County of Santa Barbara

Energy and Climate Action Plan

2016 Progress Report

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County of Santa Barbara

Energy and Climate Action Plan
2016 Progress Report

Prepared by:

County of Santa Barbara

Department of Community Services
Energy and Sustainability Initiatives Division

123 East Anapamu Street
Santa Barbara, CA 93101

September 2017

Energy & Sustainability Initiatives
County of Santa Barbara

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Table of Contents

Executive Summary

Introduction

The Santa Barbara County Board of Supervisors adopted the Energy and Climate Action Plan (ECAP) in May 2015. The ECAP established a goal of reducing greenhouse gas (GHG) emissions in the unincorporated county by 15 percent below 2007 levels by 2020 and outlined strategies to help reach this goal. The County Executive Officer directed staff to form a County Sustainability Committee to implement, monitor, and report on the GHG reduction strategies set forth by the ECAP. Members of the committee have prepared this first progress report to document progress towards the County's 2020 emissions reduction goal.

2007 GHG Emissions Baseline

The ECAP uses 2007 as the baseline year from which the 2020 emissions reduction target is measured. GHG emissions from non-regulated activities throughout the unincorporated county were approximately 1,192,970 metric tons of carbon dioxide-equivalent ($MTCO_2e$) in 2007. Figure ES-1 illustrates the relative contribution of different GHG emissions sources. On-road transportation (44 percent) and building energy use (30 percent) are the largest GHG emissions contributors.

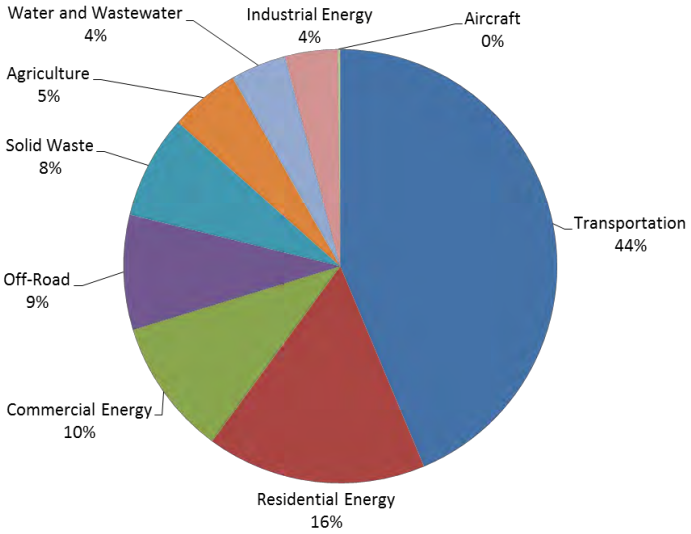

Figure ES-1. 2007 Baseline GHG Emissions by Source (%)

2020 GHG Emissions Forecast

Absent implementation of the ECAP, the unincorporated county's GHG emissions are expected to decline to 1 percent below 2007 levels (1,180,970 $MTCO_2e$) by 2020. This decrease is attributable to state-level policies, such as the Renewable Portfolio Standard that increases the amount of the state's electricity that comes from renewable energy sources and the Low Carbon Fuel Standard that reduces emissions from gasoline and other transportation fuels sold in the state.

The ECAP is designed to close the remaining 14 percent GHG emissions reduction gap between what the state policies are expected to achieve locally and the County's 2020 15 percent reduction target. Figure ES-2 shows the relative contribution of the emissions reduction strategies identified in the ECAP.

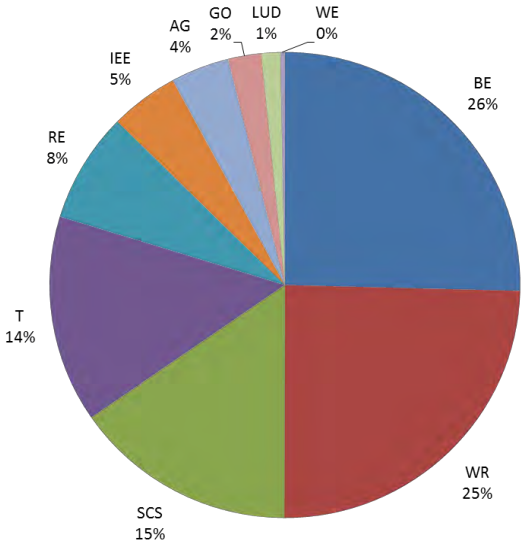

Figure ES-2: 2020 Relative GHG Reduction Contribution (no CCE)

GHG Emissions Reduction Core Strategies

The ECAP identifies quantifiable actions that the County and community can take to reduce GHG emissions. The ECAP includes 53 actions, referred to as emissions reduction measures (ERMs), which are aggregated into 11 core strategies. Figure ES-2 illustrates the core strategies and the contribution that each strategy makes to the overall amount of GHG emissions that are estimated to be reduced to meet the 2020 GHG reduction target. The successful implementation of the core strategies—minus Community Choice Energy (CCE)—is estimated to reduce emissions of the unincorporated county by 190,180 $MTCO_2e$, which exceeds the needed reductions to meet the ECAP's 2020 target.

Implementation Progress through 2016

Table ES-1 illustrates the County's progress in implementing each of the core strategies, excluding CCE, using performance indicators reported by members of the County Sustainability Committee. Through 2016, the County is 16 percent of the way towards reaching its emissions reduction target of 190,180 $MTCO_2e$. Sixteen percent is a conservative estimate of the County's progress because lack of reliable data has prohibited the inclusion of quantitative progress reporting for some ERMs, most notably for Sustainable Communities Strategy (SCS) and some of the Transportation (T 7, T 9), and Water Efficiency (WE 2) measures.

Co-benefits of Climate Action

The County Sustainability Committee has identified several County and regional projects that are not specifically outlined in the ECAP or calculated in the 2020 GHG emission reduction targets, but that complement the County's climate action goals and produce co-benefits, such as saving money and supporting the local economy, conserving resources, and improving public health. In particular, the progress report highlights the complementary relationship between the efforts of the County Public Health Department and several of the ECAP ERMs related to encouraging active forms of transportation (e.g., biking, walking), saving energy (which reduces emissions that can aggravate asthmas, for example), and encouraging local food production and consumption.

Table ES-1: Implementation Progress by Core Strategy

Core Strategy	2016 Progress $MTCO_2e$	2020 Target $MTCO_2e$	Percent to Target
Built Environment (BE)	8,915	48,310	18%
Waste Reduction (WR)	8,650	46,850	18%
Sustainable Communities Strategy (SCS)	Not measurable	29,150	Not measurable
Transportation (T)	1,072	27,360	4%
Renewable Energy (RE)	6,261	14,510	43%
Industrial Energy Efficiency (IEE)	0	8,960	0%
Agriculture (AG)	2,133	7,640	28%
Government Operations (GO)	1,925	4,320	45%
Land Use Design (LUD)	1,056	2,480	43%
Water Efficiency (WE)	593	600	99%
Total	**30,605**	**190,180**	**16%**

Looking Forward

The County and community have made progress in implementing the ECAP, having achieved an estimated 16 percent of the 2020 GHG emissions reductions target. With three years remaining, efforts will need to be accelerated to reach the 2020 goal. Several ERMs require additional resources to make progress, and some ERMs likely will not be achieved without additional action due to changes in priorities and unforeseen delays that have arisen since the ECAP was adopted in 2015. The County will need to explore ways to accelerate or make up for these ERMs that may not be accomplished or measured during future revisions to the ECAP.

The Board of Supervisors will need to adopt a revised version of the ECAP by December 31, 2020, to reflect new state-level GHG emissions reduction goals and to allow continued streamlining of the California Environmental Quality Act environmental review process past 2020. County staff will continue to monitor ECAP implementation progress and may make minor changes to the ERMs based on lessons learned.

I. Introduction

California has prioritized reducing greenhouse gas (GHG) emissions, starting with adoption of Assembly Bill 32 (AB 32) in 2006 and most recently the passage of Senate Bill 32 (SB 32) in 2016. AB 32 established a target of reducing statewide GHG emissions to 1990 levels—a roughly 15 percent reduction—by 2020. SB 32 extends the state's GHG reduction commitment to 40 percent below 1990 levels by 2030. To comply with these state policies and address the local impacts of wildfire, floods, increasing temperatures, and other impacts of climate change, the County of Santa Barbara Board of Supervisors adopted Resolution 09-059 in March 2009. The resolution outlined the County's climate change guiding principles and led to the adoption of the County's Energy and Climate Action Plan (ECAP) in May 2015.

In line with the statewide targets set in AB 32, the ECAP outlines actions that the County and community can take to reduce GHG emissions to 15 percent below 2007 levels by 2020, a reduction of 178,950 metric tons of carbon dioxide-equivalent ($MTCO_2e$). Achieving this GHG reduction goal would be like taking 37,800 cars off the road for a year.

To monitor the County's progress towards this goal, the County Executive Office established a County Sustainability Committee, comprised of representatives from County departments and partner agencies that play a key role in achieving the ECAP's GHG reduction goal. The County Executive Office oversees the committee and implementation of the ECAP with coordination support from the Energy and Sustainability Initiatives Division of the Community Services Department. For a list of CSC members, please see the acknowledgements on page I.

Members of the County Sustainability Committee prepared this report to provide an update on the County's ECAP implementation progress through calendar year 2016.

I-1. 2007 Community-wide Greenhouse Gas Emissions Baseline

The ECAP uses 2007 as the baseline year from which the 2020 emissions reduction target is measured. This approach aligns with AB 32 implementation guidance. GHG emissions from non-regulated activities throughout the unincorporated county were approximately 1,192,970 metric tons of carbon dioxide-equivalent ($MTCO_2e$) in 2007. Transportation and energy use are the biggest drivers of the county's GHG emissions, though emissions from solid waste and agriculture are other significant contributors. Table I-1 and Figure I-1 illustrate the distribution of the county's GHG emissions sources.

Table I-1: 2007 Baseline GHG Emissions by Source ($MTCO_2e$)

Sector	Total $MTCO_2e$
Transportation	521,160
Residential Energy	195,490
Commercial Energy	121,580
Off-Road	102,140
Solid Waste	91,920
Agriculture	62,110
Water and Wastewater	49,520
Industrial Energy	46,780
Aircraft	2,270
TOTAL	1,192,970

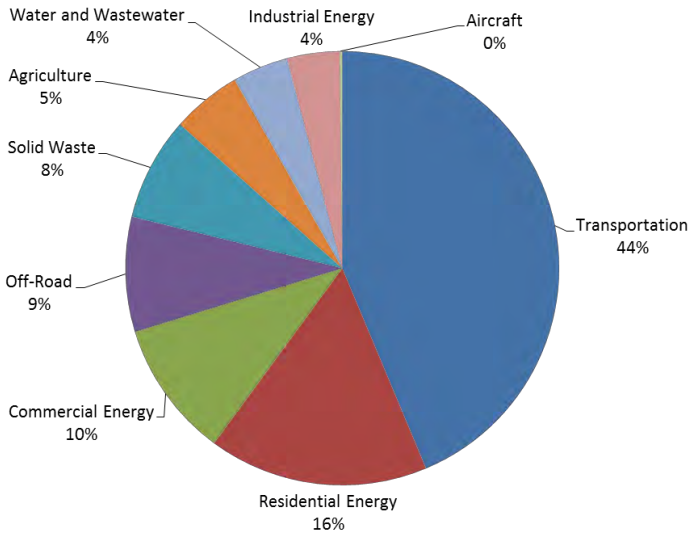

Figure I-1. 2007 Baseline GHG Emissions by Source (%)

I-2. 2020 Community-wide GHG Emissions Forecast

Absent implementation of the ECAP or other state and local policies, the unincorporated county's business-as-usual (BAU) GHG emissions are projected to increase by 14 percent from 2007 to 2020. After adjusting for state GHG reduction activities (i.e., Renewable Portfolio Standard, Pavley Clean Car Standards, Low Carbon Fuel Standard, Title 24 Standards, and the California Solar Initiative), the unincorporated county's adjusted business-as-usual (ABAU) emissions are projected to be 1 percent below the 2007 baseline by 2020 without implementation of the ECAP. Thus, the ECAP is designed to achieve at least an additional 14 percent reduction from 2007 GHG emissions levels by 2020.

As Table I-2 illustrates, state actions are expected to primarily affect GHG emissions from transportation and building energy use. Figure I-2 shows the remaining gap of reductions (166,950 $MTCO_2e$) that the County needs to attain to reach its 2020 goal.

The remainder of the report details the County's progress towards implementing the activities—called emission reduction measures—that the ECAP identifies to meet the 2020 GHG emissions reduction goal.

