CITY OF
HAYWARD
HEART OF THE BAY

Council Sustainability Committee

April 4, 2012

Table of Contents

Agenda 2
Approval of Minutes of January 4, 2012
Minutes 4
Benchmarking Municipal Buildings
Report. 8
Climate Action Plan Update
Report. 15
Attachment I 2012 Inventory 30
Attachment II CAP Priorities 40
Incorporation of a Renewable Energy Requirement for New Residential Subdivision Development into Hayward's Green Building Ordinance
Report. 56
Attachment I Solar Ready Standards 62
Meeting Topics for 2012
Meeting Topics for 2012 64

CITY OF HAYWARD
HEART OF THE BAY

CITY COUNCIL SUSTAINABILITY COMMITTEE MEETING
Wednesday, April 04, 2012
Conference Room 2A
4:30 PM

CALL TO ORDER

ROLL CALL

PUBLIC COMMENTS: *(The Public Comment section provides an opportunity to address the City Council Committee on items not listed on the agenda. The Committee welcomes your comments and requests that speakers present their remarks in a respectful manner, within established time limits, and focus on issues which directly affect the City or are within the jurisdiction of the City. As the Committee is prohibited by State law from discussing items not listed on the agenda, your item will be taken under consideration and may be referred to staff.)*

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1. Approval of Minutes of January 4, 2012
   Minutes

2. Congratulate Berkeley Farms for Improved Energy Use (Presentation)

3. Status of Benchmarking Municipal Buildings
   Report

4. Annual Update on Climate Action Plan Implementation and GHG Emissions Inventory Update
   Report
   Attachment I - 2012 Inventory
   Attachment II - CAP Priorities

5. Incorporation of a Renewable Energy Requirement for New Residential Subdivision Development into Hayward's Green Building Ordinance
   Report
   Attachment I Solar Ready Standards

6. CSC Meeting Topics for 2012
   Meeting Topics for 2012

COMMITTEE MEMBER/STAFF ANNOUNCEMENTS AND REFERRALS

ADJOURNMENT

NEXT REGULAR MEETING – 4:30 PM, WEDNESDAY, JULY 11, 2012

****Materials related to an item on the agenda submitted to the Council after distribution of the agenda packet are available for public inspection in the City Clerk's Office, City Hall, 777 B Street, 4th Floor, Hayward, during normal business hours. An online version of this agenda and staff reports are available on the City's website. All Council Meetings are broadcast simultaneously on the website and on Cable Channel 15, KHRT. ****

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HAYWARD CITY COUNCIL, 777 B STREET, HAYWARD, CA 94541
HTTP://WWW.HAYWARD-CA.GOV

CITY COUNCIL SUSTAINABILITY COMMITTEE MEETING
Hayward City Hall – Conference Room 2A
777 B Street, Hayward, CA 94541-5007

January 4, 2012
4:30 p.m.

MEETING MINUTES

CALL TO ORDER: Meeting called to order at 4:34 p.m. by Mayor Sweeney.

ROLL CALL:

Members:
- Michael Sweeney, Mayor
- Olden Henson, Council Member
- Bill Quirk, Council Member
- Sara Lamnin, Planning Commissioner (Absent)
- Al Mendall, Planning Commissioner (Absent)
- Dianne McDermott, Planning Commissioner
- Laura Oliva, Keep Hayward Clean and Green Task Force

Staff:
- Kelly Morariu, Assistant City Manager
- Alex Ameri, Director of Public Works/Public Utilities & Environmental Services
- Erik Pearson, Senior Planner
- Marc McDonald, Sustainability Coordinator
- Vera Dahle-Lacaze, Solid Waste Manager
- Katy Ramirez, Administrative Secretary (Recorder)

Others:
- Peter McKenzie, Hayward
- Andrea Schumer, PG&E Account Executive
- Roxanne Cruz, PG&E
- Mary Thomas, City Management Fellow

PUBLIC COMMENTS: None.

1. Approval of Minutes of October 5, 2011 - minutes approved.

2. Presentation of Plaque from PG&E to the City of Hayward regarding the Climate Smart Program.

   Andrea Schumer, PG&E Account Manager, presented the Sustainability Committee with a plaque for the City of Hayward's participation in PG&E's Climate Smart Program. Ms.

