



Agenda Item No. \_\_\_\_\_

File Code No. 630.02

# CITY OF SANTA BARBARA

## COUNCIL AGENDA REPORT

**AGENDA DATE:** July 1, 2008  
**TO:** Mayor and Councilmembers  
**FROM:** City Administrator's Office  
**SUBJECT:** Carbon Neutral By 2020 Goal For City Facilities And Fleet

### **RECOMMENDATION:**

That Council consider the recommendation of the Sustainability Council Committee to set a greenhouse gas emissions goal of carbon neutrality by 2020 for City facilities and fleet and, if approved, direct staff to prepare an initial plan to determine the resources and steps necessary to reach a goal of carbon neutrality by 2020.

### **DISCUSSION:**

#### Background

On November 20, 2007, the City Council received a request from the Community Environmental Council (CEC) to set a goal of becoming carbon neutral by 2020 for City operations. Council forwarded the emissions goal request to the Sustainability Council Committee for review and recommendation to Council.

On February 25, 2008, the Sustainability Council Committee heard a presentation from CEC on how City facilities could become carbon neutral by 2020 and received a staff update on the estimated impact on current emissions from planned City projects to conserve energy, produce renewable energy, and reduce vehicle use of fossil fuels. The Committee recommended the City set a greenhouse gas emissions goal to achieve carbon neutrality by 2020.

#### Sustainability Program

In 2005, the City Council adopted a resolution to sign the U.S. Mayors Climate Protection Agreement to meet or exceed Kyoto Protocol targets (7% emissions reduction from 1990 level by 2012). Cities participating in the Agreement committed to inventory greenhouse gas emissions for City operations and the community, set reduction targets, and create an action plan. In January 2006, the City Council created a Sustainability Program to coordinate citywide efforts to protect and enhance the environment. An initial focus of the new Sustainable Santa Barbara Program was preparing an inventory of greenhouse gas emissions from City facilities and fleet.

### City Emissions Inventory

An emissions inventory was prepared to monitor and track emissions from City facilities on an annual basis. Emissions were calculated based on the use of electricity and natural gas in City facilities and the use of fuel in the City fleet. In 2007, Santa Barbara became the first Southern California city to certify greenhouse gas emissions through the California Climate Action Registry, a non-profit public/private partnership that helps companies and organizations track, publicly report, and reduce their greenhouse gas emissions. Independent third parties certify the results to ensure compliance with Registry protocols and standardization across participants and sectors. To date, Santa Barbara has completed certification of 2005 and 2006 emissions.

The data provide a tool for staff to understand emission sources and develop a strategy to reduce emissions. In 2006, the City's facilities and fleet generated 11,784 metric tons of carbon dioxide equivalents (Attachment 1). Electricity and natural gas used in City buildings were the source of 80% of the emissions. Vehicle fuel was the source of the remaining emissions.

A Green Team Technical Advisory Committee was formed in October 2007 to analyze emissions and brainstorm ideas to improve energy efficiency, generate renewable energy, and reduce fuel consumption and vehicle trips. Project ideas were assessed for their feasibility and projected impact on emissions. Projects with the highest potential to reduce emissions and feasibility were categorized by available funding, specifically whether staff and financial resources were identified in the upcoming Fiscal Year 2009 budget. The staff committee produced two lists of projects, Feasible Projects to Initiate or Complete by June 30, 2009 (Attachment 2) and Feasible Projects - Capital Resources Needed (Attachment 3). Projects on both lists provided the most viable options to plan an emissions reduction strategy.

The Green Team Committee also identified planned or potential capital projects that would increase emissions in future years. These projects provided a forecast of unmitigated emissions, assuming energy conservation, renewable energy, or fuel programs were not implemented. With a calculation of the impact of projects underway, planned capital projects and possible mitigation options, a 2008 – 2014 emissions projection was developed in carbon dioxide equivalents (Attachment 4).

The implementation of proposed mitigation strategies would result in a net emissions reduction from 2006 emissions of 5.7% by 2014. Based on an uncertified 1990 emissions estimate, emissions would drop by 15.5% by 2014. Reaching this projection would require implementation and investment in the following strategies:

- Comprehensive energy conservation measures in all City facilities;
- Generation of renewable energy at City facilities (on-site);
- Reduction in fuel use in City fleet vehicles; and
- Aggressive policies to convert City vehicles to alternative fuel or fuel-efficient models.

