

# COUNTY OF SANTA BARBARA

## Energy and Climate Action Plan Summary Information

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Board of Supervisors Briefing

March 12, 2013

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Appendix A – GHG Reduction Measures and Implementing Actions by Approach

## Santa Barbara County Greenhouse Gas Emissions Inventory

### Purpose and Scope

In 2007, the County of Santa Barbara (County) completed a Greenhouse Gas (GHG) emissions inventory for the unincorporated County using 2007 as the base year. The inventory acts as a foundation for the County's Energy and Climate Action Plan (ECAP) by informing the County and community of the sources of GHG emissions, and thus the opportunities for GHG reductions. The inventory focuses on community-wide emissions in the unincorporated Santa Barbara County only and provides a baseline against which future progress can be measured. Thus, the inventory excludes incorporated cities, the University of California, the Chumash reservation, and State and federal lands including Los Padres National Forest, Vandenberg Air Force Base, and offshore oil and gas production facilities. The inventory consists of emissions from six primary GHGs that were identified in Assembly Bill 32 (AB 32). The gases are all expressed in terms of carbon dioxide equivalent (CO<sub>2</sub>e) and are as follows:

- |                                      |   |
|--------------------------------------|---|
| 1) Carbon Dioxide (CO <sub>2</sub> ) | 4) Hydrofluorocarbon (HFCs)               |
| 2) Methane (CH <sub>4</sub> )        | 5) Perfluorocarbon (PFCs)                 |
| 3) Nitrous Oxide (N <sub>2</sub> O)  | 6) Sulfur Hexafluoride (SF <sub>6</sub> ) |

In 2010, the County updated the 2007 inventory as a result of changes to the regulatory structure since the creation of the initial inventory, including an update to the California Environmental Quality Act (CEQA) Guidelines. Senate Bill 97, adopted in 2007 by the State of California, directed the Governor's Office of Planning and Research to amend the CEQA Guidelines to address GHG emissions. The revised CEQA Guidelines became effective on March 18, 2010. Per CEQA Guidelines Section 15183.5, local governments may use adopted plans consistent with the CEQA Guidelines to assess the cumulative impacts of projects on climate change, if the adopted plan includes a certified environmental impact report (EIR). In order to benefit from the streamlining provisions of the CEQA Guidelines Section 15183.5, a plan for the reduction of GHG emissions must accomplish the following:

- Quantify GHG emissions, both existing and projected over a specified time period, resulting from activities within a defined geographic area;
- Establish a level, based on substantial evidence, below which the contribution to GHG emissions from activities covered by the plan would not be cumulatively considerable;
- Identify and analyze the GHG emissions resulting from specific actions or categories of actions anticipated within the geographic area;
- Specify measures or a group of measures, including performance standards, that substantial evidence demonstrates, if implemented on a project-by-project basis, would collectively achieve the specified emissions level;
- Establish a mechanism to monitor the plan's progress toward achieving the level and to require amendment if the plan is not achieving specified levels; and
- Be adopted in a public process following environmental review.

To create a Qualified GHG Reduction Strategy in compliance with the CEQA Guidelines, the County hired a consultant to peer review and update the existing baseline GHG inventory. The updated baseline inventory used methodologies recommended by the California Air Resources Board (CARB), ICLEI-Local

Governments for Sustainability, and industry best practices. The inventory analyzes the following emissions sources:

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

A major change in the updated inventory is that stationary sources have been removed. The primary reason for this change is that the ECAP will address community GHG emissions and measures to reduce those emissions. Stationary sources are unique and will require special attention and collaboration with the Santa Barbara County Air Pollution Control District (APCD).

### 2007 Inventory Summary

Emissions from unincorporated county sources totaled 1,192,970 metric tons of carbon dioxide equivalents (MTCO<sub>2</sub>e) in the baseline year 2007 as follows:

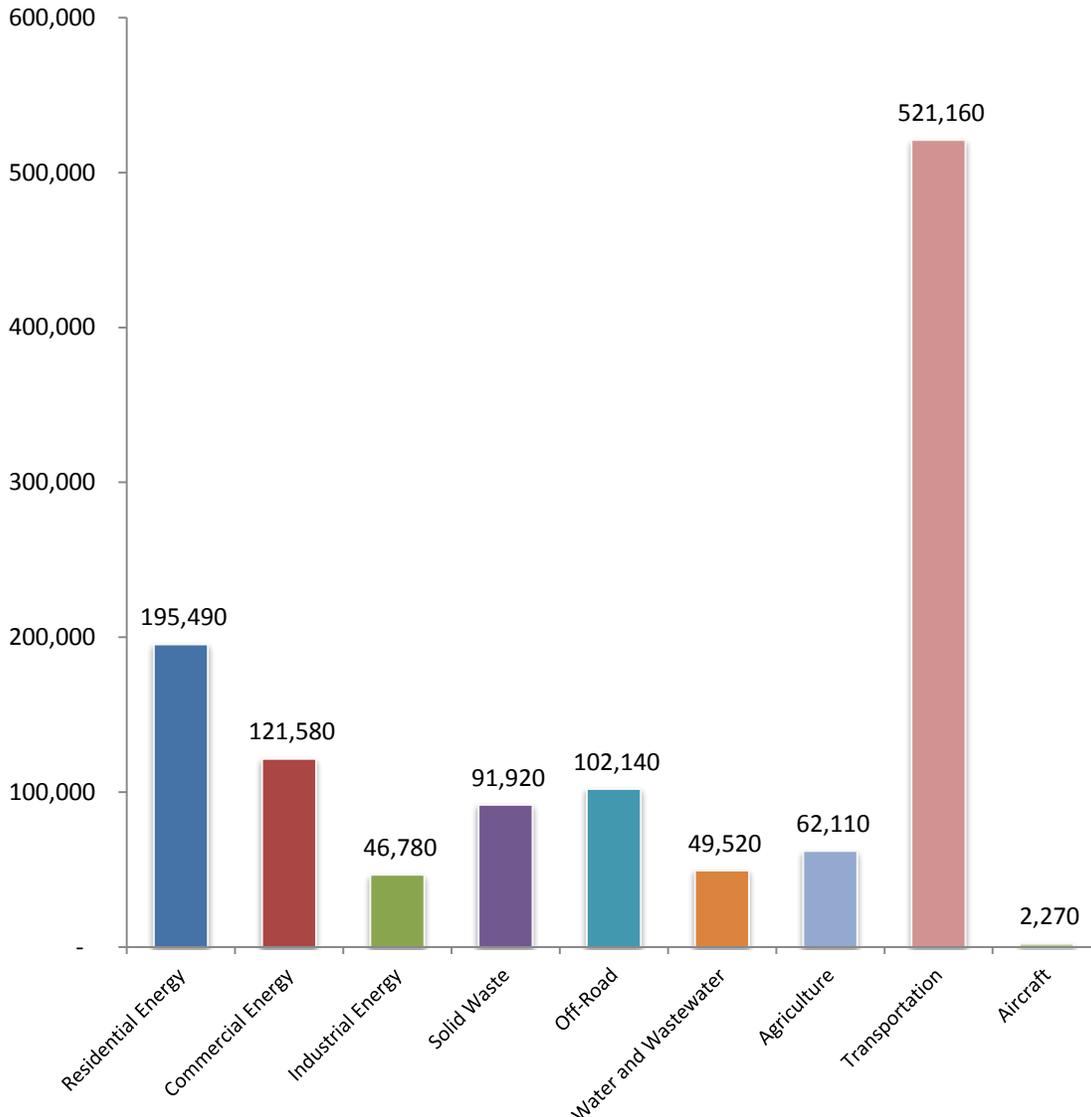
- Transportation (521,160 MTCO<sub>2</sub>e)
- Residential energy use (195,490 MTCO<sub>2</sub>e)
- Commercial energy use (121,580 MTCO<sub>2</sub>e)
- Off-road equipment (102,140 MTCO<sub>2</sub>e)
- Solid waste disposal (91,920 MTCO<sub>2</sub>e)
- Agriculture (62,110 MTCO<sub>2</sub>e)
- Water and wastewater (49,520 MTCO<sub>2</sub>e)
- Industrial energy (46,780 MTCO<sub>2</sub>e)
- Aircraft operations (2,270 MTCO<sub>2</sub>e)