Table I-2: 2020 Business-As-Usual and Adjusted Business-As-Usual GHG Emissions Forecast by Source ($MTCO_2e$)

	2007 Baseline	2020 BAU	2020 ABAU	Percent Change BAU vs. ABAU
Transportation	521,160	657,290	519,440	-21%
Residential Energy	195,490	202,730	184,160	-9%
Commercial Energy	121,580	140,520	129,820	-8%
Off-Road	102,140	91,120	91,120	0%
Solid Waste	91,920	97,440	97,440	0%
Agriculture	62,110	68,070	68,070	0%
Water and Wastewater	49,520	52,370	43,540	-17%
Industrial Energy	46,780	53,360	45,110	-15%
Aircraft	2,270	2,270	2,270	0%
Total	**1,192,970**	**1,365,170**	**1,180,970**	**-13%**

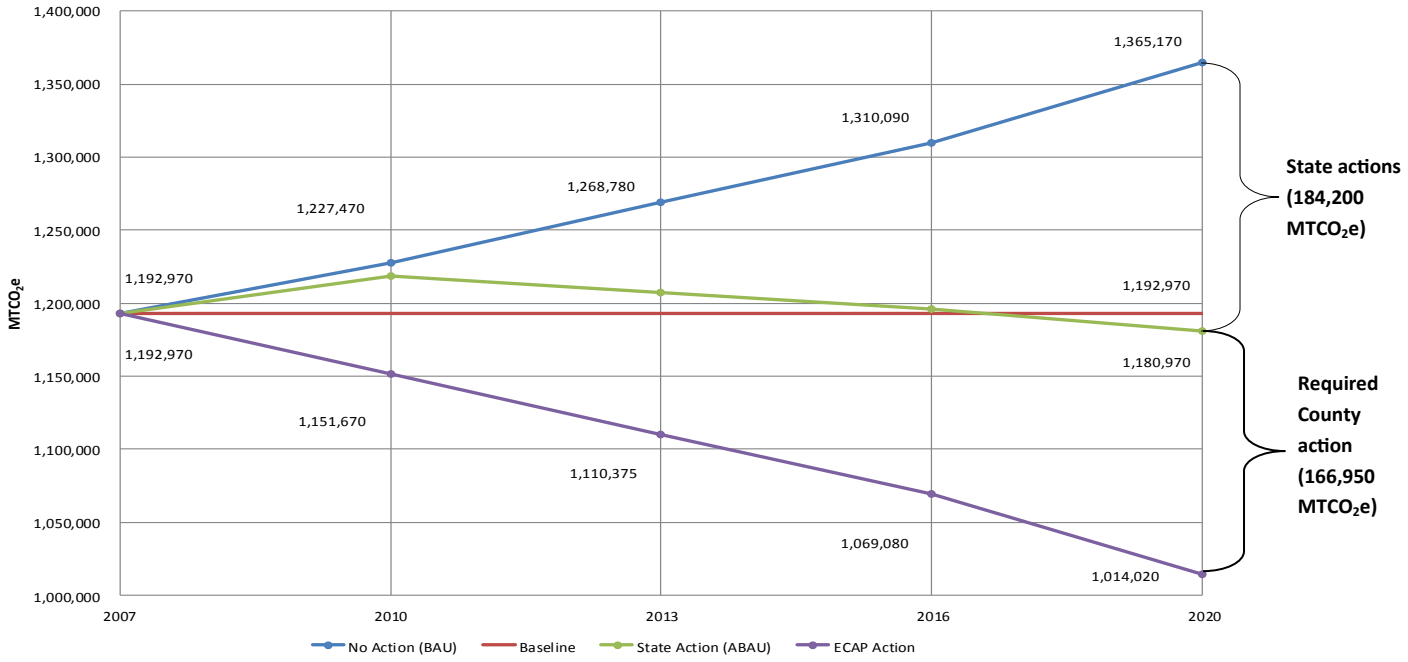

Figure I-2: 2007-2020 GHG Emissions Forecast

II. Core Strategies

II-1. 2020 Core Strategy Emissions Reduction Targets

The ECAP identifies quantifiable actions that the County and community can take to reduce GHG emissions. The ECAP includes 53 actions, referred to as emissions reduction measures (ERMs), which are aggregated into 11 core strategies.

Table II-1 and Figure II-1 illustrate the core strategies and the contribution that each strategy makes to the overall amount of GHG emissions that are estimated to be reduced to meet the 2020 GHG reduction target. Implementation of Community Choice Energy (CCE), which is a core strategy that would reduce GHG emissions from the electricity sector, would reduce the emissions reduction potential of other electricity-related ERMs. Because of this emissions quantification complication and a pending decision on whether to implement CCE, the ECAP was designed to achieve the 2020 GHG reduction target without CCE. This report includes the estimated emissions impact of other core strategies assuming CCE is not implemented.

The successful implementation of the ten non-CCE core strategies is estimated to reduce emissions of the unincorporated county by 190,180 $MTCO_2e$, which exceeds the needed reductions to meet the ECAP's 2020 target.

Table II-1: 2020 GHG Reduction Targets by Core Strategy

Core Strategy	2020 Target $MTCO_2e$
Built Environment (BE)	48,310
Waste Reduction (WR)	46,850
Sustainable Communities Strategy (SCS)	29,150
Transportation (T)	27,360
Renewable Energy (RE)	14,510
Industrial Energy Efficiency (IEE)	8,960
Agriculture (AG)	7,640
Government Operations (GO)	4,320
Land Use Design (LUD)	2,480
Water Efficiency (WE)	600
Total (without CCE)	**190,180**
Community Choice Energy (CCE)	37,520
Total (with CCE)	**227,690**

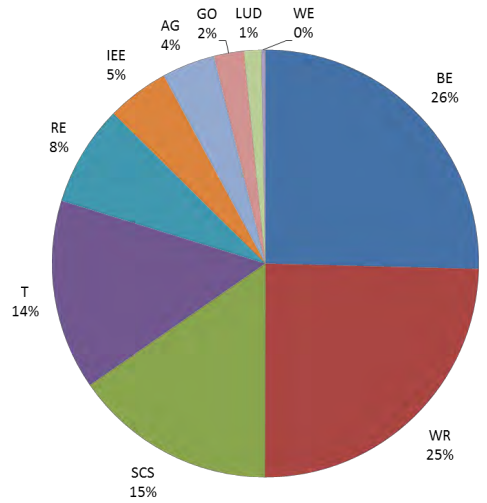

Figure II-1: 2020 Relative GHG Reduction Contribution (no CCE)

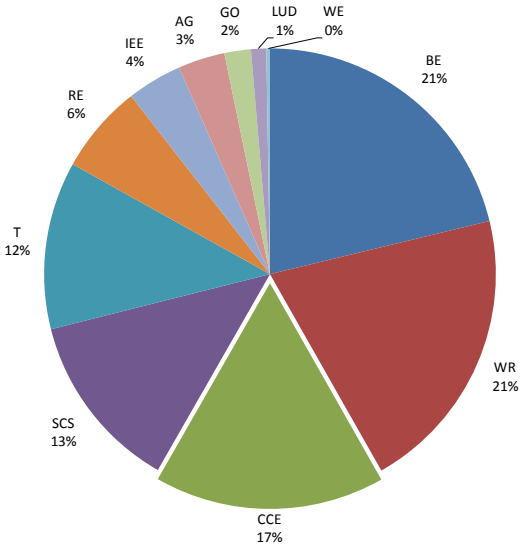

Figure II-2: 2020 Relative GHG Reduction Contribution (with CCE)

II-2. Implementation Progress through 2016

Table II-2 illustrates the County's progress in implementing each of the core strategies, excluding CCE, using performance indicators reported by members of the County Sustainability Committee. Through 2016, the County is 16 percent of the way towards reaching its emissions reduction target of 190,180 $MTCO_2e$.

Sixteen percent is a conservative estimate of the County's progress because lack of reliable data has prohibited the inclusion of quantitative progress reporting for some ERMs. For example, the Sustainable Communities Strategy (SCS) accounts for approximately 15 percent of the total 2020 goal, but obtaining accurate data that illustrates SCS's ability to reduce GHG emissions within the unincorporated county is currently unavailable (see Section III-3).

Section III provides more detail on each of the 11 core strategies' implementation progress, challenges, and next steps. The strategies are presented in order from the largest 2020 GHG reduction potential to the smallest, aside from CCE, which is presented at the end of the section.

Table II-2: Implementation Progress by Core Strategy

Core Strategy	2016 Progress $MTCO_2e$	2020 Target $MTCO_2e$	Percent to Target
Built Environment (BE)	8,915	48,310	18%
Waste Reduction (WR)	8,650	46,850	18%
Sustainable Communities Strategy (SCS)	Not measurable	29,150	Not measurable
Transportation (T)	1,072	27,360	4%
Renewable Energy (RE)	6,261	14,510	43%
Industrial Energy Efficiency (IEE)	0	8,960	0%
Agriculture (AG)	2,133	7,640	28%
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Land Use Design (LUD)	1,056	2,480	43%
Water Efficiency (WE)	593	600	99%
Total	**30,605**	**190,180**	**16%**

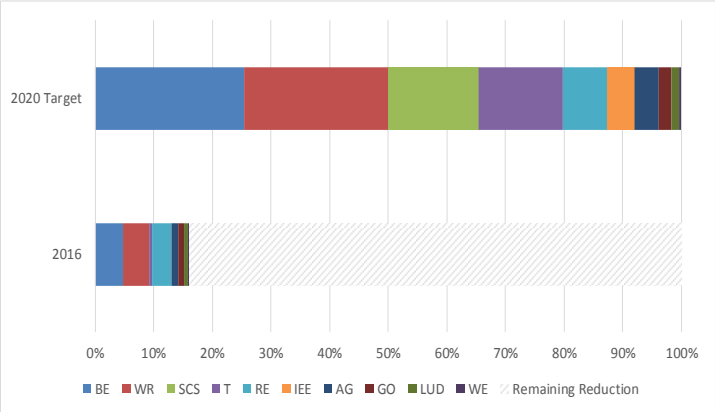

Figure II-3: Implementation Progress by Core Strategy (%)

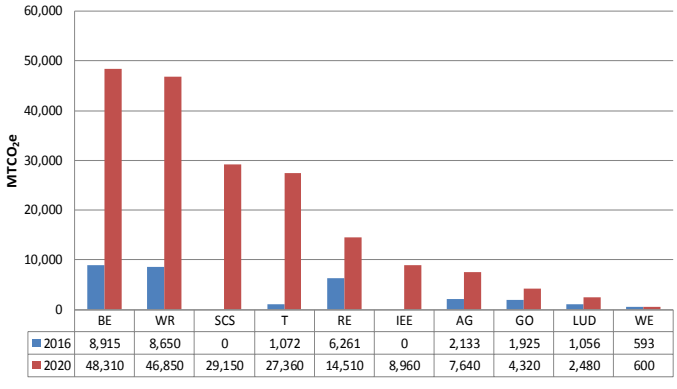

Figure II-4: Implementation Progress by Core Strategy ($MTCO_2e$)

III-1. Built Environment (BE)

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

Buildings are a significant source of GHG emissions in the unincorporated county, accounting for 30 percent of GHG emissions in 2007. The BE core strategy seeks to improve energy efficiency by reducing electricity and natural gas consumption in buildings and public infrastructure. Within the BE core strategy, there are 11 ERMS focused on educating businesses and homeowners about energy efficiency and providing them resources to make improvements to their buildings.

8,915 $MTCO_2e$ Avoided

18% to 2020 Target

Keeping 8,915 $MTCO_2e$ out of our atmosphere is like:

941

homes not using any energy for a year

1,883

passenger vehicles not driven for a year

BE Progress Reporting

Emissions Reduction Progress to Date

Through 2016, the County has achieved approximately 18 percent of its 2020 emissions reduction target for the BE core strategy. BE is comprised of 11 ERMs, of which two are considered supportive measures, meaning they are not quantified. The ECAP estimates that three-quarters of the BE 2020 emissions reduction target are expected to come from upgrading homes to be more energy-efficient (BE 2 and BE 4) and providing information about the energy performance of non-residential buildings (BE 4). As shown in Table III-1, the County is 21 percent of the way to its emissions reduction goal for BE 2, but has only met 2 percent of the BE 4 emissions reduction target. This difference is due to the lack of energy efficiency programming directed to new homebuyers and commercial building stakeholders. In sum, actions taken through 2016 under the BE core strategy are estimated to reduce 8,915 $MTCO_2e$ annually.

