseline GHG Emissions Inventory

This baseline greenhouse gas (GHG) emissions inventory (Inventory) update summarizes the preliminary results of an analysis of the County's 2007 baseline GHG emissions. The Inventory acts as a foundation for the County's Energy and Climate Action Plan by informing the County and community of the largest sources of GHG emissions and thus the largest opportunities for GHG reductions. This Inventory focuses on community-wide emissions in the unincorporated Santa Barbara County only and provides a baseline against which future progress can be measured.

PMC conducted this analysis using methodologies recommended by the California Air Resources Board (CARB) and ICLEI-Local Governments for Sustainability, and industry best practices. The Inventory analyzes the following emissions sources:

- Energy – Residential, commercial, and industrial electricity and natural gas consumed in the unincorporated county in 2007.
- Transportation – Vehicle miles traveled (VMT) to, from, or within the unincorporated county in 2007.
- Waste – Methane emissions from waste sent to landfills from the community in 2007.
- Stationary Sources – Direct emissions from industrial, commercial, and office processes in the county that are permitted by the County of Santa Barbara.
- Off-road – Emissions from agricultural, construction, lawn and garden, and other industrial equipment/vehicles.
- Agriculture – Emissions from livestock and from fertilizer application.
- Aircraft – Emissions from operations at Santa Ynez Airport in unincorporated Santa Barbara County.
- Water and Wastewater – The energy required to extract, filter, move, and treat the water consumed and/or treated in the county in 2007.

Inventory Update Purpose

In 2010, the County prepared an inventory of 2007 community-wide GHG emissions for the unincorporated areas of Santa Barbara County. Changes to the regulatory structure since the creation of this initial inventory, including an update to the California Environmental Quality Act (CEQA) Guidelines, have prompted the County to re-inventory emissions from community-wide sources. This Inventory is an updated assessment of GHG emissions in the unincorporated county.

Senate Bill 97, adopted in 2007 by the State of California, directed the Governor's Office of Planning and Research (OPR) to amend the CEQA Guidelines to address greenhouse gas emissions. The revised CEQA Guidelines became effective on March 18, 2010. Per CEQA, local governments may use adopted plans consistent with the CEQA Guidelines to assess the cumulative impacts of projects on climate change, if the adopted plan includes a certified environmental impact report (EIR). In order to benefit from the streamlining provisions of the CEQA Guidelines, a plan for the reduction of greenhouse gas emissions must accomplish the following:

- Quantify greenhouse gas emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area.
- Establish a level, based on substantial evidence, below which the contribution to greenhouse gas emissions from activities covered by the plan would not be cumulatively considerable.

- Identify and analyze the greenhouse gas emissions resulting from specific actions or categories of actions anticipated within the geographic area.
- Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level.
- Establish a mechanism to monitor the plan's progress toward achieving the level and to require amendment if the plan is not achieving specified levels.
- Be adopted in a public process following environmental review.

To create a Qualified GHG Reduction Strategy in compliance with the CEQA Guidelines, the County contracted with PMC to peer review and update the baseline inventory. In the process of completing the Inventory, PMC completed new emissions calculations to use the most up-to-date tools and resources.

2007 Inventory Summary

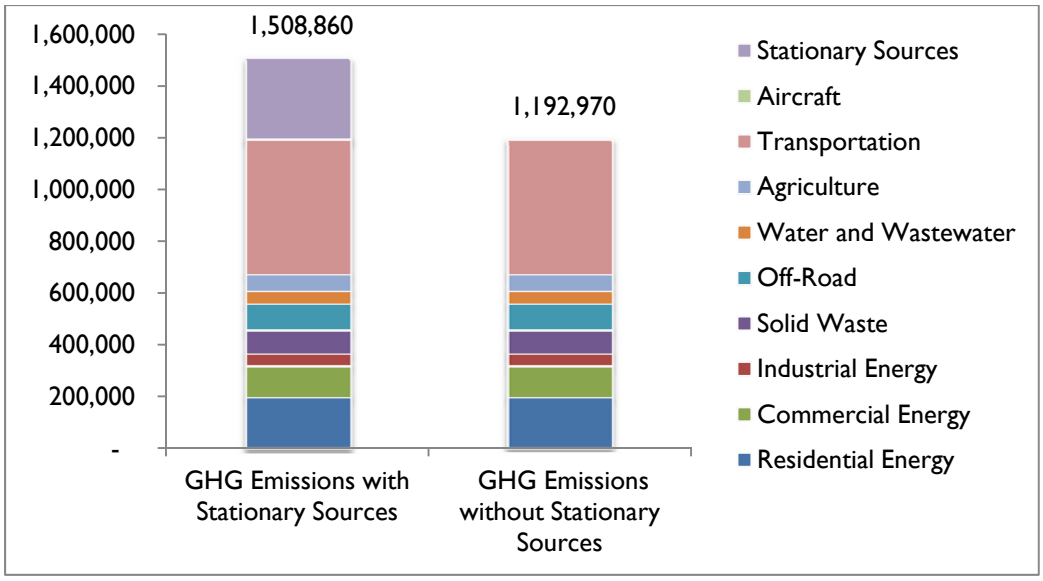
Emissions from unincorporated county sources totaled 1,508,860 metric tons of carbon dioxide equivalents ($MTCO_2e$) in the baseline year 2007. As shown in **Table C-1** and **Figure C-1**, the transportation sector is the largest contributor at 35%, producing approximately 521,160 $MTCO_2e$. Emissions from stationary sources were the next largest contributor, accounting for 21% of total emissions, producing approximately 315,890 $MTCO_2e$. Emissions from residential energy use (195,490 $MTCO_2e$) account for 13% of total emissions and represent the third largest source of GHG emissions. Commercial energy use (121,580 $MTCO_2e$), off-road equipment (102,140 $MTCO_2e$[1]), solid waste disposal (91,920 $MTCO_2e$), agriculture, industrial energy, water and wastewater, and aircraft operations account for the remainder of unincorporated county emissions in 2007.

Table C-1. 2007 Unincorporated Santa Barbara County Emissions (with Stationary Sources)

Sector	GHG Emissions $MTCO_2e$
Residential Energy	195,490
Commercial Energy	121,580
Industrial Energy	46,780
Solid Waste	91,920
Off-Road	102,140
Water and Wastewater	49,520
Agriculture	62,110
Transportation	521,160
Stationary Sources	315,890
Aircraft	2,270
TOTAL	1,508,860

[1] Off-road here includes emissions from oil drilling, which is not counted in other parts of the inventory and ABAU.

Figure C-1. 2007 Unincorporated Santa Barbara County Emissions (with and without Stationary Sources)



Stationary Sources and Oil Drilling Equipment Analysis

The GHG emissions associated with stationary sources and off-road oil drilling equipment have been included as an informational item in **Table C-1** and **Figure C-1** above. Because of the County's limited influence to regulate emissions from these sources and uncertainty in forecasting their GHG emissions, the GHG emissions from these sources have been excluded from further discussion of GHG emissions, forecasting, target setting, and policy development in this report. The County may consider pursuing stationary sources in separate, future policy initiatives. Stationary source information for the 2007 baseline year was provided by the Santa Barbara County Air Pollution Control District, and off-road oil drilling equipment consumption was estimated using CARB's Off-Road Software. To reflect the exclusion of stationary sources from the unincorporated county's GHG emissions, **Table C-2** and **Figure C-2** represent the county's emissions without stationary sources. Excluding stationary sources, the unincorporated county's 2007 GHG emissions totaled 1,192,970 $MTCO_2e$.

Table C-2 identifies the sources and sectors of GHG emissions from activities within the county in 2007 and identifies whether the emissions are generated within the county boundaries, the County's relative degree of influence to affect GHG emissions, and whether or not the Energy and Climate Action Plan (ECAP) will focus on addressing the GHG emissions from a particular source. Relative degree of influence is determined by identifying whether the County has jurisdictional, financial, permitting, or operational control to implement policies or programs to reduce a particular GHG emissions source.

Table C-2. 2007 Unincorporated Santa Barbara County GHG Emissions by Sector

Sector	Subsector	Activity	Unit	$MTCO_2e$	County Degree of Influence
Residential Energy	Residential Electricity	293,717,600	kWh	85,610	High
	Residential Natural Gas	20,655,500	Therms	109,880	High
Commercial Energy	Commercial Electricity	143,963,000	kWh	41,960	High
	Commercial Natural Gas	14,967,900	Therms	79,620	High
Industrial Energy	Industrial Electricity	114,914,400	kWh	33,490	Medium
	Industrial Natural Gas	2,497,800	Therms	13,290	Medium
Solid Waste	Landfilled Waste	115,390	tons	90,440	High
	Alternative Daily Cover	2,380	tons	1,480	High
Off-Road	Agricultural Equipment	6,878,600	gallons	67,500	Medium
	Construction and Mining Equipment	2,882,600	gallons	28,560	Medium
	Industrial Equipment	309,800	gallons	2,490	Medium
	Lawn & Garden Equipment	373,700	gallons	2,560	Medium
	Light Commercial Equipment	130,400	gallons	1,030	Medium
Water and Wastewater	Electricity used by water systems	85,710	Million Gallons	42,680	Medium
	Wastewater Emissions	2,580	Million Gallons	1,550	Medium
	Septic Tanks	8,750	Septic Tanks	5,290	Medium
Agriculture	Fertilizer Emissions	116,400	Acres of Crops	34,080	Medium
	Livestock Emissions	26,200	Livestock	28,030	Low
Transportation	On-road transportation from trips beginning or ending in the unincorporated county	1,075,523,400	Annual VMT	521,160	High
Aircraft	Landings and takeoffs from Santa Ynez Airport	70	Daily Flights	2,270	Low

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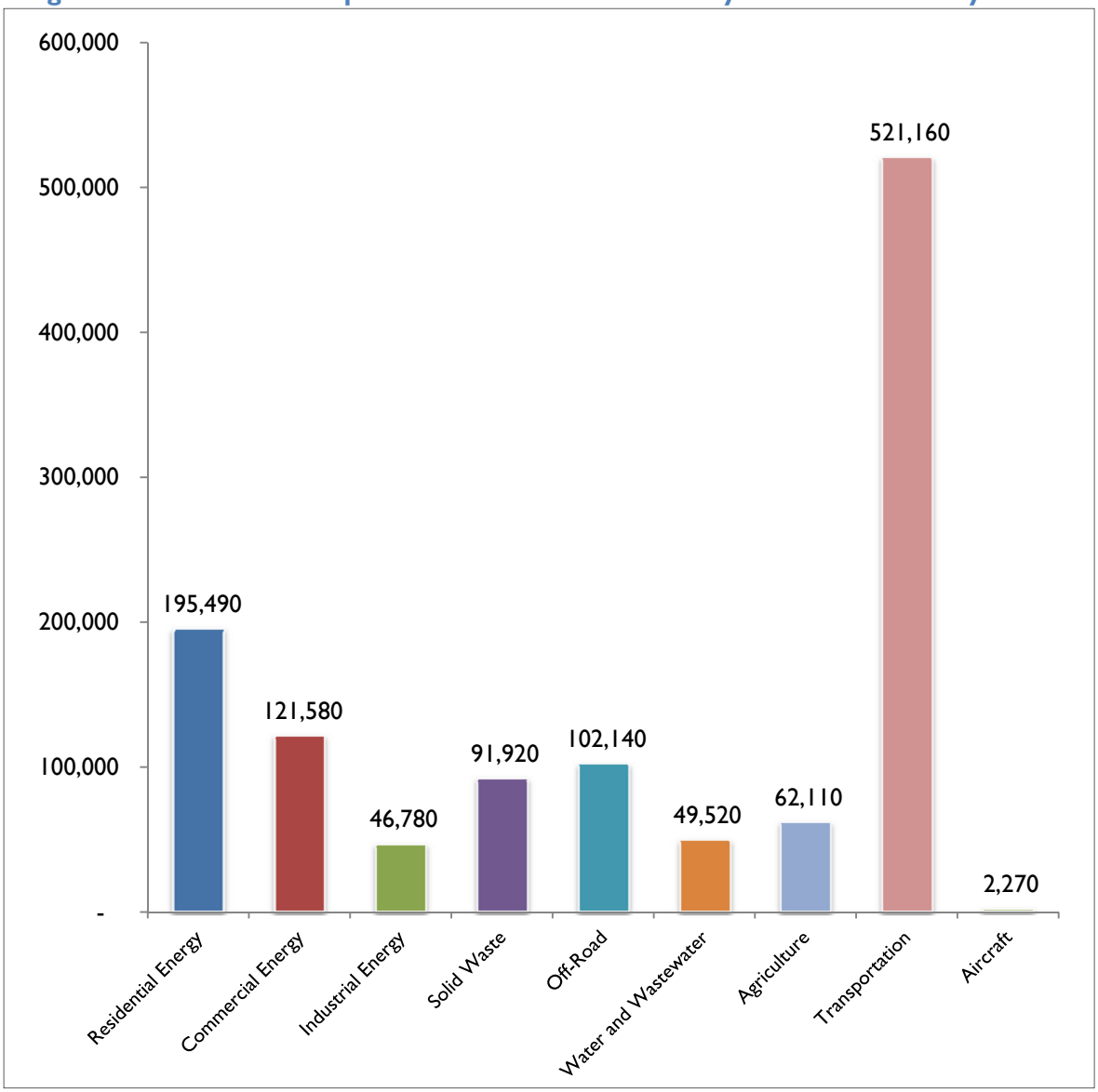
Figure C-2. 2007 Unincorporated Santa Barbara County GHG Emissions by Sector



Each activity can be aggregated into economic sectors present within the unincorporated county. For example, the residential sector represents emissions from residential electricity, solid waste produced by residents, water used in homes, etc. **Figure C-3** and **Table C-3** depict the GHG emissions attributed to the residential, commercial, industrial, agriculture, and transportation sectors in 2007.

Figure C-3. 2007 GHG Emissions by Economic Sector, $MTCO_2e$

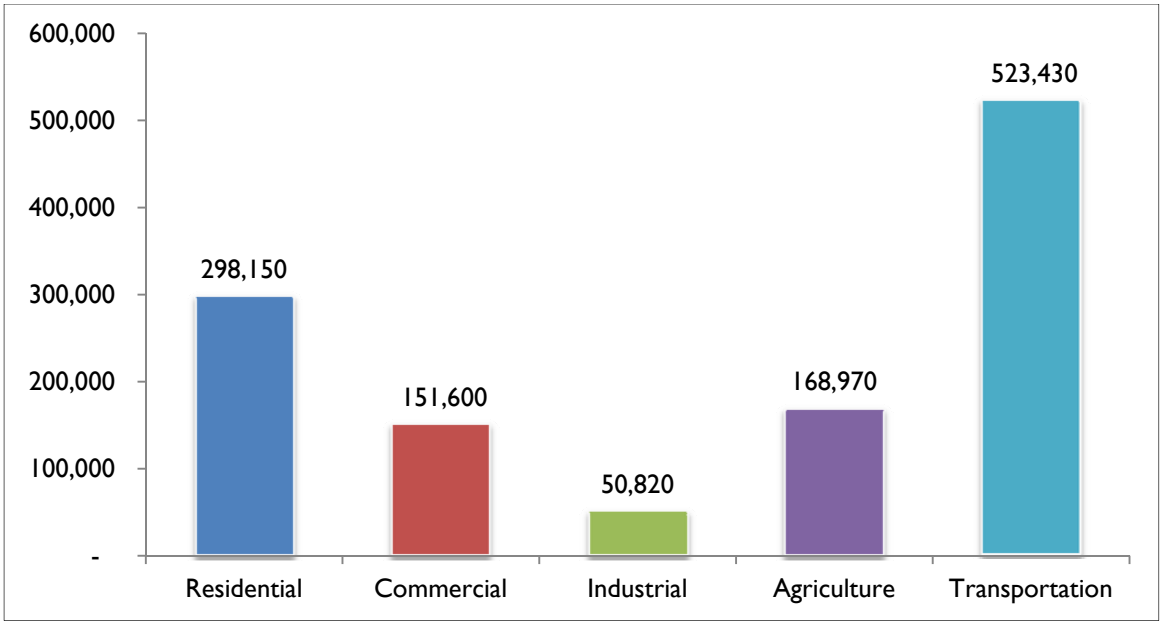


Table C-3. 2007 GHG Emissions by Economic Sector, $MTCO_2e$

Sector	$MTCO_2e$	Percentage
Residential	298,150	25%
Commercial	151,600	13%
Industrial	50,820	4%
Agriculture	168,970	14%
Transportation	523,430	44%
TOTAL	1,192,970	

GHG Emissions Not Included in County Inventory

While there are other sources of emissions occurring within Santa Barbara County, the sources identified below in **Table C-4** and **Figure C-4** are excluded from the County's baseline GHG emissions inventory for one or more of the following reasons:

- **Lack of jurisdictional control**—There are areas of the unincorporated county in which the County of Santa Barbara lacks jurisdictional control or permitting authority to influence GHG emissions-generating activities. Examples of areas where the County lacks the authority to influence GHG emissions include Vandenberg Air Force Base, the University of California, Santa Barbara, and the Santa Barbara Channel.

- **Limited ability to influence or reduce GHG emissions**—In cases where the County is limited in its ability to influence the emissions-generating activity, the County has excluded the source from the GHG inventory. Examples of such sources include large stationary facilities that are permitted by the APCD, state and federal regulatory agencies or vehicle and rail travel that does not stop in the county, but uses fuel and generates GHG emissions while in the county.

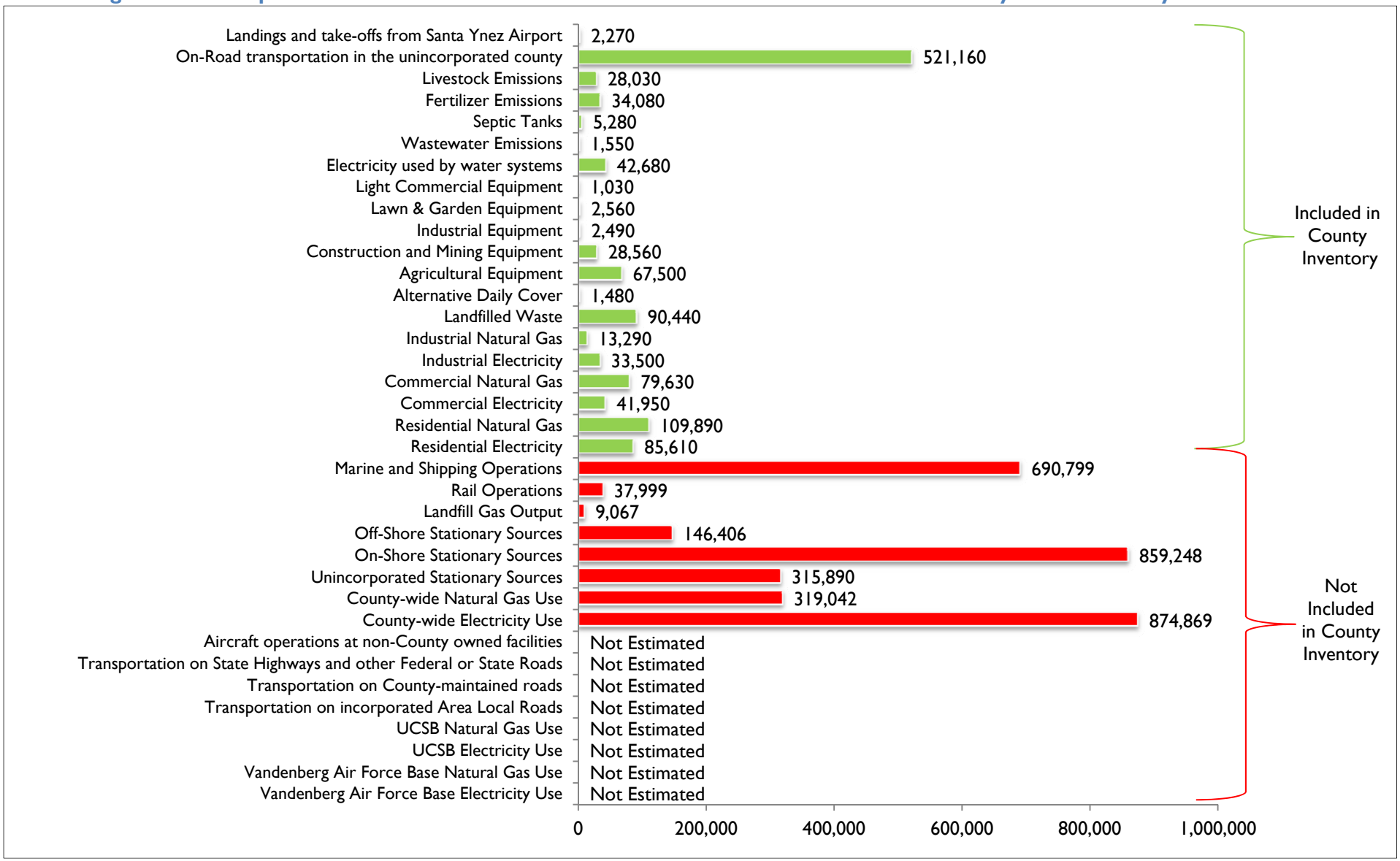
- **GHG emissions are considered biogenic in nature—**Biogenic sources of GHG emissions would occur with or without human intervention, and therefore cannot be managed or influenced by the County. An example of a biogenic emissions source would be the naturally occurring oil and gas seeps in the Santa Barbara Channel. An example of another source includes a portion of the GHG emissions generated from waste decomposition. While waste decomposing in a landfill generates methane, some of it would be generated whether or not the waste was generated and placed into a landfill.

- **Lack of methodology to estimate GHG emissions**—In cases where the activity data needed to determine GHG emissions are not reasonably available or methods to estimate activity data have not yet been developed, the activity has been excluded from the GHG inventory. An example of an emissions source that lacks clear methodology or cannot be reasonably estimated includes community use and consumption of products, often called a life-cycle analysis.

Table C-4. GHG Emissions Sources Excluded from the County GHG Inventory

Sector	Subsector	Activity	Unit	$MTCO_2e$	County Degree of Influence
Energy Use	Countywide Electricity Use	3,242,000,000	kWh	874,870	Low
	Countywide Natural Gas Use	130,756,020	Therms	319,040	Low
	Vandenberg Air Force Base Electricity Use	Not Available		Not Estimated	Low
	Vandenberg Air Force Base Natural Gas Use	Not Available		Not Estimated	Low
	UCSB Electricity Use	69,217,570	kWh	Not Estimated	Low
	UCSB Natural Gas Use	2,426,110	Therms	Not Estimated	Low
Stationary Sources	Unincorporated Stationary Sources	Not Available		315,890	Low
	On-Shore Stationary Sources	Not Available		859,250	Low
	Off-Shore Stationary Sources	Not Available		146,410	Low
Solid Waste	Landfill Gas Output	Not Available		9,070	Medium
Off-Road	Rail Operations	Not Available		38,000	Low
	Marine and Shipping Operations	Not Available		690,800	Low
Transportation	Transportation on incorporated Area Local Roads	285,843,800	VMT	Not Estimated	Low
	Transportation on County-maintained roads not originating or terminating in the county	309,849,200	VMT	Not Estimated	Medium
	Transportation on State Highways and other Federal or State Roads	271,480,800	VMT	Not Estimated	Low
Aircraft	Aircraft operations at non-County-owned facilities	Not Available		Not Estimated	Low

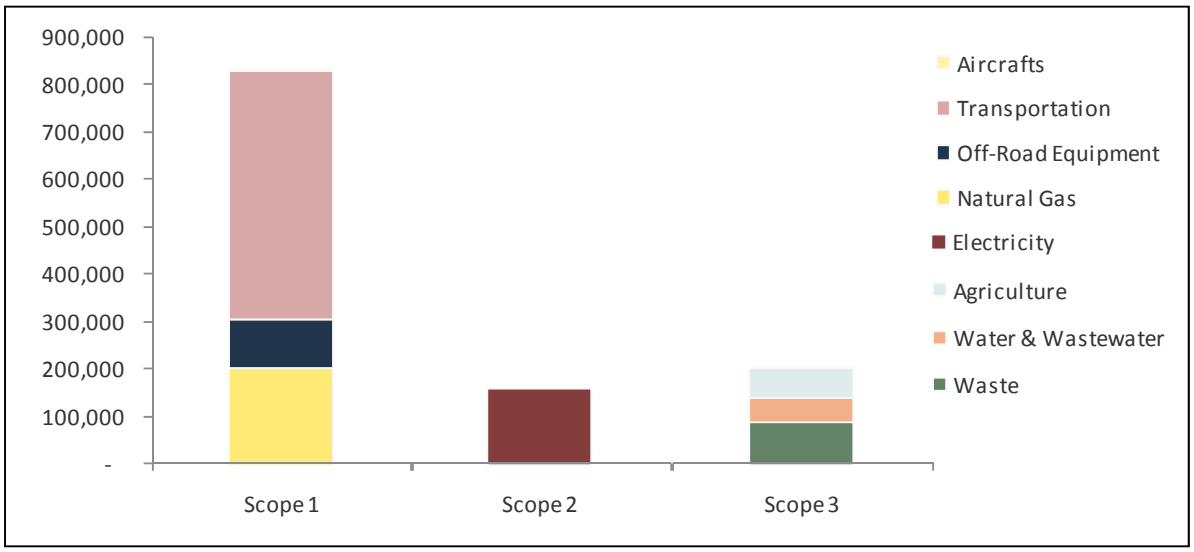
Figure C-4. Comparison of GHG Emissions Sources Included and Excluded from the County GHG Inventory



GHG Emissions by Scope

This Inventory includes direct and indirect emissions from Scope 1, Scope 2, and Scope 3 sources. Scope 1 is defined to be all direct GHG emissions. Scope 2 emissions include indirect emissions associated with the consumption or purchase of electricity. Scope 3 emissions are all other indirect emissions. Emissions were identified from the following activities: residential energy, commercial energy, industrial energy, on-road transportation, aircraft, off-road equipment, water, wastewater, solid waste, and agriculture. As shown in **Figure C-5**, Scope 1 emissions, those which are a result of direct fuel combustion from transportation, equipment, and natural gas use, make up the largest portion of emissions at 69%. Scope 2 emissions make up 14% of the County's GHG emissions, and are a result of indirect fuel combustion, from electricity, which may be generated outside of the county, but consumed within the unincorporated county. Finally, Scope 3 emissions include all other indirect sources of emissions, including waste and the electricity related to water and wastewater, making up 17% of total GHG emissions.

Figure C-5. 2007 GHG Emissions by Scope, $MTCO_2e$



GHG Emissions by Sector Activity

Residential Energy

Residential energy use includes natural gas and electricity consumption. Electricity is provided to residential customers in Santa Barbara County by Pacific Gas & Electric Company in the North County and by Southern California Edison on the South Coast. Residential electricity use in the unincorporated county was determined using the California Energy Commission report on the total electricity delivered to Santa Barbara County in 2007. Pacific Gas & Electric Company provided total residential electricity use for the unincorporated North County.