Schumer explained that the City of Hayward's contribution was able to offset carbon emissions for the City Hall account for both natural gas and electricity use. She said that 100% of the fees contributed were invested in greenhouse gas emissions reduction programs in California, such as restoring native redwood forests. Through its enrollment, the City was able to make the energy use at City Hall climate neutral and offset 1,848 tons of greenhouse gas emissions, which is equivalent to removing 329 cars off the road for a year or providing electricity to 209 homes for one year, which is substantial. Ms. Schumer said that Hayward was enrolled along with more than 30,000 PG&E business and residential customers and due to the success of the program; PG&E met their objectives. Ms. Shumer said that the Climate Smart Program has come to an end as of December 31, 2011, and she again thanked the Sustainability Committee and the City of Hayward for their participation and said that PG&E looks forward to working with the City in the future.

Mayor Sweeney thanked Ms. Schumer and PG&E.

3. Countywide Single-Use Bag Reduction: StopWaste's Proposed Revised Ordinance

Alex Ameri, Director of Public Works/Public Utilities & Environmental Services, provided an overview of the staff report and presented a PowerPoint presentation. Mr. Ameri summarized the proposed provisions, benefits and exclusions of StopWaste's Proposed Ordinance, the fiscal and economic impacts, outreach and public contact, and the current schedule.

Mr. Ameri indicated that staff is recommending to the Council Sustainability Committee for the City to not opt out from the Ordinance.

There were comments, questions, and discussion amongst staff and the Committee, such as the cost of carry-out bags, timeline for implementation, start-up cost and on-going cost of the program, enforcement of the ordinance, and the importance of public outreach (i.e., public hearings, advertising in the newspaper, and the electronic sign visible from 880 at Southland Mall).

Mayor Sweeney asked the Committee if the consensus is for the City to move forward and participate with the Ordinance; the Committee responded 'yes'. Mayor Sweeney asked staff to research if Alameda County Waste Management Authority should be applying more of their own revenues into the program and/or renegotiate their figures. Council Member Henson responded that he will share those concerns at the next meeting of the Waste Management Authority Board. Mayor Sweeney stressed the importance that if more time is needed for outreach to the community, then staff should take the time to do so, and also asked for staff to be clear on the effective date of ordinance (January 1, 2013).

4. Countywide Mandatory Recycling: StopWaste's Proposed Revised Ordinance

Mr. Ameri provided an overview of the staff report and presented a PowerPoint presentation. He updated the Committee on State legislation AB 341, summarized the

provisions of StopWaste's Proposed Ordinance for a countywide mandatory recycling program and outlined Phase I and Phase II of the ordinance, the fiscal and economic impacts, implementation costs, outreach and public contact, and the current schedule.

Mr. Ameri indicated that staff is recommending to the Council Sustainability Committee that the City participate in Phase I of the mandatory recycling Ordinance.

There was discussion and questions amongst staff and the Committee such as Hayward's share of the cost, implementation, outreach, and enforcement; the timeline for implementation, rate increases and the equity between single-family residents and multi-family residents, interpretation of the Franchise Agreement, grant funding, multi-family compliance, and the possibility for compost funds to be reimbursed to the City.

Mayor Sweeney asked if the consensus of the Committee is to move forward with the ordinance with a concern about the rate increase and equity issues between single-family and multi-family residents; encourage staff to take this opportunity to look at ways to improve multi-family performance and compliance; and for staff to make sure there is a good amount of community outreach before enforcing the program; the Committee responded yes. Council Member Henson indicated that he will also inquire about the unused Multi-Family Pilot Program funds.

5. Climate Action Team (continuation of July 6, 2011 meeting discussion)

Kelly Morariu, Assistant City Manager, said that she assumes everyone has read the staff report and basically staff is recommending that this item is put on hold until a decision has been made about the Sustainability Coordinator and Public Works Director positions, and for staff to have an opportunity to work on this topic further.

Mayor Sweeney asked the Committee if there are any objections; the Committee responded 'no'.

6. Commercial Energy Conservation Innovator Pilot Study

Marc McDonald, Sustainability Coordinator, presented a PowerPoint presentation and explained that this is a follow-up to the Sustainability Committee meeting of June 2011 where the Commercial Energy Conservation Ordinance (CECO) was discussed. Mr. McDonald said that the recommendation from the Committee at that time was instead of trying to develop a set of measures or an ordinance that would require building owners to make improvements to their buildings (similar to the proposed Residential Energy Conservation Ordinance), it would make sense to move forward with a benchmarking ordinance. The benchmarking approach was intended to allow staff to gather the data that would be necessary to undertake any type of measure-based ordinance. Mr. McDonald said staff worked with PG&E's information and there is so much information accumulated into a single number that it is not really effective in helping staff develop any kind of ordinance.