Table III-1: BE ERM Implementation Progress through 2016

Measure	Name	Performance Indicator		GHG Emissions Avoided ($MTCO_2e$)		Percent of 2020 Target
		2020 Target	2016 Progress	2020 Target	2016 Progress	
BE 1	Energy Efficiency Education and Outreach	20% of people participating in education programs	14% of people participating in education programs	1,890	444	23%
BE 2	Energy-efficient Renovations	4,530 retrofitted homes, 120 retrofitted nonresidential parcels	937 retrofitted homes	15,480	3,202	21%
BE 3	Green Business Participation	100 certified green businesses	25 certified green businesses	4,870	1,218	25%
BE 4	Energy Efficiency for New Homeowners and Non-Residential	6,120 cumulative residential retrofits	96 cumulative residential retrofits	20,670	94	<1%
BE 5	Community Forestry	3,000 existing street trees,	519 existing trees	650	141	22%
BE 6	Smart Grid Technology	85% of customers with Smart Meter Technology	95% of customers with Smart Meter Technology	3,350	3,744	112%
BE 7	Lawn and Garden Equipment	2,690 lawn mowers replaced		50	0	0%
BE 8	Energy Efficiency and Green Building Standards	420 new homes exceeding Title 24	86 new homes exceeding Title 24	360	74	20%
BE 9	Efficient Building Design	Supportive		Not measured		
BE 10	Construction Equipment Operations	90% of projects implementing BMPs		990	0	0%
BE 11	Energy Code Training	Supportive		Not measured		
			Total	**48,310**	**8,915**	**18%**

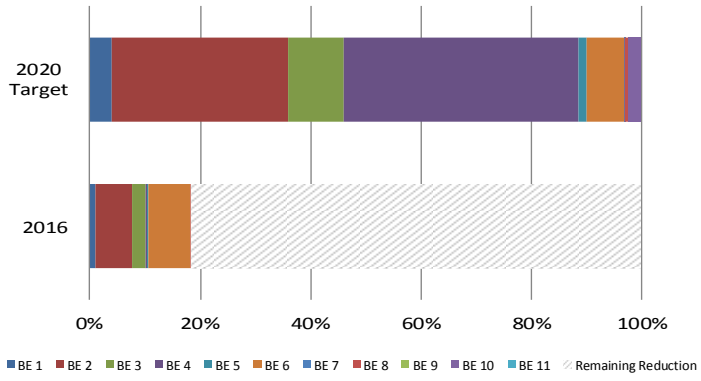

Figure III-1: BE Emissions Reduction Progress through 2016

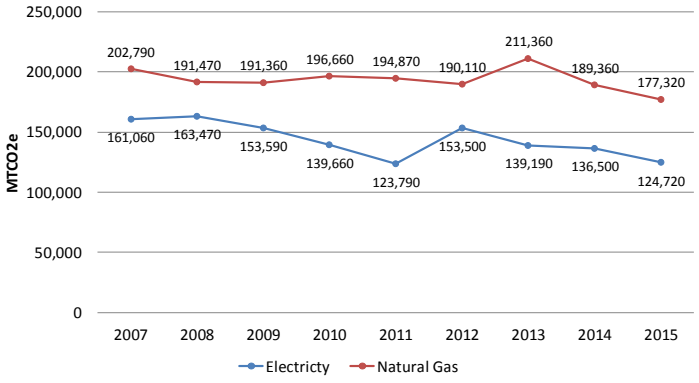

Figure III-2: Energy-related GHG Emissions , 2007-2015

BE Program Implementation

Key Accomplishments

- P&D created the Home Energy Checklist and accompanying guidance booklet. The checklist helps homeowners identify potential energy-saving improvements for their homes and provides information on the County's emPower Central Coast and Smart Build Santa Barbara (SB2) programs.
- P&D continues to promote the SB2 program, which is a free, voluntary program that encourages applicants early in the planning process to make their new or existing developments more energy-efficient.
- Since 2007, more than 900 homes in the unincorporated county have been retrofitted to be more energy-efficient. Energy-efficient upgrades include replacing old appliances, weather-stripping, and installing efficient light bulbs.
- emPower launched a new Homeowner Portal to help homeowners better navigate their energy efficiency projects, connect with contractors, and take advantage of program services such as a free Energy Coach assessment.
- Public Works continues to administer the Green Business Program of Santa Barbara County and conduct waste and water audits for businesses seeking certification in the unincorporated county. To date, 108 businesses have been certified and 22 recertified across the county.

Challenges

A significant challenge in promoting energy-efficient design and products is reaching the property owner early in the process when the information is most helpful.

State and Federal Direction

The updated 2016 Building Energy Efficiency Standards affect new construction, additions, and alterations to residential and nonresidential buildings. Significant changes include new requirements for high-performance insulation in walls and attics, reductions in outdoor lighting power allowances, and water-heating systems in residential buildings.

The California Air Resources Board plans to award the California Green Business network funding from the U.S. Environmental Protection Agency to help small and medium-sized businesses reduce their environmental impact through technical assistance and training.

Next Steps

In 2017, the County plans to implement and research several additional BE initiatives, including:

- Investigating the potential to update the zoning ordinance to require landscape plans to include shade trees in parking lots and street trees where appropriate.
- Developing informational materials to encourage passive solar designs.
- Continuing to work with the South County Energy Efficiency Partnership and other partners to bring training opportunities to our region.
- Update the SB2 program and application to promote Zero Net Energy building design.
- Developing outreach materials for the Green Business Program for Environmental Health Services inspectors to distribute.

Featured Story

The Naomi Schwartz Building, home to the Resource Recovery & Waste Management and Water Resources Divisions of the Public Works Department, was awarded its Green Business Program recertification in March 2016.

The Energy and Sustainability Initiatives Division of the Community Services Department continues to operate the tri-county emPower Central Coast program to assist homeowners in completing energy upgrades by accessing utility incentives, local financing, qualified contractors, and expert assistance. To date, emPower has educated and assisted roughly 20,000 customers, more than 1,000 of whom have completed an Energy Coach assessment (275 in 2016) and 162 of whom have applied for emPower financing. The program's 37 participating contractors report 246 customers have completed an energy upgrade project totaling $4.5M in project income ($1.1M in 2016) and averaging 29 percent energy savings per project.

III-2. Waste Reduction (WR)

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

Waste disposal emissions accounted for approximately 8 percent of the unincorporated county's GHG emissions in 2007. The WR core strategy includes five ERMs that collectively seek to keep waste out of the landfill, capture landfill gas (methane) for electricity production, and reduce emissions from waste collection vehicles. When organic waste, such as food or plant material, is sent to the landfill, it decomposes and emits methane, a potent GHG. Landfill GHG emissions can be reduced by keeping this organic waste out of the landfill (e.g., reducing food waste, encouraging composting) and capturing the emitted methane for electricity production. The increased conservation of resources through reduced consumption of material goods, reusing, and recycling results in less demand for raw materials and indirectly results in fewer GHG emissions generated from future production and transportation of new materials. Additionally, the impact of transporting waste from homes and businesses can be reduced through decreased consumption and cleaner vehicle fleets. These measures are being implemented through the Resource Recovery and Waste Management Division (RR&WMD) of the Public Works Department.

8,650 $MTCO_2e$ Avoided

18% to 2020 Target

Keeping 8,650 $MTCO_2e$ out of our atmosphere is like:

913

homes not using any energy for a year

1,827

passenger vehicles not driven for a year

WR Progress Reporting

Emissions Reduction Progress to Date

Through 2016, the County has achieved approximately 18 percent of its 2020 emissions reduction target for the WR core strategy. WR includes 5 ERMs that are designed to reduce GHG emissions from area landfills and waste collection trucks, with the majority of the reductions accomplished by keeping recyclable materials out of the landfill. As shown in Table III-2, great progress is being made in converting waste collection vehicles to cleaner-burning compressed natural gas (CNG). Figure III-4 shows an overall downward trend in the total and per-capita tons of waste disposed: a 9 percent reduction from 2007 through 2016. Once the Tajiguas Resource Recovery Project is operational, progress implementing the waste diversion measures (WR 1-3) and landfill gas generation measure (WR 4) are expected to improve.

Table III-2: WR ERM Implementation Progress through 2016

Measure	Name	Performance Indicator		GHG Emissions Avoided ($MTCO_2e$)		Percent of 2020 Target
		2020 Target	2016 Progress	2020 Target	2016 Progress	
WR 1	Waste Reduction	24,170 tons of organics diverted (85% Total Waste Diversion)	4,444 additional tons diverted in 2016	19,020	3,497	18%
WR 2	Increased Recycling Opportunities	20,790 tons of organics diverted (85% Total Waste Diversion)	3,823 additional tons diverted in 2016	16,360	3,008	18%
WR 3	Construction and Demolition Waste Recycling	13,130 tons of construction and demolition waste diverted (85% total waste diversion)	2,413 additional tons diverted in 2016	10,330	1,899	18%
WR 4	Landfill Disposal Reductions	7.6 million kWh of renewable energy generation	0 kWh	870	0	0%
WR 5	Clean Waste Collection Vehicles	44 vehicles converted to CNG by 2020	40 vehicles to date	270	245	91%
			Total	**46,850**	**8,650**	**18%**

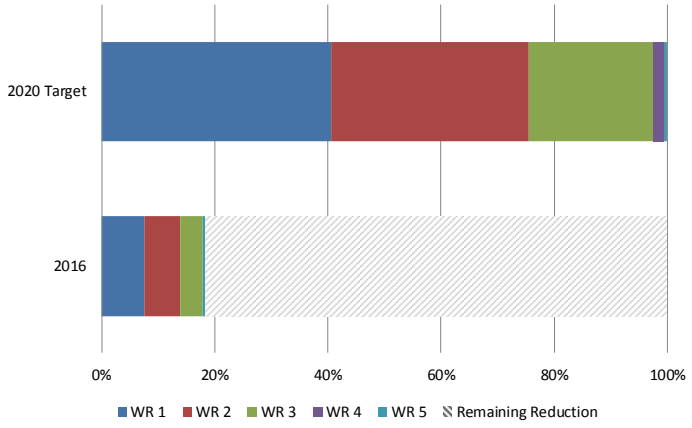

Figure III-3: WR Emissions Reduction Progress through 2016

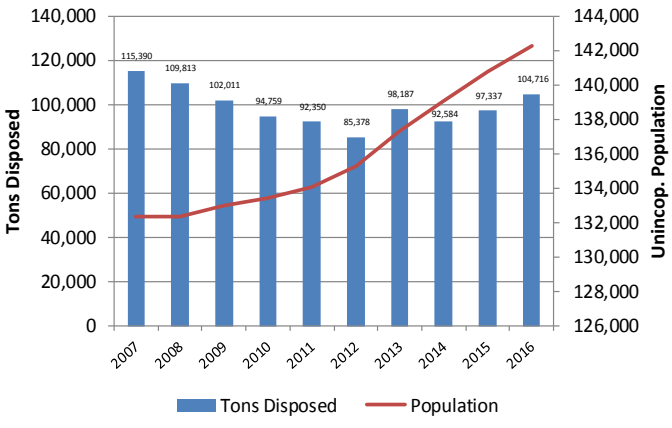

Figure III-4 : Per Capita Tons Disposed vs. Total Tons Disposed

WR Program Implementation

Key Accomplishments

- RR&WMD implemented a public outreach plan that included the redesign of the County's Recycling Guide, which was distributed to more than 35,000 residents and businesses. The division's *LessIsMore.org* website received greater than 200,000 visits in 2016.
- RR&WMD's Food Forward food scrap collection program redirected nearly 200 tons of food out of the Tajiguas Landfill. RR&WMD also worked with six South Coast schools to collect food scraps to be composted for use in school gardens.
- RR&WMD held six community workshops, sold more than 250 price-discounted composting bins, and educated 1,800 members of the public through its backyard composting program.
- RR&WMD spearheads several regional environmental initiatives to lessen the impact of community waste. Examples include: the Green Business Program of Santa Barbara County, Recycling Market Development Zone, Solid Waste Local Task Force, and procurement of the Tajiguas Resource Recovery Project.

Challenges

The biggest challenge to increasing waste diversion community-wide is coordinating and securing contractual obligations among multiple jurisdictions. For example, the Tajiguas Resource Recovery Project will serve the county as a whole, but each City will have to negotiate a contact for their waste to be sorted and buried at the landfill.

State and Federal Direction

- Assembly Bill 1826 (2014) requires businesses that generate a specified amount of organic waste per week to arrange for the recycling of that material.
- Senate Bill 1383 (2016) sets targets for organic waste diversion from landfills using 2014 as a baseline: 50 percent reduction by 2020 and 75 percent reduction by 2025.
- Proposition 67 (2016) prohibits grocery and other stores from providing customers with single-use plastic bags, but permits the sale of recycled paper bags and reusable pages.

Next Steps

In 2017, the Planning & Development Department (P&D) will consider amending the zoning ordinance to require:

- Public and private events with a temporary use or special event permit to implement a waste management plan to provide recycling and composting opportunities.
- Demolition projects requiring a discretionary permit to implement a recycling plan to maximize recycling of asphalt, concrete, and equipment.

RR&WMD expects to increase the number of participants in the commercial food scrap collection program, formalize expansion of the food scrap program in future franchise agreements, increase the number of schools composting onsite, and finance and begin construction of the Tajiguas Resource Recovery Project.

Featured Story

On December 13, 2016, the Santa Barbara County Board of Supervisors approved the final contracts necessary to move forward with the long-awaited Tajiguas Resource Recovery Project. The Project includes the development of facilities that will process municipal solid waste (MSW), recyclables, and organic materials at the County-owned and operated Tajiguas Landfill.

According to Public Works Department Director Scott McGolpin, "There is no other project we have planned that will make as big an impact and is crucial to achieving the goals of the climate action plans for the region."

The project is expected to process an estimated 155,000 tons of MSW and 35,000 tons of recyclables each year, increasing the county's recycling rate to over 85 percent and resulting in an estimated reduction of 110,000 $MTCO_2e$ each year.

III-3. Sustainable Communities Strategy (SCS)

On-road transportation is the biggest driver of the unincorporated county's GHG emissions, representing approximately 44 percent of the county's 2007 emissions. SCS seeks to tie land use and transportation planning to reduce GHG emissions from passenger vehicles. The county's transportation planning body, the Santa Barbara County Association of Governments (SBCAG), incorporates SCS principles into its Regional Transportation Plan (RTP) that outlines county-wide transportation priorities over 20+ years. The current combined RTP-SCS planning document was adopted in 2013. The adopted RTP-SCS sets out a plan to achieve a zero net increase in per-capita GHG emissions from passenger vehicles by 2020 by encouraging development that links housing with employment centers to reduce vehicle commutes.