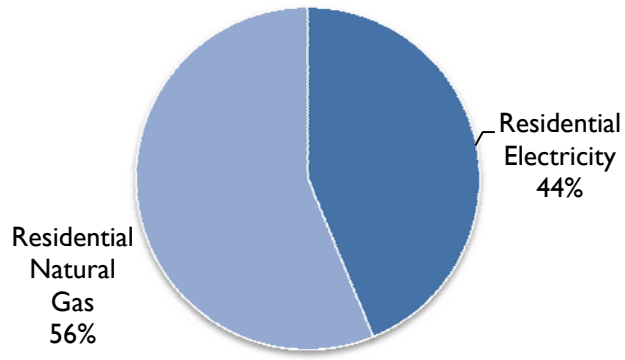
Residential Energy Quick Facts

293,717,600	Total electricity use (kWh)
20,655,500	Total natural gas use (therms)
85,610	Electricity emissions ($MTCO_2e$)
109,880	Natural gas emissions ($MTCO_2e$)
195,490	Total emissions ($MTCO_2e$)

South Coast residential electricity use was estimated based on the number of households in the unincorporated county compared to total residential electricity delivered by Southern California Edison in Santa Barbara County. Residential natural gas usage was provided by the Southern California Gas Company and was allocated to the unincorporated county based on total natural gas deliveries to residential customers in Santa Barbara County in 2007.

With all scopes and sectors aggregated, 13% of total community-wide emissions in 2007 came from residential energy use. In 2007, residential energy use included approximately 294 million kilowatt hours of electricity and 20.7 million therms of natural gas, generating approximately 195,490 $MTCO_2e$. As shown in **Figure C-6**, electricity accounted for 44% and natural gas accounted for 56% of residential energy emissions.

Figure C-6. 2007 Residential Energy GHG Emissions, $MTCO_2e$



Commercial Energy

Commercial Energy Quick Facts

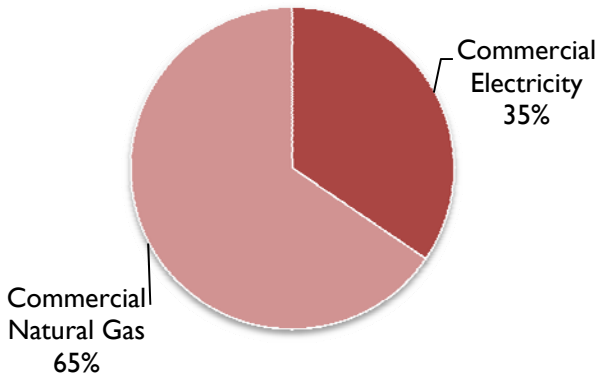
143,963,000	Total electricity use (kWh)
14,967,900	Total natural gas use (therms)
41,960	Electricity emissions ($MTCO_2e$)
79,620	Natural gas emissions ($MTCO_2e$)
121,580	Total emissions ($MTCO_2e$)

Electricity is provided to commercial customers in Santa Barbara County by Pacific Gas & Electric Company in the North County and by Southern California Edison on the South Coast. Commercial electricity use in the unincorporated county was determined using the California Energy Commission report on the total electricity delivered to Santa Barbara County in 2007. Pacific Gas & Electric Company provided total nonresidential electricity use for the unincorporated North County, though the data included electricity used by facilities not under jurisdictional control of the County, such as Vandenberg Air Force Base. To determine commercial electricity use in the unincorporated North County, the total number of commercial sector jobs (excluding Vandenberg employees) was used.

South Coast commercial electricity use was estimated based on the number of commercial sector jobs in the unincorporated county compared to total commercial electricity delivered by Southern California Edison in Santa Barbara County. Commercial natural gas was provided by the Southern California Gas Company and was allocated to the unincorporated county based on total natural gas deliveries to commercial customers in Santa Barbara County in 2007 and the number of commercial sector jobs in the unincorporated county.

With all scopes and sectors aggregated, 8% of total community-wide emissions in 2007 came from commercial energy use, which includes natural gas and electricity consumption. In 2007, commercial energy use included 144 million kilowatt hours of electricity and 15 million therms of natural gas, generating approximately 121,580 $MTCO_2e$. As shown in **Figure C-7**, electricity accounted for 35% and natural gas accounted for 65% of commercial energy emissions.

Figure C-7. 2007 Commercial Energy GHG Emissions, $MTCO_2e$



Industrial Energy

Industrial Energy Quick Facts

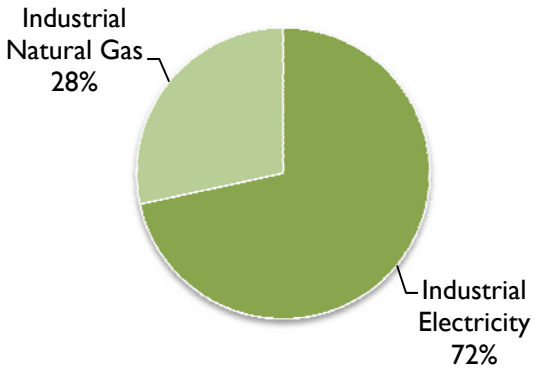
114,914,400	Total electricity use (kWh)
2,497,800	Total natural gas use (therms)
33,490	Electricity emissions ($MTCO_2e$)
13,290	Natural gas emissions ($MTCO_2e$)
46,780	Total emissions ($MTCO_2e$)

Electricity is provided to industrial customers in Santa Barbara County by Pacific Gas & Electric Company in the North County and by Southern California Edison on the South Coast. Industrial electricity use in the unincorporated county was determined using the California Energy Commission report on the total electricity delivered to Santa Barbara County in 2007. Pacific Gas & Electric Company provided total Industrial electricity use for the unincorporated North County, though the data included electricity used by facilities not under jurisdictional control of the County, such as Vandenberg Air Force Base. To determine industrial electricity use in the unincorporated North County, the total number of industrial sector jobs (excluding Vandenberg employees) was used.

South Coast industrial electricity use was estimated based on the number of industrial sector jobs in the unincorporated county compared to total industrial electricity delivered by Southern California Edison in Santa Barbara County. Industrial natural gas was provided by the Southern California Gas Company and was allocated to the unincorporated county based on total natural gas deliveries to industrial customers in Santa Barbara County in 2007 and the number of industrial sector jobs in the unincorporated county.

With all scopes and sectors aggregated, 3% of total community-wide emissions in 2007 came from industrial energy use. Industrial energy use includes natural gas and electricity consumption. In 2007, industrial energy use included 115 million kilowatt-hours of electricity and 2.5 million therms of natural gas, generating approximately 46,780 $MTCO_2e$. As shown in **Figure C-8,** electricity accounted for 72% and natural gas accounted for 28% of industrial energy emissions.

Figure C-8. 2007 Industrial Energy GHG Emissions, $MTCO_2e$



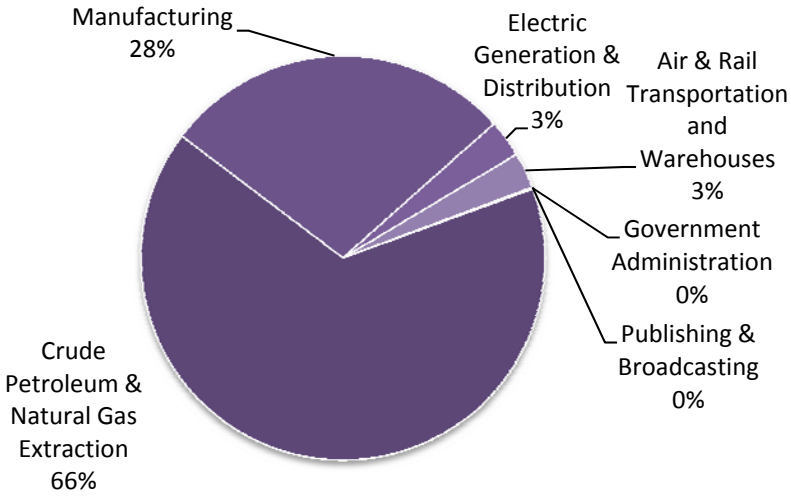
Stationary Sources

In addition to electricity and natural gas uses, commercial and industrial facilities often utilize other fuel sources such as diesel, propane fuel, and gasoline, which are considered stationary sources from on-site

back-up generators, internal combustion engines, and other equipment. As shown in **Figure C-9**, the majority of stationary source emissions in unincorporated Santa Barbara County are generated from crude petroleum and natural gas extraction (66% of stationary source emissions) and manufacturing (28%). Electric generation and distribution, air and rail transportation, publishing and broadcasting, and government administration activities make up the remaining 6% of stationary source emissions in unincorporated Santa Barbara County.

The County's authority to influence or regulate some of these larger facilities may be limited since many are regulated by federal and state agencies or the Santa Barbara County Air Pollution Control District. Therefore, these emissions are not included in the County's GHG reduction target-setting considerations.

Figure C-9. 2007 Stationary Source GHG Emissions, $MTCO_2e$



Transportation

On-road transportation generates GHG emissions from the combustion of gasoline and diesel fuel use by vehicles operating on roads within Santa Barbara County. Consistent with the majority of California, travel by on-road motorized vehicles constitutes the greatest percentage of GHG emissions in the unincorporated county.

Using select link analysis and the Santa Barbara County Association of Governments's Travel Demand Model, three types of vehicle trips were tracked separately for AM and PM peak periods to determine total vehicle miles traveled (VMT):

Transportation Quick Facts

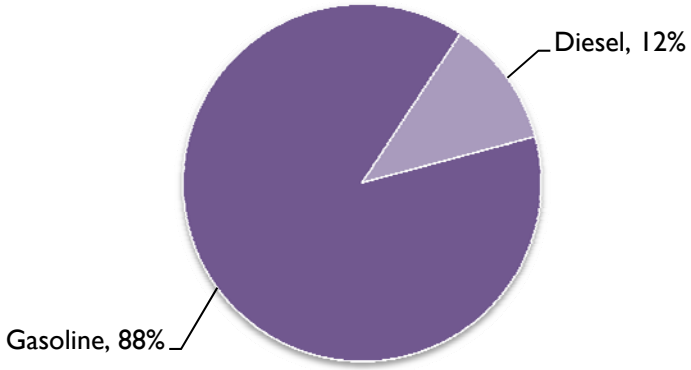
1,075,523,400	Annual vehicle miles traveled
24	Per capita daily VMT
460,690	Gasoline emissions
60,470	Diesel emissions
521,160	Total emissions ($MTCO_2e$)

1) Internal-Internal: vehicle trips that remained in the unincorporated county
2) Internal-External and External-Internal: vehicle trips that have an ending or a beginning in the unincorporated and another within an incorporated city or outside of Santa Barbara County
3) External-External: vehicle trips with neither end of the trip beginning or ending in the unincorporated county

Using the recommendation of the Regional Target Advisory Committee (RTAC), the body responsible for Senate Bill 375 target setting, VMT from trips of type 1, 2, and 3 were counted 100%, 50%, and 0% respectively toward jurisdiction-generated VMT.

With all scopes and sectors aggregated, 44% of total community-wide emissions in 2007 came from transportation. The VMT analysis resulted in approximately 1.1 billion miles traveled annually and approximately 24 miles per person per day in unincorporated Santa Barbara County, generating approximately 521,160 $MTCO_2e$. Approximately 12% of transportation-related GHG emissions came from diesel fuel use, while the remaining 88% of transportation emissions were the result of gasoline use (see **Figure C-10**).

Figure C-10. 2007 On-Road Transportation GHG Emissions by Fuel Type, $MTCO_2e$



Off-Road Equipment

Gasoline and diesel fuel are used to power off-road equipment in Santa Barbara County. Off-road equipment incorporated in this Inventory includes agriculture, construction and mining, lawn and garden, and light commercial equipment.

Off-Road Equipment Quick Facts

8,760	Equipment population
11,936,200	Fuel consumption
102,140	Total $MTCO_2e$

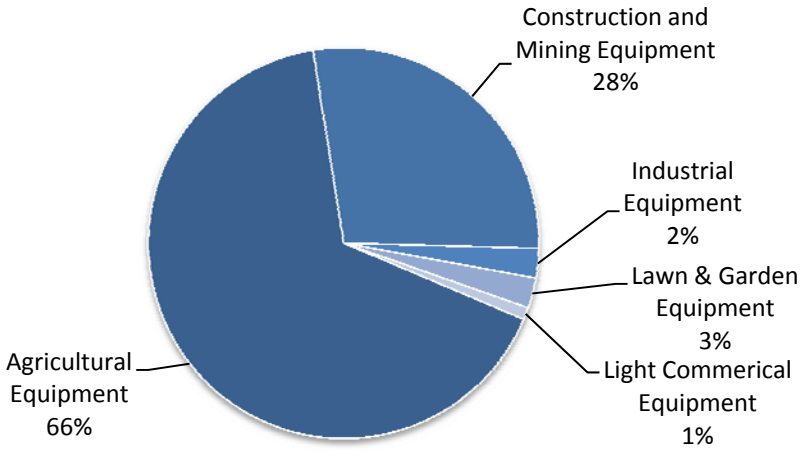
Off-road vehicles and equipment accounted for 8% of emissions in 2007. The California Air Resources Board's OFFROAD 2007 program provides emissions data for off-road equipment by county. The countywide data was attributed to the unincorporated county based on the indicators presented in **Table C-5.**

Table C-5. Off-Road Equipment Allocation Indicators

Equipment Type	Allocation Indicator
Agricultural Equipment	Acres of Cropland
Construction and Mining Equipment	Countywide Permit Valuations
Industrial Equipment	Industrial Jobs
Lawn & Garden Equipment	Households
Light Commercial Equipment	Service and Commercial Jobs

Approximately 66% of off-road equipment emissions in 2007 came from agricultural equipment, while 28% were the result of construction and mining equipment. The remaining off-road equipment activities included in this Inventory include industrial equipment, lawn and garden equipment, and light commercial equipment, making up approximately 6% of emissions collectively (see **Figure C-11**). Total emissions from off-road equipment for 2007 are estimated to be approximately 102,140 $MTCO_2e$. Off-road equipment emissions from oil drilling are not included here.

Figure C-11. 2007 Off-Road Equipment GHG Emissions by Equipment Type, $MTCO_2e$



Aircraft

Aircraft emissions include the fuel used during landings and take-offs at Santa Ynez Airport. While there are six airports in Santa Barbara County, only Santa Ynez Airport is operated by Santa Barbara County. The airport averages approximately 70 operations per day, all of which are civil flights using piston or jet aircrafts. In 2007, Santa Ynez Airport was responsible for approximately 2,270 $MTCO_2e$.

Aircraft Quick Facts

70	Daily operations
2,270	Aircraft $MTCO_2e$

Solid Waste

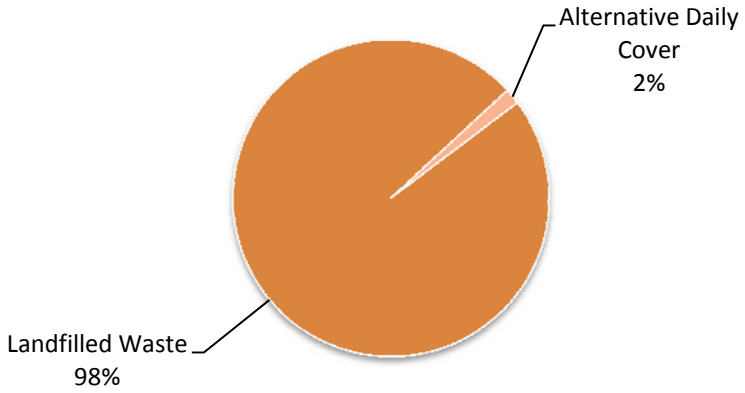
Solid Waste Quick Facts

115,390	Tons landfilled waste
2,380	Tons ADC
90,440	$MTCO_2e$ landfilled waste
1,480	$MTCO_2e$ ADC
91,920	Total emissions ($MTCO_2e$)

Waste generated by residential, commercial, and industrial uses in the unincorporated county is disposed of at a managed landfill in Santa Barbara County. Waste emissions are considered Scope 3 emissions because they are not generated in the baseline year, but will produce methane over an approximately 100-year period as the waste decomposes.

Solid waste disposed of at managed landfills was responsible for 6% of total emissions for the community. Waste and alternative daily cover (ADC) tonnages for the unincorporated county are reported by the County of Santa Barbara to CalRecycle on an annual basis. In 2007, approximately 115,390 tons of solid waste and 2,380 tons of green waste and sludge used as ADC were sent to the Tajiguas Landfill in 2007, resulting in approximately 91,920 $MTCO_2e$ (see **Figure C-12**).

Figure C-12. 2007 Waste Emissions by Type of Waste Disposed, $MTCO_2e$



Agriculture

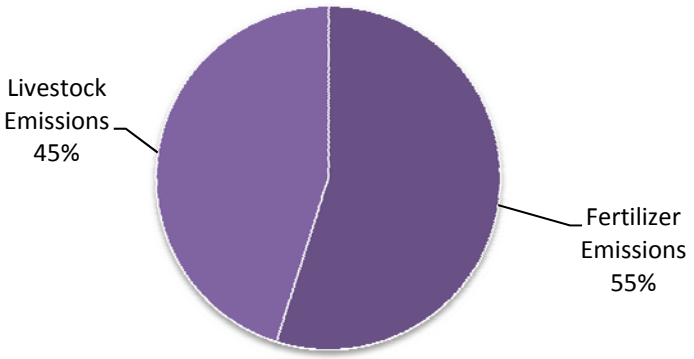
Agricultural processes account for 4% of the 2007 Inventory or 62,110 $MTCO_2e$. The agriculture sector includes an analysis of the GHG emissions occurring from fertilizer application on crops and from livestock, which produce methane through digestive processes (see **Figure C-13**). In 2007, the unincorporated county's agricultural economy included 116,400 acres of cultivated cropland and 26,200 livestock animals. Crops in Santa Barbara County include vegetables, berries, fruit, row crops, and wine grapes. Livestock populations in Santa Barbara County include dairy cattle, grazing cattle, sheep, goats, and horses.

An average nitrogen fertilizer use for each crop was identified using University of California Cooperative Extension cost reports. A weighted average of nitrogen fertilizer was calculated for each crop category and applied to all other cropland not within the top three crops for each category. An equation provided by the California Air Resources Board was used to calculate grams of N_2O released per pound of fertilizer applied to each crop type. Grams of N_2O were converted into metric tons of CO_2e using factors provided in the Local Government Operations Protocol Version 1.1 Methane emissions from livestock were calculated using the Intergovernmental Panel on Climate Change's Livestock Estimation equations based on kilograms of methane per head per year by type of animal.

Agriculture Quick Facts

116,400	Acres of agriculture
26,200	Livestock population
34,080	Fertilizer emissions
28,030	Livestock emissions
62,110	Total agriculture emissions ($MTCO_2e$)

Figure C-13. 2007 Agriculture Emissions by Activity, $MTCO_2e$



Water and Wastewater

Water and wastewater emissions accounted for 3% of total GHG emissions in 2007 or 49,520 $MTCO_2e$. This Inventory includes two types of water-related emissions: (1) direct process emissions, which include methane generated from septic systems and wastewater treatment plants; and (2) emissions from the electricity and natural gas used to extract, process, treat, and deliver water and wastewater

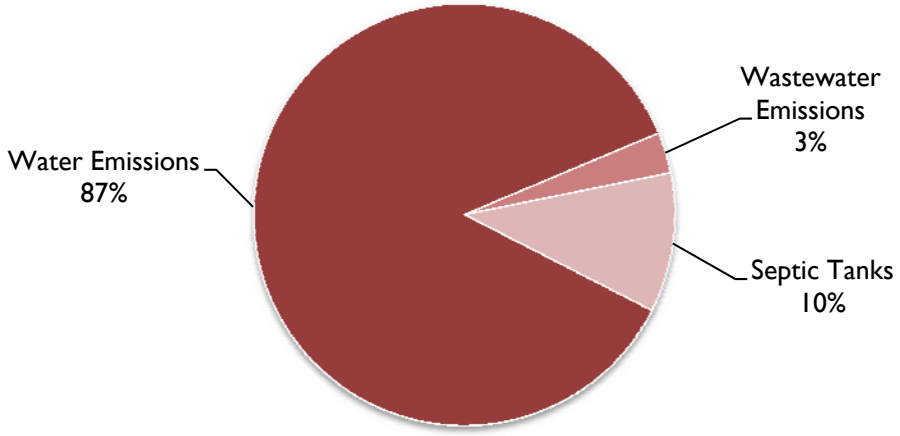
Water & Wastewater Quick Facts

8,750	Number of septic tanks
85,710	Million gallons delivered
42,680	Water treatment emissions ($MTCO_2e$)
1,550	Wastewater treatment emissions ($MTCO_2e$)
5,280	Septic tank emissions ($MTCO_2e$)
49,520	Total water & wastewater emissions ($MTCO_2E$)

to, from, and within Santa Barbara County.

In 2007, the unincorporated county used approximately 86,710 million gallons of water, 90% of which was used for agricultural purposes and extracted through private groundwater wells. Wastewater treatment plants throughout the county also utilize energy to treat approximately 2,580 million gallons of wastewater generated by uses in the unincorporated county. There are approximately 8,750 septic systems in unincorporated Santa Barbara County, which are used to treat wastewater from residential properties that are not connected to sewer and wastewater treatment systems. Water and wastewater delivery and treatment utilized approximately 150 million kWh of electricity in 2007. **Figure C-14** depicts the GHG emissions occurring from water use in the unincorporated county.

Figure C-14. 2007 Water and Wastewater Emissions by Water Treatment Type, $MTCO_2e$



GHG Emissions Forecast

An adjusted forecast determines the impact that state regulations will have on the county's future GHG emissions. The community-wide GHG emissions have been forecast to the year 2020 for consistency with state legislation (AB 32). For consistency with other County and regional planning efforts, a second emissions forecast year of 2035 is included as well. The basis for all growth scenarios is a "business-as-usual" (BAU) projection. The BAU projection forecasts emissions to reflect the County's growth projections without regulatory or technical intervention to reduce GHG emissions. The BAU projection is then used as a starting point for the County to determine the level of emissions reductions needed to reach a reduction target.

Population, Housing, and Employment Forecast

In order to complete a business-as-usual (BAU) forecast for unincorporated Santa Barbara County, it is important to have a clear picture of the county's anticipated growth. **Tables C-6, C-7,** and **C-8** provide a summary of the anticipated growth in population, housing, and jobs for the unincorporated communities through 2035. These estimates come from the Santa Barbara County Association of Government's Regional Growth Forecast and have incorporated 2010 Census Data, when available.

Table C-6. Unincorporated County Population Forecast, 2007–2035

	2005	2007	2010	2020	2035
Unincorporated Total	132,260	133,190	134,580	139,220	144,690
Countywide Total	417,510	422,740	431,290	459,800	486,900
% of Total Countywide	32%	32%	31%	30%	30%

Table C-7. Unincorporated County Households Forecast, 2007–2035

	2005	2007	2010	2020	2035
Unincorporated Total	44,950	45,660	46,050	47,350	49,290
Countywide Total	143,140	146,980	149,440	157,650	165,970
% of Total Countywide	31%	31%	31%	30%	31%

Table C-8. Unincorporated County Jobs Forecast, 2007–2035

	2005	2007	2010	2020	2035
Agriculture	14,090	14,170	15,020	15,530	16,720
Industrial	2,620	2,630	2,610	3,000	3,320
Commercial	4,120	4,150	4,400	4,790	5,350
Office	1,790	1,780	1,800	1,870	2,060
Service	6,990	7,040	7,760	8,330	8,880
Unincorporated County Total	29,610	29,770	31,590	33,520	36,330
Countywide Total	188,050	189,610	200,000	216,000	241,000

Business-as-Usual Forecast

The population, housing, and job forecast indicators are applied to the 2007 GHG emissions inventory to determine a business-as-usual growth scenario. Emissions are forecast under this scenario by utilizing projections that indicate growth in each sector as shown in **Table C-9.**

Table C-9. Applicable Indicators by GHG Emissions Sector

Sector	Subsector	Applicable Indicator
Residential Energy	Residential Electricity	Households
	Residential Natural Gas	Households
Commercial Energy	Commercial Electricity	Commercial/Service Jobs
	Commercial Natural Gas	Commercial/Service Jobs
Industrial Energy	Industrial Electricity	Industrial Jobs
	Industrial Natural Gas	Industrial Jobs
Solid Waste	Landfilled Waste	Service Population
	Alternative Daily Cover	Service Population
Off-Road	Agricultural Equipment	Agriculture Jobs
	Construction and Mining Equipment	Construction Growth
	Industrial Equipment	Industrial Jobs
	Lawn & Garden Equipment	Households
	Light Commercial Equipment	Commercial/Service Jobs
Water and Wastewater	Water Emissions	Service Population
	Wastewater Emissions	Service Population
	Septic Tanks	Households
Agriculture	Fertilizer Emissions	Agriculture Jobs
	Livestock Emissions	Agriculture Jobs
Transportation	On-Road Transportation	VMT Forecast
Aircraft	Landings and Take-Offs	Landings and Take Offs

A business-as-usual (BAU) projection is an estimate of how emissions would grow if consumption trends and efficiencies remain at their 2007 levels yet the number of people, households, and jobs continues to grow in Santa Barbara County. Under the business-as-usual scenario, community-wide emissions will grow by approximately 14% by the year 2020 and by approximately 29% by 2035 (refer to **Figure C-15** and **Table C-10**).

Figure C-15 – 2007–2035 Business-as-Usual GHG Emissions ($MTCO_2e$)

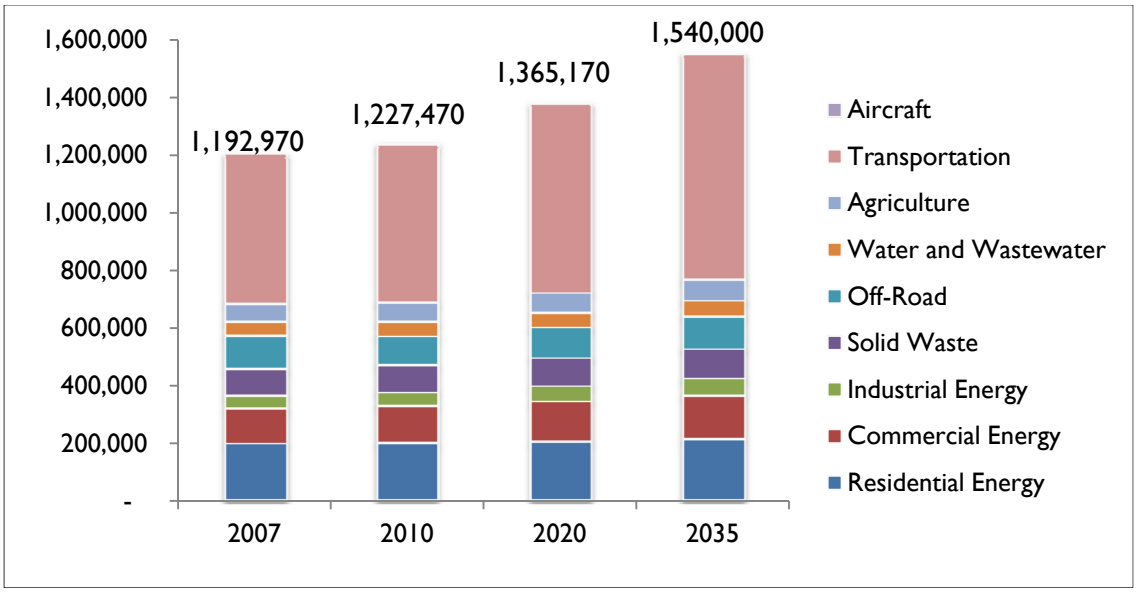


Table C-10 – 2007–2035 Business-as-Usual GHG Emissions ($MTCO_2e$)

Sector	2007	2010	2020	2035
Residential Energy	195,490	197,160	202,730	211,040
Commercial Energy	121,580	130,860	140,520	152,700
Industrial Energy	46,780	46,430	53,360	59,060
Solid Waste	91,920	93,730	97,440	102,100
Off-Road	102,140	88,170	91,120	97,240
Water and Wastewater	49,520	50,440	52,370	54,840
Agriculture	62,110	65,830	68,070	73,280
Transportation	521,160	552,580	657,290	787,470
Aircraft	2,270	2,270	2,270	2,270
TOTAL	1,192,970	1,227,470	1,365,170	1,540,000
% Growth		3%	14%	29%

Adjusted Business-as-Usual Forecast

State-led or state-induced reduction strategies included in the AB 32 Scoping Plan are factored into the adjusted 2020 and 2035 emissions forecast. Strategies include all state actions that are approved, programmed, and/or adopted and require no additional local action. Incorporating these strategies into the forecast and reduction assessment to create an adjusted business-as-usual forecast provides a more accurate picture of future emissions growth. This methodology also provides a more accurate assessment of the responsibility of local governments once state measures to reduce GHG emissions have been implemented.