Mr. McDonald recommended that the City participate in a PG&E funded StopWaste.Org Building Asset Rating Pilot Program. Participation in the StopWaste.Org Asset Rating Pilot Program may allow staff to gather the necessary data as part of a county-wide program rather than a Hayward specific program.

Mayor Sweeney asked if the consensus of the Committee is to move forward with staff's recommendation that the City defer from taking legislative action on developing a commercial energy disclosure ordinance and instead work to participate in StopWaste.Org's pilot program, and to continue to encourage building owners to voluntarily submit notification to the City of their status as Energy Star buildings; the Committee responded 'yes'.

7. CSC Meeting Topics for 2012

Council Member Quirk suggested that the title of "Require Solar for New Construction" scheduled for the April 2012 meeting should be revised to read something like mandatory solar or mandatory energy conservation, or Title 24 plus, etc. Staff responded that alternatives to requiring solar would be investigated and reported at the next meeting.

COMMITTEE MEMBER ANNOUNCEMENTS AND REFERRALS:

Mayor Sweeney noted that since the Sustainability Committee meetings have moved to quarterly the agenda will contain more items and the meetings will last longer.

Mr. Ameri announced that he has a DVD entitled "Bag It" regarding single use plastic bags for anyone interested in viewing it.

ADJOURNMENT:

Meeting adjourned at 6:41 p.m.

DRAFT

CITY OF
HAYWARD
HEART OF THE BAY

DATE: April 4, 2012

TO: City Council Sustainability Committee

FROM: Development Services Director

SUBJECT: Benchmarking City of Hayward Municipal Buildings

RECOMMENDATION

That the Committee reviews and comments on this report.

SUMMARY

This report summarizes efforts to benchmark energy use in the City's buildings, which is a way to compare energy use of City facilities to energy use in other similar buildings in the area and in the country. Such benchmarking helps the City ensure its facilities are energy efficient.

BACKGROUND

The City of Hayward adopted a Climate Action Plan in 2009 that established greenhouse gas reduction goals for the City. The CAP also prescribes specific actions that directly address greenhouse gas (GHG) emissions that are attributed to the City's building stock, waste, and transportation sectors. Local governments have a unique responsibility via the ICLEI (International Council for Environmental Initiatives) climate action planning process in that their greenhouse gas emissions baselines, reduction targets, and actions must be developed and reported independently of all other sectors in their communities.

Emissions attributable to local government activity tend to comprise a small portion of the community's total; according to the 2010 GHG Inventory Update, Hayward's government was responsible for approximately 1% of the City's total GHG emissions[1]. The purpose of this report is to present an analysis of GHG emissions attributed to a yet smaller portion of City emissions: Hayward's municipal buildings, which are responsible for 18% of the government's 2010 emissions and 0.1% of the entire City's emissions. GHG emissions from buildings are directly related to the amount and kinds of energy they use, namely electricity and natural gas.

[1] Municipal emissions were calculated as a portion of total City emissions also attributed to Waste, Residential and Commercial buildings, and Transportation on all roadways.

Strategy 3 of Hayward's Climate Action Plan establishes long-term goals for energy use in existing buildings: by 2050, reduce electricity consumption to 65% below business-as-usual (BAU) projections, and reduce natural gas consumption to 50% below BAU projections. These reductions in energy use will contribute 5.6% and 19.2% of GHG reductions necessary to meet 2020 (189,000 MT CO2e) and 2050 (1,084,000 MT CO2e) reduction goals, respectively.

The City of Hayward has already acted to improve the energy efficiency of our buildings. Efforts to date include planned HVAC retrofits for the Police Station and City Hall. Lighting retrofits for 5 facilities are expected to occur in 2012. The emissions data presented here was generated by EPA ENERGY STAR *Portfolio Manager*, an online tool used to calculate, standardize, and compare energy used in buildings across the United States. For reasons that are discussed below, emissions figures differ from those calculated using ICLEI methods.

DISCUSSION

Energy used in buildings varies greatly due to a number of static and dynamic factors, including building size and type, ambient temperature, number of occupants, and building operations. GHG emissions can vary because of these factors. GHG emissions are also influenced by the fuels consumed in buildings and the fuel mix used in power plants to generate energy consumed by buildings. These factors are typically beyond the control of building operators. The energy used *at* buildings is under the control of building operations, a factor that can be managed through improved energy efficiency.