To reach the ECAP's SCS emissions reduction target, the County must take action to align its plans and zoning with the RTP-SCS. Such a commitment would involve rezoning some properties to allow for increased densities. Rezones of individual parcels would require separate County Board of Supervisors approval. Potential rezones will be presented as part of Community Plan updates that are in the pipeline.

The desired outcome of SCS is to reduce vehicle miles traveled (VMT) and, thus, GHG emissions. However, it is not currently possible to isolate changes in VMT due to SCS implementation because multiple factors—such as housing affordability, transit access, job availability, and inter-county travel—affect VMT changes. Therefore, the County Sustainability Committee is treating SCS as a supportive measure, similar to other hard-to-quantify ERMs.

0 $MTCO_2e$ Avoided (not measured)

0% to 2020 Target

SCS can help avoid 29,150 $MTCO_2e$ annually when fully implemented, which is like:

3,078

homes not using any energy for a year

6,157

passenger vehicles not driven for a year

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SCS Program Implementation

Key Accomplishments and Challenges

SBCAG's long-range RTP-SCS seeks to address the jobs-housing imbalance between North (more affordable housing) and South County (more jobs) to reduce commute travel. While the RTP-SCS promotes land use policy that helps correct the jobs/housing imbalance, SBCAG only has authority over transportation planning and cannot direct local governments to modify their land use planning practices. Despite this disconnect, area local governments are making progress instituting land use policies consistent with the RTP-SCS:

- Proposed and approved non-residential development in the North County is outpacing that of the South Coast, 65 percent to 35 percent, respectively. Similarly, North County is providing a higher proportion of employment opportunities for local residents. SBCAG's Employment Characteristics Report (2015) found that job growth is outpacing population growth, with a roughly 3,000 jobs surplus by 2040. For more information, see SBCAG's Report on Development Trends & RTP -SCS Implementation Progress.
- The City of Goleta currently has more than 1,000 residential units approved or under construction, significantly outpacing the roughly 200 units developed over the previous five-year period.
- The City of Santa Barbara's Average Unit Density (AUD) incentive program is exceeding expectations. Approximately 923 units are in development, which will enable people to live and work in close proximity. All AUD projects are in locations supportive of alternative transportation options.

State and Federal Direction

SB 375 (2008) directs metropolitan planning organizations (MPOs), such as SBCAG, to tie land use and transportation planning to reduce travel-related GHG emissions. SB 375 focuses solely on GHG emissions from changes in VMT and does not consider reductions that might come from vehicle efficiency or fuel standards. The California Air Resources Board (CARB) assigns GHG reduction targets to each MPO. SBCAG's current targets are zero per-capita change in passenger vehicle VMT emissions for 2020 and 2035. CARB is in the process of updating MPO targets, with adoption anticipated in 2017.

SB 743 (2013) changes how transportation impacts are assessed under the California Environmental Quality Act (CEQA) and like, SCS, seeks to reduce the distance between where people live and work and remove CEQA obstacles to land use patterns that enable efficient alternative transportation.

Next Steps

SBCAG expects to adopt an updated version of its RTP-SCS in August 2017. The updated SCS will continue to encourage residential development on the South Coast and growth in employment opportunities in the North County, as well as focusing development along key transit corridors. As changes to the built environment lag the SCS update cycle, keeping the underlying principles in place will allow the outlined strategy to influence the development of land use plans and land use decision making locally.

Featured Story

SBCAG's RTP-SCS focuses on transit-oriented and infill development and includes an enhanced transit strategy. The enhanced transit strategy seeks to apply new transit funding capacity to transit improvements supportive of the SCS's land use component. Several such transit improvements are now being implemented.

The Low Carbon Transit Operations Program provides funding for transit projects that demonstrate a reduction in GHG emissions. The program is funded with cap-and-trade revenues. Since the program first began funding projects in 2015, several transit services supporting the SCS's implementation have been improved or expanded. These projects include: increased frequency of service on several MTD routes; expanded Saturday and new Sunday service on the Guadalupe Flyer; and new Saturday service on the Wine Country Express, Breeze Route 100, Breeze Route 200, and the Clean Air Express. Each of these projects reduces emissions and is supportive of the SCS's enhanced transit strategy.

III-4. Transportation (T)

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

On-road transportation is the largest contributor (44 percent) of GHG emissions in the county. Transportation emissions can be reduced through three main approaches: 1) encouraging the purchase of more fuel-efficient vehicles, 2) requiring stricter fuel economy standards, and 3) decreasing VMT. The T core strategy primarily focuses on the third approach of reducing VMT, which is also a key goal of the Land Use Design core strategy discussed in Section III-9 and the SCS core strategy discussed in Section III-3. The goal of these core strategies is to reduce the need for travel by passenger vehicle by developing in a way that supports mixed-use and transit-oriented development.

1,072 $MTCO_2e$ Avoided

4% to 2020 Target

Keeping 1,072 $MTCO_2e$ out of our atmosphere is like:

113

homes not using any energy for a year

226

passenger vehicles not driven for a year

T Progress Reporting

Emissions Reduction Progress to Date

Through 2016, the County is 4 percent of the way to meeting its 2020 emissions reduction target for the T core strategy. The strategy includes nine ERMs designed to reduce passenger vehicle usage by offering alternative transportation options such as ridesharing (T1, T2), biking (T5, T6), walking (T6), and transit (T4, T9); increasing cleaner-burning alternative fuel use (T3); and reducing congestion (T8) and vehicle idling (T7).

While improvements have been made in the availability of bike lanes (T5) and number of students using active forms of transportation (T6), other T ERMs have not shown much progress to date, despite County efforts. For example, Figure III-7 shows that the percent of Santa Barbara County residents who commute by carpool or vanpool has decreased since 2011. This may be a function of lower gas prices and other factors out of the County's control.

ERMs T7 and T9 are currently not being monitored due to the lack of available data, suggesting that emissions reductions may be underreported for the T core strategy.

Table III-3: T Implementation Progress through 2016

Measure	Name	Performance Indicator		GHG Emissions Avoided ($MTCO_2e$)		Percent of 2020 Target
		2020 Target	2016 Progress	2020 Target	2016 Progress	
T 1	Car Sharing and Ride Sharing	25% carshare/vanpool participants	1.5% decrease since baseline year	6,000	0	0%
T 2	Commuter Incentives	25% carshare/vanpool participants	1.5% decrease since baseline year	6,000	0	0%
T 3	Alternative-Fuel Vehicles and Incentives	1,400 EV charging stations	46 stations	1,670	55	3%
T 4	Alternative and Active Transportation	65% of residents within ¼ mile of transit	0% change since baseline year	1,330	0	0%
T 5	Integrated Bikeway Systems	60 miles of bike lane installed	16 miles	1,720	466	27%
T6	Pedestrian Improvements	30% of students using alternative modes	3% increase since baseline year	2,020	551	27%
T 7	Vehicle idling	5% reduction in commercial vehicle idling	Not measured	6,590	Not measured	
T 8	Traffic Signal Efficiencies	Supportive		Not measured		
T 9	Commuter Rail connections	290 daily train riders	Not measured	2,030	Not measured	
			Total	**27,360**	**1,072**	**4%**

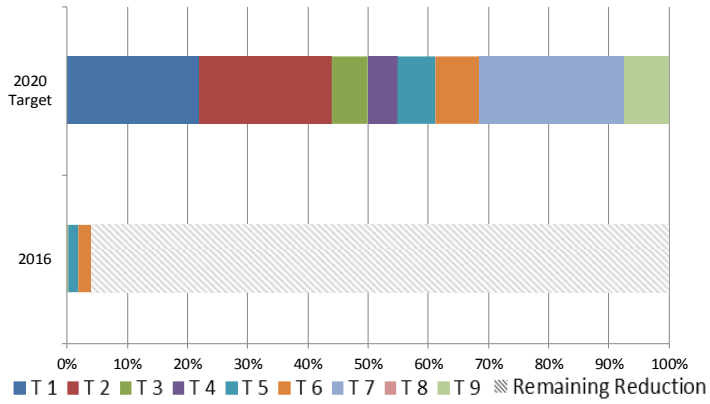

Figure III-5: T 2016 Emissions Reduction Progress through 2016

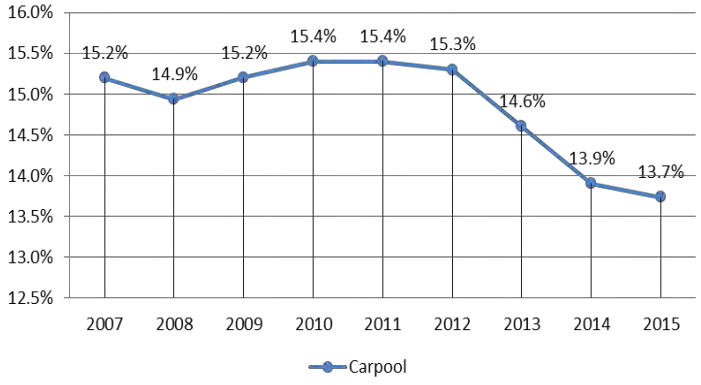

Figure III-6: Commuters Using Car/Vanpool, 2007-2015

T Program Implementation

Key Accomplishments

- The number of electric vehicle charging stations installed has increased from zero in 2007 to ten in 2016.
- The Transportation Division received $400,000 in regional Measure A funding to build the San Jose Creek Bike Path project, adding a Class I facility to the Goleta unincorporated area.
- The Transportation Division received $100,000 in regional Measure A funding to construct a sidewalk to close a gap for children walking to/from Orcutt Union School.
- The Transportation Division installed buffered Class II bike lanes on Hollister Avenue (see Featured Story).

Challenges

The most significant barrier to implementing the T core strategy is funding. Many of the ERMs require new funds to expand existing or build new infrastructure that encourages walking, biking, and riding transit.

State and Federal Direction

The County continues to work with state legislators to emphasize the importance of establishing sustainable sources of transportation funding to maintain and expand transportation infrastructure. SB 1 (2017) will raise the gas tax and generate an estimated $54 billion over the next ten years. This revenue will go towards repairing highways, local roads, bridges, and other transportation infrastructure, as well as provide reliable funding streams for transit and active transportation.

Per SB 1077 (2014), the state is conducting a Road Charge Pilot Program with volunteer motorists to explore VMT-based charging as a potential long-term replacement for the gas tax. The state wants to explore a sustainable transportation funding model to generate adequate revenue for its road maintenance and improvement needs.

Next Steps

In 2017, the County expects to implement and research several additional T ERMs, including:

- Investigating the potential to update the zoning ordinance to develop an electric-vehicle-ready ordinance and ensure that alternative-fuel stations and support facilities are allowed land uses.
- Pending Board approval, updating the Circulation Element of the Comprehensive Plan to incorporate "Complete Streets" policies, improve connectivity, coordinate alternative transportation modes, and improve pedestrian facilities.
- Exploring low-cost options for improvements to bike facilities that will provide a more comfortable experience for bike riders.

Featured Story

The Planning & Development Department utilized grant funding from the California Energy Commission to prepare the Central Coast Alternative Fuel Ecosystem Project. The plan is intended to guide the development of policies and infrastructure within Santa Barbara, San Luis Obispo, and Ventura Counties to enable increased use of alternative fuel vehicles (e.g., electric, hydrogen, natural gas, and biofuels).

The Transportation Division of the Public Works Department installed buffered Class II bike lanes on Hollister Avenue. Traditional Class II bike lanes use a paint stripe to separate a vehicular travel lane from a bike lane within a roadway. In many cases, only the most seasoned rider feels comfortable using these facilities.

Class II bike lanes use a new striping technique that provides a physical separation between vehicular traffic and the bike lane, particularly on higher speed arterial roadways such as Hollister Avenue. The buffer has been found to help cyclists feel safer, as they are not forced to ride immediately adjacent to traffic. In addition, as motorists drift in their lane due to inattentive driving, there is a recovery area (i.e., buffer) that the vehicle can utilize prior to entering the bike lane. The improvement has been well received by cyclists, and the Transportation Division is looking for other locations to implement this fairly easy and affordable solution to encourage more biking throughout the county.

III-5. Renewable Energy (RE)

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.

Building energy use accounted for 30 percent of the unincorporated county's GHG emissions in 2007. The RE core strategy consists of 4 ERMs that promote increased production of renewable energy in the region. The measures encourage community-wide investment in renewable energy (RE 1, RE 2, RE 3), such as through the Solarize Santa Barbara County program administered by the Community Environmental Council to buy down the cost of rooftop solar systems (RE 3), as well as County leadership in utility-scale renewable energy projects (RE 4), such as the Calle Real solar array at one of the County's main campuses.