A brief description of each of these state-led or state-induced reduction strategies, along with the methodology used to incorporate the strategy into the adjusted emission forecast, is presented below. The overall effect of these strategies is also summarized below in **Table C-11.**

Table C-11. GHG Reduction Impact of State Policies on Santa Barbara County ($MTCO_2e$)

	2010	2020	2035
Renewables Portfolio Standard	8,620	43,880	46,710
Pavley (Clean Car Standard)	0	97,550	173,850
Low Carbon Fuel Standard	0	40,300	44,160
Title 24 Standards	310	2,230	8,270
California Solar Initiative	130	240	240
TOTAL	9,060	184,200	273,230

Sustainable Communities Strategy (SB 375)

Description

Passed in 2008, Senate Bill 375, the Sustainable Communities and Climate Protection Action of 2008, directed the California Air Resources Board to work with the 18 metropolitan planning organizations to establish greenhouse gas reduction targets for 2020 and 2035 and to achieve those targets through integrated transportation, housing, and land use planning. In 2011, the Santa Barbara County Association of Governments board adopted SB 375 targets for 2020 and 2035 to achieve a zero net increase in per capita GHG emissions per passenger vehicle.

While implementation of SB 375 is expected to reduce vehicle trips and transportation-related emissions in Santa Barbara County, it is not included in this adjusted business–as-usual forecast at this time for the following three reasons.

1) The intent and implementation of SB 375 is likely to overlap with mixed-use and transit-oriented development measures to be included in the County's climate action plan,
2) A technical, defensible analysis of the bill's projected impact on the state or county is not available at this time, and
3) SBCAG is in the process of updating the RTP and the strategies to achieve the targets have not yet been identified.

Cap and Trade

Description

The AB 32 Scoping Plan, developed and adopted by CARB in 2008, identified a cap-and-trade program as one of the market mechanisms to reduce greenhouse gas emissions. Under the cap-and-trade program, GHG emissions caps from the identified sectors would be established and facilities subject to cap-and-trade would be allotted permits, which could be traded or sold if unused. Over time, the cap

would decrease, requiring facilities to either purchase additional permits or reduce emissions generated by their facility.

Implementation of the cap-and-trade program is expected by 2013. However, at this time, the market mechanisms that will be employed by facilities to meet the cap-and-trade requirements have not yet been studied at the depth necessary to identify an achievable local GHG reduction to Santa Barbara County's stationary source emissions. For this reason, cap-and-trade regulations are not incorporated into the adjusted business as usual forecast at this time but could be incorporated in future updates.

Renewables Portfolio Standard

Description

California's Renewables Portfolio Standard (RPS) is one of the most ambitious renewable energy standards in the country, mandating that 33% of electricity delivered in California is generated by renewable sources like solar, wind, and geothermal by 2020. The California RPS was first codified in 2002 by Senate Bill 1078 (requiring 20% renewable electricity mix by 2010) and further strengthened in April 2011 with the adoption of Senate Bill X 1-2 (requiring 33% renewable electricity mix by 2020).

Methodology

This analysis assumes the full 33% renewable mix by 2020 and 2035 for both PG&E and SCE.

Pavley Standard

Description

Signed into law in 2002, AB 1493 requires carmakers to reduce GHG emissions from new passenger cars and light trucks beginning in 2011. The California Air Resources Board (CARB) adopted regulations in 2004, which took effect in 2009 with the release of a waiver from the US Environmental Protection Agency (EPA) granting California the right to implement the bill. CARB anticipates that the Pavley standards will reduce GHG emissions from new California passenger vehicles by about 22% in 2012 and about 30% in 2016, all while improving fuel-efficiency and reducing motorists' costs.

The Pavley rules establish GHG emission standards for two different groups of passenger vehicles: (1) passenger cars (PC) and light-duty trucks with test weights under 3,751 pounds loaded vehicle weight (LDT1); and (2) light-duty trucks with test weights between 3,751 pounds loaded vehicle weight and 8,500 pounds gross vehicle weight (GVW) (LDT2). Medium-duty passenger vehicles (LDT3) between 8,500 and 10,000 pounds GVW are included with manufacturers' LDT2 vehicles when determining compliance with California's GHG standards. For the purposes of this analysis, only vehicles up through 8,500 pounds were taken into account considering that the majority of LDT3 vehicles are commercial and therefore do not fall under the scope of the Pavley rules.

Methodology

GHG reductions from the Pavley standard were calculated using EMFAC 2011 data for Santa Barbara County. EMission FACtors model (EMFAC) 2011 data includes emissions factors per mile for each vehicle class for 2020 and 2035 under both a business as usual scenario and with Pavley and the Low Carbon Fuel Standard (LCFS) implemented. To determine the impact that Pavley will have on the

County's emissions, Pavley and LCFS were separated from the analysis, and the difference in emissions factors was calculated for each applicable vehicle class, as shown in **Table C-12**. Emissions reductions per model year and vehicle class were applied to Santa Barbara County's transportation emissions and resulted in a 15% decrease in transportation-related GHG emissions by 2020 and a 22% decrease by 2035.

Table C-12. GHG Reductions from Pavley by Vehicle Class

GHG Reductions by Vehicle Class	2007	2010	2020	2035
01 - Light-Duty Autos (PC)	0%	0%	22%	30%
02 - Light-Duty Trucks (T1)	0%	0%	16%	27%
03 - Light-Duty Trucks (T2)	0%	0%	15%	22%
04 - Medium-Duty Trucks (T3)	0%	0%	12%	20%

Low Carbon Fuel Standard

Description

Because transportation is the largest single source of greenhouse gas emissions in California, the State is taking an integrated approach to reducing emissions from this sector. Beyond including vehicle-efficiency improvements and lowering vehicle miles traveled, the State is proposing to reduce the carbon intensity of transportation fuels consumed in California. To reduce the carbon intensity of transportation fuels, CARB is developing a LCFS. The LCFS will reduce the carbon intensity of California's transportation fuels by at least 10% by 2020 as called for by Governor Schwarzenegger in Executive Order S-01-07. The LCFS will also incorporate compliance mechanisms that provide flexibility to fuel providers in how they meet the requirements to reduce greenhouse gas emissions.

In late 2011, a federal district court judge ruled that California's Low Carbon Fuel Standard violates the dormant commerce clause by discriminating out of state ethanol products and that CARB failed to identify alternative methods for achieving greenhouse gas reductions. The ruling has been appealed by CARB, and the County's ECAP does include potential GHG emissions reductions from the LCFS to achieve the County's GHG reduction target.

Methodology

The California Air Resources Board's Pavley I and Low Carbon Fuel Standard Postprocessor software was utilized to determine the impact that the LCFS will have on transportation GHG emissions in Santa Barbara County. Implementation of the Low Carbon Fuel Standard is estimated to reduce life-cycle GHG emissions from transportation fuels by 10% by 2020.[2] Based on analysis performed by air districts, such as the Bay Area Air Quality Management District, this reduction in carbon intensity will not result in a direct 10% reduction in tailpipe emissions from vehicles but will instead reduce GHG emissions from tailpipes by 7.2% in 2020.

Title 24 Standards

Description

Title 24 of the California Code of Regulations (CCR) mandates how each new home and business is built in California. It includes requirements for the structural, plumbing, electrical, and mechanical systems of buildings, and for fire and life safety, energy conservation, green design, and accessibility in and around buildings. The 2010 triennial edition of Title 24 pertains to all occupancies that applied for a building permit on or after January 1, 2011, and remains in effect until the effective date of the 2013 triennial edition. Standards from the 2013 edition remain in effect until the effective date 2016 edition. The two sections of Title 24 that most directly apply to a GHG emissions forecast are: Part 6, the California Energy Code; and Part 11, the California Green Building Standards Code or CALGreen Code. These two sections require direct electricity, natural gas, and water savings for every new home or business built in California. Title 24 is a statewide standard applied at the local level by local agencies through project review.

The most recent update to Title 24 Part 6, the California Energy Code, went into effect on July 1, 2014, for both residential and nonresidential new construction. Part 6 also includes requirements for lighting and insulation upgrades to nonresidential buildings undergoing a major retrofit.

Methodology

This GHG forecast incorporates the net energy benefit of new Title 24 requirements that did not exist in the baseline year. These estimates are based on California Energy Commission studies that compare each new update of Title 24 to its former version. The AB 32 Scoping Plan calls for ongoing triennial updates to Title 24 that will yield regular increases in the mandatory energy and water savings for new construction. As such, a conservative estimate of the energy reductions due to future updates of Title 24 based on historic growth rates has been incorporated in to the adjusted BAU forecast. Past updates to Title 24 have shown equal if not higher increases in efficiency as a result of the update.

As a conservative estimate, it is anticipated that each update to the Title 24 standards will have 70% of the effectiveness of the improvement between 2008 and 2005 standards. The energy reductions quantified in the forecast from Part 6 Energy Code updates are based on the assumption that a minimum of 3 updates to the code will occur by 2025 and each update will yield regular decreases in the maximum allowable amount of energy used from new construction.

California is the first state in the nation to adopt a mandatory green building code, the California Green Building Standards Code, or CALGreen. The CALGreen Code was updated in 2012 and became effective as of July 1, 2014. The code takes a holistic approach to green building by including minimum requirements in the areas of planning and design, energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental quality. All local governments must adopt the minimum requirements of the CALGreen code and may elect to adopt one of the two additional tiers.

Mandatory CALGreen standards do not require explicit reductions in energy consumption beyond the minimum Title 24 Part 6 standards. However, if a local government elects to adopt either of the tiers of CALGreen, additional prerequisites and electives must be implemented by new development projects subject to CALGreen. The County has not yet adopted any additional tiers of CALGreen to require new development projects to reduce energy use, however, the County is considering incentivizing

projects who meet the requirements of the additional tiers though its Innovative Building Review Program.

California Solar Initiative

Description

The California Solar Initiative (CSI) was authorized in 2006 under Senate Bill (SB) 1. CSI allows the California Public Utilities Commission (CPUC) to provide incentives to install solar technology on existing residential, commercial, nonprofit, and governmental buildings if they are customers of the state's investor-owned utilities (IOUs): Pacific Gas & Electric (PG&E), San Diego Gas & Electric (SDG&E), or Southern California Edison (SCE).

The CSI program has a budget of $2.167 billion to expend by 2016 with a goal to reach 1,940 megawatts (MW) of installed power throughout the state by that year. The CSI program has several components including the Research and Development, Single-family Affordable Solar Housing (SASH), Multifamily Affordable Solar Housing (MASH), and Solar Water Heating Pilot programs, each of which provides incentives to further the development and installation of new solar technology on California's buildings.

Methodology

The CPUC provides complete solar installation data for each jurisdiction in California since 2006. GHG reductions related to the California Solar Initiative are incorporated into this forecast by identifying the total megawatts installed in unincorporated Santa Barbara County since 2007 and estimating the annual kilowatt-hour (kWh) output of the solar installations. This calculation also estimates the rate at which residents and businesses will continue to install solar equipment through 2016, the anticipated end year of the program.

Between 2006 and 2011 residential and commercial customers through SASH, MASH, and the solar water heater programs of the California Solar Initiative, installed approximately 400 kW of solar photovoltaic systems, estimated to generate 460,000 kWh every year. By 2020, it is estimated that unincorporated Santa Barbara County residents and businesses will have installed more than 1 MW of renewable energy systems that will produce 1 million kWh annually.

Adjusted Business-as-Usual Forecast Summary

As shown in **Table C-13** and **Figure C-16,** state policies and programs will reduce GHG emissions by 16% below the business-as-usual forecast by 2020. Figure 16 demonstrates the gap that will need to be closed between the ABAU forecast and a proposed GHG reduction target of 15% below baseline emissions by 2020. This reduction target is based on the recommendation to local governments in the AB Scoping Plan to "move toward establishing similar goals for community emissions that parallel the State commitment to reduce greenhouse gas emissions by approximately 15% from current levels by 2020." If adopted, the County would be responsible to reduce the remaining emissions amounting to 166,950 $MTCO_2e$ by 2020. The County's Energy and Climate Action Plan will identify regulatory and incentive based policies to close that gap and meet the GHG reduction target.

Table C-13. Adjusted Business-as-Usual Forecast, 2007–2035*

	2007	2010	2020	2035
Residential Energy	195,490	193,480	184,160	178,410
Commercial Energy	121,580	128,750	129,820	138,200
Industrial Energy	46,780	44,930	45,110	49,930
Solid Waste	91,920	93,730	97,440	102,100
Off-Road	102,140	88,170	91,120	97,240
Water and Wastewater	49,520	48,670	43,540	45,590
Agriculture	62,110	65,830	68,070	73,280
Transportation	521,160	552,580	519,440	569,460
Aircraft	2,270	2,270	2,270	2,270
TOTAL	1,192,970	1,218,410	1,180,970	1,256,480

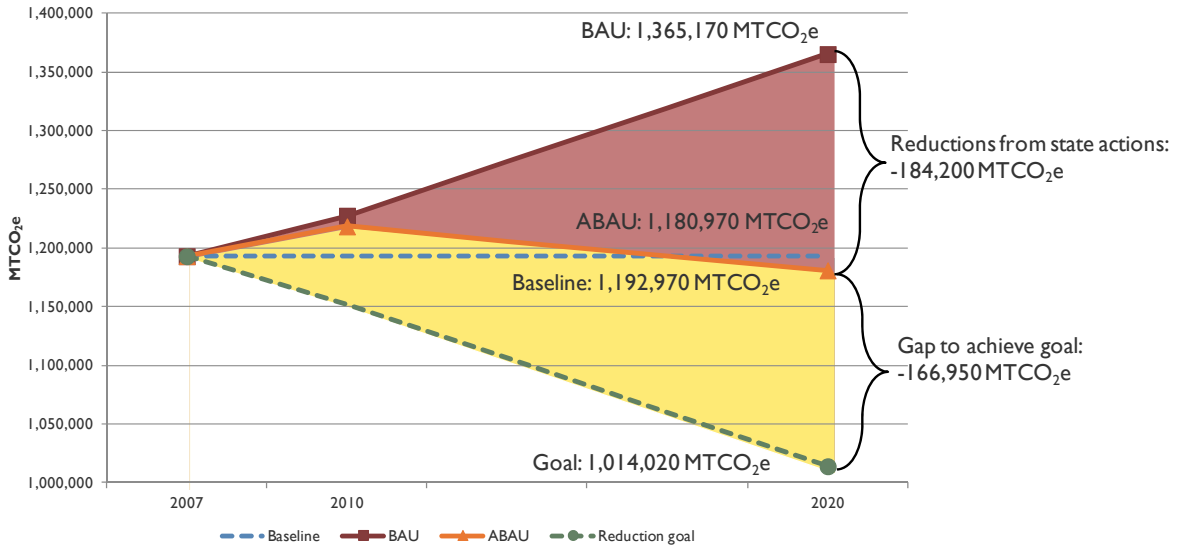


Figure C-16. Comparison of Business-as-Usual and Adjusted Business-as-Usual Emissions* ($MTCO_2e$), 2007–2020

Bibliography

AWWA Research Foundation. 1999. Residential End Uses of Water. http://www.waterrf.org /ProjectsReports/PublicReportLibrary/RFR90781_1999_241A.pdf.

California Air Resources Board. 2009. California's 1990–2004 Greenhouse Gas Emissions Inventory and 1990 Emissions Level Technical Support Document. http://www.arb.ca.gov/cc/inventory/doc /methods_v1/ghg_inventory_technical_support_document.pdf.

California Air Resources Board. 2010. Clean Car Standards – Pavley, Assembly Bill 1493. http://www.arb.ca.gov/cc/ccms/ccms.htm.

———. 2010a. ARB Landfill Emissions Tool. http://www.arb.ca.gov/cc/protocols/localgov/localgov.htm.

———. 2010b. Local Government Operations Protocol Version 1.1

———. 2011. Emissions Factor Software.

———. 2011. Emissions Factors 2011. http://www.arb.ca.gov/jpub/webapp// EMFAC2011WebApp /rateSelectionPage_1.jsp.

California Energy Commission. 2006. Refining Estimates of Water-Related Energy Use in California. PIER Final Project Report. Prepared by Navigant Consulting, Inc. CEC-500-2006-118.

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

———. 2008. Electricity Deliveries by County. http://www.ecdms.energy.ca.gov/utilbynaicselec.aspx.

———. 2010. 2009 California Residential Appliance Saturation Study. Sacramento. http://www.energy.ca.gov/2010publications/CEC-200-2010-004/CEC-200-2010-004-ES.PDF.

California Energy Commission and California Public Utilities Commission. 2010. About the California Solar Initiative. http://www.gosolarcalifornia.org/about/csi.php.

———. 2011. California Solar Initiative: California Solar Statistics – Geographical Statistics. http://www.californiasolarstatistics.ca.gov/reports/locale_stats/.

California Public Utilities Commission. 2009. 33% Renewable Portfolios Standard Implementation Analysis Report. http://www.cpuc.ca.gov/NR/rdonlyres/1865C207-FEB5-43CF-99EB-A212B78467F6/0/ 33PercentRPSImplementationAnalysisInterimReport.pdf.

———. 2011. California Renewable Portfolio Standard. Sacramento. http://www.cpuc.ca.gov/PUC /energy/Renewables/index.htm

CalRecycle. 2011. Disposal Reporting System. http://www.calrecycle.ca.gov/LGCentral/Reports/DRS/.

City of Santa Maria. 2011. Urban Water Management Plan. http://www.ci.santa-maria.ca.us/3112-UrbanWaterManagementPlan.shtml.

County of Santa Barbara. 2008a. Department of Public Health Septic Survey. http://www.countyofsb.org/uploadedFiles/phd/EHS/21029Final%20Report.pdf.

———. 2008b. 2007 County Crops Report. http://www.countyofsb.org/uploadedFiles/agcomm/crops/2008.pdf.

———. n.d. Water Delivery and Oversight. http://www.countyofsb.org/pwd/water/downloads/Part%205%20(Water%20Delivery%20-%20Oversight%20Water%20Use).pdf.

Federal Aviation Administration. 2010. Airport Data and Contact Information. http://www.faa.gov/airports/airport_safety/airportdata_5010/.

Golden State Water Company. 2011. Orcutt Area Urban Water Management Plan. http://www.water.ca.gov/urbanwatermanagement/2010uwmps/Carpenteria%20Valley%20Water%20District/CVWD-Final-UWMP-June-2011-all.pdf.

Intergovernmental Panel on Climate Change. 2006. http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/4_Volume4/V4_10_Ch10_Livestock.pdf.

Santa Barbara County Water Agency. 2007. Integrated Regional Water Management Plan. http://www.countyofsb.org/pwd/pwwater.aspx?id=16866.

———. 2010. 2010 Water Production. http://www.sbwater.org/uploadedFiles/sbwater/Water%20Production%20Table%20SB%20Co%202010.pdf.

———. 2011. Where Does My Water Come From? http://www.sbwater.org/education.aspx?id=420.

Santa Ynez Resource Conservation District. 1998. Urban Water Management Plan. http://www.syrwd.org/view/98.

State of California, Department of Finance. 2010. E-5 Population and Housing Estimates for Cities, Counties and the State, 2001–2010, with 2000 Benchmark. Sacramento.

University of California Cooperative Extension. Cost Reports. http://ucanr.org/

Emissions Included in County Inventory

Sector	Subsector	Activity		$MTCO_2e$	Emissions Generated in Geographic Boundary	County Degree of Influence	ECAP Focus Area
Residential Energy	Residential Electricity	293,717,600	kWh	85,610	No	High	Yes
	Residential Natural Gas	20,655,500	Therms	109,880	Yes	High	Yes
Commercial Energy	Commercial Electricity (including Ag)	143,963,00	kWh	41,960	No	High	Yes
	Commercial Natural Gas (including Ag)	14,967,	Therms	79,620	Yes	High	Yes
Industrial Energy	Industrial Electricity	114,914,400	kWh	33,490	No	Medium	Yes
	Industrial Natural Gas	2,497,800	Therms	13,290	Yes	Medium	Yes
Solid Waste	Landfilled Waste	115,390	tons	90,440	Yes	High	Yes
	Alternative Daily Cover	2,380	tons	1,480	Yes	High	No
Off-Road	Agricultural Equipment	6,878,600	gallons	67,500	Yes	Medium	Yes
	Construction and Mining Equipment	2,882,600	gallons	28,560	Yes	Medium	Yes
	Industrial Equipment	309,800	gallons	2,490	Yes	Medium	No
	Lawn & Garden Equipment	373,700	gallons	2,560	Yes	Medium	Yes
	Light Commercial Equipment	130,400	gallons	1,030	Yes	Medium	No
Water and Wastewater	Electricity used by water systems	85,710	Million Gallons	42,680	Partially	Medium	Yes
	Wastewater Emissions	2,580	Million Gallons	1,550	Partially	Medium	No
	Septic Tanks	8,750	Septic Tanks	5,290	Yes	Medium	No
Agriculture	Fertilizer Emissions	116,400	Acres of Crops	34,080	Yes	Medium	No
	Livestock Emissions	26,200	Livestock	28,030	Yes	Low	No
Transportation	On-road transportation from trips beginning or ending in the unincorporated county.	1,075,523,400	Annual VMT	521,160	Partially	High	Yes
Aircraft	Landings and take-offs from Santa Ynez Airport	70	Daily Flights	2,270	Yes	Low	No
TOTAL				**1,192,970**			

Emissions Excluded from County Inventory

Sector	Subsector	Activity		$MTCO_2e$	Emissions Generated in Geographic Boundary	County Degree of Influence	ECAP Focus Area	Source
Energy Use	County-wide Electricity Use	3,242,000,000	kWh	874,870	Partially	Low	No	SBCAPCD
	County-wide Natural Gas Use	130,756,020	Therms	319,040	Partially	Low	No	SBCAPCD
	Vandenberg Air Force Base Electricity Use	Not Available		Not Estimated	No	Low	No	N/A
	Vandenberg Air Force Base Natural Gas Use	Not Available		Not Estimated	Yes	Low	No	N/A
	UCSB Electricity Use	69,217,570	kWh	Not Estimated	No	Low	No	UCSB
	UCSB Natural Gas Use	2,426,110	Therms	Not Estimated	Yes	Low	No	UCSB
Stationary Sources	Unincorporated Stationary Sources	Not Available		315,890	Yes	Low	No	SBCAPCD
	On-Shore Stationary Sources	Not Available		859,250	Partially	Low	No	SBCAPCD
	Off-Shore Stationary Sources	Not Available		146,410	Partially	Low	No	SBCAPCD
Solid Waste	Landfill Gas Output	Not Available		9,070	Yes	Medium	No	SBCAPCD
Off-Road	Rail Operations	Not Available		38,000	Partially	Low	No	SBCAPCD
	Marine and Shipping Operations	Not Available		690,800	Partially	Low	No	SBCAPCD
Transportation	Transportation on incorporated Area Local Roads	285,843,800	VMT	Not Estimated	No	Low	No	Caltrans
	Transportation on County-maintained roads	309,849,200	VMT	Not Estimated	Yes	Medium	No	Caltrans
	Transportation on State Highways and other Federal or State Roads	271,480,800	VMT	Not Estimated	Partially	Low	No	Caltrans
Aircraft	Aircraft operations at non-County-owned facilities	Not Available		Not Estimated	Partially	Low	No	SBCAPCD

Appendix D. Cost and Benefit Considerations

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Appendix D. Cost and Benefit Considerations

This Appendix provides staff and decision-makers with additional information related to the costs and benefits of the County's proposed measures and actions. The ECAP is a cost-effective plan that prioritizes measures with the potential to achieve the largest greenhouse gas (GHG) reductions for the least cost. Most of the proposed actions are underway in the County and will continue to be implemented with or without the ECAP. The ECAP incorporates and builds on many of the County's existing initiatives, including several measures aimed at government operations, which are already being implemented pursuant to or stemming from the County's Sustainability Action Plan (SAP). While meeting local goals of the County Board of Supervisors (BOS), the ECAP also supports statewide reduction goals established in Assembly Bill (AB) 32 and Senate Bill (SB) 375. Implementation of the ECAP will not only reduce GHG emissions, but will result in a number of other co-benefits. For example, by tracking the County's greenhouse gas emissions, the ECAP will serve as a Qualified GHG Reduction Strategy consistent with the California Environmental Quality Act (CEQA) Guidelines, simplifying environmental review within the county. At the same time, the emission reduction measures (ERMs) identified in this Plan will have beneficial impacts on local and regional economic, social, and environmental conditions such as public health, economic vitality, and resource conservation. The ECAP also provides a range of options for achieving the GHG reduction goal, as well as flexibility to monitor and make adjustments through periodic updates.

Overview of County Costs

A principle strategy of the ECAP is to incorporate and maximize to the greatest extent feasible, existing County projects, policies, and programs that will contribute to the ECAP's GHG reduction goal. These include initiatives related to energy efficiency, waste reduction, and alternative and active transportation, for example. Leveraging the County's existing efforts significantly reduces the cost for ECAP implementation as many of the actions are already underway and will continue with or without the adoption of the ECAP. The ECAP will be implemented through a number of different departments, including Community Services, General Services, Planning and Development, Public Works, Santa Barbara County APCD, and University of California Cooperative Extension through the Agricultural Commissioner's Office. Departments will work to meet their goals and projects either through existing budget, seeking grants, or requesting additional monies. Resource requirements for implementation may need adjustments over time based on annual monitoring data and the degree to which the ECAP's actions are on track to achieve the targeted GHG reduction goal.

It is important to recognize that a few of the measures are considered to be more aspirational, or longer-term, such as Measure AG 4 –"Energy-Efficient Agriculture Operations." This measure could support increased agriculture-related energy conservation by encouraging landowners to participate in

voluntary energy conservation programs through the provision of incentives. Establishing such a program would help to support the GHG reduction goal but is not necessary to achieve the goal. County staff intends to focus initial implementation efforts on the most cost-effective measures. Advances in technology and the introduction and implementation of State programs that are not currently considered in the ECAP will likely provide additional GHG emissions reductions in the next few years, which in turn may reduce the ECAP's implementation resource needs.

Co-Benefits

The emission reduction measures (ERMs) identified in this Plan will have beneficial impacts on local or regional economic, social, and environmental conditions such as public health, economic vitality, or resource conservation. In addition, there are a number of other co-benefits that may be realized as a result of implementation of this ECAP including improved mobility, energy/cost savings, and reduced water use. Some of these benefits are discussed in greater detail below (see also Chapter IV, which notes the co-benefits associated with action with icons). Realization of these co-benefits aligns with the existing initiatives and goals of many of the County's departments including Public Health, Public Works, Community Services, and General Services. In addition, while meeting local goals of the County BOS, the ECAP also supports statewide reduction goals established in AB 32 and SB 375. Also, as mentioned above, the ECAP will serve as a Qualified GHG Reduction Strategy consistent with CEQA Guidelines, simplifying environmental review within the county. These anticipated co-benefits further implement and build on the County's existing environmental and planning initiatives.