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

**Table 1– 2007 Unincorporated Santa Barbara County GHG Emissions by Sector**

Sector	Subsector	Activity	Unit	MTCO <sub>2</sub> e	County Degree of Influence
<b>Transportation</b>	On-Road transportation from trips beginning or ending in the unincorporated county	1,075,523,400	Annual VMT	521,160	High
<b>Residential Energy</b>	Residential Electricity	293,717,600	kWh	85,610	High
	Residential Natural Gas	20,656,900	Therms	109,890	High
<b>Commercial Energy</b>	Commercial Electricity	143,946,300	kWh	41,950	High
	Commercial Natural Gas	14,968,300	Therms	79,630	High
<b>Off-Road</b>	Agricultural Equipment	6,878,600	gallons	67,500	Medium
	Construction and Mining Equipment	2,882,600	gallons	28,560	Medium
	Industrial Equipment	309,800	gallons	2,490	Medium
	Lawn & Garden Equipment	373,700	gallons	2,560	Medium
	Light Commercial Equipment	130,400	gallons	1,030	Medium
<b>Solid Waste</b>	Landfilled Waste	115,390	tons	90,440	High
	Alternative Daily Cover	2,380	tons	1,480	High
<b>Agriculture</b>	Fertilizer Emissions	116,400	Acres of Crops	34,080	Medium
	Livestock Emissions	26,200	Livestock	28,030	Low
<b>Water and Wastewater</b>	Electricity used by water systems	85,710	Million Gallons	42,680	Medium
	Wastewater Emissions	2,577	Million Gallons	1,550	Medium
	Septic Tanks	8,749	Septic Tanks	5,280	Medium
<b>Industrial Energy</b>	Industrial Electricity	114,952,900	kWh	33,500	Medium
	Industrial Natural Gas	2,498,600	Therms	13,290	Medium
<b>Aircraft</b>	Landings and takeoffs from Santa Ynez Airport	71	Daily Flights	2,270	Low

**Figure 1 – 2007 Unincorporated Santa Barbara County GHG Emissions by Sector**



### **GHG Emissions Not Included In County Inventory**

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

- **Lack of jurisdictional control**—There are areas of the unincorporated county in which the County lacks jurisdictional control or permitting authority to influence GHG emissions-generating activities. Examples include Vandenberg Air Force Base, Chumash Casino, Forest Service Land, the University of California at Santa Barbara, and the Santa Barbara Channel.
- **Limited ability to influence or reduce GHG emissions**—In cases where the County is limited in its ability to influence the emissions-generating activity, the County has excluded the source from the