6,261 $MTCO_2e$ Avoided

43% to 2020 Target

Keeping 6,261 $MTCO_2e$ out of our atmosphere is like:

661

homes not using any energy for a year

1,323

passenger vehicles not driven for a year

RE Progress Reporting

Emissions Reduction Progress to Date

Through 2016, the County is 43 percent of the way to its 2020 emission reduction target for the RE core strategy. As shown in Table III-4, nearly eight times as many residential renewable energy systems and roughly three times as many non-residential systems have been installed than were anticipated for the RE 1 2020 target. While the County is roughly on track with solar water heating installations (RE2), available data shows that the County is 16 percent of the way to meetings its goal for Solarize program participation (RE 3) and 10 percent towards its goal for utility-scale renewable energy projects (RE 4). RE 4 is anticipated to account for 83 percent of the RE 2020 GHG reduction target. However, given the high volume of distributed renewable energy systems reported for RE 1, actions taken under the RE core strategy are currently reducing GHG emissions by roughly 6,261 $MTCO_2e$ annually.

Table III-4: RE Implementation Progress through 2016

Measure	Name	Performance Indicator		GHG Emissions Avoided ($MTCO_2e$)		Percent of 2020 Target
		2020 Target	2016 Progress	2020 Target	2016 Progress	
RE 1	Alternative Energy Development	300 residential renewable energy systems installed, 200 nonresidential renewable energy systems installed	2,330 residential and 66 nonresidential renewable energy systems installed	1,540	4,896	318%
RE 2	Water Heaters	60 solar water heaters installed	35 solar water heaters installed	40	23	58%
RE 3	Alternative Energy Incentives	420 unincorporated county participants in Solarize Santa Barbara	67 Solarize participants	820	131	16%
RE 4	Utility-Scale Renewable Energy Projects	10 mid-size projects installed with average size of 3 MW	1 mid-sized projects installed	12,110	1,211	10%
			Total	**14,510**	**6,261**	**43%**

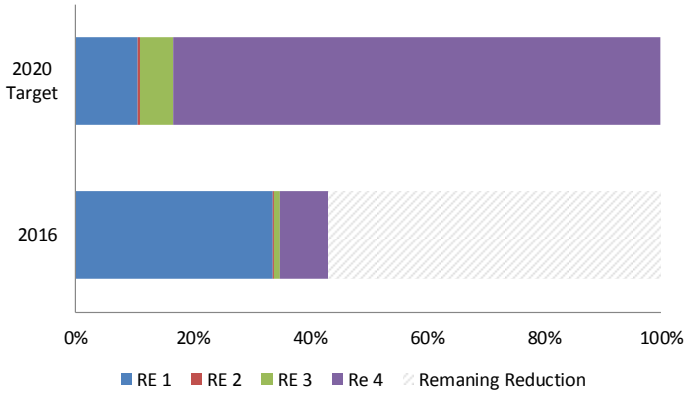

Figure III-7: RE Emissions Reduction Progress through 2016

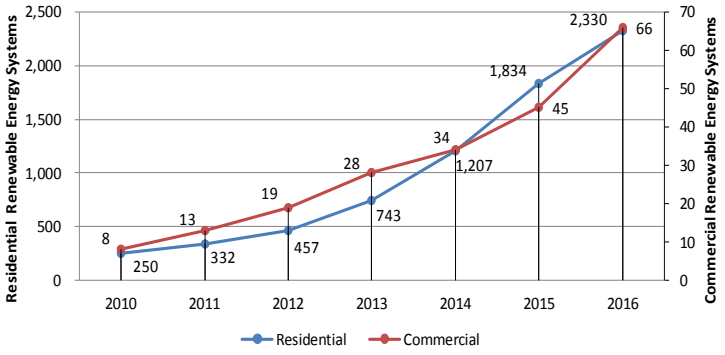

Figure III-8: Installed Renewable Energy Systems, 2010-2016

RE Program Implementation

Key Accomplishments

- The emPower Central Coast program continues to offer low-interest financing for single-family residential energy projects, including solar photovoltaic and solar water heating systems.
- The Energy and Sustainability Initiatives Division of the Community Services Department assisted with a successful Regional Energy Innovation Cluster grant application to support clean energy entrepreneurship to attract businesses that develop or market alternative energy technologies.
- The Building and Safety Division of the Planning and Development Department now offers an expedited electronic plan review for qualified small roof-mounted residential solar energy systems (see Featured Story).
- The Final Subsequent Environmental Impact Report for the Tajiguas Resource Recovery Project was approved by the County Board of Supervisors on July 12, 2016. The project includes an anaerobic digester that will produce renewable energy from waste products.

Challenges

Enabling and promoting the installation of renewable energy systems on rental housing continues to be a challenge. As with energy efficiency investments in leased properties, the cost typically falls on the property owner, while the renter experiences the immediate financial savings. The County continues to explore opportunities to overcome this "split incentive" for energy efficiency and renewable energy projects.

State and Federal Direction

- In 2016, Governor Jerry Brown signed four new bills into law that will boost behind-the-meter and utility energy storage capacity. Storage is necessary to expand the amount of renewable energy that the electricity grid can support. AB 1637, AB 2868, AB 2861, and AB 33 supplement and promote AB 2514 (2010), which was the first energy storage mandate to be enacted at the state level.
- SB 350 (2015) mandates electricity providers to serve 50 percent of California's electricity use with renewable energy resources by 2030. SB 100 (2017), which has been adopted by the California Senate but has not yet passed the Assembly, seeks to accelerate the 50 percent renewable energy goal to 2026 and set a new requirement for 100% renewable energy by 2045. In 2016, the California Energy Commission estimates that about 27 percent of electricity in California came from renewable sources.

Next Steps

The Building and Safety Division will continue to expedite the review of residential solar projects and require new residential developments to use high-efficiency or tankless water heaters. In 2017, the Planning and Development Department will consider ordinance amendments recommended within the ECAP to allow installation of photovoltaic systems on agricultural land and investigate a solar photovoltaic-ready construction ordinance for new residential units.

Featured Story

The Building and Safety Division of the Planning and Development Department offers a ten-day expedited and electronic plan review for qualified small residential rooftop solar energy systems. A contractor can submit 11x17 plans via email for review and approval. This streamlines the permit process and saves applicants time and money.

In 2014, the Board of Supervisors approved the Cuyama Solar Project, a 40-megawatt (MW) solar array. When construction is finished in 2017, the solar project will generate enough energy to serve approximately 16,000 California homes and will displace more than 30,000 $MTCO_2e$ annually. That's like taking 6,000 cars off the road for a year!

III-6. Industrial Energy Efficiency (IEE)

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

In 2007, industrial energy use accounted for 4 percent of the total emissions within the unincorporated county. Although this is a relatively small contributor to county-wide emissions, industry is a large user of energy and, therefore, presents sizable opportunities for energy savings. 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 use characteristics of industrial facilities is unique compared to the residential and commercial sectors; hence, why the four IEE ERMs are grouped separately from the BE ERMs.

0 $MTCO_2e$ Avoided

0% to 2020 Target

IEE can help avoid 8,960 $MTCO_2e$ annually when fully implemented, which is like:

946

homes not using any energy for a year

1,893

passenger vehicles not driven for a year

Emissions Reduction Progress to Date

The County does not have any programs currently in place to help improve energy efficiency within the industrial sector. The lack of programming in this area means that data on IEE core strategy implementation is currently unavailable.

Table III-5: IEE Implementation Progress through 2016

Measure	Name	Performance Indicator		GHG Emissions Avoided ($MTCO_2e$)		Percent of 2020 Target
		2020 Target	2016 Progress	2020 Target	2016 Progress	
IEE 1	Efficient Equipment Incentives	25% of industrial facilities to date to install equipment	Not Started	1,710	0	0%
IEE 2	Energy Management Programs	25% participation rate in energy management programs	Not Started	310	0	0%
IEE 3	Efficient Upgrade Incentives	50% of facilities audited to date, 90% of audited facilities completing renovations	Not Started	5,890	0	0%
IEE 4	Efficient Equipment	10% of additional facilities to upgrade equipment	Not Started	1,050	0	0%
			Total	**8,960**	**0**	**0%**

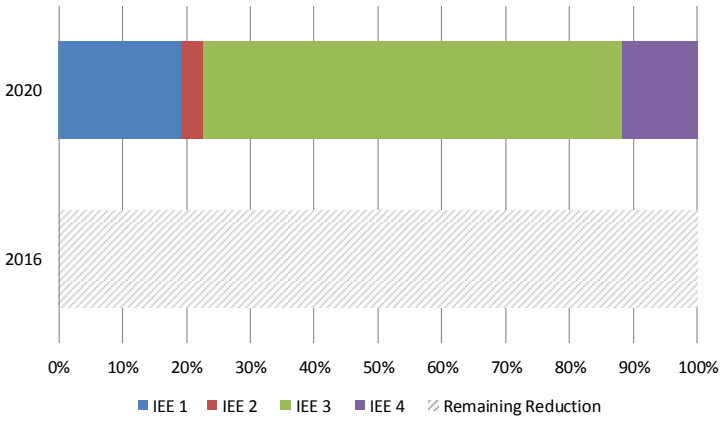

Figure III-9: IEE Emissions Reduction Progress through 2016

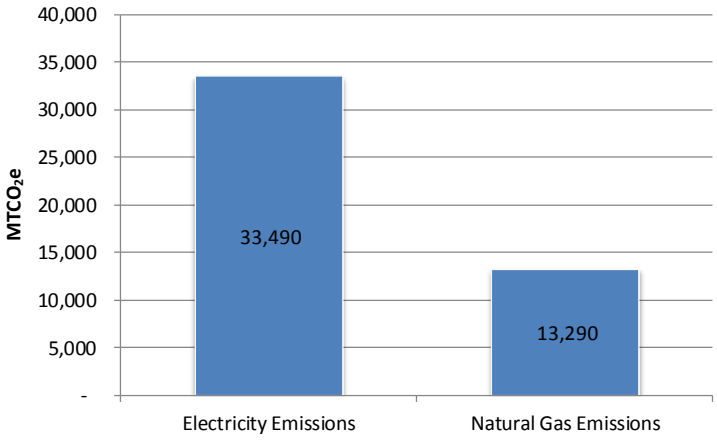

Figure III-10: 2007 Industrial Energy GHG Emissions by Source

IEE Program Implementation

Key Accomplishments

- Santa Barbara County is an active participant in the South County Energy Efficiency Partnership (SCEEP), which is a collaboration between Southern California Edison, Southern California Gas Company, the County, and local Cities. Through SCEEP, businesses can obtain energy audits and access rebates for energy efficiency upgrades.
- In 2015, SCEEP tracked nearly 3,000 megawatt-hours of energy savings by nonresidential participants, which includes industrial businesses.
- The Green Business Program of Santa Barbara County provides resources and assistance to businesses of all types wanting to improve their energy and resource usage.
- In October 2016, the Board of Supervisors directed staff to investigate a commercial Property Assessed Clean Energy Program (PACE), which could provide new energy efficiency financing opportunities for industrial building owners.

Challenges

Data for this sector is challenging to obtain and monitor. Industrial land uses are not a significant portion of land uses within the unincorporated county, which is why the focus of energy efficiency programs offered thus far has been targeted to residential and non-industrial commercial customers. Additionally, there is currently no mechanism that monitors energy-efficient improvements to industrial facilities, making it hard to monitor the number of facilities that implement programs and install new equipment on their own.

State and Federal Direction

Title 24 (the California Green Building Standards Code) requires some energy efficiency upgrades when industrial facilities are retrofitted. Energy efficiency standards are also required for equipment such as boilers, heat pumps, and ventilation systems. The latest Title 24 updates went into effect January 1, 2017.

Next Steps

The Planning and Development and Community Services Departments will seek opportunities to offer energy efficiency resources for industrial facilities in coordination with partner agencies.

III-7. Agriculture (AG)

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

Agricultural activity contributed roughly 5 percent of the unincorporated county's GHG emissions in 2007. Agriculture is an important resource and critical economic driver in the county; thus, it is important to help farmers mitigate and address the effects of climate change. The agriculture sector is seeing the effects of climate change through the increased frequency and duration of drought. To help the agricultural community adapt to changing conditions and lessen their climate change impact, the AG core strategy seeks to reduce GHG emissions by helping farmers implement best practices in irrigation and efficient growing techniques across six ERMs. By promoting water and energy efficiency, the AG ERMs can help farmers sustain their crop outputs while using less resources.

2,133 $MTCO_2e$ Avoided

28% to 2020 Target

Keeping 2,133 $MTCO_2e$ out of our atmosphere is like:

225

homes not using any energy for a year

451

passenger vehicles not driven for a year

AG Progress Reporting

Emissions Reduction Progress to Date

Through 2016, the County has achieved 28 percent of its 2020 emissions reduction target for the AG core strategy. The strategy includes six ERMs, of which only two (AG 3 and AG 5) have measurable indicators. Between the two measures, AG 3 has the largest emissions reduction potential and is achievable through replacing agricultural equipment such as tractors and balers. Currently, The Santa Barbara County Air Pollution Control District (SBCAPCD) is administering rebates from the Carl Moyer Program to help farmers replace their old equipment. The program has replaced 26 tractors to date, representing just 2 percent of the AG 3 emissions reduction target. Due to limited funding, it is unlikely that AG 3 will achieve its 2020 target with the Carl Moyer Program alone.