Public Health

There is evidence of health impacts associated with climate change including heat stress, asthma, and physical injury. According to a briefing paper prepared by the Climate and Health Alliance and The Climate Institute in August 2012, taking action on climate change can result in immediate health benefits and substantial economic savings (Armstrong 2012). These include:

- Improvements in health and life expectancy;
- Fewer days off work with restricted activity;
- Fewer medical consultations;
- Fewer hospital admissions;
- Reduced use of medication; and
- Increased productivity.

The ECAP incorporates and builds on the County Public Health Department's existing initiatives aimed at addressing the health impacts of climate change.

Improved Mobility

The ECAP includes a number of transportation-related measures aimed at expanding options for alternative and active transportation (e.g. biking and walking), supporting transit-oriented development, and enhancing the pedestrian environment so as to improve mobility for residents of all ages. The County's Public Works Department is already spearheading many of these initiatives such as by

implementing the Santa Barbara County Bicycle Master Plan, improving pedestrian crossings at intersections with roadways and train tracks, and installing video detection systems at its traffic signal locations.

Energy/Cost Savings

This ECAP incorporates many of the County's General Services' Department's existing initiatives aimed at improving energy, water, and fuel-efficiency where it makes economic sense. Moreover, the ECAP provides opportunities to build on emPower's existing outreach program to homeowners and contractors to make cost-effective energy-efficient retrofits. The table below provides generalized costs/energy savings and anticipated payback, meaning an estimate of how long it will take to save enough energy to pay for the cost of the upgrade, for different levels of upgrades. It is important to note that this ECAP encourages, but does not require, energy-efficient upgrades. Rebates and incentives are available from the local utilities and other providers to complete energy upgrades. Because of the variable nature of energy upgrades, a professional audit is recommended to pinpoint potential areas for saving. According to the U.S. Department of Energy, making energy efficiency upgrades identified in a home energy audit can save 5-30 percent on a homeowner's monthly energy bill, while also ensuring the health and safety of the house.

Table D-1. Estimated Cost/Energy Savings for Energy Upgrades

Upgrade Level	Cost/Energy Savings on Homeowner's Monthly Energy Bill	Payback
Low-Level Compact Fluorescent Lights (CFLs) or High-Efficiency (LED) light bulb replacements; low-flow fixtures; water heater blanket; insulate hot water pipes; air sealing/weatherstripping, etc.	- Average Cost: $200-$500 - Estimated energy savings of 5-10% or more	Less than one year to two years
Mid-Level Duct work sealing and insulation; attic and subfloor insulation; attic and subfloor area foam air sealing; high-efficiency furnace; etc.	- Average Cost: $500-$5,000 - Estimated energy savings of 10-15%	Two to five years
High-Level Replace appliances; replace toilets; replace furnace/burner; replace water heater with high-efficiency, tankless, or solar water heater; replace doors/windows; efficient furnace with highly insulated ducts; etc.	- Average Cost: $5,000-$15,000 - Estimated energy savings of 15-30%	More than five years

Sources: U.S. Department of Energy, http://energy.gov/articles/energy-saver-101-infographic-home-energy-audits, last accessed on March 24, 2015; City of Seattle, do-it-yourself home energy audit, last accessed on March 24, 2015 at: http://www.seattle.gov/Documents/Departments/OSE/GreenHomeGuide-FYIenergyaudit.pdf; The Rockefeller Foundation, United States Building Energy Efficiency Retrofits, March 2012, last accessed at http://www.rockefellerfoundation.org/uploads/files/791d15ac-90e1-4998-8932-5379bcd654c9-building.pdf on March 24, 2015; City of Boulder, Residential Retrofit Study in Support of Boulder's Climate Action Plan: The Potential Role of Residential Energy Conservation Ordinances and other Policy Options, October 2008, last accessed at https://www-static.bouldercolorado.gov/docs/retrofit-study-1-201305241423.pdf on March 24, 2015; California Energy Commission, Lighting Research Program Case Studies, October 2005, last accessed at http://www.energy.ca.gov/2005publications/CEC-500-2005-141/CEC-500-2005-141-A26.PDF on March 25, 2015; The Home Depot, http://www.ecooptions.homedepot.com/energy-efficient/appliances/, last accessed on March 24, 2015; Halsell Builders, March 2015.

Resource Conservation

The Waste Reduction (WR) measures proposed in this ECAP are anticipated to result in substantial GHG reductions, but are also representative of the Resource Recovery and Waste Management Division's ongoing efforts to reduce waste and enhance recycling and composting opportunities. The proposed Resource Recovery Project provides the opportunity to bring the County's diversion rate close to 85 percent and will substantially contribute to meeting the ECAP's GHG reduction goals.

Funding Sources

The costs associated with implementing the ECAP may be offset by potential outside funding sources. Implementation of the ECAP includes identifying potential grants and pursuing funding sources. The State's Local Government Partnership (LGP) program is an example of a potential funding source. LGPs are focused on implementing the State's energy efficiency goals, which includes the development and adoption of Climate Actions Plans by local jurisdictions.

Participant Costs/Savings/Payback

Some of the ECAP's measures impose new requirements on project applicants. These measures are discussed below in terms of participant costs, savings, and payback, or an estimate of how long it will take to save enough energy to pay for the cost of the measure, where applicable.

Alternative-Fuel Vehicles and Incentives (T 3)

Measure T 3 identifies actions and incentives to support the increased use of alternative-fuel vehicles, and plans for the development of alternative-fuel infrastructure.

i. Estimated Costs and Benefits by Required Action

Action 1 – Develop new electric vehicle (EV) ready ordinance requiring new one- and two-family dwellings to install conduit for future installation of an EV charging station.

Metric	Value
Cost per Participant	$200
Savings Per Participant	$600 (upfront construction savings)

Recent ordinances in San Diego County, Santa Clara County, Los Angeles County, and Palo Alto estimate that the average cost to install conduit for EV infrastructure would add approximately $200 to total construction costs, compared to four times that amount to retrofit a building to accommodate the infrastructure.

Energy-Efficient Renovations (BE 2)

Measure BE 2 identifies incentives and regulations to improve energy efficiency in existing buildings as they are renovated or altered.

i. Estimated Costs and Benefits by Required Action

Action 2 – Require energy checklist for residential building permits for additions and/or alterations. Offer tutorial on how to complete the energy checklist. Provide information on potential cost savings and available rebates or other incentives. Explore expedited building permit plan check or a waiver of building permit fees for implementing checklist

recommendations. Applicants will also be directed to emPower's Energy Coach Program, which provides free home energy site visits.

Metric	Value
Cost per Participant	$0
Savings per Participant	Up to 30% in energy bill savings if retrofits are completed (see Table D-1 above for information on cost/energy savings and payback for different levels of upgrades)

The measure allows for self-auditing at no cost to the homeowner. The County will provide the energy checklist and a free tutorial for completing the form. Building inspectors may also be available for assistance completing the energy checklist during building permit inspection. Participants will also be directed to other resources for assistance completing the audit or similar energy assessment, such as emPower's free Energy Coach service or local utility programs. While not as thorough as a professional home energy audit, a simple home energy checklist can help pinpoint some of the low-hanging fruit when it comes to energy efficiency upgrades.

Energy Scoring and Audits (BE 4)

Measure BE 4 aims to educate homeowners and nonresidential building owners and promote energy efficiency upgrades of homes and buildings, and encourages disclosure of energy use history when nonresidential buildings are leased or sold. While this measure does not include any requirements, it is important for improving energy efficiency of existing residential buildings—the second largest GHG-emitting sector in the County—and therefore those actions are discussed here.

i. Estimated Costs and Benefits

Action 1 – This action is aimed at developing an outreach program to encourage new homeowners to make energy-efficient upgrades when remodeling or repairing their homes. Outreach will include coordination with local contractors and realtor associations. New homeowners will be encouraged to utilize emPower's Energy Coach program, which provides free energy site visits.

Metric	Value
Cost per Participant	$0
Savings per Participant	Up to 30% in energy bill savings if retrofits are completed (see Table D-1 above for information on cost/energy savings and payback for different levels of upgrades)

Action 3 – Provide resources for individuals self-auditing their home or business energy efficiency.

Metric	Value
Cost per Participant	$0
Savings per Participant	Up to 30% in energy bill savings if retrofits are completed (see Table D-1 above for information on cost/energy savings and payback for different levels of upgrades)

Community Forestry (BE 5)

Measure BE 8 aims to maintain and expand the drought-tolerant and native tree population. Increasing the drought-tolerant and native tree population will not only enhance cooling benefits but will also help to capture and reduce GHG emissions and conserve water in the county.

i. Estimated Costs and Benefits by Required Action

Action 2 – Amend zoning ordinance to require landscape plans to include shade trees in parking lots and street trees, where appropriate.

Metric	Value
Cost per Participant	Varies
Benefits per Participant	Increasing the drought-tolerant or native tree population will not only enhance cooling benefits but will also help to capture and reduce GHG emissions and conserve water in the county

Costs for this action would include the cost for trees and for contractor installation. Actual costs for this measure will vary depending on the site, contractor, and numbers and types of trees required.

Alternative Energy Development (RE 1)

Measure RE 1 increases the use of alternative energy technology as appropriate in new and existing development. This measure includes actions focused on residential, commercial, and agricultural alternate energy opportunities.

i. Estimated Costs and Benefits by Required Action

Action 7 – Develop the solar photovoltaic (PV) ready construction ordinance to require new single-family dwelling units to be built to accommodate future solar PV system installation. The ordinance will include regulations requiring electric panel sizing to accommodate future improvements, the installation of conduit for future roof-mounted solar PV system, and the

reservation of a minimum of 250 square feet of the south-facing roof for future installation of a solar PV or solar water-heating system. It should be noted that on July 1, 2014, changes to the California Building Energy Efficiency Standards mandated these requirements for new residential tract developments of 10 units or more.

Metric	Value
Cost per Participant	$180
Savings per Participant	$2,510 or more (upfront construction savings)

According to studies undertaken by the California Energy Commission, the cost to make a new home solar-ready at time of construction is $180 compared with approximately $2,690 post-construction, and potentially as high as $5,970 in some instances.

Appendix E: Technical Appendix

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Appendix E. Technical Appendix

This technical appendix provides a summary of the data sources, assumptions, and performance metrics used in this ECAP for the County of Santa Barbara to quantify estimated GHG reductions. The sources and metrics are organized by ERM and rely on four primary types of data and research: (1) the County's GHG emissions inventory and forecast, (2) government agency tools and reports, (3) case studies in similar jurisdictions, and (4) scholarly research.

The baseline GHG inventory and forecast serve as the foundation for the quantification of the County's GHG reduction measures. Activity data from the inventory forms the basis of measure quantification, including VMT, kWh of electricity, therms of natural gas consumed, and tons of waste disposed. Activity data was combined with the performance targets and indicators identified by the County and PMC staff. Together, the metrics of activity data and performance targets and indicators were used throughout the quantification process to calculate the GHG reduction benefit of each measure. This approach ensures that the County's GHG reductions are tied to the baseline and future activities that are actually occurring within Santa Barbara County.

LUD 1: Promote infill development.

Action Items

1) Support strategies for sustainable new development by adopting principles and policies that encourage and expedite the permitting of mixed-use, infill, and transit-oriented development, with jobs and housing co-located together where feasible or in close proximity (walking/biking distance) to transit facilities.
2) Review the Comprehensive Plan to determine the extent to which it promotes GHG emissions reductions. Recommend amendments to improve policies and implementation measures to promote GHG emissions reductions.
3) Integrate complete streets policies and projects into updates of the Land Use Element and Circulation Element and into new and existing community plans.
4) 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.
5) Encourage new residential development to be within walking distance (half-mile or less) of public activity centers such as schools, libraries, parks, and community centers.
6) Retrofit existing, older neighborhoods to improve connectivity, redesign circulation, and create walkable streets.
7) Consider developing a program where energy-efficient mixed-use, infill, and transit-oriented development projects can trade GHG credits.

Assumptions	2020	2035
Percentage of new units built in infill locations	25%	25%
Average VMT reduction (%) compared to BAU	10%	10%

Activity and GHG Reduction	2020	2035
VMT reduction	1,210,360	2,992,050
Emissions reduction ($MTCO_2e$)	460	1,050

Performance Indicators	2020	2035
Total infill units to be built	420	910

Method

Data from the inventory was used to identify the average VMT per housing unit. The California Air Pollution Control Officers Association identifies a 10% reduction in VMT per infill housing unit in a suburban center location. Using the target amount of new housing units to be built in infill locations (25% by 2020), the total VMT reduction from new infill units was identified and converted to emissions reductions using emissions factors from the inventory.

GHG Sources

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

Santa Barbara County. 2012. Baseline GHG Emissions Inventory and Forecast.

Santa Barbara County Association of Governments. 2007. 2007 Regional Growth Forecast. http://www.sbcag.org/PDFs/publications/ReginalGrowthforecastComplete%20Final.pdf

LUD 2: Coordinate office, commercial, industrial, and high-density residential developments with mass transit service and existing or proposed bikeways.

Action Items

1) Encourage employers to provide funding for reliable mass transit.
2) Coordinate new, proposed, and existing commuter rail, mass transit service, and bikeways so that alternative transportation modes complement one another.
3) Expand the existing bike network around existing development as proposed in the Bicycle Master Plan.

Assumptions	2020	2035
Percentage of new units in mixed-use developments	10%	10%
Average VMT reduction per unit in mixed-use developments	15%	15%
Percentage of nonresidential square feet in mixed-use developments	10%	10%
Average VMT reduction per square foot in mixed-use developments	15%	15%

Activity and GHG Reduction	2020	2035
VMT reduction	3,241,600	7,271,200
Emissions reduction ($MTCO_2e$)	1,240	2,550

Performance Indicators	2020	2035
Number of units built in mixed-use developments	130	320
Nonresidential square feet built in mixed-use developments	508,510	1,271,280

Method

The Santa Barbara County Association of Governments identified a target of 10% of all new housing units and nonresidential space to be located in mixed-use developments. The California Air Pollution Control Officers Association identified that an average mixed-use housing unit or nonresidential area produces 15% less VMT than traditional separated-use developments. The inventory was used to identify the total amount of VMT resulting from new growth, 10% of which would be produced by new mixed-use developments. This figure was then reduced by 15% to account for the decreases in VMT from mixed use. The VMT reduction was converted to an emissions reduction using factors from the inventory.

GHG Sources

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

Santa Barbara County. 2012. Baseline GHG Emissions Inventory and Forecast.

Santa Barbara County Association of Governments. 2007. 2007 Regional Growth Forecast. http://www.sbcag.org/PDFs/publications/ReginalGrowthforecastComplete%20Final.pdf

LUD 3: Work to increase workforce and affordable housing in Santa Barbara County.

Action Item

1) Continue to provide programs, incentives, and regulations for affordable housing through the County's affordable housing requirements and inclusionary housing program.

Assumptions	2020	2035
Average VMT reduction per affordable unit	12%	12%
Percentage of Regional Housing Needs Allocation housing units developed to be affordable	50%	50%

Activity and GHG Reduction	2020	2035
VMT reduction	2,033,400	5,026,640
Emissions reduction ($MTCO_2e$)	780	1,760

Performance Indicators	2020	2035
Number of affordable housing units by target year	850	1,820

Method

Data from the inventory was used to identify the average VMT per housing unit. Santa Barbara County has identified a goal of 50% of new housing units to be affordable by 2020. Using these figures, the total amount of new affordable housing units and the amount of VMT produced by these units (before any reductions) were calculated. The California Air Pollution Control Officers Association observes that affordable units produce 12% less VMT than market-value housing units. The total VMT from new affordable housing units was therefore reduced by 12% to account for the decrease in VMT as identified by the California Air Pollution Control Officers Association. This VMT reduction was converted to an emissions reduction using factors from the inventory.

GHG Sources

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

Santa Barbara County. 2010. 2009–14 Housing Element. http://longrange.sbcountyplanning.org/programs/housing/housing2009.php

———. 2012. Baseline GHG Emissions Inventory and Forecast.

Santa Barbara County Association of Governments. 2007. 2007 Regional Growth Forecast. http://www.sbcag.org/PDFs/publications/ReginalGrowthforecastComplete%20Final.pdf

T 1: Create new or additional or improve existing car-sharing and ride-sharing programs.

Action Items

1) Work with Traffic Solutions to expand North County Santa Barbara carpool/vanpool programs and increase bus line options.
2) Explore expanding car-sharing options in Santa Barbara County with Traffic Solutions and the Community Environmental Council.
3) Work to effectively implement the CalVans program in Santa Barbara County.
4) Support SBCAG's Park and Ride Program, such as by coordinating with SBCAG during the County's land use approval process.

Assumptions	2020	2035
Commute-to-work mode share of car-share/vanpool	25%	30%
Average percentage VMT reduction per car-share/vanpool participant	40%	40%

Activity and GHG Reduction	2020	2035
VMT reduction	15,071,800	26,496,220
Emissions reduction ($MTCO_2e$)	5,770	9,280

Performance Indicators	2020	2035
Number of car-share/vanpool participants	8,380	10,900

Method

The US Department of Transportation estimated that 25% of total VMT is associated with commute trips, which was combined with data from the inventory to identify the amount of VMT from commuting. The US Census Bureau identified that 19% of unincorporated Santa Barbara County residents commute to work by carpool or car-share/vanpool; it was assumed that half of these commute trips were made by car-share/vanpool. These factors were combined to determine the amount of commute VMT in 2020 if the baseline rate of car-share/vanpool commuting was held constant. Commute VMT was then recalculated if the rate of car-share/vanpool commuting was increased to 25% by 2020, and the difference between the two 2020 VMT figures was the total VMT reduction from the measure. This VMT reduction was converted to an emissions reduction using factors from the inventory. The performance targets for this measure estimated that new car-share/ vanpool participants would decrease their commute-related VMT by an average of 40% or an estimated two days per week.

GHG Sources

Santa Barbara County. 2012. Baseline GHG Emissions Inventory and Forecast.
Santa Barbara County Association of Governments. 2007. 2007 Regional Growth Forecast. http://www.sbcag.org/PDFs/publications/ReginalGrowthforecastComplete%20Final.pdf
US Census Bureau. 2009. American Communities Survey 5-Year Average. Santa Barbara County Economic Statistics.
US Department of Transportation, Federal Highway Administration. 2009. National Household Transportation Survey. http://nhts.ornl.gov/

T 2: Work cooperatively with major local employers to offer incentives and services that decrease single-occupant automobile commuting.

Action Items

1) Encourage and support employers, especially small and medium-sized employers, to voluntarily prepare and implement a Transportation Demand Management (TDM) program for their employees.
2) Provide TDM program education and community briefings annually and/or semiannually.

Assumptions	2020	2035
Commute-to-work mode share of car-share/vanpool	25%	30%
Average percentage VMT reduction per car-share/vanpool participant	40%	40%

Activity and GHG Reduction	2020	2035
VMT reduction	9,043,080	19,430,560
Emissions reduction ($MTCO_2e$)	3,460	6,810

Performance Indicators	2020	2035
Number of car-share/vanpool participants	8,380	10,900

Method

The US Department of Transportation estimated that 25% of total VMT is associated with commute trips, which was combined with data from the inventory to identify the amount of VMT from commuting. The US Census Bureau identified that 19% of unincorporated Santa Barbara County residents commute to work by carpool or car-share/vanpool; it was assumed that half of these commute trips were made by carpool. These factors were combined to determine the amount of commute VMT in 2020 if the baseline rate of carpool commuting was held constant. Commute VMT was then recalculated if the rate of carpool commuting was increased to 25% by 2020, and the difference between the two 2020 VMT figures was the total VMT reduction from the measure. This VMT reduction was converted to an emissions reduction using factors from the inventory. The performance targets for this measure estimated that new carpool participants would decrease their commute-related VMT by an average of 40% or an estimated two days per week.

GHG Sources

Santa Barbara County. 2012. Baseline GHG Emissions Inventory and Forecast.

Santa Barbara County Association of Governments. 2007. 2007 Regional Growth Forecast. http://www.sbcag.org/PDFs/publications/ReginalGrowthforecastComplete%20Final.pdf

US Census Bureau. 2009. American Communities Survey 5-Year Average. Santa Barbara County Economic Statistics.

US Department of Transportation, Federal Highway Administration. 2009. National Household Transportation Survey. http://nhts.ornl.gov/

T 3: Increase the use of alternative-fuel vehicles, and plan for the development of alternative-fuel infrastructure.

Action Items

1) Develop new electric vehicle (EV) ready ordinance requiring new one- and two-family dwellings to install conduit for future installation of an EV charging station.
2) Support efforts to plan for and deploy electric vehicle and alternative-fuel infrastructure in Santa Barbara County.
3) Encourage public and new commercial developments to include designated stalls for low-emitting, fuel-efficient vehicles and carpool/vanpool vehicles and to pre-wire stalls for future electric vehicle charging stations.
4) Amend zoning ordinance to ensure that alternative-fuel stations and support facilities are allowed uses in land use designations that currently allow gas and service stations.
5) Identify alternative-fuel projects to seek funding through the CEC, for example.

Assumptions	2020	2035
Percentage of parking spaces to have EV charging stations	4%	4%

Activity and GHG Reduction	2020	2035
Carbon Fuel VMT Reduction	6,585,600	16,464,000
Electricity Increases (from EV use)	3,655,010	9,137,520
Emissions Reduction ($MTCO_2e$)	1,850	4,790

Performance Indicators	2020	2035
Number of EV charging stations	1,400	3,500

Method

Using data from the Santa Barbara County Association of Governments, the amount of new nonresidential space in unincorporated Santa Barbara County by 2020 was identified. Data from the Institute of Transportation Engineers and Santa Barbara County's parking requirements was used to calculate the total amount of parking spaces needed as a result of this new nonresidential space. Using the targeted amount of new parking spaces to have electric vehicle (EV) charging stations (4% by 2020), the number of new nonresidential EV charging stations was identified. Data about the average amount of electric vehicle VMT, use activity per EV charging station, and the miles-per-gallon equivalent of EVs was combined with the estimated number of new nonresidential EV charging stations to determine the total decrease in gasoline- and diesel-powered VMT, and the increase in electricity use from a greater number

of EVs. These two figures were converted to emissions reductions using factors from the inventory, and the difference between them was taken as the net emissions reduction from the measure.

GHG Sources

California Building Standards Commission. 2010. Title 24, Part 11. California Green Building Code. http://www.bsc.ca.gov/home/calgreen.aspx

Institute of Transportation Engineers. 2010. Parking Generation, 4th Edition: An ITE Informational Report. http://www.ite.org/emodules/scriptcontent/orders/ProductDetail.cfm?pc=IR-034C

Santa Barbara County Association for Governments. 2011. Regional Growth Forecast, Theoretical Buildout Capacity. http://sbcag.org/Meetings/Joint%20TTAC%20TPAC%20August%2011/Item%2011%20RGF%20Buildout%20Assumptions.pdf

T 4: Enhance alternative and active transportation.

Action Items

1) Continue to promote the efforts of the Santa Barbara Car Free program.
2) Continue to require reduced-fare or free transit passes to residents or employers as mitigation of significant traffic impacts for projects.
3) Continue to require projects to include mass transit improvements, such as bus stops, pullouts, and shelters, or funding to assist in the installation of mass transit improvements as mitigation for significant impacts.
4) Continue to identify alternative transportation projects for funding under Measure A.
5) Continue to expand transit opportunities in northern Santa Barbara County and continue to investigate expansion in agricultural communities.
6) Encourage bus service providers in the county to provide more frequent service and to purchase alternative-fuel and articulated buses for greater capacity.
7) Work with the Chamber of Commerce to encourage alternative and active transportation opportunities within the tourism industry.
8) Collaborate with interested organizations to establish a bike-sharing program.

Assumptions	2020	2035
Percentage of residents within 1/4 mile from transit	65%	75%
Percentage of jobs within 1/4 mile from transit	85%	90%

Activity and GHG Reduction	2020	2035
VMT reduction	3,476,270	6,941,220
Emissions reduction ($MTCO_2e$)	1,330	2,430

Performance Indicators	2020	2035
Percentage of residents within 1/4 mile from transit	65%	75%
Percentage of jobs within 1/4 mile from transit	85%	90%

Method

According to the Santa Barbara County Association of Governments, approximately 61% of residents lived within one-quarter mile from transit and 82% of jobs were located within one-quarter mile of transit, as of 2010. The Santa Barbara County Association of Governments identified goals of increasing the number of residents and jobs within one-quarter mile of transit to 65% and 85%, respectively, by 2020. The California Air Pollution Control Officers Association describes the calculation process for determining transit ridership use and net VMT reductions for residents and employees in close proximity to transit stops. This method was used to determine the total VMT reduction from this measure. This VMT reduction was converted to an emissions reduction using factors from the inventory.

GHG Sources

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

Santa Barbara County Association of Governments. 2011. Transit Needs Assessment. http://www.sbcag.org/PDFs/publications/TNA2011_FINAL.pdf

T 5: Complete an integrated bikeway system, linking residences with commercial centers, work locations, schools, parks, and mass transit facilities, to be a high priority for promoting the use of the bicycle as a primary mode of transportation.

Action Items

1) Continue to implement the Santa Barbara County Bicycle Master Plan.
2) Continue to support educational programs for safe and lawful biking, such as through the Santa Barbara Bicycle Coalition and the Coalition for Sustainable Transportation (COAST).
3) Install signage to promote safe biking and discourage actions such as biking on sidewalks.
4) Continue to seek funding to expand the existing bicycle network, especially in the North County.
5) Continue to add more Class I and II bike lanes through local Measure A funding and innovative treatments for buffered and protected lanes.

Assumptions	2020	2035
Miles of bike lane installed	60	90

Activity and GHG Reduction	2020	2035
VMT reduction	4,492,800	7,079,680
Emissions reduction ($MTCO_2e$)	1,720	2,480

Performance Indicators	2020	2035
Number of new bike commuters	1,060	1,700

Method

The Santa Barbara County Draft Bicycle Master Plan identified the total miles of new bike lanes scheduled to be installed (60 miles by 2020). The California Air Pollution Control Officers Association identifies the calculation process for determining increases in bicycle ridership, based on miles of new bike lanes, population and job activity, the average bike commute distance (identified as 5–6 miles in the

draft Bicycle Master Plan), and the percentage of individuals who commute using bikes (identified as 3.7% in the draft Bicycle Master Plan). This process was used to identify the total annual reduction in VMT from increases in installed bike lanes. This VMT reduction was converted to an emissions reduction using factors from the inventory.

GHG Sources

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

Santa Barbara County. 2012. Goleta Valley Community Plan Update.

———. 2012. Santa Barbara County Draft Bicycle Master Plan.

US Department of Transportation, Federal Highway Administration. 2009. National Household Transportation Survey. http://nhts.ornl.gov/

T 6: Improve pedestrian convenience, comfort, and safety.

Action Items

1) Update the Circulation Element countywide and community plan design guidelines to create maximum connectivity between neighborhoods, streets, and projects for pedestrian and bicycle travel.
2) Work with COAST to support the expansion of Safe Routes to School programs to all elementary and middle schools in the county, and assess potential roadway improvements for increased safety in school zones.
3) Where appropriate, direct new development to construct walkable paths that connect land uses and other non-motorized routes and provide safe, marked, high-visibility road crossings at major intersections.
4) Provide and ensure well-lit, safe, accessible connections (e.g. walkways and sidewalks) to commercial nodes, schools, and recreation areas to increase the walkability of communities in the county, especially considering the needs of the growing senior population.
5) Continue to complete gaps in the existing sidewalk system and improve pedestrian crossings at intersections with roadways and train tracks.
6) Support enforcement of the need for vehicles to yield for pedestrians in crosswalks.