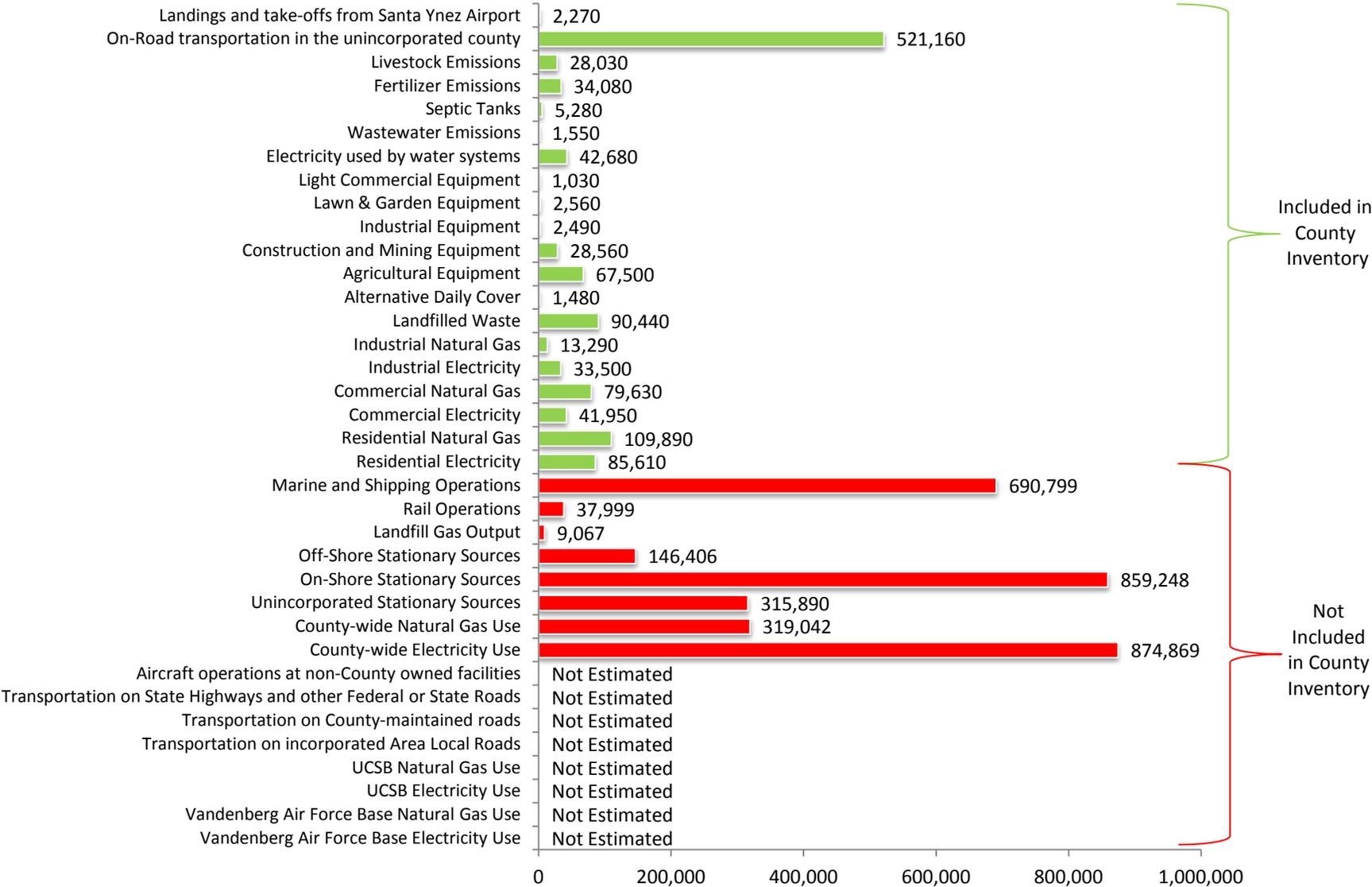
GHG inventory. Examples of such sources include large stationary facilities that are permitted by the APCD, state and federal regulatory agencies, and vehicle and rail travel that does not stop in the county, but uses fuel and generates GHG emissions while in the county.

- **GHG emissions are considered biogenic in nature**—Biogenic sources of GHG emissions would occur with or without human intervention, and therefore cannot be managed or influenced by the County. An example of a biogenic emissions source would be the naturally occurring oil and gas seeps in the Santa Barbara Channel.
- **Lack of methodology to estimate GHG emissions**—In cases where the activity data needed to determine GHG emissions are not reasonably available or methods to estimate activity data have not yet been developed, the activity has been excluded from the GHG inventory. An example of an emissions source that lacks clear methodology or cannot be reasonably estimated includes community use and consumption of products, often called a lifecycle analysis.

**Table 2 – GHG Emissions Sources Excluded from the County GHG Inventory**

Sector	Subsector	Activity	Unit	MTCO <sub>2e</sub>	County Degree of Influence	
<b>Energy Use</b>	County-wide Electricity Use (Incorporated areas)		3,242,000,000	kWh	874,869	Low
	County-wide Natural Gas Use (Incorporated areas)		130,756,020	Therms	319,042	Low
	Vandenberg Air Force Base Electricity Use		Not Available		Not Estimated	Low
	Vandenberg Air Force Base Natural Gas Use		Not Available		Not Estimated	Low
	UCSB Electricity Use		69,217,570	kWh	Not Estimated	Low
	UCSB Natural Gas Use		2,426,111	Therms	Not Estimated	Low
<b>Stationary Sources</b>	Unincorporated Stationary Sources		Not Available		315,890	Low
	On-Shore Stationary Sources		Not Available		859,248	Low
	Off-Shore Stationary Sources		Not Available		146,406	Low
<b>Solid Waste</b>	Landfill Gas Output		Not Available		9,067	Medium
<b>Off-Road</b>	Rail Operations		Not Available		37,999	Low
	Marine and Shipping Operations		Not Available		690,799	Low
<b>Transportation</b>	Transportation on incorporated Area Local Roads		285,843,800	VMT	Not Estimated	Low
	Transportation on County-maintained roads not originating or terminating in the County		309,849,200	VMT	Not Estimated	Low
	Transportation on State Highways and other Federal or State Roads		271,480,800	VMT	Not Estimated	Low
<b>Aircraft</b>	Aircraft operations at non-County owned facilities		Not Available		Not Estimated	Low

**Figure 2 – Comparison of GHG Emissions Sources Included and Excluded from the County GHG Inventory**



## **GHG Emissions by Sector Activity**

### **TRANSPORTATION**

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

- 1) Internal-Internal: Vehicle trips that remained in the unincorporated county;
- 2) Internal-External and External-Internal: Vehicle trips that have an ending or a beginning in the unincorporated and another within an incorporated city or outside of Santa Barbara County; and
- 3) External-External: Vehicle trips with neither end of the trip beginning or ending in the unincorporated county. This trip type is excluded from the inventory.

### **RESIDENTIAL, COMMERCIAL, AND INDUSTRIAL ENERGY**

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

### **OFF-ROAD EQUIPMENT**

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

### **SOLID WASTE**

Solid waste emissions include waste generated by residential, commercial, and industrial uses in the unincorporated county that are disposed of at Tajiguas Landfill, a managed landfill in Santa Barbara County.

### **AGRICULTURE**

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

## WATER AND WASTEWATER

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

In 2007, the unincorporated county used approximately 86 billion gallons of water, 90% of which was used for agricultural purposes and extracted through private groundwater wells. Wastewater treatment plants throughout the county also utilize energy to treat approximately 2.6 billion gallons of wastewater generated by uses in the unincorporated county. There are approximately 8,750 septic systems in unincorporated Santa Barbara County, which are used to treat wastewater from private properties that are not connected to sewer and wastewater treatment systems.