Local governments are commonly confronted with management decisions and opportunities that, as beneficial as they each may be, cannot all be supported due to limited budgets and staff availability. Benchmarking building energy provides metrics that help inform and prioritize energy efficiency opportunities. Using the EPA ENERGY STAR Portfolio Manager tool, energy used in each municipal building is benchmarked, meaning it is compared to that of other similar buildings engaged in similar activities in similar climate conditions nationwide. The relative rank of a building's energy consumption can be used to classify a building as more efficient, less efficient, or as efficient as an average building. Using these results, Hayward's government can choose to target those buildings that are effectively 'under-performers', or not energy efficient, and dedicate available funds and staff time to improve efficiency by implementing cost-effective retrofits to those buildings.

EPA ENERGY STAR Portfolio Manager is not a building system diagnostic tool. The metrics it provides describe *whole-building* energy performance. The Portfolio Manager models and calculations incorporate assumptions about the energy efficiency of equipment that may be found in various types of buildings. However, the results of energy benchmarking in Portfolio Manager are not intended to measure the performance of particular building systems, or make recommendations about how to improve the performance of those systems. Rather, Portfolio Manager should be used to compare a building's energy performance against the goals that building's management has established for the building and against the energy performance of peers. If a building is performing adequately against goals and peers, no action needs to be taken. If a building is performing poorly against goals and/or peers, further analysis may be advisable to develop and implement a course of action. A technical audit performed by a

building energy professional would provide the depth and information needed to identify specific building upgrades by analyzing the energy used by individual building systems. Opportunities for energy efficiency retrofits may be identified in this way.

Technical Methodology of Energy Benchmarking - No building uses the exact same amount of energy as another because of differences in building and operations characteristics, occupant behavior, and weather. EPA ENERGY STAR Portfolio Manager employs robust empirical analyses to standardize and normalize the energy efficiency, or 'energy performance' of buildings based on those variables.

Portfolio Manager requires a short list of inputs that differ by building type. Portfolio Manager inputs normally include gross floor area, weekly operating hours, and number of workers that occupy a building during a shift, in addition to monthly energy data for a minimum 12-month period.[2] A building's energy performance will be heavily influenced by variability in these elements[3]. The statistical models used in Portfolio Manager also convert all fuel types to thermal units (kBtu, or thousand British thermal units)[4] as source energy[5], which accounts for the generation of the energy used; variability due to weather is also normalized in these models[6], enabling comparisons of energy performance for buildings in Hayward and New York City, for example.

Regarding the calculation of GHG emissions in Portfolio Manager, GHG emissions are derived directly from the amount and types of energy used. Direct GHG emission factors, in the case of fuels like natural gas or propane, are applied for fuels which are combusted on-site. Indirect GHG emission factors are applied for purchased electricity[7]. These factors differ slightly from those applied in the ICLEI Clean Air and Climate Protection (CACP) software, which was used to develop Hayward's GHG emission targets and reduction goals. As a result, Portfolio Manager emissions differ from those calculated using ICLEI methods.

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[2] Energy data can be uploaded automatically by the PG&E Automated Benchmarking Service.
http://www.pge.com/includes/docs/pdfs/mybusiness/energysavingsrebates/analyzer/benchmarking/ABS_FactSheet.pdf
[3] ENERGY STAR technical methodologies for general performance ratings and specific building types:
http://www.energystar.gov/ia/business/evaluate_performance/General_Overview_tech_methodology.pdf
http://www.energystar.gov/index.cfm?c=evaluate_performance.bus_portfoliomanager_model_tech_desc
[4] http://www.energystar.gov/ia/business/tools_resources/target_finder/help/Energy_Units_Conversion_Table.htm
[5] http://www.energystar.gov/ia/business/evaluate_performance/site_source.pdf?5077-2141
[6] http://www.energystar.gov/ia/business/evaluate_performance/Methodology_Weather_20110224.pdf
[7] http://www.energystar.gov/ia/business/evaluate_performance/Emissions_Supporting_Doc.pdf

Results of Energy Benchmarking and GHG Emissions Analyses -

Table 1. The Source Energy Intensity (kBtu/square foot) of Hayward Facilities and Their Relative Energy Performance