Assumptions	2020	2035
Student alternative mode share	30%	30%

Activity and GHG Reduction	2020	2035
VMT reduction	5,286,080	9,357,800
Emissions reduction ($MTCO_2e$)	2,020	3,280

Performance Indicators	2020	2035
Number of students using alternative modes	3,260	3,390

Method

This measure contains two distinct groups of actions: increases in pedestrian connectivity, and increases in students walking to school as part of the Safe Routes to School program. For pedestrian connectivity, the inventory was used to identify the increase in VMT as a result of population and employment growth. The California Air Pollution Control Officers Association identifies a 1.5% decrease in new VMT from increases in pedestrian connectivity. This figure was applied to the estimated increase in VMT to identify the VMT reduction from increased pedestrian connectivity.

Data from the inventory and the Santa Barbara County Education Office was used to identify the number of students in the county, while figures from the US Department of Transportation were used to determine the baseline rate of students walking to school (19%) and the average school trip length (2.5 miles). Using the target for percentage of students walking to school (30% in 2020) and this data, the VMT reduction from an increase in students walking to school was calculated. The two VMT reduction figures were summed to identify the total annual reduction in VMT from this measure. This VMT reduction was converted to an emissions reduction using factors from the inventory.

GHG Sources

California Air Pollution Control Officers Association. 2010. Quantifying Greenhouse Gas Mitigation Measures.
Santa Barbara County. 2012. Goleta Valley Community Plan Update.
Santa Barbara County Education Office. 2011. Annual Pupil Enrollment Report.
———. 2012. Santa Barbara County Draft Bicycle Master Plan.
US Department of Transportation, Federal Highway Administration. 2009. National Household Transportation Survey. http://nhts.ornl.gov/

T 7: Reduce vehicle idling through enforcement and education targeted toward commercial vehicle operators, school parents, and government employees.

Action Item

1) Support enforcement and education to reduce vehicle idling.

Assumptions	2020	2035
Percentage reduction in commercial vehicle idling	5%	10%

Activity and GHG Reduction	2020	2035
Emissions reduction ($MTCO_2e$)	6,590	13,330

Performance Indicators	2020	2035
Percentage reduction in commercial vehicle idling	5%	10%

Method

Data from the inventory was used to identify the number of commercial vehicles in unincorporated Santa Barbara County. The California Air Pollution Control Officers Association identifies an average of 1,600 idling hours per year. These figures were used to identify a total number of idling hours for commercial vehicles in the unincorporated county. The targets for percentage reduction in commercial

vehicle idling (5% in 2020) were translated to emissions reductions using figures in the inventory for GHG emissions per hour of running time for commercial vehicles.

GHG Sources

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

T 8: Implement traffic signal synchronization technologies or traffic calming measures to reduce idling emissions.

Action Item

1) Continue to review traffic signal synchronization and video signal detection technologies to facilitate the flow of cyclists, pedestrians, and traffic through intersections.
2) Continue to transition to LED lights in both traffic signals and overhead lamps where feasible.

Assumptions, Reductions, and Performance Indicators

This measure is supportive of other measures that promote the use of non-motorized transit, including T 5 and T 6, and measures that reduce vehicle idling time, including T 7. There are no assumptions, activity or GHG reductions, or performance indicators for supportive measures.

Method

Supportive measures do not produce direct, measurable GHG reductions, so no calculations were made.

GHG Sources

Supportive measures do not produce direct, measurable G HG reductions. There are no sources for GHG reduction calculations for supportive measures.

T 9: Develop commuter rail connections between employment centers.

Action Items

1) Continue to support SBCAG in working with Union Pacific to accommodate commuter rail.
2) Work with local jurisdictions and transit providers to provide connecting (e.g. jitney) services from station to final destination.
3) Work with Amtrak to provide amenities at rail stations such as comfort stations and bike racks.

Assumptions	2020	2035
Percentage of commuters that will take the train	2%	5%

Activity and GHG Reduction	2020	2035
VMT reduction	5,299,920	15,873,840
Emissions reduction ($MTCO_2e$)	2,030	5,560

Performance Indicators	2020	2035
Number of daily train passengers	290	870

Method

Data from the US Census was used to estimate the average baseline commute trips between unincorporated Santa Barbara County and Ventura County (approximately 11,510) and the average round-trip distance traveled (approximately 70 miles), which was used to calculate total annual VMT for commute trips between these locations. The target commuter rail ridership level (2% by 2020) and figures from the California Air Pollution Control Officers Association were used to calculate the reduction in commute VMT if a commuter rail system was established. This VMT reduction was converted to an emissions reduction using factors from the inventory.

GHG Sources

California Air Pollution Control Officers Association. 2010. Quantifying Greenhouse Gas Mitigation Measures.
Institute of Transportation Engineers. 2007. Trip Generation Manual.
US Census Bureau. 2012. Longitudinal Employer-Household Dynamics. http://lehd.ces.census.gov/

BE 1: Increase public energy conservation and awareness; provide information and education to the general public, businesses, and organizations on the importance of energy conservation and available programs, products, and incentives regarding energy efficiency and alternatives; promote existing low-income energy conservation and weatherization programs; and coordinate with local utility providers and nonprofit corporations to develop additional energy efficiency programs.

Action Item

1) Continue to work with public utilities, private businesses, organizations, and governmental agencies to develop guidelines on energy-efficient design. These guidelines should be disseminated as early in the planning process as possible (e.g., include the guidelines with all initial permit applications, disseminate at the permit zoning counter and at pre-application meetings).
2) Continue to work with public utilities, educational facilities, County departments, city departments, and others that have existing outreach programs to disseminate materials about energy conservation and programs available to the general public, particularly via a new countywide sustainability website.
3) Continue to work with public utilities, private businesses, organizations, and governmental agencies to develop outreach programs designed to inform the general public about the cost and benefits of energy efficiency, including technical options, funding, and incentive programs.
4) Continue public outreach (elementary school component, public workshops, etc.) and employee education mechanisms (e.g. lunch and learns) to teach about energy efficiency and other climate-related initiatives.
5) Continue to encourage and promote utility provider energy conservation programs for residential, commercial, industrial, agricultural, and governmental buildings.
6) Continue to encourage the development of green building and weatherization training programs.
7) Continue to encourage builders to make all new construction solar-ready and to inform their clients about the option to install both solar water heating and photovoltaics.
8) Continue to support programs like the Community Action Commission of Santa Barbara County, which provide free energy services to low-income households, including weatherization, furnace repair, and water heater replacement.

Assumptions	2020	2035
Percentage of people engaged in education programs	20%	25%
Average energy savings from participants	5%	5%

Activity and GHG Reduction	2020	2035
Electricity reduction (kWh)	4,709,730	6,223,530
Energy reduction (therms)	387,190	513,710
Emissions reduction ($MTCO_2e$)	3,150	4,060

Performance Indicators	2020	2035
Number of people participating in education programs	27,840	36,170

Method

Data on total electricity and natural gas use in the unincorporated areas of Santa Barbara County was obtained from the inventory. The California Air Pollution Control Officers Association and Gardner & Stern provided information on the average energy savings from participants in energy conservation awareness programs. This information was combined with a target participation rate in education programs (20% in 2020) to identify the total reductions in electricity and natural gas use. These energy reductions were converted to emissions reductions using factors from the inventory.

GHG Sources

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

Gardner, Gerald T., and Paul C. Stern. 2008. The Short List: The Most Effective Actions U.S. Households Can Take to Curb Climate Change http://www.environmentmagazine.org/Archives/Back%20Issues/September-October%202008/gardner-stern-full.html

BE 2: Incentivize homeowners and commercial and industrial building owners to improve the energy efficiency of existing buildings upon renovation or alteration; support and provide resources for tax credits, grants, loans, and other incentives to assist the public, businesses, and local agencies with the purchase of energy-efficient equipment.

Action Items

1) Maintain a countywide website with resources for tax credits, grants, loans, and other incentives for the purchase of energy-efficient equipment that can build on existing department websites.
2) Require energy checklist for residential building permits for additions and/or alterations excluding repair and maintenance. Offer tutorial on how to complete the energy checklist. Provide information on potential cost savings and available rebates or other incentives. Explore expedited building permit plan check or a waiver of building permit fees for implementing checklist recommendations. Applicants will also be directed to emPower's Energy Coach program, which provides free home energy site visits.

3) Provide energy information on different residential building types in each community. These pilot audits would provide general information about efficient retrofits in different building types without requiring each building to complete an audit.
4) Continue to incentivize energy-efficient retrofits through direct rebates and financing, and investigate additional incentives, such as property tax rebates.
5) Encourage participation in the County's emPower Central Coast program and Energy Upgrade California.
6) Reconsider pursuing participation in an established program or development of a County program, such as commercial PACE, to incentivize energy efficiency upgrades in commercial and multi-family buildings.

Assumptions	2020	2035
Percent of residential building permits leading to retrofits	20%	30%
Average energy savings per residential retrofit (%)	30%	30%
Square foot or % of non-residential buildings retrofitted	30%	50%
Average energy savings per non-residential building (%)	30%	30%

Activity and GHG Reduction	2020	2035
Energy Savings (kWh)	21,702,220	48,768,130
Energy Savings (Therms)	1,962,140	4,156,160
Emissions Reduction ($MTCO_2e$)	15,480	32,460

Performance Indicators	2020	2035
Number of residential building permits leading to retrofits	4,530	14,080
Number of nonresidential parcels retrofitted	120	200

Method

The inventory provided 2010 residential and nonresidential electricity and natural gas use; as this measure only applies to existing buildings, energy use from buildings constructed post-2010 is not included. Data from the emPower Central Coast program and the U.S. Department of Energy indicates that energy retrofits to existing buildings can reduce energy use by 30%. These figures were combined with the targeted retrofit participation rates for homes and businesses (20% and 30%, respectively, by 2020) to estimate the total reductions in electricity and natural gas use. These energy reductions were converted to emissions reductions using factors from the inventory. To avoid overlap with BE 4, building permits for new homes were not included in the GHG quantification for this measure.

GHG Sources

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

emPower Santa Barbara County. 2012. emPower Santa Barbara County Program Results. http://www.empowersbc.org/

Santa Barbara County. 2009. Santa Barbara County Municipal Energy Financing District Feasibility Study. http://www.countyofsb.org/uploadedFiles/housing/CCEIP/SBCO_FeasibilityStudyFinal.pdf

Santa Barbara County. Planning and Development. Building Permit Data. February 27, 2015.

U.S. Department of Energy. 2013. Do it yourself home energy audits. http://energy.gov/energysaver/articles/do-it-yourself-home-energy-audits

BE 3: Increase participation in the Santa Barbara County Green Business Program (GBP).

Action Items

1) Highlight the efforts of businesses participating in the Santa Barbara County Green Business Program.
2) Provide information about the Santa Barbara County Green Business Program when new business license applications are received by the County Treasurer/Tax Collector.
3) Support the Green Business Program.

Assumptions	2020	2035
Percent of businesses participating	10%	15%
Average Energy Savings per Green Business Participant	15%	15%

Activity and GHG Reduction	2020	2035
Energy Savings (kWh)	2,495,770	4,068,310
Energy Savings (Therms)	259,490	422,980
Emissions Reduction ($MTCO_2e$)	1,960	3,100

Performance Indicators	2020	2035
Number of Certified Green Businesses	100	150

Method

Data from the inventory was used to identify the electricity and natural gas use of commercial buildings, while information from the US Census identified the number of businesses in unincorporated Santa Barbara County. With a target participation rate of businesses participating in the Green Business Program (10% by 2020) and an estimated energy savings of 15% per Green Business participant based on data from the Santa Barbara County Green Business Program, the reduction in commercial electricity and natural gas use was calculated. These energy reductions were converted to emissions reductions using factors from the inventory.

GHG Sources

Green Business Santa Barbara County. 2012. Green Business Guide Book. http://www.greenbizsbc.org/
US Census Bureau. 2009. American Communities Survey 5-Year Average. Santa Barbara County Economic Statistics.

BE 4: Promote energy efficiency upgrades of buildings, and encourage disclosure of energy use history when nonresidential buildings are leased or sold.

Action Items

1) Develop an outreach program to encourage new homeowners to make energy-efficient upgrades when remodeling or repairing their homes. Outreach will include coordination with local contractors and realtor associations. New homeowners will be encouraged to utilize emPower's Energy Coach program, which provides free energy site visits.
2) Encourage all nonresidential properties, even those not covered by AB 1103, to provide buyers or tenants with the previous year's energy use by documenting use through the EPA's EnergyStar Portfolio Manager with a 50% participation rate goal by 2016. If a 50% participation rate is not achieved by 2016, the County will consider requiring participation of building owners by 2020.
3) Provide resources for individuals self-auditing their home or business energy efficiency.

Assumptions	2020	2035
Percent of Homes Sold Receiving Energy Upgrade Information or Energy Scores Provided	95%	95%
Retrofit Participation Rate	25%	25%
Housing Units Sold Per Year	4,290	4,290
Percent of businesses complying with AB 1103	75%	75%

Activity and GHG Reduction	2020	2035
Energy Savings (kWh)	28,558,600	54,782,830
Energy Savings (Therms)	2,638,160	4,536,980
Emissions Reduction ($MTCO_2e$)	20,670	35,790

Performance Indicators	2020	2035
Cumulative number of residential retrofits	6,120	21,416
Percentage of businesses complying with AB 1103	75%	75%

Method

The inventory provided the total electricity and natural gas use for residential and nonresidential buildings, while the Santa Barbara County Office of the Assessor supplied information on the number of building sales per year. This information was used to identify the total amount of energy used by buildings experiencing a transfer of ownership or participating in benchmarking programs under AB 1103. Using assumptions about participation (25% of for-sale homes will be retrofitted, and 75% of nonresidential buildings will participate in benchmarking under AB 1103 and retrofits by 2020), and with information about the amount of energy saved per building from a similar program in the City of Berkeley (25%), the total amount of electricity and natural gas savings from this measure was calculated. These energy reductions were converted to emissions reductions using factors from the inventory.

GHG Sources

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

emPower Santa Barbara County. 2012. emPower Santa Barbara County Program Results. http://www.empowersbc.org/

Santa Barbara County Office of the Assessor. 2012. Grantor-Grantee Index. http://www.sbcvote.com/assessor/AssessorParcelMap.aspx

U.S. Department of Energy. 2013. Do it yourself home energy audits. http://energy.gov/energysaver/articles/do-it-yourself-home-energy-audits

BE 5: Maintain and expand the drought-tolerant and native tree population

Action Items

1) Consider developing a shade tree program that provides free drought-tolerant or native trees to residents and businesses for planting adjacent to buildings to reduce building heat gain.
2) Amend zoning ordinance to require landscape plans to include shade trees in parking lots and street trees, where appropriate.
3) Assess existing trees on a proposed project site to determine compatibility with landscaping, shading, and solar access goals, and protect existing trees to the maximum extent feasible.
4) Develop a comprehensive community tree program or adopt the Street Tree Policy for planting and maintaining drought-tolerant or native trees on County-maintained roads, medians, and public parking lots.
5) Continue tree replacement and mitigation when removing trees with new development.
6) Continue to require the protection of native trees on land with proposed development.
7) Form partnerships with local advocacy and community groups to fund the planting and maintenance of native or drought-tolerant street trees.

Assumptions	2020	2035
Trees planted per year	300	300
Number of trees planted	3,000	7,500

Activity and GHG Reduction	2020	2035
Emissions reduction ($MTCO_2e$)	640	1,610

Performance Indicators	2020	2035
Number of existing street trees	23,000	26,000
Total urban area covered by trees (square feet)	35,188,950	39,778,810

Method

Data from the Santa Barbara County Public Works Department was used to identify the number of street trees by type of foliage and size. Following a calculation process identified by the California Air Pollution Control Officers Association and using targets for the number of new trees planted each year, the percentage of the urbanized area in unincorporated Santa Barbara County that would be shaded by the street tree canopy was determined. This information was entered into a tree carbon sequestration tool to calculate the emissions reduction from an increase in carbon uptake by street trees.

GHG Sources

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

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

Santa Barbara County Public Works Department. 2012. Public Works Tree Inventory. http://www.countyofsb.org/pwd/roads/tree.htm

BE 6: Support the local utility providers' implementation of smart grid technology in new and existing residential and nonresidential properties.

Action Items

1) Encourage the installation of real-time energy monitoring (such as smart meters) for natural gas, electricity, and water meters on all residential and nonresidential buildings.
2) Work with the utility companies to develop a web-based application to provide customers with real-time feedback on their energy consumption and related costs.
3) 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.
4) 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.

Assumptions	2020	2035
Percentage of customers with smart meter technology	85%	90%
Percentage of smart meter–enabled customers participating in monitoring program	50%	75%
Average electricity savings from use of smart meter apps	7%	7%

Activity and GHG Reduction	2020	2035
Energy Savings (kWh)	14,411,780	24,197,080
Emissions Reduction ($MTCO_2e$)	3,350	5,620

Performance Indicators	2020	2035
Percentage of customers with smart meter technology	85%	90%
Percentage of smart meter–enabled customers participating in monitoring program	50%	75%

Methods

Data on total electricity use was obtained from the inventory. This was combined with the goals for the percentage of customers with a smart meter (85% by 2020) and the percentage of smart meter customers who actively monitor their energy use (50% by 2020) to determine the amount of electricity which will be actively monitored. A study by Ehrhardt-Martinez, Donnely, and Laitner identified the reduction in electricity use from customers who actively monitor their account to be approximately 7%. This was combined with the amount of electricity which is expected to be actively monitored in order

to determine the reductions in electricity use as a result of this measure. This energy reduction was converted to an emissions reduction using factors from the inventory.

GHG Sources

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

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

BE 7: Increase the use of electric or alternative-fuel lawn and garden equipment through the development of an exchange or rebate program.

Action Items

1) Work with the Santa Barbara County Air Pollution Control District (SBCAPCD) to include lawn and garden equipment in the Cash for Cleaner Engines program.
2) Discourage the use of lawn and garden equipment with two-stroke engines.

Assumptions	2020	2035
Percentage of lawn mowers to be exchanged	15%	25%

Activity and GHG Reduction	2020	2035
Increase in electricity use (kWh)	96,660	167,700
Net emissions reduction ($MTCO_2e$)	50	80

Performance Indicators	2020	2035
Number of lawn mowers replaced	2,690	4,660

Methods

Data on the number of lawn mowers in the unincorporated areas of Santa Barbara County and the GHG emissions from their fuel use was obtained from the inventory and the California Air Resources Board. The target percentage of lawn mowers to be exchanged (15% in 2020) was multiplied by the emissions from all lawn mower use in order to identify the emissions from the units scheduled to be replaced. Data from the Eugene Water & Electric Board was used to determine the average annual electricity use of an electric-powered lawn mower. Using this figure and the number of lawn mowers to be replaced as previously identified, the increase in electricity use from the measure was determined. This energy increase was converted to an emissions increase using factors from the inventory. The difference between the emissions reduction from the decrease in fuel use and the additional emissions from the increase in electricity use is equal to the net emissions reduction from this measure.

GHG Sources

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

California Air Resources Board. 2007. Off-Road Software.

Eugene Water & Electric Board. 2013. Typical Residential Electricity Use and Cost.

BE 8: Implement energy efficiency and green building practices in new and existing developments to exceed the California Green Building Standards Code (Title 24) standards.

Action Items

1) Continue to use the Smart Build Santa Barbara (SB2) Committee, designated by the County Building Official, to incentivize green building practices. The committee will function on a voluntary basis and comprise professionals with specific expertise in energy-efficient building, including the gas and electric utilities, as well as architects and energy specialists. Its membership will be approved by the County Building Official.
2) Encourage applicants to exceed the California Energy Standards Code (Title 24, Part 6) by 15% and earn 25 points for residential buildings or 15 points for nonresidential buildings from the County's SB2 checklist.
3) Encourage the installation of energy-efficient materials and equipment that substantially exceed the requirements of Title 24 for all new and existing development.
4) Explore providing incentives such as expedited building permit plan check and energy plan check fee reductions to development projects that achieve CALGreen's Tier 2 standard or beyond. Investigate providing additional incentives for implementing environmental-efficiency and green building practices.
5) Continue to provide homeowners and commercial building owners with information on cost-benefit analysis for energy-efficient measures and available audit and rebate programs. The information would be disseminated early in the planning process and may be available via a countywide sustainability website.
6) Continue to encourage energy-efficient upgrades on all development projects.
7) Encourage the use of post-consumer recycled content and/or certified sustainable production in building materials.
8) Encourage building design, materials production, and construction practices that minimize waste.
9) Continue to provide resources and explore providing incentives to residents and businesses on carbon-reduction actions in existing buildings, including energy efficiency, renewable energy, choice of materials, and building reuse.

Assumptions	2020	2035
Percentage of new buildings exceeding Title 24 requirements	15%	50%
Average percentage above Title 24 standards (as amended) of new buildings	15%	25%

Activity and GHG Reduction	2020	2035
Energy Savings (kWh)	160,670	1,535,600
Energy Savings (Therms)	52,550	522,720
Emissions reduction ($MTCO_2e$)	320	3,010

Performance Indicators	2020	2035
Number of new homes exceeding Title 24 requirements	420	2,880
Number of new nonresidential buildings exceeding Title 24	10	50

Method

Data from the inventory was used to identify the amount of electricity and natural gas used by new residential and nonresidential buildings. According to the South Coast Air Quality Management District, 85% of this energy use will be in buildings subject to the Title 24 standards. The measure specifies that 100% of applicable buildings will reduce energy use beyond the requirements of CALGreen (15% by 2020). Energy savings were calculated by reducing 85% of future energy use by the average percentage above Title 24 standards for the applicable year. These energy reductions were converted to emissions reductions using factors from the inventory.

GHG Sources

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

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

South Coast Air Quality Management District. 2011. California Emissions Estimator Model. http://www.caleemod.com

BE 9: Assist architects, builders, and others in using state-of-the art energy technology, design, and spatial orientation for more efficient buildings. Increase the use of passive solar design and daylighting in existing and new structures.

Action Items

1) Continue to encourage the use of energy-efficient equipment, including but not limited to EnergyStar appliances, high-efficiency equipment, heat recovery equipment, and building energy management systems, in all new and existing development.
2) Encourage new development projects to utilize cool pavement materials, provide shade from structures covered by solar panels, or use an open-grid pavement system to reduce the heat island effect.
3) Encourage the use of alternative, energy-efficient construction types (straw bale, insulated block, rammed earth, pumice-create, etc.), especially using locally available materials.
4) Encourage projects to install solar energy systems for heating swimming pools.
5) Encourage the installation of green roofs or cool roofs or minimizing the use of dark materials on roofs to achieve a minimum solar reflectivity.
6) Continue to encourage the replacement of inefficient appliances, such as natural gas and propane space and water heating/furnaces, with more efficient and/or alternative-fuel appliances.
7) 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.
   -Sustainable site design and landscaping to create comfortable microclimates.
   -Use of lighting shelves, exterior fins, skylights, atriums, courtyards, or other features to enhance natural light penetration.
8) Develop an informational sheet that describes passive solar designs (orientation of buildings, vegetative shading, light-colored roofs, daylighting, etc.) and other energy efficiency features. This

sheet would be disseminated early in the planning process and should refer applicants to the SB2 Program for further information and guidance.

Assumptions, Reductions, and Performance Indicators

This measure is supportive of other measures that promote the use of passive solar techniques, including BE 8 and RE 2. There are no assumptions, activity or GHG reductions, or performance indicators for supportive measures.

Method

Supportive measures do not produce direct, measurable GHG reductions, so no calculations were made.

GHG Sources

Supportive measures do not produce direct, measurable GHG reductions. There are no sources for GHG reduction calculations for supportive measures.

BE 10: Implement best management practices (BMPs) for construction equipment operation; examples of BMPs include reduced equipment idling, use of alternative fuels or electrification of equipment, and proper maintenance and labeling of equipment.

Action Item

1) Develop informational resources, such as a brochure, for best practices for construction equipment operation.

Assumptions	2020	2035
Percentage of projects implementing BMPs	90%	90%
Average percentage of GHG reduction per BMP	21%	21%
Average percentage of BMPs implemented	50%	50%

Activity and GHG Reduction	2020	2035
Emissions reduction ($MTCO_2e$)	990	980

Performance Indicators	2020	2035
Percentage of projects implementing BMPs	90%	90%

Method

The inventory was used to determine the amount of emissions from construction equipment. Data from the California Air Pollution Control Officers Association was used to identify the reduction in construction equipment emissions if a full spectrum of best management practices are implemented during the project (21%). Based on assumptions that 90% of projects will implement best management practices and that each project will implement 50% of potential best management practices on average, the emissions reduction from this measure was calculated.

GHG Sources

California Air Pollution Control Officers Association. 2010. Quantifying Greenhouse Gas Mitigation Measures.
California Air Resources Board. 2007. Off-Road Software.

BE 11: Maintain and strengthen the existing training of Planning and Development, Building and Safety Division personnel to remain proficient and consistent in reviewing plans for compliance with the energy code.

Action Item

1) Continue to educate staff and the public about green building through partnerships with local nonprofit organizations and professional planning and building organizations.

Assumptions, Reductions, and Performance Indicators

This measure is supportive of other measures that promote compliance with green building codes, including BE 8. There are no assumptions, activity or GHG reductions, or performance indicators for supportive measures.

Method

Supportive measures do not produce direct, measurable GHG reductions, so no calculations were made.

GHG Sources

Supportive measures do not produce direct, measurable GHG reductions. There are no sources for GHG reduction calculations for supportive measures.

RE 1: Increase the use of alternative energy technology in appropriate new and existing development.

Action Items

1) Support the establishment of federal and state funds to provide low-interest loans for alternative energy technology.
2) Expand emPower Central Coast to allow funding of multi-family housing and alternative energy packages, such as solar-only projects on single-family housing.
3) Where appropriate and feasible, remove impediments (e.g., prolonged review due to a proposal including a new or different technology) to the utilization of alternative energy technologies that are cost-effective and contribute to improved environmental conditions.
4) Reconsider commercial PACE programs to finance energy efficiency and renewable energy improvements.
5) Encourage the use of anaerobic digesters in agriculture, wastewater treatment, and solid waste management.
6) Identify policies and practices to attract businesses that develop or market alternative energy technologies.
7) Develop the solar photovoltaic (PV) ready construction ordinance to require new single-family dwelling units to be built to accommodate future solar PV system installation. The ordinance will include regulations requiring electric panel sizing to accommodate future improvements, the installation of conduit for future roof-mounted solar PV system, and the reservation of a minimum of 250 square feet of the south-facing roof for future installation of a solar PV or solar water-heating system.

Assumptions	2020	2035
Average size of residential renewable energy system (kW)	5	5
Average size of nonresidential renewable energy system (kW)	12	12
Number of residential renewable energy systems installed per year	80	50
Number of nonresidential renewable energy systems installed per year	70	20
Program years	6	21

Activity and GHG Reduction	2020	2035
Energy Generated (kWh)	7,154,000	20,622,500
Emissions Reduction ($MTCO_2e$)	1,663	4,790

Performance Indicators	2020	2035
Total residential renewable energy systems installed	300	1,050
Total nonresidential renewable energy systems installed	200	500

Methods

Data from the California Solar Statistics website, specific to Santa Barbara County, was used to identify average size in kilowatts (kW) of residential and nonresidential solar photovoltaic systems and the average number of residential and nonresidential systems installed per year. This information was used to calculate the cumulative number of kW installed by certain years. The kW of installed systems was converted to the annual amount of electricity generated (kWh) using local climatic factors about the availability of sunlight. As energy produced from local renewable sources is effectively the same as reducing energy use from a utility company, the savings in energy use from the utility company were converted to emissions reductions using factors from the inventory.