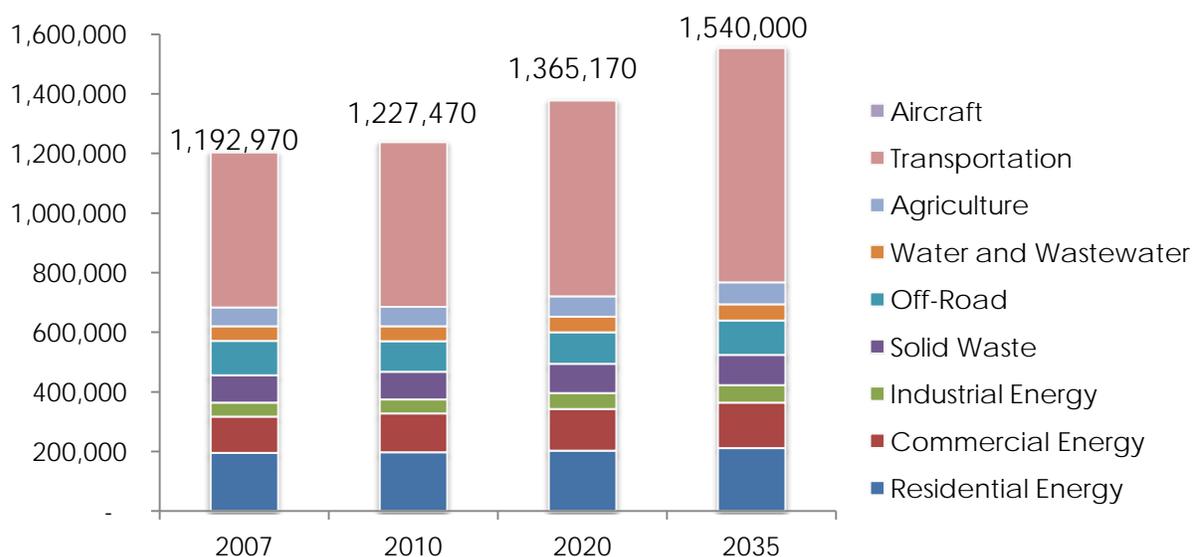
## AIRCRAFT

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

## Santa Barbara County Greenhouse Gas Emissions Forecast

After conducting the 2007 baseline GHG emissions inventory, the County prepared a GHG emissions forecast for key target years. A GHG emissions forecast demonstrates the anticipated future conditions in comparison to the 2007 baseline year. As the County implements GHG reduction measures, it will be possible to compare actual emissions to projected emissions to track reduction progress. The community-wide GHG emissions have been forecast to the year 2020 for consistency with state legislation (AB 32). For consistency with other County and regional planning efforts such as the SCS, a second emissions forecast year of 2035 is included as well. The basis for all growth scenarios is a “business-as-usual” (BAU) projection. The BAU projection forecasts emissions to reflect the County’s growth projections without regulatory or technical intervention to reduce GHG emissions. The BAU projection is then used as a starting point for the County to determine the level of emissions reductions needed to reach a reduction target. In order to complete a BAU forecast for unincorporated Santa Barbara County, a clear picture of the county’s anticipated growth in population, housing, and jobs is important. The growth estimates used in the forecast came from the Santa Barbara County Association of Government’s Regional Growth Forecast (2007) and have incorporated 2010 Census Data, when available. The population, housing, and job forecast indicators are applied to the 2007 GHG emissions inventory to determine a BAU growth scenario. Emissions are forecasted under this scenario by utilizing projections that indicate growth in each sector. A BAU projection is an estimate of how emissions would grow if there are no regulatory or technical interventions to reduce GHG emission as the County population and employment grows. Under the BAU scenario, community-wide emissions will grow by approximately 14% by the year 2020 and by approximately 29% by 2035 (refer to **Figure 3.**)

**Figure 3 – 2007–2035 Business-As-Usual GHG Emissions (MTCO<sub>2</sub>e)**



### Adjusted Business-As-Usual Forecast

State-led or state-induced reduction strategies included in the AB 32 Scoping Plan are factored into the adjusted 2020 and 2035 emissions forecast. Strategies include all state actions that are approved, programmed, and/or adopted and require no additional local action. Incorporating these strategies into the forecast and reduction assessment to create an adjusted business-as-usual (ABAU) forecast provides a more accurate picture of future growth in emissions. This methodology also provides a more accurate assessment of the responsibility of local governments once state measures to reduce GHG emissions have been implemented. State programs that are still uncertain are not included in the ABAU forecast. One example is the State’s Cap and Trade program. Although Cap and Trade has begun to be implemented, the market mechanisms employed by facilities to meet the cap-and-trade requirements have not yet been studied at the depth necessary to identify an achievable local GHG reduction to Santa Barbara County’s stationary sources. Additionally, since stationary sources are excluded from the inventory (Figure 2) it would not be appropriate to take credit for reductions in that sector.

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

**Table 3 – GHG Reduction Impact of State Policies on Santa Barbara County (MTCO<sub>2</sub>e)**

	2010	2020	2035
Renewable Portfolio Standard	830	23,850	41,800
Pavley (Clean Car Standard)	0	97,550	17,3850
Low Carbon Fuel Standard	0	40,300	44,160
Title 24 Standards	310	2,030	6,790
California Solar Initiative	130	260	230
<b>TOTAL</b>	<b>1,270</b>	<b>163,990</b>	<b>266,830</b>

## RENEWABLE PORTFOLIO STANDARD

California's Renewable Portfolio Standard (RPS) is one of the most ambitious renewable energy standards in the country, mandating that 33% of electricity delivered in California be generated by renewable sources such as solar, wind, and geothermal by 2020. The California RPS was first codified in 2002 by Senate Bill 1078 (requiring a 20% renewable electricity mix by 2010) and further strengthened in April 2011 with the adoption of Senate Bill 2 (requiring a 33% renewable electricity mix by 2020). Based on California Public Utilities Commission progress reports and identified barriers to achieving the RPS targets, this analysis assumes a more conservative forecast of a 28% renewable mix by 2020 and a 35% renewable energy mix by 2035 for both PG&E and SCE.

## PAVLEY STANDARD

Signed into law in 2002, Assembly Bill 1493 requires car manufacturers to reduce GHG emissions from new passenger cars and light trucks beginning in 2011. CARB adopted regulations in 2004, which took effect in 2009 with the release of a waiver from the US Environmental Protection Agency (EPA) granting California the right to implement the bill. CARB anticipates that the Pavley standards will reduce GHG emissions from new California passenger vehicles by about 22% in 2012 and about 30% in 2016, all while improving fuel efficiency and reducing motorists' costs.