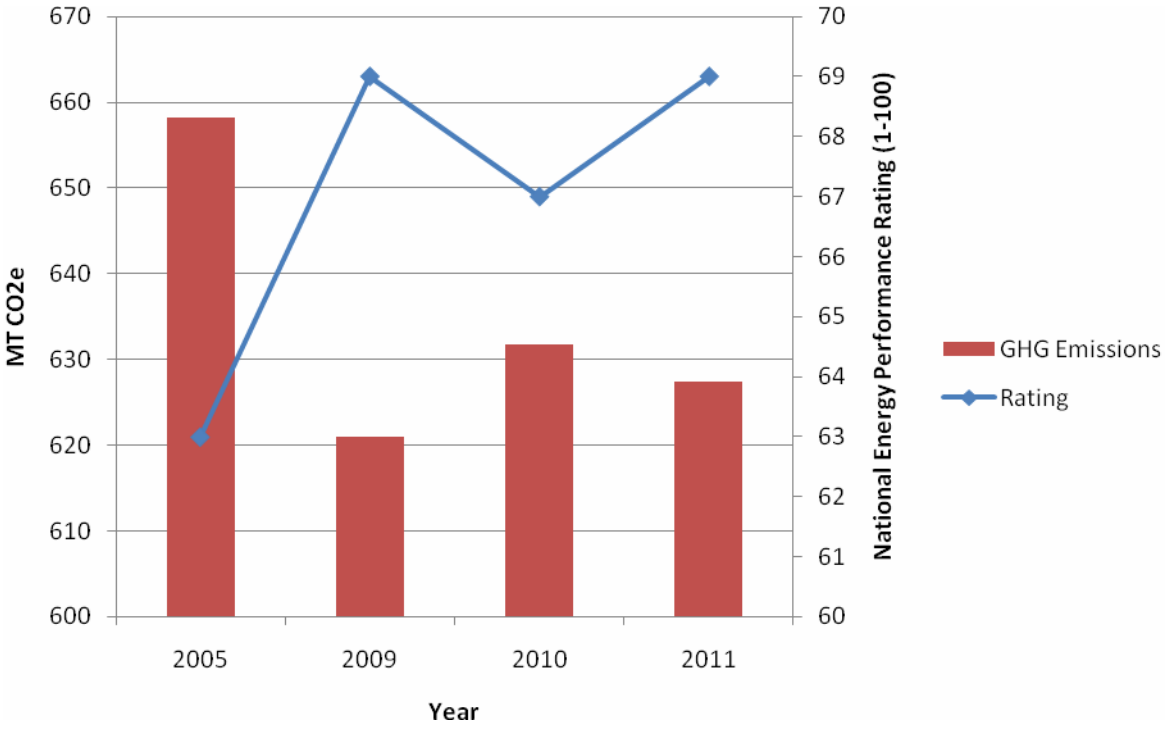
	2005		2009		2010		2011	
	Source Energy Intensity	% Difference from National Median	Source Energy Intensity	% Difference from National Median	Source Energy Intensity	% Difference from National Median	Source Energy Intensity	% Difference from National Median
Cinema Place Parking Garage	N/A	N/A	N/A	N/A	19.4	-84.7	19.4	-84.7
City Hall	201.4	-14.3	190.1	-20.3	192.2	-18	190.5	-20.1
City Hall Parking Garage	N/A	N/A	1.5	-98.8	1.7	-98.7	1.4	-98.9
Fire Station 1	156.9	7.5	160.8	10.1	160.3	9.8	157	7.5
Fire Station 2	142.3	-2.5	109.8	-24.8	105.7	-27.6	108.6	-25.6
Fire Station 3	177	21.2	188	28.8	162.1	11	182.7	25.1
Fire Station 4	179.7	23.1	164	12.3	145.6	-0.3	141.3	-3.2
Fire Station 5	107.1	-26.6	124.1	-15	122	-16.4	123.8	-15.2
Fire Station 6	133.3	-8.7	151.2	3.6	92.7	-36.5	92.2	-36.8
Fire Station 7	186.9	28	190.7	30.6	223.3	52.9	227.8	56
Fire Station 8	50.6	-65.3	N/A	N/A	85.9	-41.2	86.6	-40.7
Fire Station 9	86.5	-40.8	145.1	-0.6	140.2	-4	143.3	-1.8
Fleet Mgmt/Streets	139.3	45.1	148	54.2	142.7	48.6	148.9	55.1
Main Library	192.3	-21.8	219.6	-10.7	228.5	-7.1	269	9.3
Police Department	321.1	119.9	325.3	122.8	330.4	126.3	325.6	123
Utilities Building	107.1	-15.7	108.2	-14.8	115.6	-9	118.1	-7
Weekes Branch Library	133.1	-45.9	135.6	-44.9	136.8	-44.4	139.4	-43.3

As noted in the table above, Hayward's municipal facilities use between 1 and 330 kBtu of energy per square foot of gross floor area; kBtu per foot^2 of floor area is also known as *energy intensity*. Energy data from 2010 reveals that most Hayward buildings were more efficient than the national median source energy intensity. This was derived by interpreting the percent difference of each building's energy intensity from the national median energy intensity (for that particular type of building): a negative percent difference indicates lower energy use and better energy performance than the national median (highlighted in green), and a positive percent difference indicates higher energy use and poorer energy performance than the national median (highlighted in red).