GHG Sources

California Solar Statistics. 2012. Download Current CSI Data. http://www.californiasolarstatistics.ca.gov/current_data_files/

RE 2: Increase the replacement of existing water heaters with high-efficiency, tankless, or solar water heaters.

Action Item

1) Continue to require new residential development to use high-efficiency water heaters or tankless heaters and continue to encourage new and existing development to participate in the State's CSI-Thermal program, which provides rebates to utility customers who install solar thermal systems to replace water-heating systems powered by electricity or natural gas.

Assumptions	2020	2035
Average percent saved per water heater (Therms)	70%	70%

Activity and GHG Reduction	2020	2035
Energy Generated (Therms)	8,140	56,990
Emissions Reduction ($MTCO_2e$)	40	290

Performance Indicators	2020	2035
Number of solar water heaters installed	60	420

Method

Data from the California Energy Commission was used to estimate the average amount of natural gas saved by solar water heaters. This information was combined with the target amount of solar water heaters installed (2,910 by 2020) to determine the total reduction in natural gas use. This energy reduction was converted to an emissions reduction using factors from the inventory.

GHG Sources

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

California Energy Commission. 2010. 2009 California Residential Appliance Saturation Study. Volume 2: Results. http://www.energy.ca.gov/2010publications/CEC-200-2010-004/CEC-200-2010-004-V2.PDF

RE 3: Adopt a policy or program that offers incentives (such as streamlined permitting, permit waivers, or fee waivers) to encourage a switch in electricity generation from fossil fuels to renewable sources through small-scale renewable electricity generation.

Action Items

1) Continue to expedite review of solar projects by Building and Safety
2) Pursue updates to the small wind ordinance to include areas subject to Coastal Commission review.
3) Provide information on group purchasing programs of solar equipment and other funding options to encourage renewable energy installations.
4) Consider implementing a group purchasing program in partnership with local solar installers, green builders, or nonprofit organizations to implement solar electricity on single-family residential, multi-family residential, and commercial properties.

Assumptions	2020	2035
Annual number of Solarize Santa Barbara participants (beginning in 2011)	50	50
Percentage of total Solarize Santa Barbara participants in unincorporated county	50%	50%
Average renewable energy system size (kW)	5	5

Activity and GHG Reduction	2020	2035
Electricity generated (kWh)	6,387,500	5,246,880
Emissions reduction ($MTCO_2e$)	1,480	1,220

Performance Indicators	2020	2035
Number of total Solarize Santa Barbara participants in unincorporated county	700	580

Method

Data from the California Solar Statistics website, specific to Santa Barbara County, was used to identify average size in kilowatts (kW) of residential solar photovoltaic systems. This information was combined with a goal for the number of new Solarize Santa Barbara participants each year (50) and an estimate of how many would be located in the unincorporated areas (50%). This information was used to calculate the cumulative number of kW installed by certain years. The kW of installed systems was converted to the annual amount of electricity generated (kWh) using local climatic factors about the availability of sunlight. As on-site renewable energy generation is equivalent to reductions in energy use from a utility company, the savings in energy use from the utility company were converted to emissions reductions using factors from the inventory.

GHG Sources

California Solar Statistics. 2012. Download Current CSI Data. http://www.californiasolarstatistics.ca.gov/current_data_files/

RE 4: Promote the use of clean alternative energy production by encouraging development of utility-scale renewable electrical generation facilities.

Actions

1) Support the use of renewable energy sources such as sun, wind, and wave, and waste-to-energy production (such as the Resource Recovery Project using anaerobic digestion).
2) Consider expanding ordinance allowing installation of photovoltaic solar systems on agricultural land.

Assumptions	2020	2035
Annual production of County Jail PV project (kWh)	1,825,000	1,825,000
Number of mid-sized projects installed	10	25
Average size of mid-sized projects (MW)	3	3

Activity and GHG Reduction	2020	2035
Energy Generated (kWh)	45,625,000	111,325,000
Emissions reduction ($MTCO_2e$)	10,610	25,880

Performance Indicators	2020	2035
Number of mid-sized projects installed	10	25
MW from the County Calle Real/San Antonio Campus PV project	1	1

Method

Reporting from the *Santa Barbara Independent* was used to identify the megawatts (MW) of the photovoltaic project at the County Jail. Data from the Santa Barbara County Department of Public Works was used to identify the targeted number of mid-sized projects installed (10 by 2020). Mid-sized projects are generally 1–5 MW in size, so the mid-sized projects analyzed in this measure are assumed to be an average of 3 MW. The MW from the County Jail photovoltaic installation and the various mid-sized projects were used to calculate the annual amount of electricity generated (kWh), using local climatic factors about the availability of sunlight. This kWh value was combined with surplus electricity produced from the Resource Recovery Project (see the entry for WR 4 for details) to produce a total kWh figure. Renewable energy generation can be treated as a reduction in energy provided by the utility company, for purposes of GHG analyses, and so the savings in energy use from the utility company were converted to emissions reductions using factors from the inventory.

GHG Sources

County of Santa Barbara. 2012. http://www.independent.com/news/2012/mar/27/solar-project-will-power-county-campus/

Santa Barbara County Department of Public Works. 2012. The Resource Recovery Project at the Tajiguas Landfill Subsequent EIR Scoping Document. http://www.conversiontechnologystudy.com/media/documents/TJ%20RRP%20NOP%20SCOPING%204_11_12%20FINAL%20with%20figures.pdf

IEE 1: Support legislation for tax credits, grants, loans, and other incentives to assist the public, businesses, and local agencies with the purchase of energy-efficient equipment.

Action Items

1) Continue to support the development of state and federal resources such as tax credits, loans, and other incentives for the purchase of energy-efficient equipment.
2) Provide outreach and education, particularly via a countywide sustainability website, to large industrial energy users to increase awareness of utility-sponsored incentive and rebate programs specific to large equipment and operations.

Assumptions	2020	2035
Percentage of industrial facilities installing new equipment	25%	50%

Activity and GHG Reduction	2020	2035
Energy Savings (kWh)	4,915,540	10,879,730
Energy Savings (Therms)	106,850	236,480
Emissions Reduction ($MTCO_2e$)	1,710	3,730

Performance Indicators	2020	2035
Percentage of industrial facilities installing new equipment	25%	50%

Method

Data from the inventory was used to identify the amount of electricity and natural gas used by industrial buildings. Information from the South Coast Air Quality Management District was used to determine the amount of industrial electricity and natural gas used by appliances, while the California Air Pollution Control Officers Association provided information about the reductions in energy use from installing new and efficiency industrial equipment. Energy and natural gas savings were calculated using these factors and the target percentage of industrial facilities installing new equipment (25% by 2020). These energy reductions were converted to emissions reductions using factors from the inventory.

GHG Sources

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

South Coast Air Quality Management District. 2011. California Emissions Estimator Model. http://www.caleemod.com/

IEE 2: Increase industrial energy user participation in energy management programs such as the EnergyStar Benchmarking Program to ensure the efficient use of energy resources and proper operation of equipment and facilities.

Action Item

1) Provide resources (such as a countywide sustainability website), educational programs, and incentives for energy management programs to ensure efficient use of energy resources and proper operation of equipment and facilities.

Assumptions	2020	2035
Average percentage of electricity savings from retrocommissioning (kWh)	14%	14%
Average percentage of natural gas savings from retrocommissioning (Therms)	6%	6%
Participation rate	25%	50%

Activity and GHG Reduction	2020	2035
Electricity reduction (kWh)	1,101,080	1,137,290
Natural gas reduction (Therms)	10,260	9,890
Emissions reduction ($MTCO_2e$)	310	320

Performance Indicators	2020	2035
Participation rate	25%	50%

Method

The inventory provided information about the amount of electricity and natural gas used by industrial buildings. Data from Southern California Edison was used to identify the average percentage reductions in industrial electricity and natural gas use from retrocommissioning. These factors were combined with a target participation rate (25% by 2020) to estimate the amount of electricity and natural gas saved from retrocommissioning of industrial facilities. These energy reductions were converted to emissions reductions using factors from the inventory.

GHG Sources

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

South Coast Air Quality Management District. 2011. California Emissions Estimator Model. http://www.caleemod.com/

Southern California Edison. n.d. SCE Energy-Efficiency Filings – Retrocommissioning. http://asset.sce.com/Regulatory/Energy%20Efficiency%20Filings/SCE2508RETROCOMMISSIONING.pdf

IEE 3: Implement energy efficiency upgrades at industrial facilities through streamlining permit review, providing rebates for audits, and highlighting best practices among similar energy users.

Action Items

1) Pursue incentives to encourage energy efficiency upgrades at industrial facilities. Evaluate program participation and consider a mandatory program if participation falls below 10% of total industrial facilities.
2) Develop resources for best practices among industrial facilities.

Assumptions	2020	2035
Percentage of facilities audited	50%	80%
Percentage of facilities completing renovations from audits	90%	90%
Average energy savings per facility	30%	30%

Activity and GHG Reduction	2020	2035
Electricity reduction (kWh)	17,695,940	31,333,620
Natural gas reduction (Therms)	334,640	615,430
Emissions reduction ($MTCO_2e$)	5,910	10,410

Performance Indicators	2020	2035
Percentage of facilities audited	50%	80%
Percentage of facilities completing renovations from audits	90%	90%

Method

The inventory was used to supply data about the total electricity and natural gas use of industrial facilities. A target for the amount of industrial facilities audited (50% by 2020) was combined with data from the California Air Pollution Control Officers Association and Chittum, Elliot, and Kaufman about the percentage of audited facilities completing renovations and the anticipated savings in energy and natural gas use. These factors were used to estimate the total savings in electricity and natural gas use from audits and energy efficiency retrofits. These energy reductions were converted to emissions reductions using factors from the inventory.

GHG Sources

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

Chittum, Anna, Neal Elliot, and Nate Kaufman. 2009. "Trends in Industrial Energy Efficiency Programs: Today's Leaders and Directions for the Future." American Council for an Energy-Efficient Economy. http://www.aceee.org/sites/default/files/publications/researchreports/ie091.pdf

IEE 4: Increase the use of energy-efficient or EnergyStar-rated equipment at new or renovated industrial facilities.

Action Items

1) Provide education, resources, and assistance, such as via a countywide sustainability website, for the installation of energy-efficient equipment at new or renovated industrial facilities.
2) Support or partner with state agencies or nonprofit groups to implement an energy efficiency retrofit program to increase energy efficiency in existing industrial facilities.

Assumptions	2020	2035
Percentage of additional facilities to upgrade equipment	10%	25%

Activity and GHG Reduction	2020	2035
Electricity reduction (kWh)	1,331,080	3,616,280
Natural gas reduction (Therms)	138,390	375,990
Emissions reduction ($MTCO_2e$)	1,050	2,750

Performance Indicators	2020	2035
Percentage of additional facilities to upgrade equipment	10%	25%

Method

The amount of electricity and natural gas used in industrial facilities was identified from the inventory. Data from the South Coast Air Quality Management District was used to determine the amount of

industrial electricity and natural gas used by appliances, while information from the California Air Pollution Control Officers Association was used to determine the energy reductions from industrial appliance replacement programs. Energy and natural gas savings were calculated using these factors and the target percentage of industrial facilities installing new equipment (10% by 2020), in addition to the target percentage identified in measure IEE 1 (see IEE 1 for details). These energy reductions were converted to emissions reductions using factors from the inventory.

GHG Sources

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

South Coast Air Quality Management District. 2011. California Emissions Estimator Model. http://www.caleemod.com

WR 1: Continue to support the programs associated with efficient waste collection and recycling, public school education, and composting.

Action Items

1) Continue to enhance community understanding of resource recovery and waste management programs such as by placing stickers on recycling bins, distributing refrigerator magnets, maintaining a website, and distributing brochures.
2) Continue the home composting education campaign and the discounted sale of composting bins.
3) Continue to look for opportunities to remove food waste from landfills, such as curbside composting for restaurants.
4) Continue to implement recycling programs for schools and businesses.
5) Support environmentally preferable purchasing programs.
6) Support waste reduction regulations such as a plastic bag ban.
7) Continue to implement an evaluation mechanism to measure waste prevented by preservation, reuse, and thoughtful consumption.

Assumptions	2020	2035
Goal diversion rates	85%	95%

Activity and GHG Reduction	2020	2035
Tons of Organics Reduced	24,170	40,230
Emissions reduction ($MTCO_2e$)	19,020	31,560

Performance Indicators	2020	2035
Goal diversion rates	85%	95%

Method

Data from the inventory, CalRecycle, and the Santa Barbara County Department of Public Works was used to identify the existing diversion rate, the tons of material being sent to the landfill, and the proportion of landfilled waste that is organic and can be diverted for composting (37.2%). These calculations assume that the diversion rate of organic materials is increased to the targeted total diversion rate (85% in 2020) from the baseline rate of 68%. This was used to calculate a decrease in the

total amount of materials being sent to the landfill, which was converted to an emissions reduction using factors from the inventory.

GHG Sources

CalRecycle. 2009. Waste Disposal Characterization. http://www.calrecycle.ca.gov/Publications/General/Extracts/2009023/Tables.pdf

———. 2011. Single-Year Countywide Origin Detail, County of Santa Barbara: 2011. http://www.calrecycle.ca.gov/LGCentral/Reports/Viewer.aspx?P=ReportName%3deDRSCountyWideOrigin%26CountyID%3d42%26ReportYear%3d2011

Santa Barbara County Department of Public Works. 2012. The Resource Recovery Project at the Tajiguas Landfill Subsequent EIR Scoping Document. http://www.conversiontechnologystudy.com/media/documents/TJ%20RRP%20NOP%20SCOPING%204_11_12%20FINAL%20with%20figures.pdf

WR 2: Seek additional opportunities for county residents to recycle cardboard, glass, paper, and plastic products.

Action Items

1) Consider amending the zoning ordinance to require all public and private events subject to a temporary use or special event permit to implement a waste management plan that meets County approval for providing recycling and composting opportunities at such events.
2) Implement the Resource Recovery Project's centralized processing facility for waste or other mechanism for increasing the diversion rate.
3) Consider addition of new materials to comingled recyclable materials as markets develop.

Assumptions	2020	2035
Goal diversion rates	85%	95%

Activity and GHG Reduction	2020	2035
Tons of waste reduced	20,790	34,610
Emissions reduction ($MTCO_2e$)	16,360	27,150

Performance Indicators	2020	2035
Goal diversion rates	85%	95%

Method

Data from the inventory, CalRecycle, and the Santa Barbara County Department of Public Works was used to identify the existing diversion rate, the tons of material being sent to the landfill, and the proportion of landfilled waste that is recyclable material and can be diverted for recycling (32.0%). These calculations assume that the diversion rate of recyclable materials is increased to the targeted total diversion rate (85% in 2020) from the baseline rate of 68%. This was used to calculate a decrease in the total amount of materials being sent to the landfill, which was converted to an emissions reduction using factors from the inventory.

GHG Sources

CalRecycle. 2009. Waste Disposal Characterization. http://www.calrecycle.ca.gov/Publications/General/Extracts/2009023/Tables.pdf

———. 2011. Single-Year Countywide Origin Detail, County of Santa Barbara: 2011. http://www.calrecycle.ca.gov/LGCentral/Reports/Viewer.aspx?P=ReportName%3deDRSCountyWideOrigin%26CountyID%3d42%26ReportYear%3d2011

Santa Barbara County Department of Public Works. 2012. The Resource Recovery Project at the Tajiguas Landfill Subsequent EIR Scoping Document. http://www.conversiontechnologystudy.com/media/documents/TJ%20RRP%20NOP%20SCOPING%204_11_12%20FINAL%20with%20figures.pdf

WR 3: Increase the recycling and reuse of construction waste to reduce energy consumption associated with extracting and manufacturing virgin materials.

Action Items

1) Continue to require all demolition projects requiring a discretionary permit to implement a viable recycling plan that meets County approval and includes provisions to maximize recycling of asphalt, concrete, and equipment, and to minimize disposal of wastes into hazardous waste and solid waste management facilities to the maximum extent feasible.
2) Continue to promote the reuse of construction waste by educating the public about material reuse facilities and programs.
3) Maintain and update as needed guidelines for managing construction-generated wastes.
4) Continue to encourage asphalt removal from roads and paved structures to be recycled to the maximum extent feasible for all projects.
5) Continue to encourage the use of recycled materials in roadway and paved surface construction to the maximum extent feasible for all projects.

Assumptions	2020	2035
Goal diversion rates	85%	95%

Activity and GHG Reduction	2020	2035
Tons of waste reduced	13,130	21,850
Emissions reduction ($MTCO_2e$)	10,330	17,140

Performance Indicators	2020	2035
Goal diversion rates	85%	95%

Method

Data from the inventory, CalRecycle, and the Santa Barbara County Department of Public Works was used to identify the existing diversion rate, the tons of material being sent to the landfill, and the proportion of landfilled waste that is construction and demolition (C&D) material and can be diverted for recycling (20.2%). These calculations assume that the diversion rate of C&D materials is increased to the targeted total diversion rate (85% in 2020) from the baseline rate of 68%. This was used to calculate

a decrease in the total amount of materials being sent to the landfill, which was converted to an emissions reduction using factors from the inventory.

GHG Sources

CalRecycle. 2009. Waste Disposal Characterization. http://www.calrecycle.ca.gov/Publications/General/Extracts/2009023/Tables.pdf

———. 2011. Single-Year Countywide Origin Detail, County of Santa Barbara: 2011. http://www.calrecycle.ca.gov/LGCentral/Reports/Viewer.aspx?P=ReportName%3deDRSCountyWideOrigin%26CountyID%3d42%26ReportYear%3d2011

Santa Barbara County Department of Public Works. 2012. The Resource Recovery Project at the Tajiguas Landfill Subsequent EIR Scoping Document. http://www.conversiontechnologystudy.com/media/documents/TJ%20RRP%20NOP%20SCOPING%204_11_12%20FINAL%20with%20figures.pdf

WR 4: Reduce or minimize GHG emissions from waste materials deposited into landfills.

Action Items

1) Continue to implement and promote programs for waste reduction, reuse, and recycling, including backyard composting program, green waste collection and mulch program, and the County's new Food Forward program to reduce commercially generated food waste.
2) Continue to develop programs and facilities, such as the Resource Recovery Project, that target the diversion and recycling of organic waste, which is the primary cause of methane gas production at landfills.

Assumptions	2020	2035
Goal diversion rates	85%	95%
On-site energy needs (kWh/hr of operation)	500	750
Annual hours of operation	7,460	7,460

Activity and GHG Reduction	2020	2035
Electricity reduction (kWh)	3,732,000	5,598,000
Emissions reduction ($MTCO_2e$)	870	1,300

Performance Indicators	2020	2035
Renewable energy generated (kWh)	7,600,000	10,400,000

Method

Data from the Santa Barbara County Department of Public Works was used to determine the total amount of energy needs to be met by the Resource Recovery Project (2,732,000 kWh in 2020) and the total amount of renewable energy that the project is capable of producing (7.6 million kWh in 2020). As on-site renewable electricity generation is equal to a reduction in electricity supplied by utility companies, the savings in energy use from the utility company were converted to emissions reductions using factors from the inventory. Excess electricity produced by the Resources Recovery Project that is not used on-site is accounted for in measure RE 4 (see RE 4 for details).

GHG Sources

CalRecycle. 2009. Waste Disposal Characterization. http://www.calrecycle.ca.gov/Publications/General/Extracts/2009023/Tables.pdf

———. 2011. Single-Year Countywide Origin Detail, County of Santa Barbara: 2011. http://www.calrecycle.ca.gov/LGCentral/Reports/Viewer.aspx?P=ReportName%3deDRSCountyWideOrigin%26CountyID%3d42%26ReportYear%3d2011

Santa Barbara County Department of Public Works. 2012. The Resource Recovery Project at the Tajiguas Landfill Subsequent EIR Scoping Document. http://www.conversiontechnologystudy.com/media/documents/TJ%20RRP%20NOP%20SCOPING%204_11_12%20FINAL%20with%20figures.pdf

WR 5: Reduce GHG emissions from waste collection vehicles through the use of alternative fuels.

Action Items

1) Continue to require the installation of particulate filters on pre-2007 waste collection vehicles to reduce particulate emissions. Older trucks that are not good candidates for retrofit should be phased out of operation.
2) Continue to require alternative-fuel vehicles in all contracts with waste haulers, per existing waste hauler franchise agreements.

Assumptions	2020	2035
Percentage of solid waste collection vehicles converted	90%	100%
Number of waste collection vehicles	130	130
$MTCO_2e$ per diesel waste vehicle	25	25
Percentage reduction from CNG-fueled waste vehicles	25%	25%

Activity and GHG Reduction	2020	2035
Emissions reduction ($MTCO_2e$)	730	810

Performance Indicators	2020	2035
Number of vehicles converted to CNG fuel	120	130

Method

The Santa Barbara County Department of Public Works provided information about the number of waste collection vehicles, while the California Air Resources Board supplied data about the annual emissions from a waste collection vehicle and the percentage reduction in emissions from converting vehicles to compressed natural gas (CNG). Using the targeted percentage of waste collection vehicles to be converted to CNG (90% in 2020), these factors were used to identify the emissions reduction from this measure.

GHG Sources

California Air Resources Board. 2011. EMFAC 2011. http://www.arb.ca.gov/jpub/webapp//EMFAC2011WebApp/rateSelectionPage_1.jsp

CalRecycle. 2009. Waste Disposal Characterization. http://www.calrecycle.ca.gov/Publications/General/Extracts/2009023/Tables.pdf

———. 2011. Single-Year Countywide Origin Detail, County of Santa Barbara: 2011. http://www.calrecycle.ca.gov/LGCentral/Reports/Viewer.aspx?P=ReportName%3deDRSCountyWideOrigin%26CountyID%3d42%26ReportYear%3d2011

Santa Barbara County Department of Public Works. 2012. The Resource Recovery Project at the Tajiguas Landfill Subsequent EIR Scoping Document. http://www.conversiontechnologystudy.com/media/documents/TJ%20RRP%20NOP%20SCOPING%204_11_12%20FINAL%20with%20figures.pdf

AG 1: Increase local food production and distribution.

Action Items

1) Pursue funding to research and identify education and outreach opportunities to support and enhance local food programs.

Assumptions, Reductions, and Performance Indicators

This measure is supportive of general efforts to improve sustainable agriculture in Santa Barbara County. There are no assumptions, activity or GHG reductions, or performance indicators for supportive measures.

Method

Supportive measures do not produce direct, measurable GHG reductions, so no calculations were made.

GHG Sources

Supportive measures do not produce direct, measurable GHG reductions. There are no sources for GHG reduction calculations for supportive measures.

AG 2: Promote the use of science-based agricultural practices.

Action Item

1) Research, identify, and pursue funding for organizations such as the UCCE and CRCD that have the capacity to develop and disseminate voluntary agricultural management practices and contribute to funding voluntary implementation of those practices.

Assumptions, Reductions, and Performance Indicators

This measure is supportive of general efforts to improve sustainable agriculture in Santa Barbara County. There are no assumptions, activity or GHG reductions, or performance indicators for supportive measures.

Method

Supportive measures do not produce direct, measurable GHG reductions, so no calculations were made.

GHG Sources

Supportive measures do not produce direct, measurable GHG reductions. There are no sources for GHG reduction calculations for supportive measures.

AG 3: Work with the SBCAPCD to increase the use of alternatively fueled equipment in agricultural operations through education, incentives, or revisions to existing regulations.

Action Items

1) Continue to support the SBCAPCD's participation in the Carl Moyer Program to provide rebates for retrofitting or replacing off-road equipment.
2) Encourage the use of non-fuel alternatives for vegetation management.

Assumptions	2020	2035
Percentage of tractor equipment to be replaced	35%	50%
Average percentage of fuel savings from tractor replacement	20%	20%

Activity and GHG Reduction	2020	2035
Emissions reduction ($MTCO_2e$)	5,800	8,930

Performance Indicators	2020	2035
Percentage of tractor equipment to be replaced	35%	50%

Method

Data from the California Air Resources Board and the inventory was used to identify the emissions from tractors and other agricultural equipment eligible for the Carl Moyer Program and the reductions in fuel use from eligible equipment. This information was combined with a targeted percentage of equipment to be replaced through the Carl Moyer Program (35% by 2020) to identify the total emissions reduction.

GHG Sources

California Air Resources Board. 2006. Off Road Emissions Inventory. OFFROAD2007, Version 1.
———. 2011. AB 118 Air Quality Improvement Program. http://www.arb.ca.gov/msprog/ aqip/aqip.htm

AG 4: Increase agriculture-related energy conservation through appropriate and practical efficient energy, water, and resource management practices and technology.

Action Items

1) Pursue funding sources and/or provide seed funding for local organizations such as UCCE and CRCD to research and identify opportunities to encourage landowners to participate in voluntary energy conservation programs through the provision of incentives.

Assumptions, Reductions, and Performance Indicators

This measure is supportive of general efforts to improve sustainable agriculture in Santa Barbara County. There are no assumptions, activity or GHG reductions, or performance indicators for supportive measures.

Method

Supportive measures do not produce direct, measurable GHG reductions, so no calculations were made.

GHG Sources

Supportive measures do not produce direct, measurable GHG reductions. There are no sources for GHG reduction calculations for supportive measures.

AG 5: Continue to support the programs of the USDA Natural Resource Conservation Service, Resource Conservation Districts, UCCE/Farm Advisor, utility companies, and others that address efficient irrigation because of their associated energy benefits.

Actions

1) Support the voluntary installation of energy-efficient irrigation systems and other energy conservation system devices.
2) Evaluate potential efficiency improvements in agriculture-related groundwater delivery.
3) Investigate funding sources and mechanisms such as grants, mitigation tools, and other options to offset the costs of installing efficient irrigation.

Assumptions	2020	2035
Number of farms	780	780
Target participation rates	35%	50%
Average percentage of water savings from irrigation improvements	16%	16%
Implementation rate	50%	50%

Activity and GHG Reduction	2020	2035
Water reduction (gallons)	4,094,664,500	5,650,301,370
Emissions reduction ($MTCO_2e$)	1,660	2,300

Performance Indicators	2020	2035
Number of participating farms	270	390

Method

Data from the inventory and the County Agricultural Commissioner's Office was used to identify the amount of farmland in unincorporated Santa Barbara County and the annual water use of these operations. Reports by the Pacific Institute, the Municipal Water District of Southern California and the East Bay Municipal Utility District, and Cooley, Christian-Smith, and Gleick provided information about

the reductions in agricultural water use from various efficient irrigation strategies, identified to be an average reduction of 15% per farm. Using a target participation rate (35% by 2020), these figures were used to calculate the total reduction in agricultural water use. This reduction was converted to an emissions reduction using factors from the inventory.

GHG Sources

Cooley, H., J. Christian-Smith, and P. Gleick. 2009. Sustaining California Agriculture in an Uncertain Future. http://pacinst.org/wp-content/uploads/sites/21/2014/04/sustaining-california-agriculture-pacinst-full-report.pdf

County of Santa Barbara. 2013. 2012 Agricultural Production Report. https://www.countyofsb.org/uploadedFiles/agcomm/crops/2012%20Crop%20Report.pdf

Municipal Water District of Southern California and East Bay Municipal Utility District. 2009. Evaluation of California weather-based "smart" irrigation controller programs. http://ucanr.edu/sites/UrbanHort/files/99641.pdf

Pacific Institute. 2005. California Water 2030: Appendix A – Agricultural Efficiency. http://www.pacinst.org/wp-content/uploads/2013/02/ca_water_20303.pdf

AG 6: Facilitate the increased use of policies to protect carbon-sequestering environments and to support local resource-based industries.