## LOW CARBON FUEL STANDARD

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

In late 2011, a Federal District Court Judge ruled that California's LCFS violates the dormant commerce clause by discriminating against out of state ethanol products and that CARB failed to identify alternative methods for achieving greenhouse gas reductions. CARB appealed the decision to the Federal Ninth Circuit Court of Appeals (Ninth Circuit) and then moved to stay the injunction pending resolution of the appeal. In April 2012, the Ninth Circuit granted CARB's motion for a stay of the injunction while it continues to consider CARB's appeal of the lower court's decision. The County's ECAP includes LCFS related GHG emission reductions; however, if the Ninth Circuit rules against CARB, then the County will need to reevaluate the measures included in the ECAP.

## TITLE 24 STANDARDS

Title 24 of the California Code of Regulations mandates how each new home and business is built in California. It includes requirements for the structural, plumbing, electrical, and mechanical systems of buildings, and for fire and life safety, energy conservation, green design, and accessibility in and around buildings. The 2010 triennial edition of Title 24 pertains to all occupancies that applied for a building permit on or after January 1, 2011, and remains in effect until the effective date of the 2013 triennial edition. The two parts of Title 24 that most directly apply to a GHG emissions forecast are: Part 6, the California Energy Code; and Part 11, the California Green Building Standards Code or CALGreen Code. These two parts or codes require direct savings of electricity, natural gas, and water for every new home or business built in California. Title 24 is a statewide standard applied at the local level by local agencies through project review. The most recent update to Title 24 Part 6, the California Energy Code, went into effect on January 1, 2010, for both residential and nonresidential new construction. Part 6 also includes requirements for lighting and insulation upgrades to nonresidential buildings undergoing a major retrofit.

## CALIFORNIA SOLAR INITIATIVE

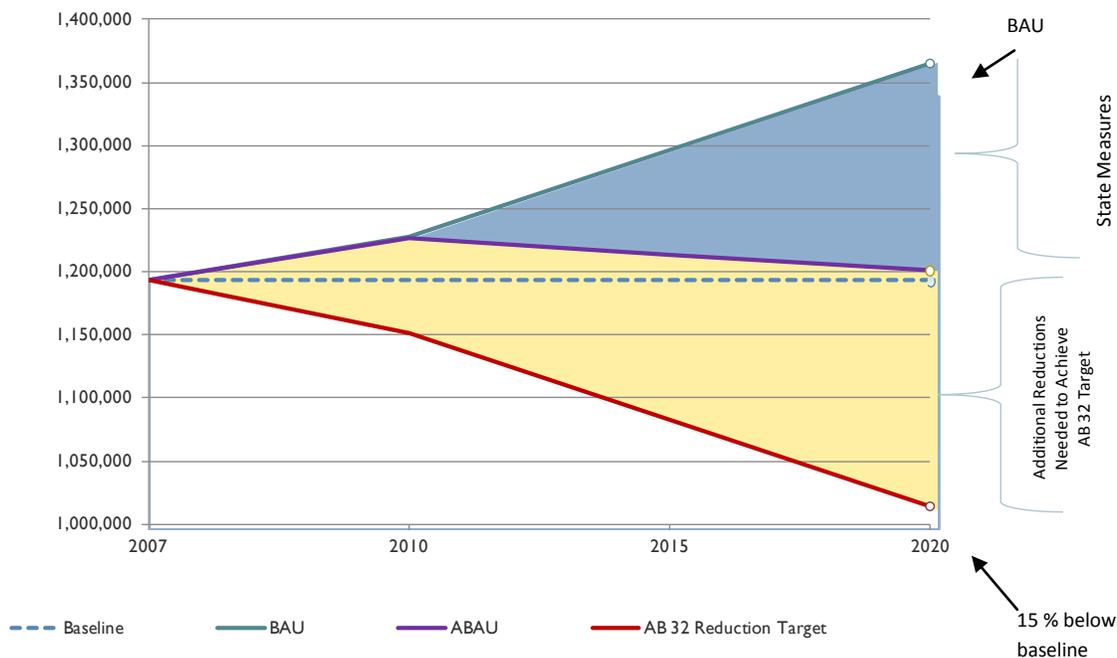
The California Solar Initiative (CSI) was authorized in 2006 under Senate Bill 1. CSI allows the California Public Utilities Commission (CPUC) to provide incentives to install solar technology on existing residential, commercial, nonprofit, and governmental buildings if they are customers of the state's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

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

### **Adjusted Business-As-Usual Forecast Summary**

As shown in **Figure 4**, state policies and programs will reduce GHG emissions by approximately 12% below the BAU forecast by 2020. **Figure 4** demonstrates the gap that will need to be closed between the ABAU forecast and a proposed GHG reduction target of 15% below baseline emissions by 2020. This reduction target is based on the recommendation to local governments in the AB 32 Scoping Plan to "move toward establishing similar goals for community emissions that parallel the State commitment to reduce greenhouse gas emissions by approximately 15% from current levels by 2020." If adopted, the County would be responsible for reducing the remaining emissions amounting to 186,900 MTCO<sub>2e</sub> by 2020. The County's ECAP is intended to identify regulatory and incentive based policies to close that gap and meet the GHG reduction target.

**Figure 4 – Comparison of Business-As-Usual and Adjusted Business-As-Usual Emissions (MTCO<sub>2</sub>e), 2007–2020**



## Proposed Emission Reduction Measures

### Introduction

The ECAP would implement a menu of emissions reduction measures across many sectors to achieve community-wide GHG emission reductions. These emission reduction measures, combined with the measures identified in the County’s Energy Action Plan for municipal facilities, would collectively provide a reduction in both GHG emissions and energy use in the County. The actions will assist the State in meeting its GHG reduction and energy use goals.

Emission reduction measures proposed for the ECAP are organized by topic area and include:

- Land Use Design
- Transportation
- Built Environment
- Renewable Energy
- Industrial Energy Efficiency
- Waste Reduction
- Agriculture
- Water Efficiency

Additionally, two large measures are each given their own category:

- Sustainability Communities Strategy
- Community Choice Aggregation.