AG 5 encourages efficient irrigation techniques to achieve water-related GHG savings. Through 2016, the Agricultural Commissioner estimates 300 farms have implemented efficient irrigation techniques, which is roughly 38 percent of the estimated number of growers in the unincorporated county.

Despite these modest gains for AG 3 and AG 5 ERMs, Figure III-12 shows that the overall emissions in the agriculture sector have increased since 2007, in part due to the increase in the amount of land dedicated to farming various fruits. According to Santa Barbara County's Crop Reports, the number of acres devoted to miscellaneous fruits and strawberries has grown by 4,797 acres since 2007.

Table III-6: AG Implementation Progress through 2016

Measure	Name	Performance Indicator		GHG Emissions Avoided ($MTCO_2e$)		Percent of 2020 Target
		2020 Target	2016 Progress	2020 Target	2016 Progress	
AG 1	Local Food Program	Supportive		Not Measured		
AG 2	Agricultural Conservation Practices	Supportive		Not Measured		
AG 3	Agriculture Equipment	35% (1,515) of equipment retrofitted/replaced through the Carl Moyer Program	26 tractors replaced through the Carl Moyer Program	5,810	100	2%
AG 4	Energy-Efficient Agriculture Operations	Supportive		Not Measured		
AG 5	Agriculture Irrigation Improvements	270 growers implementing water efficient techniques	300 growers implementing water efficient techniques	1,830	2,033	111%
AG 6	Agriculture and Open Space Easements	Supportive		Not Measured		
			Total	7,640	2,133	28%

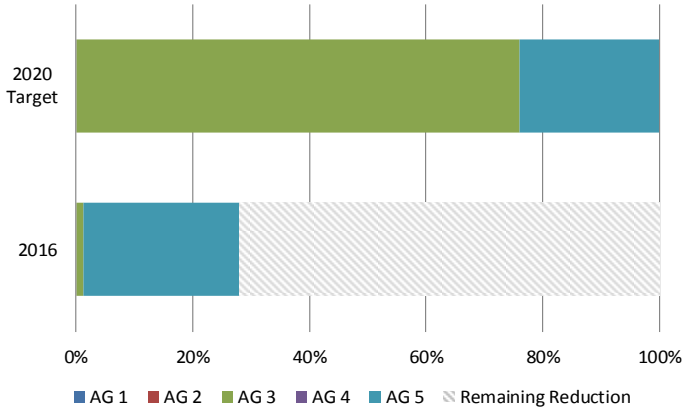

Figure III-11: AG Emissions Reduction Progress through 2016

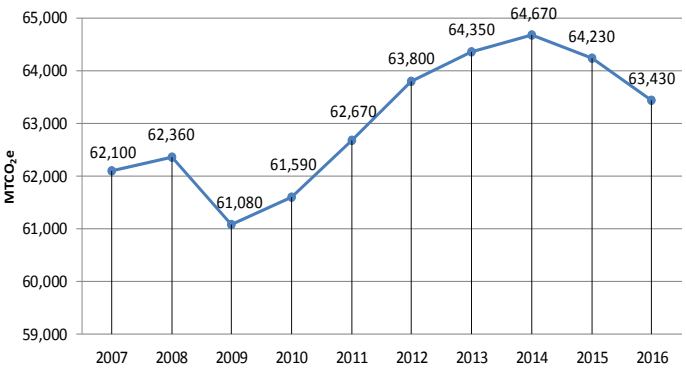

Figure III-12: Agricultural GHG Emissions , 2007-2016

AG Program Implementation

Key Accomplishments

- The 2016 Santa Barbara County Food Action Plan addresses the unsustainable nature of the county's current food system. The plan offers a holistic approach to improving the sustainability of and reducing GHG emissions from the food system, for example, by supporting local farms and reducing food waste.
- The Agricultural Commissioner continues to partner with the University of California Cooperative Extension (UCCE) and the Cachuma Resource Conservation District (CRCD) to sponsor workshops and educational events for farmers and ranchers on topics related to agricultural best management practices, including conservation practices.
- In 2016, the CRCD conducted an agricultural water management survey, which is a first step in determining funding and needs for irrigation water management.
- CRCD is coordinating with agencies such as the U.S. Department of Agriculture, UCCE, Marin Carbon Project, and a local rancher on a test plot for the California Carbon Project. This experiment will provide more information on the conversion of atmospheric carbon to soil carbon by applying compost.
- In 2016, the SBCAPCD's Off-Road Equipment Replacement Program leveraged $315,625 of Carl Moyer Program grant funding to replace five high-emitting tractors with new low-emitting tractors valued at $826,742. In addition to GHG reductions, the replacements are estimated to reduce more than 31 tons of local air pollution. Since 2011, the program has provided partial funding for 26 tractor replacements.

Challenges

The guidelines for the Carl Moyer Program grant funding are stringent. The grantees must provide proof of tractor ownership and 24 months of maintenance or service records. The old tractors must be fully functioning and have an operable hour meter. Over the life of the grant, the grantee must provide annual reports of usage to prove that the new tractors are being operated in Santa Barbara County. These requirements can be a barrier to get more agricultural equipment replaced in support of ERM AG 3.

State and Federal Direction

Carl Moyer Program grant funding, which has been fairly consistent from year to year, will continue until at least January 1, 2024. The funding for this program is determined by the California Air Resources Board based on the county's population and air quality.

Next Steps

The SBCAPCD will continue funding agricultural equipment replacements for the next seven years, with an average of four tractors per year. The County will continue to seek other funding opportunities to help meet its AG 3 equipment replacement/retrofit goal.

The CRCD is partnering with various stakeholders to conduct a pilot program on compost application. The application of compost has been shown to sequester carbon in the soil. A study carried out by the CRCD indicates that compost application has the potential to offset 33 percent of the total GHG emissions in the agricultural sector.

Featured Story

The State Water Efficiency and Enhancement Program (SWEEP) offers financial assistance for farmers to install efficient irrigation systems to save on water and reduce GHG emissions. The CRCD received a total of $785,655 in 2014 and 2015 for projects that are estimated to save 160 million gallons of water annually. To learn more about the SWEEP program visit the CRCD website

The California Strawberry Commission hosts English and Spanish educational workshops to provide Santa Barbara County strawberry farmers with the knowledge to design and maintain efficient irrigation systems. Strawberries remain the number one agricultural commodity in Santa Barbara County, which is one reason why helping strawberry farmers adopt water-efficient strategies is a priority. The 2015 Strawberry Production Manual has more information on best management practices.

III-8. Government Operations (GO)

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.

While the GO core strategy contributes a relatively small portion (2 percent) of the ECAP's 2020 emissions reduction target, the GO activities showcase the County's leadership in meeting the community's and state's GHG reduction goals. The GO core strategy includes six ERMs that demonstrate the County's commitment to sustainable energy (GO 1, GO 2) and water (GO 6) use, vehicle fuel efficiency and alternative-fueled vehicles (GO 3, GO 4), and responsible procurement (GO 5).

1,925 $MTCO_2e$ Avoided

45% to 2020 Target

Keeping 1,925 $MTCO_2e$ out of our atmosphere is like:

203

homes not using any energy for a year

407

passenger vehicles not driven for a year

Emissions Reduction Progress to Date

Greenhouse gas emissions from County operations continue to decrease as the County makes energy efficiency and resource conservation a priority. Through 2016, the County has achieved 45 percent of its emissions reduction target for the GO core strategy. Most of this progress has been achieved through fleet fuel use reductions. As shown in Figure III-14), fuel use (GO 4) has dropped 12 percent since 2007, surpassing the 2020 target by 2 percent. As the County continues to purchase fuel-efficient vehicles (GO3) and the efficiencies of cars improve, County fuel usage will continue to fall.

Electricity consumption in County buildings (GO 1) has decreased slightly since 2007. However, the County's utility management site currently does not have all the utility bills represented. General Services Department staff estimates that 30 percent of the electricity usage is not included, likely affecting the progress shown in Table III-7. Electricity-related GHG emissions are expected to continue to fall as the recently adopted Zero Net Energy (ZNE) ordinance is implemented (GO 2).

Table III-7: GO Implementation Progress through 2016

Measure	Name	Performance Indicator		GHG Emissions Avoided ($MTCO_2e$)		Percent of 2020 Target
		2020 Target	2016 Progress	2020 Target	2016 Progress	
GO 1	Energy Efficiency and Retrofits, Education, and Financing	25% electricity reduction in government operations	4% electricity reduction in government operations	2,260	222	10%
GO 2	Zero Net Energy	4,080,310 kWh produced from solar	1,931,265 kWh produced from solar	970	459	47%
GO 3	Fuel-Efficient and Alternative Fuel Vehicle Fleet	5% of all new vehicles to be efficient	2.9% of all new vehicles to be efficient	100	58	58%
G0 4	Commute Trip and Fuel Use Reductions	10% reduction in emissions from TDM efforts	12% reduction in emissions from TDM efforts	980	1,186	121%
GO 5	Environmentally Preferable Procurement	Supportive		Not Measured		
GO 6	Water Efficiency & Conservation	20% reductions in indoor water use	31% percent reduction in indoor water use	10	16	157%
			Total	**4,320**	**1,941**	**45%**

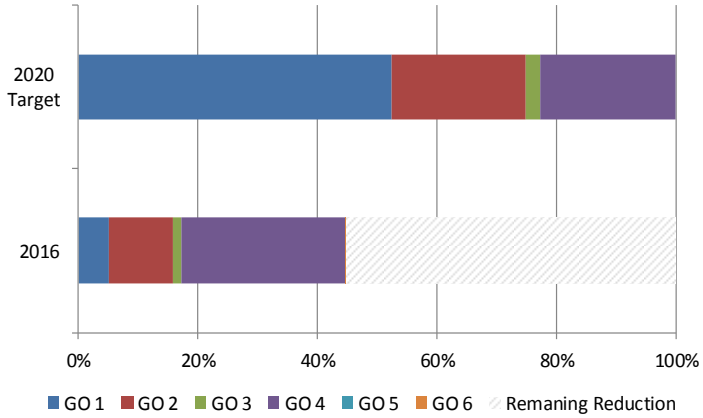

Figure III-13: GO Emissions Reduction Progress through 2016

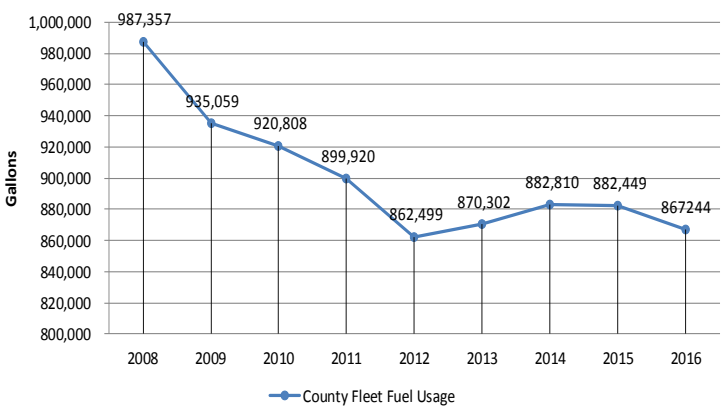

Figure III-14: County Fleet Fuel Usage, 2008-2016

GO Program Implementation

Key Accomplishments

- In July 2016, the Board of Supervisors adopted an Energy Efficiency Standards Policy for County-owned and leased facilities.
- The Parks Division installed energy-efficient light-emitting diode (LED) lighting and waterless urinals in all Parks facilities, which has helped reduce water consumption by 50 percent from 2013 to 2016. Saving water saves money, energy, and GHG emissions.
- In 2016, the County reduced fleet fuel use by approximately 3 percent, despite an increase in VMT. The fuel savings are attributed primarily to vehicle replacements with more efficient options.
- From 2015 to 2016, General Service Department completed an irrigation retrofit at the Courthouse, installing water-wise fixtures to improve water conservation.

Challenges

The County switched to a centralized utility management system in 2015. Some departments continue to pay their utility bills separately, which has made it challenging to add all of the County's energy and water consumption and cost data to the system. Currently, General Services Department staff estimates the utility management system captures approximately 70 percent of the total meters for all County facilities.

The County expects challenges in staying on course with purchasing more expensive hybrid and alternatively fueled vehicles as the County faces budget difficulties in the coming years.

State and Federal Direction

A new federal administration could have implications for energy prices. Policies such as increased energy production on federal lands, fewer restrictions on coal production, retraction of the Clean Power Plan, and possible loss of subsidies for wind and solar could all have an unknown effect on energy costs.

Next Steps

The County has a number of GO-related projects in the works, including:

- If approved, the County Jail Water Project has the potential to reduce water usage by 20 percent annually through retrofitting toilets, faucets, and showers.
- Planned solar panels at the County's Betteravia campus parking lots are expected to produce the equivalent of 95 percent of the total Betteravia campus annual electricity needs.
- The General Services Department continues to explore Energy Savings Performance Contracting to upgrade the energy efficiency of County facilities.
- The General Services Department is adding eight new hybrids to the County's motor pool system and a Toyota Mirai hydrogen fuel cell vehicle for use as a staff car.