Persistent relative reductions in energy use and intensity have occurred in several facilities through 2011 (highlighted in blue), including City Hall. Energy intensity in other facilities, however, increased from 2010 to 2011. Most noticeably, as identified with red arrows in the table above, Fire Stations 3 and 7, the Main Library, and the Fleet Management building experienced sharp rises in absolute and relative energy intensity. Based on these marked differences, more in-depth analyses of energy use at these particular facilities may be advisable to abate both higher operating costs and GHG emissions.

Certain types of buildings are eligible to also receive a National Energy Performance Rating on a 1 to 100 scale. Office buildings are one of these types; City Hall is eligible for this rating since it is categorized as an office building in Portfolio Manager. City Hall received a National Energy Performance Rating of 67 in 2010 and a rating of 69 in 2011 (see following Figure 1). A rating of 69 indicates that City Hall is as energy efficient as other office buildings in the 69th percentile of surveyed buildings. This rating also means that City Hall is more efficient than 68% of other office buildings. Buildings receiving National Energy Performance Ratings of 75 or higher may be eligible to apply for an ENERGY STAR award[8].

Figure 1. Total GHG Emissions and ENERGY STAR National Energy Performance Ratings of City Hall for Select Years



According to Figure 1 above, the annual GHG emissions attributed to Hayward's City Hall have declined substantially since 2005. City Hall's National Energy Performance Rating has also improved from a 63 in 2005 to a 69 in 2011. It is expected that these trends will be maintained by continued efforts to improve energy efficiency via comprehensive retrofits.

ECONOMIC IMPACT

The economic impact of energy awareness, which can be facilitated by benchmarking energy use in buildings through tools, such as Portfolio Manager, can lead to efforts to reduce energy consumption and to reduce energy costs.

[8] https://www.energystar.gov/istar/pmpam/help/Applying_ENERGY_STAR_Label.htm

FISCAL IMPACT

Minimal staff time related to ongoing training to manage Portfolio Manager and to interpret the information made available can be absorbed by allocated general fund revenues. Routine monitoring will require less than one hour per month. The City's facilities management staff is trained in the use of Portfolio Manager and Hayward can receive free limited support from its sustainability consultant, QuEST, in developing further Portfolio Manager skills.

PUBLIC CONTACT

While there has been no public contact regarding benchmarking the City's municipal buildings, City staff has participated in workshops attended by the public and Chamber of Commerce members on benchmarking and Portfolio Manager in September and November of 2011

NEXT STEPS

Review of Benchmarking information is an ongoing process. PG&E automatically updates benchmarking data monthly. As a result, building managers can compare the performance of a building against its performance in the prior month or prior years. Deterioration in a building's energy performance may indicate that a building needs to be audited by a building energy professional or other actions may be warranted (e.g., behavioral and use of building changes).

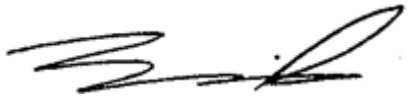
If any building is performing poorly when compared to established goals, then Facilities staff may consider doing further analysis. Since all City facilities have been both benchmarked and audited for energy savings recommendations, Facilities staff can use the benchmarking software to monitor energy use in buildings. This will provide energy use trends to be viewed per building, so occupancy behavior can be tracked, enabling education of staff in particular buildings to save energy on lighting and/or HVAC usage.

Staff will continue to attend trainings and maintain the ability to manage Portfolio Manager independently and interpret the information provided by Portfolio Manager.

Prepared by: Marc McDonald, Sustainability Coordinator

Recommended by: David Rizk, AICP, Development Services Director

Approved by:



Fran David, City Manager

CITY OF HAYWARD
HEART OF THE BAY

DATE: April 4, 2012

TO: City Council Sustainability Committee

FROM: Development Services Director

SUBJECT: Climate Action Plan Update

RECOMMENDATION

That the Committee reviews and comments on this report.