Each topic area includes a goal for that topic. The reduction measures that follow the goal are designed to reach that goal and achieve an overall reduction in community-wide GHG emissions. Each reduction measure includes the measure language and the supporting actions that would implement the measure. When sufficient information is available, emissions reduction measures have been quantified to indicate the contribution that a measure will have to the overall GHG reductions. Five options have been quantified which estimate various GHG reduction targets. In each option, the emission reduction measure stays constant and the implementation of the measure changes from voluntary requirements in the form of education and incentives to mandatory requirements. Greater GHG reductions are achieved with more mandatory requirements as they provide more certainty in participation rates.

### **Reduction Target Options**

The five options staff has identified are discussed below. In Option 2, 3, 4, and 5 the County can reach at least 15% GHG reduction target consistent with State guidance provided in the AB 32 Scoping Plan.

Option 1:       10% Reduction Target  
                  Est. GHG Reduction: 10.2%  
                  CEQA Tiering: No

(Includes Voluntary Measures)

Staff modeled implementation of a completely voluntary approach to the ECAP. This option reaches an estimated 10.2% reduction in GHG emissions from the baseline year. It primarily relies on providing incentives and education to encourage residences and businesses to participate in programs and make decisions about their lifestyles which result in lower GHG emissions.

As this option would not meet the goals of AB 32 and lacks required, specific performance standards, this approach does not meet the minimum requirements to allow the ECAP to be used for programmatic CEQA tiering of future projects.

Option 2:       15% GHG Reduction Target  
                  Est. GHG Reduction: 17%  
                  CEQA Tiering: Unlikely

(Includes Voluntary Measures, Sustainable Communities Strategy (SCS), and Community Choice Aggregation (CCA))

This approach utilizes the exact same measures as those in the voluntary option and adds implementation of the SCS and CCA. This approach exceeds the target and is estimated to achieve a 17% reduction in GHG emissions from the baseline year. While this approach is consistent with the AB 32 target, with the lack of required, specific performance standards, it is unlikely the plan would meet the minimum requirements to allow the ECAP to be used for programmatic tiering for future projects.

Option 3: 15% GHG Reduction Target  
Est. GHG Reduction: 15.2%  
CEQA Tiering: Possible

(Includes Phased Measures and CCA)

This option builds off of the voluntary approach utilizing the same measures in Option 1 but phases in mandatory requirements for four measures (BE 2 – Energy-Efficient Renovations, BE 4 – Energy Scoring and Audits, BE 8 – Energy Efficiency and Green Building Standards, and IEE 3 – Energy Upgrade Incentives) and includes CCA.

BE 2, BE 4, and BE 8 are related to efficiency of buildings, both existing and new construction. Measure IEE 3 targets energy efficiency in the industrial sector. Phased measures would initially be implemented on a voluntary basis until the designated check-in year of 2015 when the measures are evaluated for effectiveness and considered for required implementation if the voluntary option is not successful. Additionally, this approach includes CCA. A GHG reduction of 15.2% is estimated to be achieved under this approach. If fully implemented, Option 3 could allow the County to use the ECAP for programmatic CEQA tiering. However, the feasibility of implementing CCA program in Santa Barbara County is not yet known. If CCA is not developed and implemented by the 2020 target date, the County would need to identify an alternative method to reach the 15% reduction target.

Option 4: 15% GHG Reduction Target  
Est. GHG Reduction: 15%  
CEQA Tiering: Yes

(Includes Required and Phased Measures and SCS)

This option builds off of the voluntary approach utilizing the same measures but includes five measures which have immediate mandatory requirements (BE 2 – Energy-Efficient Renovations, BE 4 – Energy Scoring and Audits, BE 8 – Energy Efficiency and Green Building Standards, RE 1- Alternative Energy Development, & RE 2- Solar Water Heaters), one phased measure (IEE3 – Energy Upgrade Incentives) and SCS.

Measure IEE 3 is the same measure as in Option 3 above. Measures BE 2, BE 4, and BE 8 are also the same measures as Option 3 above, but with required implementation rather than a phased approach. Measures RE 1 and RE 2 put requirements in place related to alternative energy development in new construction and requirements for solar water heaters. Similar to Option 3 above, the measure proposed to be implemented in a phased approach would initially be implemented on a voluntary basis until the designated check-in year of 2015 where the measures are evaluated for effectiveness and considered for required implementation if the voluntary option is not successful. As in Option 3, this option achieves greater reductions than the voluntary only approach because there is a performance standard to provide certainty. Additionally, this option includes a measure to implement the SCS. This would likely require rezones and a general plan amendment to comply with the infill development approach proposed by the Santa Barbara County Association of Governments. Rezones of individual parcels would require separate Board approval.

Option 4 achieves a 15% reduction with full implementation of all measures. This approach meets the minimum criteria for a Qualified GHG Reduction Plan and would allow the County to use the ECAP for programmatic CEQA tiering of future development. County staff recommends Option 4 as the project description for the ECAP because it is a balanced approach of voluntary, phased, and mandatory measures that would likely allow for CEQA tiering.

Option 5:       20 +% GHG reduction target  
                  Est. GHG Reduction: 24.2%  
                  CEQA Tiering: Yes

(Includes Required Measures, CCA, and SCS)

Option 5 estimates the County could reduce its GHG emissions by up to 24.2% from the baseline year by 2020. This approach further builds upon the 15% approach and further requires implementation of nine emissions reduction measures (BE 2 – Energy-Efficient Renovations, BE 4 – Energy Scoring and Audits, BE 8 – Energy Efficiency and Green Building Standards, RE 1- Alternative Energy Development, & RE 2- Solar Water Heaters, IEE3 – Energy Upgrade Incentives, WR 1 – Waste Reduction, WR 2 – Increased Recycling Opportunities, WR 3- Construction and Demolition Waste Recycling).

Similar to Option 4, this approach also includes full implementation of the SCS and also adds CCA as a GHG reduction measure. This required approach sets aggressive goals in measures BE 4, WR 1, WR 2, WR 3 that set a zero waste goal for the County and required energy audits of all residential and non-residential buildings and retrofit to reduce energy use by 30% by 2020.

Option 5 would allow the County to use the ECAP for programmatic tiering under CEQA. However, staff does not recommend this approach as it would be very costly to implement and it is not necessary to provide for programmatic CEQA tiering.

Table 4 below provides an overview of the quantification for each approach by measure. A full list of the emission reduction measures and their implementing actions is provided in Appendix A.