Featured Story

Los Alamos Park has approximately 404,000 square feet of turf and is one of the county's biggest water consumers. Prior to the mandated watering restrictions brought on by the prolonged drought, Los Alamos Park expended $33,000 per year for water. The Board of Supervisors approved funding for the Parks Division of the Community Services Department to replace the old irrigation system with a more efficient state-of-the-art system.

The new system has four separate moisture sensors, which are independently tied to different irrigation zones. The sensors monitor soil moisture and atmospheric conditions and automatically regulate the amount of water needed to maintain the landscaping. Two independent flow sensors monitor the flow rate and notify the controller of high– or low-flow anomalies and valve malfunctions. The controller then shuts down the system and notifies the user to address the problem.

The high-efficiency system has been in operation since May 2016 and is expected to save the Parks Division approximately 30 percent in avoided water costs per year.

III-9. Land Use Design (LUD)

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 travel-related GHG emissions, which accounted for 44 percent of the unincorporated county's GHG emissions in 2007.

The goal of the Land Use Design (LUD) core strategy is to promote land use strategies that support transit and active transportation such as walking and biking. The LUD core strategy includes three ERMs that support infill (LUD 1) and transit-oriented (LUD 2) development and encourage the availability of more affordable housing near employment centers (LUD 3).

1,056 $MTCO_2e$ Avoided

43% to 2020 Target

Keeping 1,056 $MTCO_2e$ out of our atmosphere is like:

112

homes not using any energy for a year

223

passenger vehicles not driven for a year

LUD Progress Reporting

Emissions Reduction Progress to Date

Through 2016, the County is 43 percent of the way to meeting the 2020 emission reduction target for the LUD core strategy. As shown in Table III-8, the County is on track for meeting infill development (LUD 1) and affordable housing (LUD 3) goals. Progress in meeting the LUD 2 goal lags behind, with 6 percent of the 2020 target met. LUD 2 accounts for approximately half of the anticipated emission reductions for the LUD core strategy. In total, actions taken to date under the LUD core strategy reduce an estimated 1,056 $MTCO_2e$ annually.

Table III-8: LUD Implementation Progress through 2016

Measure	Name	Performance Indicator		GHG Emissions Avoided ($MTCO_2e$)		Percent of 2020 Target
		2020 Target	2016 Progress	2020 Target	2016 Progress	
LUD 1	Infill Development	420 total infill units	381 infill units built	460	417	91%
LUD 2	Transit-Oriented Development	508,510 sq. ft. of mixed-use buildings	31,997 sq. ft. mixed-use buildings	1,240	78	6%
LUD 3	Affordable Housing	850 affordable housing units	611 affordable housing units built	780	561	72%
			Total	2,480	1,056	43%

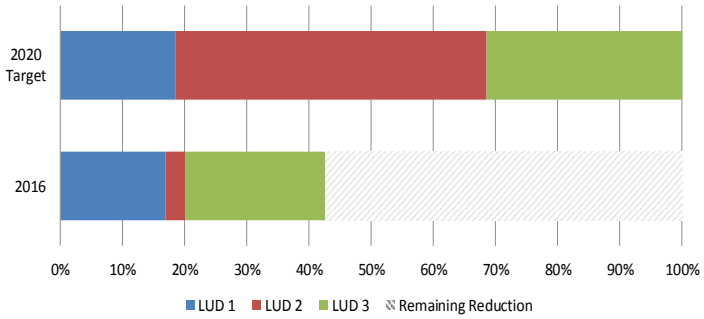

Figure III-15: LUD Emissions Reduction Progress through 2016

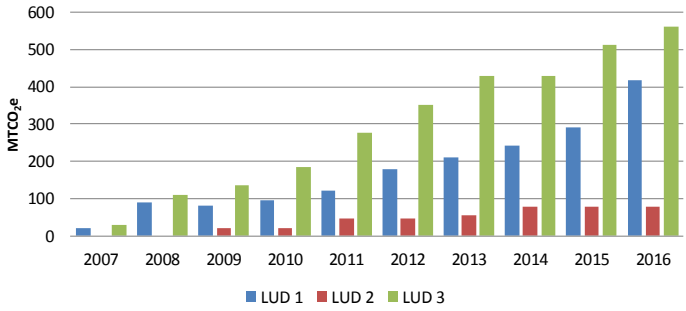

Figure III-16: LUD Cumulative Emissions Reduced, 2007-2016

LUD Program Implementation

Key Accomplishments

- Since 2007, nearly 381 infill housing units have been constructed in urbanized areas of the unincorporated county. 116 were constructed in 2016.
- Since 2007, 661 affordable housing units have been built in the unincorporated county. 53 were constructed in 2016.

Challenges

Thus far, it has been a challenge to meet the 2020 goal set for LUD 2. Mixed-use zoning, which supports transit-oriented development, is primarily limited to a few select areas within the county, and the only new mixed-use development constructed recently has been in Isla Vista.

State and Federal Direction

The Sustainable Communities and Climate Protection Act of 2008 (SB 375) is the primary state directive for local governments and metropolitan planning organizations (MPO) to address GHG emissions from passenger vehicles. A primary component of SB 375 is to have MPOs and local jurisdictions tie transportation planning with land use planning, such as by encouraging transit-oriented development and greater infill development. The California Air Resource Board (CARB) is currently in the process of updating the SB 375 targets, which will take effect in 2018.

Next Steps

If approved by the Board of Supervisors, the Planning and Development Department plans to update the Circulation Element of the County's Comprehensive Plan. The update is expected to incorporate “Complete Streets” policies, work to improve connectivity, and coordinate alternative transportation modes.

The Santa Barbara County Association of Governments (SBCAG) is updating the Regional Transportation Plan and Sustainable Communities Strategy (titled “Fast Forward 2040”), with anticipated adoption in August 2017. Santa Barbara County is cooperating in SBCAG’s effort to plan how the region will invest in the transportation system over the next 20 years.

Featured Story

The Heritage Villas Apartments in Lompoc is a recently constructed adult living community. Phase II of the community was completed in 2016 and includes 80 low-income senior apartments, with community amenities such as walking trails, a common meeting area/dining hall, dog park, and community garden. The Heritage Villas Apartments are surrounded by existing development within and near the city of Lompoc, limiting the need for long-distance travel and thereby reducing vehicle GHG emissions.

In 2016, the Planning and Development Department continued implementing policies and programs from the 2015-2023 Housing Element that are intended to encourage affordable and special needs housing production. Recent changes to the Design Residential zone allow affordable, senior, and special care housing developers to achieve the maximum building density allowed under current zoning. Increased density can encourage more active forms of transportation and use of public transit in support of the LUD core strategy.

III-10. Water Efficiency (WE)

Goal: To maximize the reliability of local water resources and supplies through water use efficiency.

Treating and conveying potable drinking water to the community requires energy. Because of this energy-water nexus and the emissions of GHGs during the treatment process, water and wastewater treatment use accounted for 4 percent of the unincorporated county's GHG emissions in 2007.

Water conservation is vital in reducing energy-related water consumption and preparing for times of water shortages. The WE core strategy includes three ERMs that address water-related energy use through education, incentives, and building standards. Implementing water conservation in existing and new development through high-efficiency fixtures, native and drought-tolerant landscaping, and smart irrigation technologies will ensure a reliable potable water supply for the community.

593 $MTCO_2e$ Avoided

99% to 2020 Target

Keeping 593 $MTCO_2e$ out of our atmosphere is equivalent to:

63

homes not using any energy for a year

125

passenger vehicles not driven for a year

WE Progress Reporting

Emissions Reduction Progress to Date

Through 2016, the County is 99 percent of the way to meeting the 2020 target for the WE core strategy. This achievement has resulted in a reduction of 593 $MTCO_2e$ within the unincorporated county. Though the County is on track to meet the 2020 WE target of 600 $MTCO_2e$ reduced, the WE strategy contributes less than one percent of the total GHG savings needed to achieve the 15 percent reduction goal.

The majority of the county-wide water savings are attributable to decreasing urban water usage, which has dropped 32% since 2007, as illustrated in Figure III-18. The County's Water Conservation Programs (WE1) and Water-Efficient Landscaping Programs (WE 3) are the main driving emissions relating to urban water use—both measures have achieved a 21 percent reduction since 2007. Water reduction resulting from indoor new developments (WE2) currently is unmeasurable due to the unavailability of data.

Table III-9: WE Implementation Progress through 2016

Measure	Name	Performance Indicator		GHG Emissions Avoided ($MTCO_2e$)		Percent of 2020 Target
		2020 Target	2016 Progress	2020 Target	2016 Progress	
WE 1	Water Conservation Programs	20% reduction water usage in the unincorporated county	21% reduction in water usage in the unincorporated county	310	316	102%
WE 2	Water-Efficient Building and Landscape Standards	20% indoor water reduction in new development	Not measured	20	Not measured	
WE 3	Water-Efficient Landscape Programs	20% water reduction for landscaping uses	21% percent water for landscaping uses	270	276	102%
			Total	**600**	**593**	**99%**

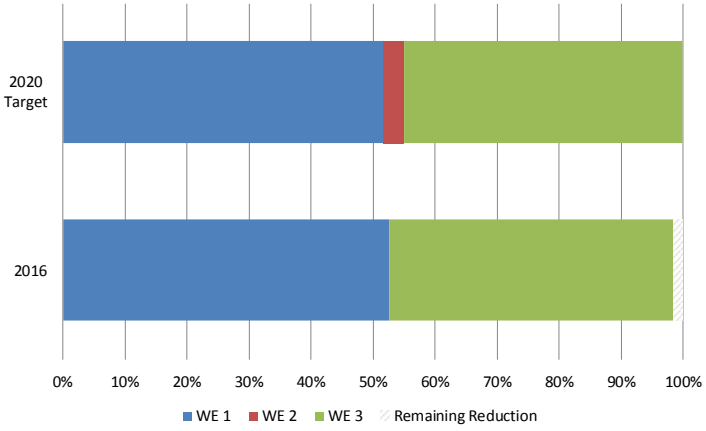

Figure III-17: WE Emissions Reduction Progress through 2016

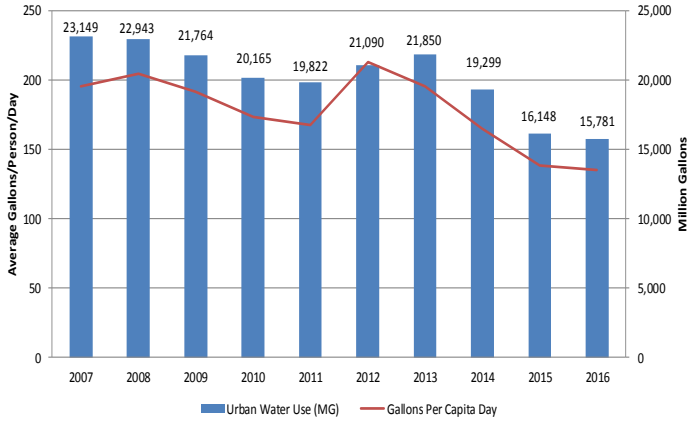

Figure III-18: Urban Water Usage County-wide, 2007-2016

WE Program Implementation

Key Accomplishments

- The County exempted simple greywater systems from the permit process.
- The Water Agency has distributed 6,000 U.S. Environmental Protection Agency WaterSense labeled high-efficiency showerheads and 2,000 high-efficiency aerators since May 2015.
- The Water Agency continues to educate the public through their Watershed Wise Landscape Professional Certification Trainings, Landscape Homeowner Workshops, and Green Gardener Certification Program. In 2016, the Water Agency trained 18 professionals, hosted 64 homeowner workshops, and had 71 green gardener graduates.
- Through the Bureau of Reclamation's WaterSmart Grant, the Water Agency has distributed 443 landscape rebates from 2014 to 2016.

Challenges

Quantifying and tracking measurable water savings, and therefore GHG reductions, from the Landscape Rebate Program for the WaterSmart Grant across seven water purveyors has been challenging. The Landscape Rebate program is ending in 2017, which may limit future water and GHG savings.

State and Federal Direction

In November 2016, the State released the Making Water Conservation A California Way of Life draft report. The report addresses elements of Executive Order B-37-16, which asked five state agencies to develop a framework for using water more wisely, eliminating water waste, strengthening local drought resilience, and improving agricultural water use efficiency and drought planning.

The state's Sustainable Groundwater Management Act (SGMA) was signed into law in 2014. SGMA provides a framework for the sustainable management of groundwater supplies by local agencies and provides tools, authority, and a timeline for local agencies during the 20-year implementation period. SGMA requires sustainable management of three of the county's groundwater basins that were designated as medium or high priority by the Department of Water Resources. These basins are the Cuyama Valley, San Antonio Creek, and Santa Ynez Valley Groundwater Basins.

Next Steps

In 2017, the Water Agency plans to:

- Continue to administer the Green Gardener classes at Santa Barbara City College and Allan Hancock College, and offer the first advanced class at Santa Barbara City College.
- Coordinate the next round of the Watershed Wise Landscape Professional Certification Training and Homeowner Landscape Workshops.
- Collaborate with the General Services and Public Works Departments to construct a water-wise, waste-free public educational demonstration garden for the Santa Barbara County Engineering Building Courtyard.