SUMMARY

This second annual progress report on implementation of the City of Hayward's Climate Action Plan (CAP) will compare CAP recommended implementation strategies against reported changes in greenhouse gas (GHG) emissions. This report also provides an update to the City of Hayward's 2009 GHG emissions inventory. Emissions come from various sectors, including the transportation, residential and commercial building, and solid waste sectors. The updated inventory reveals:

- The City of Hayward is reporting progress in reducing emissions. However, the City is likely to miss the Climate Action Plan interim goal of reducing greenhouse gas emissions six percent below 2005 levels by 2013.
- Municipal emissions, approximately one percent of community-wide emissions, are down by ten percent and municipal energy consumption is down by three percent.
    - Municipal building emissions are down by ten percent, while building energy consumption is essentially unchanged, despite the fact that a significant source of consumption, Centennial Hall, was deconstructed. Barnes Court and the Police Station showed significant increases in energy consumption.
    - The City's wastewater treatment facility showed large emissions reductions (-27%) and energy reductions (-16%), largely due to the impact of the 1MW solar facility at the plant.
- From 2009 to 2010, community–wide emissions increased by two percent while energy consumption increased by three percent.
    - Residential energy consumption was flat. Emissions were one percent lower. Electricity energy consumption was unchanged. Electricity emissions reductions

were three percent lower. During the same period, PG&E electricity emissions factors were reduced by three percent.[1]Gas emissions were unchanged.

  - Emissions in the commercial sector were two percent lower while energy consumption was unchanged. There was a 9,700 MWH reduction in electricity consumption (two percent), but a 7,500 MWH increase (two percent) in natural gas consumption. The emissions result was a decrease of electricity emissions by five percent (6,000 MT) and an increase in natural gas emissions by almost two percent (1,300 MT).
  - Transportation emissions and energy consumption were both up. The change in local vehicle miles traveled was not significant from 2009 to 2010, therefore the reported vehicle miles traveled (VMTs) in Hayward was unchanged. Despite reporting identical energy consumption figures for local transportation, there was a reduction in emissions, which is attributable to increased fuel efficiency standards. State highway transportation vehicle miles traveled, energy consumption and emissions were significantly higher due to economic recovery and activity, with gasoline figures leading the way with an increase of nearly 175,000 MWH (twelve percent) and 37,000 MT of emissions.
- The indications are that energy consumption in all sectors except commercial electricity, highway diesel consumption and plant debris is either flat or increasing.
- Emissions reductions by the community as well as the municipal sector appear to be based on changes in emissions factors rather than reductions in energy consumption.

BACKGROUND

On July 28, 2009, the Hayward City Council adopted the CAP with the goal of reducing GHG emissions from activities taking place within the City. The CAP includes GHG emissions targets that align with those of the State of California for 2020 and 2050 and provides a road map for achieving the targets. Hayward's GHG reduction targets are as follows:

6.0 % below 2005 levels by 2013 (interim target)
12.5 % below 2005 levels by 2020
82.5 % below 2005 levels by 2050

The CAP presents nine strategies and forty specific actions that, if fully implemented, were projected to make it possible for the City to meet its adopted emission reduction targets.

The nine strategies are:

Strategy 1: Transportation and Land Use: Reduce Vehicle Miles Traveled
Strategy 2: Transportation: Decrease the Carbon-Intensity of Vehicles
Strategy 3: Energy: Improve Energy Performance of Existing Buildings

[1] The PG&E 2009 coefficient for converting kWh to CO2 was 0.5750 lbs of CO2 per kWh. In 2010, the coefficient for converting kWh to CO2 was 0.559 lbs of CO2 per kWh.

Strategy 4: Energy: Improve Energy Performance of New Buildings
Strategy 5: Use Renewable Energy
Strategy 6: Solid Waste: Increase Waste Reduction and Recycling
Strategy 7: Sequester Carbon
Strategy 8: Climate Change Adaptation
Strategy 9: Engage and Educate Community

Appendix A of the CAP includes an inventory of GHGs emitted in the City of Hayward in 2005, 2009 and 2010. An update to the inventory using data from 2009 was included in last year's annual report to the Committee[2].