### **Summary of GHG Reduction Measures by Topic**

#### **SUSTAINABLE COMMUNITIES STRATEGY**

SBCAG is in the process of completing the Sustainable Communities Strategy (SCS). In October of 2012, the SBCAG Board adopted the preferred scenario of Transit-Oriented Development/Infill plus an enhanced transit strategy. SBCAG staff is currently completing the SCS with this scenario and is expected to move forward for adoption in summer of 2013. By fully implementing the SCS in the unincorporated county, the County can take credit for reductions achieved through SCS implementation in the climate action plan. Such a commitment would involve upzonings of some properties along the Hollister Avenue corridor in the Goleta Planning Area. . Upzonings of individual parcels would require separate Board approval.

## COMMUNITY CHOICE AGGREGATION

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

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

The City of Santa Barbara included Community Choice Aggregation in its CAP and General Plan Update. They propose to complete a feasibility study to include a cost benefit analysis of the measure. The feasibility study being completed is contingent upon other agencies partnering with them on the effort such as the County of Santa Barbara or the County of Ventura. The first step for Santa Barbara County to implement such a program would be to complete a feasibility study. CCA could be developed as a new program in the County or could also partner with an existing CCA.

Other communities in California have developed or are pursuing CCA's including Marin County, Sonoma County, Kings County, and the City and County of San Francisco.

## LAND USE DESIGN

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

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

## TRANSPORTATION

*Goal: Decrease the use of combustion engine vehicles.*

Transportation is the largest contributor of GHG emissions in the county. Transportation emissions can be reduced through three basic approaches: 1) producing more fuel efficient vehicles 2) requiring stricter fuel standards, and 3) by decreasing the number of vehicle miles travelled. The State is working

on programs, measures, and standards that accomplish the first two approaches. This section presents measures which seek to accomplish the third approach. The measures are meant to compliment the land use design measure identified in the previous section through the development of a multi-modal transportation system that is convenient and user friendly.

#### BUILT ENVIRONMENT

*Goal: Foster development and renovations whose location, design, construction, and systems increase energy efficiency.*

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

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

#### RENEWABLE ENERGY

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

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

#### INDUSTRIAL ENERGY EFFICIENCY

*Goal: Improve the efficiency of industrial sector energy uses and processes.*

Similar to the measures in the Built Environment, this area attempts to reduce emissions from the use of natural gas and electricity specific to the industrial sector. Industrial enterprises use natural gas and electricity for water heating, on-site fuel combustion that support industrial and manufacturing

processes, and to operate appliances and equipment. The energy used at industrial facilities is unique when compared to the residential and commercial sectors. For this reason, reductions from industrial sources are contained in its own section.

#### WASTE REDUCTION

*Goal: Exceed the State's required diversion rate of 75% by 2020.*

Both the consumption and disposal of resources require energy and emit greenhouse gases. As waste is sent to the landfill, it decomposes and emits methane gas. Improved waste management at the local jurisdiction level and individual level are both necessary parts of a successful reduction strategy. The increased conservation of resources through reusing and recycling materials result in less demand for raw materials and less GHG generated from future production and transportation of new materials. Additionally, the impact of transporting waste from homes and businesses by waste fleet vehicles can be reduced through increased diversion and cleaner vehicle fleets. This goal seeks to decrease the amount of waste that is being deposited in landfills and to develop energy from the waste which does get landfilled. These measures would be implemented through the Resource Recovery and Waste Management Division of County Public Works.

#### AGRICULTURE

*Goal: Facilitate the increased efficiency of agriculture operations.*

Agriculture is another GHG emissions source to be considered and quantified at local, state, and federal levels. The County recognizes that agriculture is one of its most important resources and critical economic drivers in the County. Integrating agriculture into the County's inventory and GHG reduction strategies allows the County and local agriculturalists to retain a higher degree of local control over how this sector is managed. The inventory of local GHG emissions from agricultural sources follows the best available protocol with the recognition that methodologies and assumptions will change and improve over time. The existing GHG inventory is a valuable foundation, setting the stage for engagement and an ongoing dialogue about the best methods to identify, measure, and reduce local GHG emissions. These measures provide an opportunity for the County to recognize and support ongoing efforts and to facilitate future activities to the extent practicable.

#### WATER EFFICIENCY

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

The use of water requires energy to pump, treat, distribute, collect, and discharge water as it is used by the community. Conservation of water is an important strategy for both reducing energy-related water use and preparing for times of water shortages. This section analyzes the energy use related to water through new construction and existing development. Implementing water conservation in existing and

new development through water efficient features and native drought tolerant landscaping will ensure that communities will help ensure a consistent water supply.

**Table 4 – Summary of GHG Reduction Measures by Approach**

Measure #	Measure Title	Option 1	Option2	Option 3	Option 4	Option 5
		10% Target	15% Target	15% Target	15% Target	20 +% Target
		2020 GHG Reductions (MTCO2e)	2020 GHG Reductions (MTCO2e)	2020 GHG Reductions (MTCO2e)	2020 GHG Reductions (MTCO2e)	2020 GHG Reductions (MTCO2e)
<b>Local Reductions Needed to Achieve Target</b>		<b>119,297</b>	<b>186,900</b>	<b>186,900</b>	<b>186,900</b>	<b>238,594</b>
CCA	Community Choice Aggregation	N/A <sup>1</sup>	-56,610	● <sup>2</sup>	N/A	●
SCS	Sustainable Communities Strategy	N/A	-32,410	N/A	●	●
LUD 1	Infill development	-460	●	●	●	●
LUD 2	Transit-Oriented Development	-1,240	●	●	●	●
LUD 3	Affordable Housing	-780	●	●	●	●
T 1	Car Sharing and Ride Sharing	-5,770	●	●	●	●
T 2	Commuter Incentives	-3,460	●	●	●	●
T 3	Alternative-Fuel Vehicles and Incentives	-1,850	●	●	●	●
T 4	Alternative Transportation	-1,330	●	●	●	●
T 5	Integrated Bikeway System	-1,720	●	●	●	●
T 6	Pedestrian Improvements	-2,020	●	●	●	●
T 7	Vehicle Idling	-6,590	●	●	●	●
T 8	Traffic Signal Synchronization	Supportive Measure <sup>3</sup>	●	●	●	●
T 9	Commuter Rail Connections	-2,030	●	●	●	●
BE 1	Energy Efficiency Education and Outreach	-2,860	●	●	●	●

<sup>1</sup> N/A – Where an N/A is placed indicates that the measure is not applied in that particular option.