Featured Story

There were 29 Green Gardener graduates from the Spanish and English classes at Santa Barbara City College in the fall 2016. These graduates are certified and trained in water-wise, waste-free sustainable landscaping. A new Advanced Gardener Class was offered for the first time in spring 2017

At the Watershed Wise Homeowner Workshops in May 2016, attendees learned the basics of how to replace lawn with a climate-appropriate, watershed-wise garden. The workshops covered plant selection, rainwater harvesting, greywater, and a hands-on design exercise with local landscape professionals.

III-11. Community Choice Energy (CCE)

Community Choice Energy enables local governments to leverage the purchasing power of their residents, businesses, and governmental entities to purchase or generate power for their communities. The CCE model puts energy purchasing and pricing options into the hands of local decision-makers and allows the community to determine what type of energy mix serves its needs. In many cases, existing CCE programs around the state have been able to offer electricity with a higher renewable energy content at rates that are competitive with the existing utility's rates. Because a CCE program is operated by a local non-profit, CCE revenues can also be reinvested in the community in the form of clean energy projects and incentive programs, both of which can spur local economic opportunities.

0 $MTCO_2e$ Avoided

0% to 2020 Target

CCE can help avoid 37,520 $MTCO_2e$ annually, which is equivalent to:

3,962

homes not using any energy for a year

7,925

passenger vehicles not driven for a year

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CCE Program Implementation

Potential GHG Emission Impact

The County of Santa Barbara, along with ten other jurisdictions from the tri-county region, is exploring whether CCE could be a good fit for our community. If the County opts to implement a CCE program, the CCE operator—typically a joint powers authority—could choose to increase the amount of electricity that comes from renewable energy resources, such as wind and solar. Increasing the amount of renewable energy resources that provide electricity for County residents, businesses, and government operations has the potential to significantly lower the County's GHG emissions beyond its 2020 emissions reduction target.

Key Accomplishments

- In partnership with jurisdictions throughout Ventura and San Luis Obispo Counties, a feasibility study is currently in progress that will assess whether a CCE program is viable and whether 50 percent renewable energy can be achieved. The study is anticipated to be complete in 2017 and will be presented to local elected officials to determine whether to proceed to implementation.
- The tri-county collaboration, led by a CCE Advisory Working Group of contributing jurisdictions, has adopted the name Central Coast Power and is conducting early community engagement including stakeholder meetings, a public website (centralcoastpower.org), an e-newsletter, and outreach materials.
- On behalf of the CCE Advisory Working Group, Santa Barbara County became a member of the California Community Choice Association and continues to closely monitor all relevant legislative and regulatory activity and industry best practices.

State and Federal Direction

Seven states, including California, have CCE legislation that allows local governments to buy electricity on behalf of their communities. In California, eight CCE programs are in operation, five in the San Francisco Bay Area, one in Humboldt County, and two in the Los Angeles area. More than 20 jurisdictions are actively studying or developing CCE programs, with several programs expected to launch later in 2017 and 2018. There are also some efforts to try to consolidate CCE operations among some CCE programs to provide economies of scale.

Due to the rapid growth of CCE across the state, there are several regulatory and legislative efforts to try to shape—or in some cases limit—the growth of CCE. The most notable issues include exit fees, referred to as "non-bypassable charges," imposed on CCE customers that no longer purchase electricity from the investor-owned utilities. The largest of these exit fees, the Power Cost Indifference Adjustment (PCIA), is difficult for CCE programs to predict and can reduce the competitiveness of CCE electricity rates for customers. The California Public Utilities Commission opened a rulemaking in summer 2017 to explore ideas for increasing the transparency and predictability of the PCIA.

Next Steps

A CCE feasibility study is expected to be completed in 2017, at which time the County of Santa Barbara Board of Supervisors and other interested boards and city councils may consider moving forward with implementation of a regional CCE program. Any jurisdictions that opt to proceed with CCE will likely form a joint powers authority and submit an implementation plan to the CPUC outlining the CCE program's proposed operational strategy and target launch date.

IV. Co-benefits of Climate Action

The County Sustainability Committee has identified several County and regional projects that are not specifically outlined in the ECAP or calculated in the 2020 GHG emission reduction targets, but that contribute to and complement the County's climate action goals and produce many of the notable co-benefits illustrated below. In particular, the County Sustainability Committee wanted to highlight in this progress report the complementary relationship between the efforts of the County Public Health Department and several of the ERMs identified in the ECAP.

Reduces Energy Use

Supports Local Economy

Improves Mobility

Informs Public

Saves Money

Conserves Natural Resources

Improves Public Health

Reduces Water Use

IV-1 Public Health and Climate Change

What is good for the individual health of residents is also good for mitigating climate change. For example, when people walk and bike, they decrease auto transportation and reduce emissions, while improving their physical activity and overall health. When residents eat more produce, they decrease their intake of meat products thereby reducing the emissions from beef production and long-distance transportation of food products. Eating nutritious food and being physically active are building blocks to healthy development and a lifetime of good health.

State and Federal Direction

The Public Health Department promotes a healthy lifestyle, while drawing connections to GHG reduction and other environmental benefits. The California Department of Public Health's Climate Action for Health guidance document explains the effects of climate change on public health and actions that can be taken to reduce GHG emissions and improve public health. Many of the measures outlined are in line with the ECAP.

Key Accomplishments

Public Health Department staff completed the following climate-related health activities in 2016:

- Presented to the County Sustainability Committee on the linkages between health and climate change
- Completed a Community Health Assessment where residents identified healthy eating and active living as health priorities for the community
- Introduced a Healthy Eating Active Living (HEAL) resolution to the Board of Supervisors
- Created a Community Health Improvement Plan with a key goal for obesity prevention, reinforcing elements of the HEAL resolution and ECAP

Next Steps

Implementation of the Community Health Improvement Plan will involve multiple partners in the community. Live Well SBC and many public and private organizations will join together to reduce obesity (and GHG emissions), increase annual visits to primary care providers, and integrate physical and behavioral healthcare services.

Table IV-1: Health Co-benefits of Reducing GHG Emissions

GHG Reduction Strategies	Potential Health Co-benefits
Reduce vehicle miles traveled ECAP ERMs SCS, T1, T2, T4, T5, T6, T7,	Increase physical activity Reduce chronic disease Improve mental health Reduce air pollution
Land use changes to encourage alternative transportation ECAP ERMs SCS, LUD1, LUD2, LUD3	Increase physical activity Reduce chronic disease Increase local access to essential services (affordable housing, jobs, amenities) Enhance safety
Reduce residential building energy use ECAP ERMs BE2, BE3, BE4, BE8,	Reduce household energy costs (especially beneficial for low-income households) Promote healthy homes Create local green jobs
Urban greening ECAP ERMS BE5	Reduce temperature and urban heat island health effects Reduce air pollution Reduce noise Enhance safety
Reduce energy intensity of local food systems ECAP ERMs AG1	Increase access to healthy, fresh foods Reduce cardiovascular disease due to saturated fats Reduce air pollution Increase local social cohesion increase resilience

V. Looking Forward

The County and community have made progress in implementing the ECAP, having achieved an estimated 16 percent of the 2020 GHG emissions reductions target. With three years remaining, efforts will need to be accelerated to reach the 2020 goal.

Several ERMs—most notably those related to Transportation and Industrial Energy Efficiency (IEE)—require additional resources to make progress. In the case of IEE, the County does not yet have any programs or resources that support energy efficiency improvements for industrial businesses. Some ERMs likely will not be achieved due to changes in priorities and unforeseen delays that have arisen since the ECAP was adopted in 2015. For example, the Santa Barbara County Air Pollution Control District has decided not to offer its lawnmower replacement program that was envisioned as the key implementation tool to achieve BE 7. Given delays with the Tajiguas Landfill Resource Recovery Project, the new landfill gas generator that is intended to drive the needed emissions reductions for WR 4 may not be fully operational by 2020. In addition, the Sustainable Communities Strategy and some of the Transportation and Water Efficiency ERMs cannot currently be measured, which limits the County's ability to count these measures towards the 2020 GHG emissions reduction target. The County will need to explore ways to accelerate or make up for these ERMs that may not be accomplished or measured during future revisions to the ECAP.

The ECAP was designed to support the state-wide 2020 GHG reduction goal established in AB 32 (2006) and streamlines the California Environmental Quality Act (CEQA) environmental review process for projects addressed by the ECAP. The ECAP may not facilitate this "CEQA tiering" process after 2020. Furthermore, Senate Bill 32 (2016) extended the state's GHG reduction commitment to 40 percent below 1990 levels by 2030. The ECAP will need to be revised in line with these new deeper emissions savings and to allow continued CEQA tiering past 2020. The Board of Supervisors will need to adopt a revised version of the ECAP by December 31, 2020. Until then, County staff will continue to monitor ECAP implementation progress and may make minor changes to the ERMs based on lessons learned so far.

Appendix A. 2015 Community-wide GHG Emissions

The 2020 emission reduction target and ERMs adopted in the ECAP are based on the unincorporated county's baseline GHG emissions in 2007. County staff approximates changes in community-wide GHG emissions on an annual basis. Emissions data for 2015, the most recent year for which complete data are available, are presented here.

As of 2015, GHG emissions in the unincorporated county have decreased from 2007 levels by 14 percent, with major reductions in on-road transportation (77,320 $MTCO_2e$) and residential energy use (48,840 $MTCO_2e$). Agricultural emissions have increased slightly, with a 3 percent increase (2,120 $MTCO_2e$) from the baseline year, and aircraft emissions have increased by 12 percent (270 $MTCO_2e$).

Note that the GHG emissions changes shown below are estimates and reflect changes in emissions due to factors outside of the County's control, such as weather variations and fluctuations in fuel prices. In 2017, the County plans to complete a more comprehensive GHG inventory that will more precisely estimate emissions changes from 2007 and may show different numbers than shown below.

Table A-1. Comparison of 2007 and 2015 Community-wide GHG Emissions

Sector	Baseline Emissions		Current Year Emissions		Percent Change since Baseline
	$MTCO_2e$	Percent	$MTCO_2e$	Percent	
Residential Energy	195,490	16%	146,650	14%	-25%
Commercial and Industrial Energy	168,360	14%	155,390	15%	-8%
Waste	91,920	8%	76,880	8%	-16%
Off-Road Equipment	102,140	9%	101,130	10%	-1%
Water and Wastewater	49,510	4%	32,030	3%	-35%
Agriculture	62,110	5%	64,230	6%	3%
Transportation	521,160	44%	443,840	43%	-15%
Aircraft	2,270	0%	2,540	0%	12%
Total	1,192,970	100%	1,022,690	100%	-14%

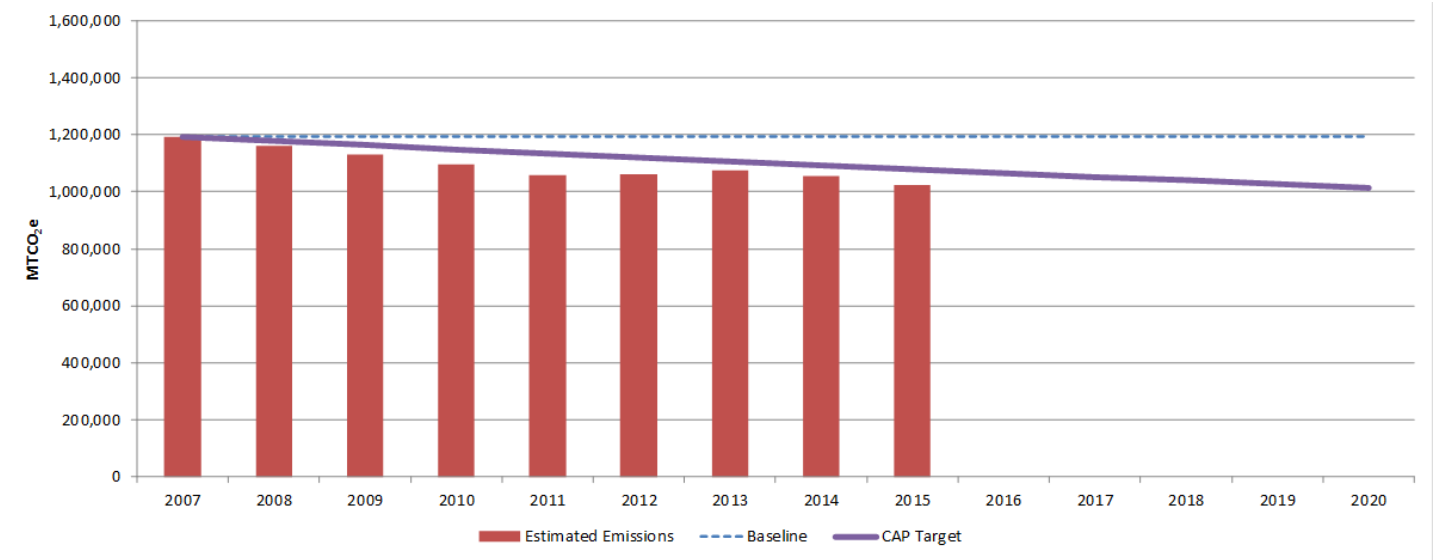

Figure A-1. GHG Emissions in the Unincorporated County from 2007 to 2015