Emission Reduction Options

The proposal to reach carbon neutrality by 2020 would require the implementation of innovative projects and programs. These strategies would include energy reduction, fuel switching, and energy offsets to reduce emissions to zero net carbon dioxide equivalents for City operations by 2020. Several approaches could be considered to achieve this goal, including the following:

- Generate renewable energy on-site such as solar photo-voltaics;
- Generate renewable energy off-site such as wind turbines and other technology;
- Purchase emission offsets from Green-E certified emission trading companies;
- Pursue Community Choice Aggregation model allowing retail wheeling of electricity;
- Develop an emission offset program for community investment in energy conservation and renewable projects for City facilities;
- Plan for a rise in the Southern California Edison renewable energy portfolio; and
- Implement new technology when available at a reasonable cost.

Cost estimates and implementation steps to pursue the options above are not known and would need further analysis.

Goal Options

Several cities have issued a greenhouse gas emissions goal for municipal operations. The table below shows examples of greenhouse gas emissions goals in other cities.

<b>City/County</b>	<b>Emissions Goal for Municipal Operations</b>
Santa Monica, CA	30% below 1990 level by 2015
San Francisco, CA	20% below 1990 level by 2012
Sacramento, CA	25% below 1990 level by 2030
San Jose, CA	25% below 1990 level by 2012 30% below 1990 level by 2015 35% below 1990 level by 2020 50% below 1990 level by 2030 80% below 1990 level by 2045
Austin, TX	100% (Carbon Neutral) by 2020
Seattle, WA	7% below 1990 level by 2012
Marin County, CA	20% below 1990 level by 2020

Several cities have established goals with related indicators, including:

- Energy use per capita: *San Jose goal* - Reduce per capita energy use by 50%;
- Percentage of electricity from renewable sources: *San Jose, Portland, Santa Monica goals* - 100% electricity from renewable energy sources; and
- Reduction in fossil fuel use: *Portland goal* - 50% reduction in fossil fuel use by 2032 and 80% by 2050.

Many cities have also set community goals to reduce greenhouse gas emissions by using a city operations goal as an example or using one universal target for the community and municipal facilities. California established a statewide goal to reduce emissions by 25% below 1990 levels by 2020.

Next Steps

Should Council wish to establish a goal of the City becoming carbon neutral by 2020, we would recommend that staff be directed to draft an initial action plan with estimated staffing and costs necessary to begin implementing the goal. Staff would also develop rough preliminary costs and possible revenue options to fund the program. Such an effort will require a major commitment of time and resources, which will likely impact other areas of City operations unless new funding sources are available.

**SUSTAINABILITY IMPACT:**

Establishing a goal to achieve carbon neutrality by 2020 would encourage businesses and individuals in the community to gain a better understanding of their carbon footprint and set ambitious goals to conserve energy, explore renewable energy, reduce vehicle trips, and use alternative fuel or fuel-efficient vehicles.