Action Items

1) Support development of carbon sequestration programs.
2) Support development of a GHG credit system.
3) Support the Williamson Act Program.
4) Investigate establishing a mitigation fund for open space easements

Assumptions, Reductions, and Performance Indicators

This measure is supportive of general efforts to explore the use of agricultural and open space land in Santa Barbara County for carbon sequestration. There are no assumptions, activity or GHG reductions, or performance indicators for supportive measures.

Method

Supportive measures do not produce direct, measurable GHG reductions, so no calculations were made.

GHG Sources

Supportive measures do not produce direct, measurable GHG reductions. There are no sources for GHG reduction calculations for supportive measures.

WE 1: Decrease energy use associated with the pumping, distribution, heating, and treating of water and wastewater.

Action Items

1) Continue to provide resources for water-efficient plumbing fixture retrofit programs.
2) Encourage and assist in the use of water-efficient technologies in the residential, commercial, and industrial sectors.
3) Increase coordination and streamline standards or regulations with local water districts that serve unincorporated areas of the county to improve water efficiency.
4) Identify per capita water use baselines from water purveyors to determine the need for more indoor and outdoor conservation and rebate programs.

5) Encourage water conservation before development of new water resources.

Assumptions	2020	2035
Per Capita water reduction target	20%	30%

Activity and GHG Reduction	2020	2035
Water Savings (Million gallons)	707,662,310	1,061,493,470
Emissions reduction ($MTCO_2e$)	290	430

Performance Indicators	2020	2035
Average community gallons per capita per day (GPCD)	130	120

Method

Data from the inventory and the Boulder Area Sustainability Information Network was used to identify the amount of water used indoors, represented in gallons per person per day (gpcd). A target reduction in indoor gpcd was identified (20% in 2020), which was used to calculate the total reduction in water use. This figure was converted to energy savings and an emissions reduction using factors from the inventory and the California Energy Commission.

GHG Sources

Boulder Area Sustainability Information Network. Residential Outdoor Irrigation and Indoor Water Use Compared. http://bcn.boulder.co.us/basin/local/residential.html

California Energy Commission. 2005. California's Water-Energy Relationship. http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

———. 2006. Refining Estimates of Water-Related Energy Use in California. http://www.energy.ca.gov/2006publications/CEC-500-2006-118/CEC-500-2006-118.PDF

WE 2: Maximize end-user water efficiency by encouraging the implementation of prescriptive or performance measures included in the California Green Building Standards Code in all new and existing development.

Action Items

1) Encourage the installation of dual plumbing for greywater systems in new and existing buildings.
2) Encourage the installation of greywater and rainwater harvesting systems to reduce outdoor potable water use.

Assumptions	2020	2035
Percentage water reduction target	20%	20%

Activity and GHG Reduction	2020	2035
Water reduction (gallons)	53,806,590	121,617,640
Emissions reduction ($MTCO_2e$)	20	50

Performance Indicators	2020	2035
Percentage water reduction target	20%	20%

Method

Data from the inventory and the Boulder Area Sustainability Information Network was used to identify the amount of water used outdoors in new development, excluding water used for agricultural purposes, represented in gallons per person per day (gpcd). A target reduction in indoor gpcd was identified (20% in 2020), which was used to calculate the total reduction in water use. This figure was converted to energy savings and an emissions reduction using factors from the inventory and the California Energy Commission.

GHG Sources

Boulder Area Sustainability Information Network. Residential Outdoor Irrigation and Indoor Water Use Compared. http://bcn.boulder.co.us/basin/local/residential.html

California Energy Commission. 2005. California's Water-Energy Relationship. http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

———. 2006. Refining Estimates of Water-Related Energy Use in California. http://www.energy.ca.gov/2006publications/CEC-500-2006-118/CEC-500-2006-118.PDF

WE 3: Increase the use (per Government Code Section 65590, Article 10.8) of native or drought-tolerant landscaping and smart irrigation technologies in new and renovated developments and at public parks and facilities.

Action Items

1) Encourage native or drought-tolerant landscaping and smart irrigation technologies while discouraging hardscape in all new and existing developments.
2) Provide resources for the water purveyors' incentives for installing native or drought-tolerant landscaping and smart irrigation technologies.
3) Continue to require proposed projects to reduce outdoor water use in new landscapes through compliance with the California Water Conservation in Landscaping Act.
4) Facilitate the availability and use of recycled water in outdoor landscaped areas, and explore additional markets and opportunities for use of recycled water.
5) Encourage the installation of turf on no more than 20% of the total site area on parcels 1 acre or less and 20% of landscaped areas on parcels greater than 1 acre.
6) Promote the treatment of stormwater runoff on-site through the installation of rain gardens, green roofs, and rain barrels.
7) Continue to investigate funding opportunities for water efficiency improvement projects.

Assumptions	2020	2035
Target water reduction for landscaping uses	20%	35%

Activity and GHG Reduction	2020	2035
Water Savings (gallons)	653,226,750	1,143,146,810
Emissions reduction ($MTCO_2e$)	270	460

Performance Indicators	2020	2035
Target Water reduction for landscaping uses	20%	35%

Method

Data from the inventory and the Boulder Area Sustainability Information Network was used to identify the amount of water used outdoors in existing development, excluding water used for agricultural purposes, represented in gallons per person per day (gpcd). A target reduction in outdoor gpcd was identified (20% in 2020), which was used to calculate the total reduction in water use. This figure was converted to energy savings and an emissions reduction using factors from the inventory and the California Energy Commission.

GHG Sources

Boulder Area Sustainability Information Network. Residential Outdoor Irrigation and Indoor Water Use Compared. http://bcn.boulder.co.us/basin/local/residential.html

California Energy Commission. 2005. California's Water-Energy Relationship. http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

———. 2006. Refining Estimates of Water-Related Energy Use in California. http://www.energy.ca.gov/2006publications/CEC-500-2006-118/CEC-500-2006-118.PDF

Appendix F: ECAP Consistency Checklist Template

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Appendix F. ECAP Consistency Checklist Template

The following checklist template has been developed to assist project applicants and County staff in determining whether a proposed project is within substantial compliance with Santa Barbara County's ECAP. The County may make updates to this template to assist with tracking CEQA compliance.

If the proposed project's expected greenhouse gas (GHG) emissions were not considered in the County's GHG emissions 2020 and 2035 forecast included in the ECAP, this checklist is provided for informational use but may not preclude preparation of separate GHG analysis for the project. Examples of projects that may not be incorporated into the County's forecast include stationary source emissions regulated by the Santa Barbara County Air Pollution Control District, General Plan amendments, community plan or specific plans that exceed the County's proposed population and job growth forecasts, and GHG emissions used in specific manufacturing processes that are not easily tracked at a community-wide level.

Project Description/Characteristics

Please identify the applicable land uses included in the project and provide a brief description of the proposed project (or the project description to be used for the associated environmental document).

Identify the applicable land uses:

☐ Residential ☐ Commercial ☐ Industrial ☐ Agriculture ☐ Other

Project Description:

Amendments Requested

Does the project require an amendment to the County's General Plan, or other planning documents?

☐ Yes ☐ No ☐ Not Sure

GHG Emissions Incorporated into County GHG Forecast

Was this project and its potential GHG emissions sources considered in the County's Greenhouse Gas Emissions Forecast?

☐ Yes ☐ No ☐ To be determined by staff

Project Sources of GHG Emissions Considered in County Inventory

Identify the activities and sources of GHG emissions anticipated by the proposed project either during the construction or operational phases of the project.

Potential GHG Emissions Sources:

☐ Electricity Use	☐ Fertilizer Application	☐ Gasoline or Diesel Use
☐ Natural Gas Use	☐ Additional Livestock	☐ Transportation (On-Road)
☐ Const. & Demolition Waste	☐ Res./Comm./Ind. Waste	☐ Off-Road Equipment
☐ Water Use	☐ Wastewater Disposal	☐ Other _____

Estimated GHG Emissions

If a GHG emissions analysis has been prepared for the proposed project, please provide the estimated GHG emissions for the project below or as an attachment to this worksheet.

Annual Construction Emissions: _____ $MTCO_2e$[1]

Annual Operational Emissions: _____ $MTCO_2e$

Applicable Measures/Compliance

Identify in the checklist below the applicable measures that will be implemented as part of the proposed project to demonstrate consistency with the County's ECAP.

Required Measures

This list includes measures and actions included in the ECAP that are required to be included in the project design and implementation, as applicable, in order to demonstrate consistency with the ECAP. As additional ECAP measures are implemented by the County, they will be added to this list.

Measure	Action	Applicability	Compliance*
T 3: Alternative-Fuel Vehicles and Incentives	Develop new electric vehicle (EV) ready ordinance requiring new one- and two-family dwellings to install conduit for future installation of an EV charging station.		☐ Yes ☐ No ☐ N/A
T 3: Alternative-Fuel Vehicles and Incentives	Zoning ordinance will be amended to ensure that alternative-fuel stations and support facilities are allowed uses in land use designations that currently allow gas and service stations.		☐ Yes ☐ No ☐ N/A

[1] Metric Tons of Carbon Dioxide Equivalent ($MTCO_2e$)

T 4: Alternative and Active Transportation	Reduced-fare or free transit passes to residents or employers as mitigation of significant traffic impacts for projects will continue to be required.	☐ Yes ☐ No ☐ N/A
T 4: Alternative and Active Transportation	Projects will continue to be required to include mass transit improvements, such as bus stops, pullouts, and shelters, or funding to assist in the installation of mass transit improvements as mitigation for significant impacts.	☐ Yes ☐ No ☐ N/A
BE 2: Energy-Efficient Renovations	Energy checklists are required for residential building permits for additions and/or alterations excluding repair and maintenance. Offer tutorial on how to complete the energy checklist. Provide information on potential cost savings and available rebates or other incentives. Explore expedited building permit plan check or a waiver of building permit fees for implementing audit recommendations. Applicants will also be directed to emPower's Energy Coach program, which provides free home energy site visits.	☐ Yes ☐ No ☐ N/A
BE 5: Community Forestry	Zoning ordinance will be amended to require landscape plans to include shade trees in parking lots and street trees, where appropriate.	☐ Yes ☐ No ☐ N/A

BE 5: Community Forestry	Tree replacement and mitigation will continue to be required when removing trees with new development.	☐ Yes ☐ No ☐ N/A
BE 5: Community Forestry	The protection of native trees on land with proposed development will continue to be required.	☐ Yes ☐ No ☐ N/A
RE 1: Alternative Energy Development	Develop the new solar photovoltaic (PV) ready construction ordinance to require new single-family dwelling units to be built to accommodate future solar PV system installation.	☐ Yes ☐ No ☐ N/A
RE 2: Water Heaters	New residential development will continue to be required to use high-efficiency water heaters or tankless heaters and continue to encourage new and existing development to participate in the State's CSI-Thermal program, which provides rebates to utility customers who install solar thermal systems to replace water-heating systems powered by electricity or natural gas.	☐ Yes ☐ No ☐ N/A

WR 3: Construction and Demolition Waste Recycling	All demolition projects requiring a discretionary permit will continue to be required to implement a viable recycling plan that meets County approval and includes provisions to maximize recycling of asphalt, concrete, and equipment, and to minimize disposal of wastes into hazardous waste and solid waste management facilities to the maximum extent feasible.	☐ Yes ☐ No ☐ N/A
WR 5: Clean Waste Collection Vehicles	The installation of particulate filters on pre-2007 waste collection vehicles will continue to be required to reduce particulate emissions. Older trucks that are not good candidates for retrofit should be phased out of operation.	☐ Yes ☐ No ☐ N/A
WR 5: Clean Waste Collection Vehicles	Alternative-fuel vehicles in all contracts with waste haulers, per existing waste hauler franchise agreements will continue to be required.	☐ Yes ☐ No ☐ N/A
WE 3: Water-Efficient Landscaping	Continue to require proposed projects to reduce outdoor water use in new landscapes through compliance with the California Water Conservation in Landscaping Act.	☐ Yes ☐ No ☐ N/A

* All measures that are considered applicable on this list are required to be implemented in order to demonstrate consistency with the ECAP.

Recommended Measures

This list includes measures and actions that were included in the ECAP as voluntary actions or programs and regulations to be adopted by the County. These measures should be included in the project design as feasible.

Measure	Action	Applicability	Compliance*
LUD 1: Infill Development	Support strategies for sustainable new development by adopting principles and policies that encourage and expedite the permitting of mixed-use, infill, and transit-oriented development, with jobs and housing co-located together where feasible or in close proximity (walking/biking distance) to transit facilities.		☐ Yes ☐ No ☐ N/A
	Review the Comprehensive Plan to determine the extent to which it promotes GHG emissions reductions. Recommend amendments to improve policies and implementation measures to promote GHG emissions reductions.		☐ Yes ☐ No ☐ N/A
	Integrate complete streets policies and projects into updates of the Land Use and Circulation Elements and into new and existing community plans.		☐ Yes ☐ No ☐ N/A

	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.	☐ Yes ☐ No ☐ N/A
	Encourage new residential development to be within walking distance (half-mile or less) of public activity centers such as schools, libraries, parks, and community centers.	☐ Yes ☐ No ☐ N/A
	Retrofit existing, older neighborhoods to improve connectivity, redesign circulation, and create walkable streets.	☐ Yes ☐ No ☐ N/A
	Consider developing a program where energy-efficient mixed-use, infill, and transit-oriented development projects can trade GHG credits.	☐ Yes ☐ No ☐ N/A
LUD 2: Transit-Oriented Development	Encourage employers to provide funding for reliable mass transit.	☐ Yes ☐ No ☐ N/A
	Coordinate new, proposed, and existing commuter rail, mass transit service, and bikeways so that alternative transportation modes complement one another.	☐ Yes ☐ No ☐ N/A
	Expand the existing bike network around existing development as proposed in the Santa Barbara County Bicycle Master Plan.	☐ Yes ☐ No ☐ N/A

LUD 3: Affordable Housing	Continue to provide programs, incentives, and regulations for affordable housing through the County's affordable housing requirements and inclusionary housing program.	☐ Yes ☐ No ☐ N/A
T 1: Car Sharing and Ride Sharing	Work with Traffic Solutions to expand North County Santa Barbara carpool/vanpool programs and increase bus line options.	☐ Yes ☐ No ☐ N/A
	Explore expanding car-sharing options in Santa Barbara County with Traffic Solutions and the Community Environmental Council.	☐ Yes ☐ No ☐ N/A
	Work to effectively implement the CalVans program in Santa Barbara County.	☐ Yes ☐ No ☐ N/A
	Support SBCAG's Park and Ride Program, such as by coordinating with SBCAG during the County's land use approval process.	☐ Yes ☐ No ☐ N/A
T 2: Commuter Incentives	Encourage and support employers, especially small and medium-sized employers, to voluntarily prepare and implement a Transportation Demand Management (TDM) program for their employees.	☐ Yes ☐ No ☐ N/A
	Provide TDM program education and community briefings annually and/or semi-annually.	☐ Yes ☐ No ☐ N/A

T 3: Alternative-Fuel Vehicles and Incentives	Support efforts to plan for and deploy electric vehicle and alternative-fuel infrastructure in Santa Barbara County.	☐ Yes ☐ No ☐ N/A
	Encourage public and new commercial developments to include designated stalls for low-emitting, fuel-efficient vehicles and carpool/vanpool vehicles and to pre-wire stalls for future electric vehicle charging stations.	☐ Yes ☐ No ☐ N/A
	Amend zoning ordinance to ensure that alternative-fuel stations and support facilities are allowed uses in land use designations that currently allow gas and service stations.	☐ Yes ☐ No ☐ N/A
	Identify alternative-fuel projects to seek funding through the CEC, for example.	☐ Yes ☐ No ☐ N/A
T 4: Alternative and Active Transportation	Continue to promote the efforts of the Santa Barbara Car Free program.	☐ Yes ☐ No ☐ N/A
	Continue to identify alternative transportation projects for funding under Measure A.	☐ Yes ☐ No ☐ N/A
	Continue to expand transit opportunities in northern Santa Barbara County and continue to investigate expansion in agricultural communities.	☐ Yes ☐ No ☐ N/A

	Encourage bus service providers in the county to provide more frequent service and to purchase alternative-fuel and articulated buses for greater capacity.	☐ Yes ☐ No ☐ N/A
	Work with the Chamber of Commerce to encourage alternative and active transportation opportunities within the tourism industry.	☐ Yes ☐ No ☐ N/A
	Collaborate with interested organizations to establish a bike-sharing program.	☐ Yes ☐ No ☐ N/A
T 5: Integrated Bikeway Systems	Continue to implement the Santa Barbara County Bicycle Master Plan.	☐ Yes ☐ No ☐ N/A
	Continue to support educational programs for safe and lawful biking, such as through the Santa Barbara Bicycle Coalition and the Coalition for Sustainable Transportation (COAST).	☐ Yes ☐ No ☐ N/A
	Install signage to promote safe biking and discourage actions such as biking on sidewalks.	☐ Yes ☐ No ☐ N/A
	Continue to seek funding to expand the existing bicycle network, especially in the North County.	☐ Yes ☐ No ☐ N/A
	Continue to add more Class I and II bike lanes through local Measure A funding and innovative treatments for buffered and protected lanes.	☐ Yes ☐ No ☐ N/A

T 6: Pedestrian Improvements	Update the Circulation Element countywide and community plan design guidelines to create maximum connectivity between neighborhoods, streets, and projects for pedestrian and bicycle travel.	☐ Yes ☐ No ☐ N/A
	Work with COAST to support the expansion of Safe Routes to School programs to all elementary and middle schools in the county, and assess potential roadway improvements for increased safety in school zones.	☐ Yes ☐ No ☐ N/A
	Where appropriate, direct new development to construct walkable paths that connect land uses and other non-motorized routes and provide safe, marked, high-visibility road crossings at major intersections.	☐ Yes ☐ No ☐ N/A
	Provide and ensure well-lit, safe, accessible connections (e.g. walkways and sidewalks) to commercial nodes, schools, and recreation areas to increase the walkability of communities in the county, especially considering the needs of the growing senior population.	☐ Yes ☐ No ☐ N/A

	Continue to complete gaps in the existing sidewalk system and improve pedestrian crossings at intersections with roadways and train tracks.	☐ Yes ☐ No ☐ N/A
	Support enforcement of the need for vehicles to yield for pedestrians in crosswalks.	☐ Yes ☐ No ☐ N/A
T 7: Vehicle Idling	Support enforcement and education to reduce vehicle idling.	☐ Yes ☐ No ☐ N/A
T 8: Traffic Signal Efficiencies	Continue to review traffic signal synchronization and video signal detection technologies to facilitate the flow of cyclists, pedestrians, and traffic through intersections.	☐ Yes ☐ No ☐ N/A
	Continue to transition to LED lights in both traffic signals and overhead lamps where feasible.	☐ Yes ☐ No ☐ N/A
T 9: Commuter Rail Connections	Continue to support SBCAG in working with Union Pacific to accommodate commuter rail.	☐ Yes ☐ No ☐ N/A
	Work with local jurisdictions and transit providers to provide connecting (e.g. jitney) services from station to final destination.	☐ Yes ☐ No ☐ N/A
	Work with Amtrak to provide amenities at rail stations such as comfort stations and bike racks.	☐ Yes ☐ No ☐ N/A

BE 1: Energy Efficiency Education and Outreach	Continue to work with public utilities, private businesses, organizations, and governmental agencies to develop guidelines on energy-efficient design. These guidelines should be disseminated as early in the planning process as possible (e.g., include the guidelines with all initial permit applications, disseminate at the permit zoning counter and at pre-application meetings).	☐ Yes ☐ No ☐ N/A
	Continue to work with public utilities, educational facilities, County departments, city departments, and others that have existing outreach programs to disseminate materials about energy conservation and programs available to the general public, particularly via a new countywide sustainability website.	☐ Yes ☐ No ☐ N/A
	Continue to work with public utilities, private businesses, organizations, and governmental agencies to develop outreach programs designed to inform the general public about the cost and benefits of energy efficiency, including technical options, funding, and incentive programs.	☐ Yes ☐ No ☐ N/A

	Continue public outreach (elementary school component, public workshops, etc.) and employee education mechanisms (e.g. lunch and learns) to teach about energy efficiency and other climate-related initiatives.	☐ Yes ☐ No ☐ N/A
	Continue to encourage and promote utility provider energy conservation programs for residential, commercial, industrial, agricultural, and governmental buildings.	☐ Yes ☐ No ☐ N/A
	Continue to encourage the development of green building and weatherization training programs.	☐ Yes ☐ No ☐ N/A
	Continue to encourage builders to make all new construction solar-ready and to inform their clients about the option to install both solar water heating and photovoltaics.	☐ Yes ☐ No ☐ N/A
	Continue to support programs like the Community Action Commission of Santa Barbara County, which provide free energy services to low-income households, including weatherization, furnace repair, and water heater replacement.	☐ Yes ☐ No ☐ N/A

BE 2: Energy-Efficient Renovations	Maintain a countywide website with resources for tax credits, grants, loans, and other incentives for the purchase of energy-efficient equipment that can build on existing department websites.	☐ Yes ☐ No ☐ N/A
	Provide energy information on different residential building types in each community. These pilot audits would provide general information about efficient retrofits in different building types without requiring each building to complete an audit.	☐ Yes ☐ No ☐ N/A
	Continue to incentivize energy-efficient retrofits through direct rebates and financing, and investigate additional incentives, such as property tax rebates.	☐ Yes ☐ No ☐ N/A
	Encourage participation in the County's emPower Central Coast Program and Energy Upgrade California.	☐ Yes ☐ No ☐ N/A
	Reconsider pursuing participation in an established program or development of a County program, such as commercial PACE, to incentivize energy efficiency upgrades in commercial and multi-family buildings.	☐ Yes ☐ No ☐ N/A
BE 3: Green Business Participation	Highlight the efforts of businesses participating in the Santa Barbara County Green Business Program.	☐ Yes ☐ No ☐ N/A

	Provide information about the Santa Barbara County Green Business Program when new business licenses are received by the County Treasurer/Tax Collector.	☐ Yes ☐ No ☐ N/A
	Support the Green Business Program.	☐ Yes ☐ No ☐ N/A
BE 4: Energy-Efficient Education and Outreach to New Homeowners and Nonresidential Building Owners	Develop an outreach program to encourage new homeowners to make energy-efficient upgrades when remodeling or repairing their homes. Outreach will include coordination with local contractors and realtor associations. New homeowners will be encouraged to utilize emPower's Energy Coach program, which provides free energy site visits.	☐ Yes ☐ No ☐ N/A
	Encourage all nonresidential properties, even those not covered by AB 1103, to provide buyers or tenants with the previous year's energy use by documenting use through the EPA's EnergyStar Portfolio Manager with a 50% participation rate goal by 2016. If a 50% participation rate is not achieved by 2016, the County will consider requiring participation of building owners by 2020.	☐ Yes ☐ No ☐ N/A
	Provide resources for individuals self-auditing their home or business energy efficiency.	☐ Yes ☐ No ☐ N/A

BE 5: Community Forestry	Consider developing a shade tree program that provides free drought-tolerant or native trees to residents and businesses for planting adjacent to buildings to reduce building heat gain.	☐ Yes ☐ No ☐ N/A
	Assess existing trees on a proposed project site to determine compatibility with landscaping, shading, and solar access goals, and protect existing trees to the maximum extent feasible.	☐ Yes ☐ No ☐ N/A
	Develop a comprehensive community tree program or adopt the Street Tree Policy for planting and maintaining native or drought-tolerant trees on County-maintained roads, medians, and public parking lots.	☐ Yes ☐ No ☐ N/A
	Continue tree replacement and mitigation when removing trees with new development.	☐ Yes ☐ No ☐ N/A
	Form partnerships with local advocacy and community groups to fund the planting and maintenance of native or drought-tolerant street trees.	☐ Yes ☐ No ☐ N/A
BE 6: Smart Grid Technology	Encourage the installation of real-time energy monitoring (such as smart meters) for natural gas, electricity, and water meters on all residential and nonresidential buildings.	☐ Yes ☐ No ☐ N/A

	Work with the utility companies to develop a web-based application to provide customers with real-time feedback on their energy consumption and related costs.	☐ Yes ☐ No ☐ N/A
	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.	☐ Yes ☐ No ☐ N/A
	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.	☐ Yes ☐ No ☐ N/A
BE 7: Lawn and Garden Equipment	Work with the Santa Barbara County Air Pollution Control District (SBCAPCD) to include lawn and garden equipment in the Cash for Cleaner Engines program	☐ Yes ☐ No ☐ N/A
	Discourage the use of lawn and garden equipment with two-stroke engines.	☐ Yes ☐ No ☐ N/A

BE 8: Energy Efficiency and Green Building Standards	Continue to use the Smart Build Santa Barbara (SB^2) Committee, designated by the County Building Official, to incentivize green building practices. The committee will function on a voluntary basis and comprise professionals with specific expertise in energy-efficient building, including the gas and electric utilities, as well as architects and energy specialists. Its membership will be approved by the County Building Official.	☐ Yes ☐ No ☐ N/A
	Encourage applicants to exceed the California Energy Standards Code (Title 24, Part 6) by 15% and earn 25 points for residential buildings or 15 points for nonresidential buildings from the County's SB^2 checklist.	☐ Yes ☐ No ☐ N/A
	Encourage the installation of energy-efficient materials and equipment that substantially exceed the requirements of Title 24 for all new and existing development.	☐ Yes ☐ No ☐ N/A

	Explore providing incentives such as expedited building permit plan check and energy plan check fee reductions to development projects that achieve CALGreen's Tier 2 standard or beyond. Investigate providing additional incentives for implementing environmental efficiency and green building practices.	☐ Yes ☐ No ☐ N/A
	Continue to provide homeowners and commercial building owners with information on cost-benefit analysis for energy-efficient measures and available audit and rebate programs. The information would be disseminated early in the planning process and may be available via a countywide sustainability website.	☐ Yes ☐ No ☐ N/A
	Continue to encourage energy-efficient upgrades on all development projects.	☐ Yes ☐ No ☐ N/A
	Encourage the use of post-consumer recycled content and/or certified sustainable production in building materials.	☐ Yes ☐ No ☐ N/A
	Encourage building design, materials production, and construction practices that minimize waste.	☐ Yes ☐ No ☐ N/A

	Continue to provide resources and explore providing incentives to residents and businesses on carbon-reduction actions in existing buildings, including energy efficiency, renewable energy, choice of materials, and building reuse.	☐ Yes ☐ No ☐ N/A
BE 9: Energy-Efficient Building Design	Continue to encourage the use of energy-efficient equipment, including but not limited to EnergyStar appliances, high-efficiency equipment, heat recovery equipment, and building energy management systems, in all new and existing development.	☐ Yes ☐ No ☐ N/A
	Encourage new development projects to utilize cool pavement materials, provide shade from structures covered by solar panels, or use an open-grid pavement system to reduce the heat island effect.	☐ Yes ☐ No ☐ N/A
	Encourage the use of alternative, energy-efficient construction types (straw bale, insulated block, rammed earth, pumice-create, etc.), especially using locally available materials.	☐ Yes ☐ No ☐ N/A
	Encourage projects to install solar energy systems for heating swimming pools.	☐ Yes ☐ No ☐ N/A