<sup>2</sup> ● – This symbol indicates that the reduction value is the same as that presented under Option 1.

<sup>3</sup> A supportive measure is a measure which contributes to overall reductions but is not quantifiable.

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Measure #	Measure Title	Option 1	Option2	Option 3	Option 4	Option 5
		10% Target	15% Target	15% Target	15% Target	20 +% Target
		2020 GHG Reductions (MTCO2e)				
<b>Local Reductions Needed to Achieve Target</b>		<b>119,297</b>	<b>186,900</b>	<b>186,900</b>	<b>186,900</b>	<b>238,594</b>
BE 2	Energy-Efficient Renovations	-3,430	•	-5,560	-24,300	-24,300 to -44,690
BE 3	Green Business Participation	-1,800	•	•	•	•
BE 4	Energy Scoring and Audits	-9,370	•	-16,790	-16,790	-28,300
BE 5	Community Forestry	-520	•	•	•	•
BE 6	Smart Grid Technology	-2,640	•	•	•	•
BE 7	Lawn and Garden Equipment	-50	•	•	•	•
BE 8	Energy Efficiency and Green Building Standards	-570	•	-820	-2,000	-2,000
BE 9	Efficient Building Design	Supportive Measure	•	•	•	•
BE 10	Construction Equipment Operations	-990	•	•	•	•
BE 11	Energy Code Training	Supportive Measure	•	•	•	•
RE 1	Alternative Energy Development	-1,390	•	•	-2,420	-2,420
RE 2	Solar Water Heaters	-350	•	•	-1,410	-1,410
RE 3	Alternative Energy Incentives	-1,170	•	•	•	•
RE 4	Utility-Scale Renewable Energy Projects	-8,360	•	•	•	•
IEE 1	Efficient Equipment Incentives	-1,450	•	•	•	•
IEE 2	Energy Management Programs	-250	•	•	•	•
IEE 3	Efficient Upgrade Incentives	-4,600	•	-6,180	-6,180	-6,180
IEE 4	Efficient Equipment Incentives 2	-960	•	•	•	•
WR 1	Waste Reduction	-19,020	•	•	•	-24,570

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Measure #	Measure Title	Option 1	Option2	Option 3	Option 4	Option 5
		10% Target	15% Target	15% Target	15% Target	20 +% Target
		2020 GHG Reductions (MTCO2e)				
<b>Local Reductions Needed to Achieve Target</b>		<b>119,297</b>	<b>186,900</b>	<b>186,900</b>	<b>186,900</b>	<b>238,594</b>
WR 2	Increased Recycling Opportunities	-16,360	•	•	•	-21,130
WR 3	Construction and Demolition Waste Recycling	-10,330	•	•	•	-13,340
WR 4	Landfill Disposal Reductions	-680	•	•	•	•
WR 5	Clean Waste Collection Vehicles	-730	•	•	•	•
AG 1	Local Food Programs	Supportive Measure	•	•	•	•
AG 2	Agricultural Conservation Practices	Supportive Measure	•	•	•	•
AG 3	Agriculture Equipment	-4,140	•	•	•	•
AG 4	Energy Efficient Agriculture Operations	Supportive Measure	•	•	•	•
AG 5	Agriculture Irrigation Improvements	-1,430	•	•	•	•
AG 6	Agriculture and Open Space Easements	Supportive Measure	•	•	•	•
WE 1	Water Conservation Programs	-230	•	•	•	•
WE 2	Water-Efficient Building and Landscape Standards	-20	•	•	•	•
WE 3	Water-Efficient Landscaping	-210	•	•	•	•
<b>Total Local Reductions</b>		<b>-121,160</b>	<b>-210,180</b>	<b>-189,150</b>	<b>-186,960</b>	<b>-268,410 to -288,800</b>
<b>Percent Total Reductions (State and Local)</b>		<b>10.2%</b>	<b>17.0%</b>	<b>15.2%</b>	<b>15.0%</b>	<b>22.5% to 24.21%</b>
<b>Additional Reductions Needed</b>		<b>-1,863</b>	<b>-23,280</b>	<b>-2,250</b>	<b>-60</b>	<b>-29,816 to -50,206</b>

## Public Participation

To develop the ECAP, County staff engaged the public through community education about climate action planning and related implications for land use policy in Santa Barbara County. Public outreach included a community visioning workshop, participation in the Santa Barbara Earth Day Festival, four facilitated stakeholder meetings, and an online survey. The overall strategy was designed to ensure that balanced, transparent, and effective communication occurred through an inclusive community-wide outreach and engagement campaign.

### *Public Engagement Goals*

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

### *Key Findings*

Several key viewpoints emerged during the public engagement process:

- The citizens of Santa Barbara County feel strongly about climate change planning. Some have already taken steps to improve the energy efficiency of their homes and are enthusiastic about the ECAP. Some are supportively skeptical and want to know more details about how the ECAP measures will affect them. Others are apprehensive about the very idea of an ECAP. Regardless of individual positions, this outreach program has indicated that people want to be involved in the process to help shape the future of their community.
- Throughout the process, actions that the County itself might take to reduce GHG emissions, such as improved bicycle and transit infrastructure, gathered more support than individual actions. Those in the building industry especially found it hard to support measures that could impact viability of new construction and wanted to make sure they were not being asked to take on more than a fair share of the GHG reduction mandates.
- Nearly everyone agreed that improvements can be made to the county's transportation system.
- Among those who provided input and feedback, opinions about an incentive-based approach to implementation of the ECAP, versus a required-mandatory approach to implementation, varied by the specific subject matter the measure addressed. Generally speaking, environmental non-profit organizations supported of the mandatory measures which provide for greater reductions with greater certainty. The industry and business organizations generally preferred a completely voluntary approach to most measures included in the ECAP.
- Some elements of the draft measures are seen as barriers to economic growth and that is viewed as unwise in an already depressed economy, and unfair if the impact is to homeowners, homebuyers, and new development projects.
- Participants seemed more willing to support County-driven GHG measures, such as the improvement of bike networks.

## Next Steps

Staff will continue to develop the ECAP through the following final steps:

- Develop a draft ECAP based on the BOS preferred GHG reduction approach.
- Complete environmental review of the draft ECAP in a public process.
- Bring the ECAP and environmental document before the BOS for adoption and certification.
- Begin implementation based on adopted measures.