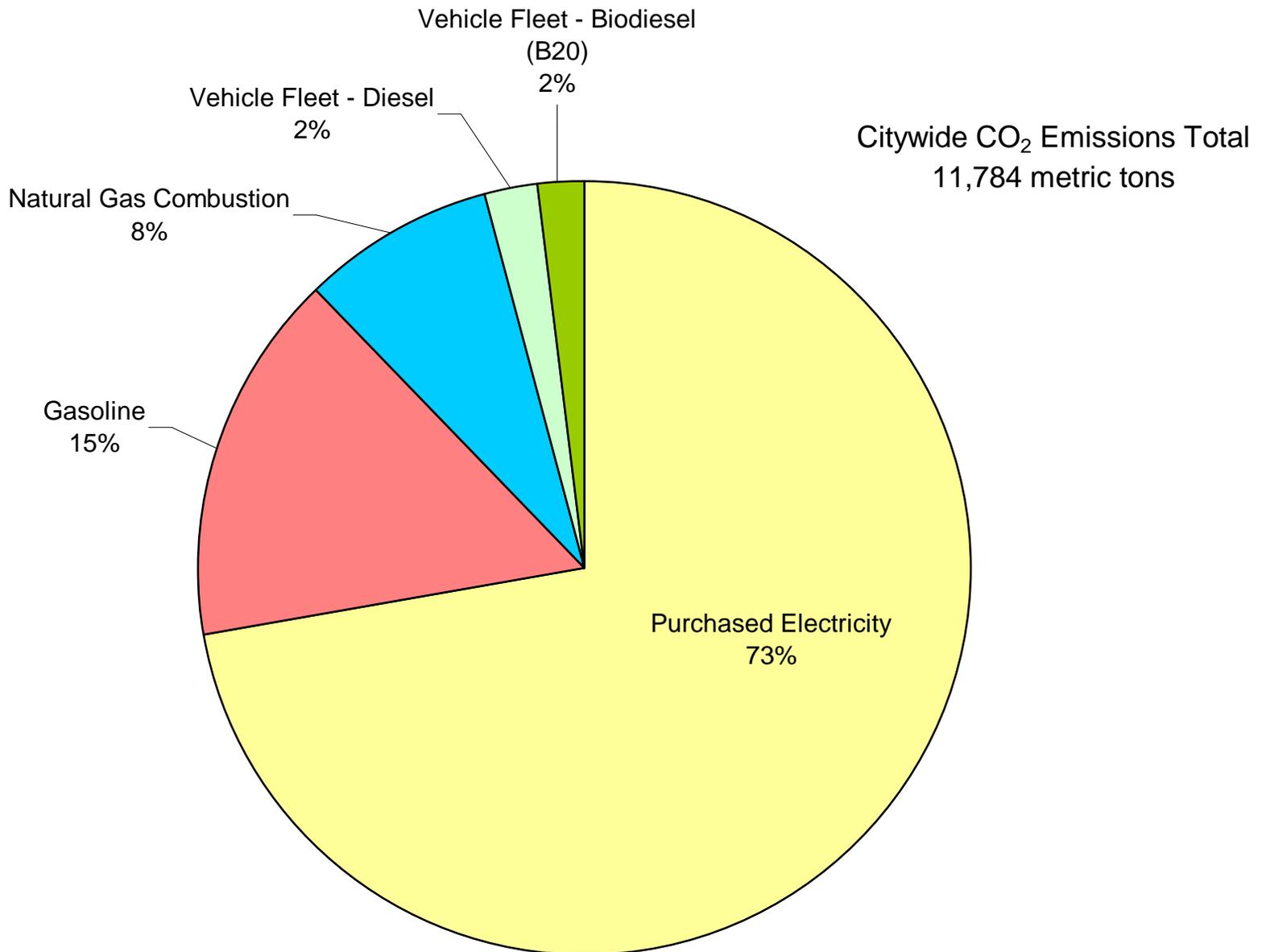
- ATTACHMENTS:**
1. 2006 CO<sub>2</sub> Emissions by Source for City Facilities and Fleet
  2. Feasible Projects to Initiate or Complete by June 30, 2009
  3. Feasible Projects - Capital Resources Needed
  4. Projected CO<sub>2</sub> Emissions for City Facilities and Fleet

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**APPROVED BY:** City Administrator's Office

2006 City of Santa Barbara  
Facility and Fleet  
CO<sub>2</sub> Emissions By Source



City of Santa Barbara Greenhouse Gas Emission Reduction Strategies  
 Feasible Projects - Initiate or Complete by June 30, 2009

**Energy Conservation**

	<b>Project Description</b>	<b>CO<sub>2</sub> Impact</b>
1	Install direct digital controls on all HVAC and submeter facilities to analyze energy usage patterns and purchase tools that allow for self-auditing of energy usage.	high
2	Initiate mechanical retro-commissioning process for buildings as part of the LEED-EB certification process for selected General Fund buildings .	high
3	Perform a lighting level audit resulting in a lamping reduction. Turn off all indoor lights in locked buildings in the evening and install occupancy sensors and timer switches.	high
4	Activate mandatory hibernation on workstations via centralized program controls.	high
5	Enforce the current Energy Policy: A) Remove personal heater; B) Use one coffee maker in each facility and power off when not in use; C) Reduce transformers, unplug water coolers, and common use amenities; D) Communicate with employees to improve flexibility to temperature; E) Consolidate and reduce vending machines; F) Check all break room appliances for Energy Star compliance, replace old appliances. Reduce and properly size appliances.	medium
6	Replace boiler at Motor Pool with new heating equipment.	medium
7	Activate standby mode and duplex printing on printers and copiers.	medium
8	Initiate fresh air cooling in buildings with operable windows and natural convectors near windows.	low
9	Work with departments to consolidate printers, copiers, faxes, and scanners to improve printing features for employees, and reduce energy and paper use.	low
10	Finish replacing T12 light fixtures with T8. Install T5 fixtures in appropriate locations, including Motor Pool, Library and Public Works.	low
11	Install dual technology occupancy sensors (infrared and ultrasonic), timer switches, and ensure ability to switch lights off in common areas.	low
12	Install timer switches on HVAC systems in rooms with sporadic usage (i.e. conference rooms).	low
13	Reduce the level of cooling required in the computer server room.	low
14	Require EPEAT-certified equipment for computer purchases.	low
15	Initiate consolidation of computer servers.	low
16	Require energy efficiency components for new City-assisted projects (RDA, etc.).	n/a
17	Work with Energy Partnership to access a larger percentage (City's share) of the SCE Public Goods Charge.	n/a
18	Complete pilot project on the use of metal halide and LED street lighting fixtures to improve lighting levels and reduce energy usage by 30%.	n/a