	Encourage the installation of green roofs or cool roofs or minimizing the use of dark materials on roofs to achieve a minimum solar reflectivity.	☐ Yes ☐ No ☐ N/A
	Continue to encourage the replacement of inefficient appliances, such as natural gas and propane space and water heating/furnaces, with more efficient and/or alternative-fuel appliances.	☐ Yes ☐ No ☐ N/A
	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. - Sustainable site design and landscaping to create comfortable microclimates. - Use of lighting shelves, exterior fins, skylights, atriums, courtyards, or other features to enhance natural light penetration.	☐ Yes ☐ No ☐ N/A

	Develop an informational sheet that describes passive solar designs (orientation of buildings, vegetative shading, light-colored roofs, daylighting, etc.) and other energy efficiency features. This sheet would be disseminated early in the planning process and should refer applicants to the SB2 Program for further information and guidance.	☐ Yes ☐ No ☐ N/A
BE 10: Construction Equipment Operations	Develop informational resources, such as a brochure, for best practices for construction equipment operation.	☐ Yes ☐ No ☐ N/A
BE 11: Energy Code Training	Continue to educate staff and the public about green building through partnerships with local nonprofit organizations and professional planning and building organizations.	☐ Yes ☐ No ☐ N/A
RE 1: Alternative Energy Development	Support the establishment of federal and state funds to provide low-interest loans for alternative energy technology.	☐ Yes ☐ No ☐ N/A
	Expand emPower Central Coast to allow funding of multi-family housing and alternative energy packages, such as solar-only projects on single-family housing.	☐ Yes ☐ No ☐ N/A

	Where appropriate and feasible, remove impediments (e.g., prolonged review due to a proposal including a new or different technology) to the utilization of alternative energy technologies that are cost-effective and contribute to improved environmental conditions.	☐ Yes ☐ No ☐ N/A
	Reconsider commercial PACE programs to finance energy efficiency and renewable energy improvements.	☐ Yes ☐ No ☐ N/A
	Encourage the use of anaerobic digesters in agriculture, wastewater treatment, and solid waste management.	☐ Yes ☐ No ☐ N/A
	Identify policies and practices to attract businesses that develop or market alternative energy technologies.	☐ Yes ☐ No ☐ N/A

	Develop the photovoltaic readiness ordinance to require new buildings to be built "renewable energy-ready" or install renewable energy systems as follows: - Single-family residential homes must be built in a manner that future photovoltaic (PV) installation could be installed. For example, size electric panel to accommodate future improvements, install conduit for future roof-mount PV, and reserve a minimum of 250 square feet of the south-facing roof for future installation of a roof-mount PV or solar water-heating system.	☐ Yes ☐ No ☐ N/A
RE 3: Alternative Energy Incentives	Continue to expedite review of solar projects by the Building and Safety Division.	☐ Yes ☐ No ☐ N/A
	Pursue updates to the small wind ordinance to include areas subject to Coastal Commission review.	☐ Yes ☐ No ☐ N/A
	Provide information on group purchasing programs of solar equipment and other funding options to encourage renewable energy installations.	☐ Yes ☐ No ☐ N/A

	Consider implementing a group purchasing program in partnership with local solar installers, green builders, or nonprofit organizations to implement solar electricity on single-family residential, multi-family residential, and commercial properties.	☐ Yes ☐ No ☐ N/A
RE 4: Utility-Scale Renewable Energy Projects	Support the use of renewable energy sources such as sun, wind, and wave, and waste-to-energy production (such as the Resource Recovery Project using anaerobic digestion).	☐ Yes ☐ No ☐ N/A
	Consider expanding ordinance allowing installation of photovoltaic solar systems on agricultural land.	☐ Yes ☐ No ☐ N/A
IEE 1: Efficient Equipment Incentives	Continue to support the development of state and federal resources such as tax credits, loans, and other incentives for the purchase of energy-efficient equipment.	☐ Yes ☐ No ☐ N/A
	Provide outreach and education, particularly via a countywide sustainability website, to large industrial energy users to increase awareness of utility-sponsored incentive and rebate programs specific to large equipment and operations.	☐ Yes ☐ No ☐ N/A

IEE 2: Energy Management Programs	Provide resources (such as a countywide sustainability website), educational programs, and incentives for energy management programs to ensure efficient use of energy resources and proper operation of equipment and facilities.	☐ Yes ☐ No ☐ N/A
IEE 3: Efficient Upgrade Incentives	Pursue incentives to encourage energy efficiency upgrades at industrial facilities. Evaluate program participation and consider a mandatory program if participation falls below 10% of total industrial facilities.	☐ Yes ☐ No ☐ N/A
	Develop resources for best practices among industrial facilities.	☐ Yes ☐ No ☐ N/A
IEE 4: Efficient Equipment	Provide education, resources, and assistance, such as via a countywide sustainability website, for the installation of energy-efficient equipment at new or renovated industrial facilities.	☐ Yes ☐ No ☐ N/A
	Support or partner with state agencies or nonprofit groups to implement an energy efficiency retrofit program to increase energy efficiency in existing industrial facilities.	☐ Yes ☐ No ☐ N/A

WR 1: Waste Reduction	Continue to enhance community understanding of resource recovery and waste management programs such as by placing stickers on recycling bins, distributing refrigerator magnets, maintaining a website, and distributing brochures.	☐ Yes ☐ No ☐ N/A
	Continue the home composting education campaign and the discounted sale of composting bins.	☐ Yes ☐ No ☐ N/A
	Continue to look for opportunities to remove food waste from landfills, such as curbside composting for restaurants.	☐ Yes ☐ No ☐ N/A
	Continue to implement recycling programs for schools and businesses.	☐ Yes ☐ No ☐ N/A
	Support environmentally preferable purchasing programs.	☐ Yes ☐ No ☐ N/A
	Support waste reduction regulations such as a plastic bag ban.	☐ Yes ☐ No ☐ N/A
	Continue to implement an evaluation mechanism to measure waste prevented by preservation, reuse, and thoughtful consumption and recycling.	☐ Yes ☐ No ☐ N/A

WR 2: Increased Recycling Opportunities	Consider amending the zoning ordinance to require all public and private events subject to a temporary use or special event permit to implement a waste management plan that meets County approval for providing recycling and composting opportunities at such events.	☐ Yes ☐ No ☐ N/A
	Consider addition of new materials to comingled recyclable materials as markets develop.	☐ Yes ☐ No ☐ N/A
WR 3: Construction and Demolition Waste Recycling	Continue to promote the reuse of construction waste by educating the public about material reuse facilities and programs.	☐ Yes ☐ No ☐ N/A
	Maintain and update as needed guidelines for managing construction-generated wastes.	☐ Yes ☐ No ☐ N/A
	Continue to encourage asphalt removal from roads and paved structures to be recycled to the maximum extent feasible for all projects.	☐ Yes ☐ No ☐ N/A
	Continue to encourage the use of recycled materials in roadway and paved surface construction to the maximum extent feasible for all projects.	☐ Yes ☐ No ☐ N/A

WR 4: Landfill Disposal Reductions	Continue to implement and promote programs for waste reduction, reuse, and recycling, including backyard composting program, green waste collection and mulch program, and the County's new Food Forward program to reduce commercially generated food waste.	☐ Yes ☐ No ☐ N/A
	Continue to develop programs and facilities, such as the Resource Recovery Project, that target the diversion and recycling of organic waste, which is the primary cause of methane gas production at landfills.	☐ Yes ☐ No ☐ N/A
AG 1: Local Food Programs	Pursue funding to research and identify education and outreach opportunities to support and enhance local food programs.	☐ Yes ☐ No ☐ N/A
AG 2: Agricultural Conservation Practices	Research, identify, and pursue funding for organizations such as the UCCE and CRCD that have the capacity to develop and disseminate voluntary agricultural management practices and contribute to funding voluntary implementation of those practices.	
AG 3: Agricultural Equipment	Continue to support the SBCAPCD's participation in the Carl Moyer Program to provide rebates for retrofitting or replacing off-road equipment.	☐ Yes ☐ No ☐ N/A
	Encourage the use of non-fuel alternatives for vegetation management.	☐ Yes ☐ No ☐ N/A

AG 4: Energy-Efficient Agriculture Operations	Pursue funding sources and/or provide seed funding for local organizations such as UCCE and CRCD to research and identify opportunities to encourage landowners to participate in voluntary energy conservation programs through the provision of incentives.		☐ Yes ☐ No ☐ N/A
AG 5: Agriculture Irrigation Improvements	Support the voluntary installation of energy-efficient irrigation systems and other energy conservation system devices.		☐ Yes ☐ No ☐ N/A
	Evaluate potential efficiency improvements in agriculture-related groundwater delivery.		☐ Yes ☐ No ☐ N/A
	Investigate funding sources and mechanisms such as grants, mitigation tools, and other options to offset the costs of installing efficient irrigation.		☐ Yes ☐ No ☐ N/A
AG 6: Agriculture Protection and Preservation	Support development of carbon sequestration programs.		☐ Yes ☐ No ☐ N/A
	Support development of a GHG credit system.		☐ Yes ☐ No ☐ N/A
	Support the County's Agricultural Preserve Program.		☐ Yes ☐ No ☐ N/A
	Investigate establishing a mitigation fund for open space easements		☐ Yes ☐ No ☐ N/A
WE 1: Water Conservation Programs	Continue to provide resources for water-efficient plumbing fixture retrofit programs.		☐ Yes ☐ No ☐ N/A

	Encourage and assist in the use of water-efficient technologies in the residential, commercial, and industrial sectors.	☐ Yes ☐ No ☐ N/A
	Increase coordination and streamline standards or regulations with local water districts that serve unincorporated areas of the county to improve water efficiency.	☐ Yes ☐ No ☐ N/A
	Identify per capita water use baselines from water purveyors to determine the need for more indoor and outdoor conservation and rebate programs.	☐ Yes ☐ No ☐ N/A
	Encourage water conservation before development of new water resources.	☐ Yes ☐ No ☐ N/A
WE 2: Water-Efficient Building and Landscape Standards	Encourage the installation of dual plumbing for greywater systems in new and existing buildings.	☐ Yes ☐ No ☐ N/A
	Encourage the installation of greywater and rainwater harvesting systems to reduce outdoor potable water use.	☐ Yes ☐ No ☐ N/A
WE 3: Water-Efficient Landscaping	Encourage native or drought-tolerant landscaping and smart irrigation technologies while discouraging hardscape in all new and existing developments.	☐ Yes ☐ No ☐ N/A
	Provide informational resources on water purveyors' incentives for installing native, drought-tolerant landscaping and smart irrigation technologies.	☐ Yes ☐ No ☐ N/A

	Facilitate the availability and use of recycled water in outdoor landscaped areas, and explore additional markets and opportunities for use of recycled water.	☐ Yes ☐ No ☐ N/A
	Encourage the installation of turf on no more than 20% of the total site area on parcels 1 acre or less and 20% of landscaped areas on parcels greater than 1 acre.	☐ Yes ☐ No ☐ N/A
	Promote the treatment of stormwater runoff on-site through the installation of rain gardens, green roofs, and rain barrels.	☐ Yes ☐ No ☐ N/A
	Continue to investigate funding opportunities for water efficiency improvement projects.	☐ Yes ☐ No ☐ N/A

* All measures that are considered applicable on this list should be considered for implementation in order to demonstrate consistency with the ECAP.

Other GHG Reduction Measures Implemented

List and describe any additional measures that this project will incorporate to reduce GHG emissions that are not included in the ECAP. If available, provide the estimated GHG reductions that would occur on an annual basis from implementing the measure, in $MTCO_2e$.

Additional Measure	**Estimated Annual GHG Reductions ($MTCO_2e$)**

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Appendix G: References

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Appendix G. References

AWWA Research Foundation. 1999. Residential End Uses of Water. http://www.waterrf.org /ProjectsReports/PublicReportLibrary/RFR90781_1999_241A.pdf

Boulder Area Sustainability Information Network. Residential Outdoor Irrigation and Indoor Water Use Compared. http://bcn.boulder.co.us/basin/local/residential.html.

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

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

———. 2007. Off-Road Software.

———. 2008. *Functional Equivalent Document for the Climate Change Scoping Plan* (SCH# 2008102060). http://www.arb.ca.gov/cc/scopingplan/document/ appendix3.pdf

———. 2009. California's 1990–2004 Greenhouse Gas Emissions Inventory and 1990 Emissions Level Technical Support Document. http://www.arb.ca.gov/cc/inventory/doc /methods_v1/ghg_inventory_technical_support_document.pdf

———. 2010a. *Proposed Regulation to Implement the California Cap-and-Trade Program.*

———. 2010b. *Regional Greenhouse Gas Emission Reductions Targets for Automobiles and Light Trucks Pursuant to Senate Bill 375*. http://www.arb.ca.gov/board/books/2010/092310/10-8-2pres.pdf

———. 2010c. ARB Landfill Emissions Tool. http://www.arb.ca.gov/cc/protocols/localgov/localgov.htm.

———. 2010d. Local Government Operations Protocol Version 1.1

———. 2011a. *Notice of Decision, Regional Greenhouse Gas Emissions Reduction Targets for Automobiles and Light Trucks Pursuant to Senate Bill 375.* http://www.arb.ca.gov/cc/sb375/notice%20of%20decision.pdf.

———. 2011b. *Executive Order No. G-11-024, Relating to Adoption of Regional Greenhouse Gas Emission Reduction Targets for Automobiles and Light Trucks Pursuant to Senate Bill 375.* http://www.arb.ca.gov/cc/sb375/executive_order_g11024.pdf.

———. 2011c. EMFAC 2011. http://www.arb.ca.gov/jpub/webapp//EMFAC2011WebApp/rateSelectionPage_1.jsp.

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

———. 2013. *California Greenhouse Gas Inventory for 2000–2010.* http://www.arb.ca.gov/cc/inventory/data/data.htm.

———. 2014. First Update to the AB 32 Scoping Plan. http://www.arb.ca.gov/cc/scopingplan/document/updatedscopingplan2013.htm.

California Building Standards Commission. 2010. Title 24, Part 11. California Green Building Code. http://www.bsc.ca.gov/home/calgreen.asp

California Climate Action Registry. 2009a. *California Climate Action Registry General Reporting Protocol Version 3.1*.

———. 2009b. *2004–2008 Utility Specific Emissions Rates.*

California Energy Commission (CEC). 2005. California's Water-Energy Relationship. http://www.energy.ca.gov/2005publications/CEC-700-2005-011/CEC-700-2005-011-SF.PDF

———. 2006. Refining Estimates of Water-Related Energy Use in California. PIER Final Project Report. Prepared by Navigant Consulting, Inc. CEC-500-2006-118.

———. 2008. Electricity Deliveries by County. http://www.ecdms.energy.ca.gov/utilbynaicselec.aspx

———. 2010. 2009 California Residential Appliance Saturation Study. Volume 2: Results. http://www.energy.ca.gov/2010publications/CEC-200-2010-004/CEC-200-2010-004-V2.PDF

———. 2010. Nonresidential Building Energy Performance Rating Disclosure Regulations.

California Natural Resources Agency (CNRA). 2009. *2009 California Climate Adaptation Strategy*.

———. 2012. Adaptation Planning Guide. http://resources.ca.gov/climate_adaptation/local_government/adaptation_policy_guide.html

California Solar Statistics. 2012. Download Current CSI Data. http://www.californiasolarstatistics.ca.gov/current_data_files/

CalRecycle. 2009. Waste Disposal Characterization. http://www.calrecycle.ca.gov/Publications/General/Extracts/2009023/Tables.pdf

———. 2011. Disposal Reporting System. http://www.calrecycle.ca.gov/LGCentral/Reports/DRS/

———. 2011. Single-Year Countywide Origin Detail, County of Santa Barbara: 2011. http://www.calrecycle.ca.gov/LGCentral/Reports/Viewer.aspx?P=ReportName%3deDRSCountyWideOrigin%26CountyID%3d42%26ReportYear%3d2011

CEQA (California Environmental Quality Act). 2014. Statutes and Guidelines. http://resources.ca.gov/ceqa/docs/2014_CEQA_Statutes_and_Guidelines.pdf

Chittum, Anna, Neal Elliot, and Nate Kaufman. 2009. "Trends in Industrial Energy Efficiency Programs: Today's Leaders and Directions for the Future." American Council for an Energy-Efficient Economy. http://www.aceee.org/sites/default/files/publications/researchreports/ie091.pdf

City of Santa Maria. 2011. Urban Water Management Plan. http://www.ci.santa-maria.ca.us/3112-UrbanWaterManagementPlan.shtml

Armstrong, Fiona. 2012. Our Uncashed Dividend: The health benefits of climate action. Climate and Health Alliance and The Climate Institute.

Cooley, H., Christian-Smith, J., and Gleick, P. 2009. Sustaining California Agriculture in an Uncertain Future. http://pacinst.org/wp-content/uploads/sites/21/2014/04/sustaining-california-agriculture-pacinst-full-report.pdf

County of Santa Barbara. 2008a. Santa Barbara County Environmental Thresholds and Guidelines Manual.

———. 2008b. Department of Public Health Septic Survey. http://www.countyofsb.org/uploadedFiles/phd/EHS/21029Final%20Report.pdf

———. 2008c. 2007 County Crops Report. http://www.countyofsb.org/uploadedFiles/agcomm/crops/2008.pdf

———. 2009a. Santa Barbara County Comprehensive Plan: Energy Element. Adopted 1994; amended May 2009.

———. 2009b. Santa Barbara County Municipal Energy Financing District Feasibility Study. http://www.countyofsb.org/uploadedFiles/housing/CCEIP/SBCO_FeasibilityStudyFinal.pdf

———. 2010a. 2009–14 Housing Element. http://longrange.sbcountyplanning.org/programs/housing/housing2009.php

———. 2010b. Sustainability Action Plan.

———. 2011a. Santa Barbara County Climate Action Study.

———. 2011b. Santa Barbara County Land Use and Development Code.

———. 2012a. Santa Barbara County Bicycle Master Plan.

———. 2012b. Resource Recovery Project at the Tajiguas Landfill Subsequent EIR Scoping Document, April 2012.

———. 2012c. Baseline GHG Emissions Inventory and Forecast.

———. 2012d. http://www.independent.com/news/2012/mar/27/solar-project-will-power-county-campus/

———. 2012d. Goleta Valley Community Plan Update.

———. 2013. 2012 Agricultural Production Report. https://www.countyofsb.org/uploadedFiles/agcomm/crops/2012%20Crop%20Report.pdf

———. 2013. Benchmarking Policy.

———. 2013. Energy Action Plan.

———. 2014. Sustainability Progress Report.

———. n.d. Water Delivery and Oversight. http://www.countyofsb.org/pwd/water/downloads/Part%205%20(Water%20Delivery%20-%20Oversight%20Water%20Use).pdf

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

emPower Santa Barbara County. 2012. EmPower Santa Barbara County Program Results. http://www.empowersbc.org/

Environmental Protection Agency. 2009. *Endangerment and Cause or Contribute Finding for Greenhouse Gases under the Clean Air Act.*

———. 2010. *Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards, Final Rule.*

———. 2011. *Climate Change – Greenhouse Gas Emissions: Carbon Dioxide*. http://www.epa.gov/climatechange/emissions/co2.html

———. 2014. *Clean Power Plan Proposed Rule.* http://www2.epa.gov/carbon-pollution-standards/clean-power-plan-proposed-rule

Eugene Water & Electric Board. 2013. Typical Residential Electricity Use and Cost.

Federal Aviation Administration. 2010. Airport Data and Contact Information. http://www.faa.gov/airports/airport_safety/airportdata_5010/

Gardner, Gerald T., and Paul C. Stern. 2008. The Short List: The Most Effective Actions U.S. Households Can Take to Curb Climate Change http://www.environmentmagazine.org/Archives/Back%20Issues/September-October%202008/gardner-stern-full.html

Golden State Water Company. 2011. Orcutt Area Urban Water Management Plan. http://www.water.ca.gov/urbanwatermanagement/2010uwmps/Carpenteria%20Valley%20Water%20District/CVWD-Final-UWMP-June-2011-all.pdf

Green Business Santa Barbara County. 2012. Green Business Guide Book. http://www.greenbizsbc.org/

Intergovernmental Panel on Climate Change (IPCC). 2006. http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/4_Volume4/V4_10_Ch10_Livestock.pdf

———. 2010. *Second Assessment Report.*

———. 2013. *Fifth Assessment Report. Climate Change 2013: The Physical Science Basis*. 2013. http://www.climatechange2013.org/

Institute of Transportation Engineers. 2010. Parking Generation, 4th Edition: An ITE Informational Report. http://www.ite.org/emodules/scriptcontent/orders/ProductDetail.cfm?pc=IR-034C

Massachusetts et al. v. *Environmental Protection Agency* et al. 2006. Supreme Court of the United States.

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

Municipal Water District of Southern California and East Bay Municipal Utility District. 2009. Evaluation of California weather-based "smart" irrigation controller programs. http://ucanr.edu/sites/UrbanHort/files/99641.pdf

National Highway Safety Traffic Administration (NHSTA). 2009. *Average Fuel Economy Standards Passenger Cars and Light Trucks Model Year 2011, Final Rule*.

National Research Council. *Climate Change: Evidence, Impacts, and Choices*. 2012. http://www.scribd.com/doc/98458016/Climate-Change-Lines-of-Evidence

Pacific Institute. 2005. California Water 2030: Appendix A - Agricultural Efficiency. http://www.pacinst.org/wp-content/uploads/2013/02/ca_water_20303.pdf

Santa Barbara County Association of Governments (SBCAG). 2007. 2007 Regional Growth Forecast. http://www.sbcag.org/PDFs/publications/ReginalGrowthforecastComplete%20Final.pdf

———. 2009a. *Transit Resource Guide*.

———. 2009b. Santa Barbara County Congestion Management Program.

———. 2011. Transit Needs Assessment. http://www.sbcag.org/PDFs/publications/TNA2011_FINAL.pdf

———.2013a. Santa Barbara County Regional Transportation Plan and Sustainable Communities Strategy Draft Environmental Impact Report.

———. 2013b. 2040 Regional Transportation Plan and Sustainable Communities Strategy.

Santa Barbara County Department of Public Works. 2012a. The Resource Recovery Project at the Tajiguas Landfill Subsequent EIR Scoping Document. http://www.conversiontechnologystudy.com/media/documents/TJ%20RRP%20NOP%20SCOPING%204_11_12%20FINAL%20with%20figures.pdf

———. 2012b. Public Works Tree Inventory. http://www.countyofsb.org/pwd/roads/tree.htm

Santa Barbara County Office of the Assessor. 2012. Grantor-Grantee Index. http://www.sbcvote.com/assessor/AssessorParcelMap.aspx

Santa Barbara County Water Agency. 2007. Integrated Regional Water Management Plan. http://www.countyofsb.org/pwd/pwwater.aspx?id=16866

———. 2010. 2010 Water Production. http://www.sbwater.org/uploadedFiles/sbwater/Water%20Production%20Table%20SB%20Co%202010.pdf

———. 2011. Where Does My Water Come From? http://www.sbwater.org/education.aspx?id=420

Santa Ynez Resource Conservation District. 1998. Urban Water Management Plan. http://www.syrwd.org/view/98

South Coast Air Quality Management District. 2011. California Emissions Estimator Model. http://www.caleemod.com

Southern California Edison. n.d. SCE Energy Efficiency Filings – Retrocommissioning. http://asset.sce.com/Regulatory/Energy%20Efficiency%20Filings/SCE2508RETROCOMMISSIONING.pdf

State of California, Department of Finance. 2010. E-5 Population and Housing Estimates for Cities, Counties and the State, 2001–2010, with 2000 Benchmark. Sacramento.

University of California Cooperative Extension. Cost Reports. http://ucanr.org/

United States Census Bureau. 2009. American Communities Survey 5-Year Average. Santa Barbara County Economic Statistics.

———. 2012. Longitudinal Employer-Household Dynamics. http://lehd.ces.census.gov/

United States Department of Transportation, Federal Highway Administration. 2009. National Household Transportation Survey. http://nhts.ornl.gov/

Appendix H: Community Choice Energy Comparison

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Appendix H. CCE Comparison

This appendix summarizes the effects that CCE will have on the GHG reduction measures presented in Chapter 4. CCE will boost the renewable mix to 50% by 2020. The effects of CCE are quantified as an additional change beyond the 33% Renewables Portfolio Standard. Overall, CCE will reduce electricity emissions across all sectors, while particular reduction measures will see lower reductions since electricity will have a significantly lower emissions rate. Lower electricity emission factors will affect GHG reduction measures that have electricity components. In most cases GHG reductions from individual measures will go down even though overall the community will have reduced emissions as a result of CCE. Table H-1 shows the difference between the GHG reduction measures in 2020 without and with CCE, and Table H-2 summarizes the effect on the baseline, target, and reductions in 2020.

Table H-1. 2020 GHG Reduction Measures Without CCE and With CCE

Measure Name	Reductions Without CCE ($MTCO_2e$)	Reductions With CCE ($MTCO_2e$)	Percentage Difference
CCE	0	37,520	-100%
SCS	31,920	31,920	0%
LUD 1	460	460	0%
LUD 2	1,240	1,240	0%
LUD 3	780	780	0%
T 1	5,770	5,770	0%
T 2	3,460	3,460	0%
T 3	1,670	1,850	-11%
T 4	1,330	1,330	0%
T 5	1,720	1,720	0%
T 6	2,020	2,020	0%
T 7	6,590	6,590	0%
T 8	Supportive Measure	Supportive Measure	0%
T 9	2,030	2,030	0%
BE 1	3,150	2,920	7%
BE 2	15,480	14,400	7%
BE 3	1,960	1,840	6%
BE 4	20,670	19,250	7%
BE 5	640	520	19%
BE 6	3,350	2,630	21%
BE 7	50	50	0%
BE 8	320	310	3%
BE 9	Supportive Measure	Supportive Measure	0%
BE 10	990	990	0%
BE 11	Supportive Measure	Supportive Measure	0%

Measure Name	Reductions Without CCE ($MTCO_2e$)	Reductions With CCE ($MTCO_2e$)	Percentage Difference
RE 1	1,663	1,310	21%
RE 2	40	40	0%
RE 3	1,480	1,170	21%
RE 4	10,610	8,330	21%
IEE 1	1,710	1,470	14%
IEE 2	310	260	16%
IEE 3	5,910	5,030	15%
IEE 4	1,050	980	7%
WR 1	19,020	19,020	0%
WR 2	16,360	16,360	0%
WR 3	10,330	10,330	0%
WR 4	870	680	22%
WR 5	730	730	0%
AG 1	Supportive Measure	Supportive Measure	0%
AG 2	Supportive Measure	Supportive Measure	0%
AG 3	5,800	5,800	0%
AG 4	Supportive Measure	Supportive Measure	0%
AG 5	1,660	1,330	20%
AG 6	Supportive Measure	Supportive Measure	0%
WE 1	290	230	21%
WE 2	20	20	0%
WE 3	270	210	22%
GO 1	2,260	1,910	15%
GO 2	970	760	22%
GO 3	100	100	0%
GO 4	980	980	0%
GO 5	Supportive Measure	Supportive Measure	0%
GO 6	0	0	0%
Total	**188,030**	**216,650**	-15%

Table H-2. 2020 GHG Reduction Summary Without CCE and With CCE

	Without CCE ($MTCO_2e$)	With CCE ($MTCO_2e$)	Percentage Change (%)
Baseline	1,192,970	1,192,970	0%
2020 ABAU	1,180,970	1,180,970	0%
Target Emissions	1,014,020	1,014,020	0%
Sum of Reduction Measures	188,030	216,650	-15%
Emissions with ECAP	992,940	964,320	3%
Percentage of Target Achieved	113%	130%	N/A
Percentage Below Baseline	-16.77%	-19.17%	N/A

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