**Fuel Use Reduction/Use of Alternate Fuels**

	<b>Project Description</b>	<b>CO<sub>2</sub> Impact</b>
19	Establish department targets to reduce fuel consumption in vehicle fleet.	high
20	Send monthly fuel usage report to department staff to provide information on fuel use trends.	high
21	Develop a vehicle pool program where vehicles could be shared by departments, helping to reduce the number of older, low mileage vehicles (that are less fuel efficient) with newer vehicles.	medium
22	Replace Citywide sedans with hybrids and electric vehicles in accordance with the vehicle replacement schedule.	medium
23	Replace non-patrol Police Sedans with hybrids in accordance with the vehicle replacement schedule.	medium
24	Install tire pressure indicators on City vehicles to improve fuel efficiency.	low
25	Plan and conduct Driver Behavior Education classes with high frequency drivers to reduce fuel consumption.	low
26	Establish a vehicle purchasing policy regarding vehicle replacement goals that emphasizes efficient use of pool vehicles and the use of hybrids, fuel efficient smaller vehicles, and alternative fuel vehicles.	low
27	Initiate pilot testing with B50 biodiesel on select vehicles.	low
28	Increase the number of bikes available at City facilities to encourage employees to reduce vehicle trips for meetings and errands.	low

**Renewable Energy Generation**

	<b>Project Description</b>	<b>CO<sub>2</sub> Impact</b>
29	Reactivate hydro-electric plant on South Coast conduit to provide renewable energy for water treatment processes.	high
30	Construct Corporate Yard solar project to generate renewable energy for City facilities.	high
31	Complete power purchase agreement for installation of solar PV at the Airport parking lot and consider a premium parking charge for shaded parking.	high
32	Issue RFP to expand El Estero renewable energy project through collection of grease and additional methane generation.	high
33	Initiate installation of solar PV at the Airport car rental quick turn around facility.	high
34	Install solar thermal at Marina One restroom in place of electric heater.	medium
35	Develop a micro generation project on Stearn's Wharf or other Waterfront sites.	low

**Renewable Purchases**

	<b>Project Description</b>	<b>CO<sub>2</sub> Impact</b>
36	Determine feasibility of purchasing wind turbine(s) in an existing wind farm to provide renewable energy for City facilities.	n/a

City of Santa Barbara  
Greenhouse Gas Emission Reduction Strategies  
Feasible Projects - Capital Resources Needed

**Energy Conservation**

	Project Description	CO <sub>2</sub> Impact
1	Replace HVAC system as part of Police Department Locker Room remodel and boiler replacement.	high
2	Install Direct Digital Controls for HVAC system at Police Station.	medium
3	Mechanical retro-commissioning process for plants and non-General Fund buildings.	medium
4	Replace old HVAC equipment. There is currently no system in place that plans for the replacement of systems. Many systems are past their useful life and are very inefficient.	low
5	Perform more detailed energy assessments on General fund facilities, beginning with high energy use facilities.	n/a

**Fuel Use Reduction/Use of Alternate Fuels**

	Project Description	CO <sub>2</sub> Impact
6	Replace 1 ton gasoline vehicles with bio-diesel vehicles.	low

**Renewable Energy Generation**

	Project Description	CO <sub>2</sub> Impact
7	Install solar PV on City facilities.	high
8	Install solar thermal at Marina 2, 3 & 4 restrooms in place of natural gas.	high
9	Install solar thermal at Los Banos for heating of the pool and showers.	medium
10	Install solar thermal for water heating at Fire Station 1.	low
11	Install solar thermal for water heating at all Fire Stations.	low

**City of Santa Barbara  
Estimated CO2 Emissions  
July 1, 2008  
All Units Metric Tons CO<sub>2</sub> Equivalent**