In this report, the City of Hayward inventory for the years 2005, 2009 and 2010 are compared and analyzed to identify trends, opportunities and strategies to meet the CAP objectives. Such comparison is aligned with the comments of the California Environmental Protection Agency in its review of California Greenhouse Gas Inventory Trends for the period 2004-2008: "Trends are useful in tracking progress towards a specific target or goal. There are many factors affecting greenhouse gas emissions and year to year changes, including the state of the economy, changes in demography, improved efficiency, and changes in environmental conditions such as drought. Evaluating emission trends requires recognition of these influences across the overall inventory as well as by sector and sub-sector within the inventory."[3]

The CAP estimated 2005 emissions to be 1,183,000 metric tonnes.[4] From 2005 to 2009, GHG emissions in Hayward fell almost 2,300 metric tonnes. Over the same period, energy consumption increased about 28,200 kWh. While Hayward's community-wide emissions decreased between 2005 and 2009, further and consistent annual emissions reductions are needed if Hayward is to going to meet the 2020 CAP goal of reducing emissions to 1 million metric tonnes.

The CAP requires the City to reduce community-wide emissions by 13,000 metric tonnes each year to meets its reduction targets. Between 2005 and 2009, annual reductions averaged about 6,500 metric tonnes per year. From 2009 to 2010, emissions increased by almost 20,000 metric tonnes or two percent. If the current trends continue, the City will exceed the CAP 2020 goal by 295,000 metric tonnes.[5]

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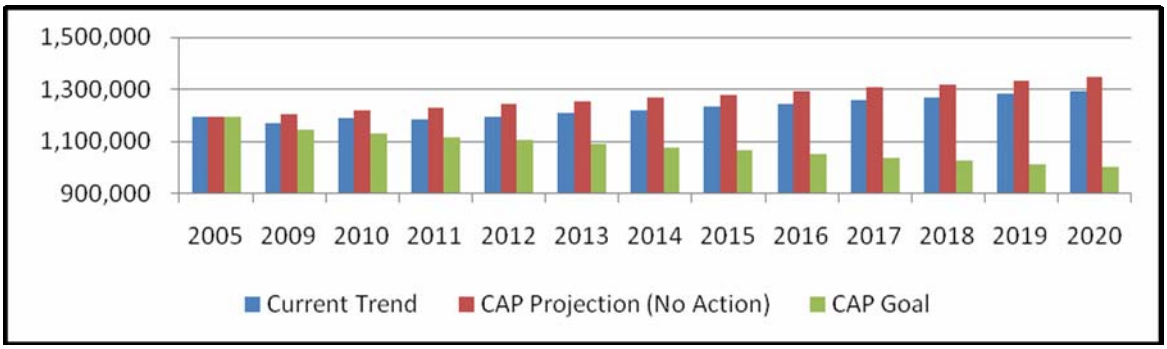
[2] City Council Sustainability Committee Meeting, April 6, 2011, Agenda Item VII. Annual Progress Report on Implementation of Hayward's Climate Action Plan. http://www.hayward-ca.gov/citygov/meetings/csc/ccsc/2011/CSC-CCSC040611.pdf

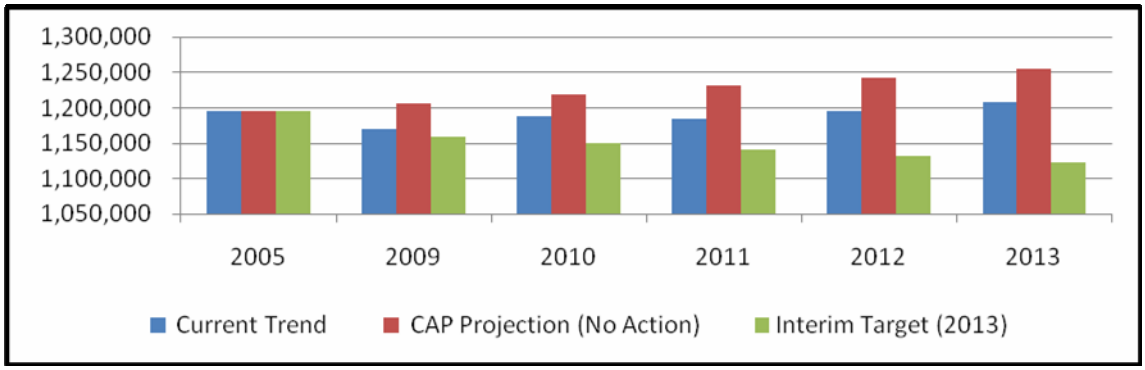
[3] Trends in California Greenhouse Gas Emissions for 2000 to 2008 (California Environmental Protection Agency, Air Resources Board).http://www.arb.ca.gov/cc/inventory/data/tables/ghg_inventory_trends_00-08_2010-05-12.pdf

[4] City of Hayward, Climate Action Plan, adopted July 28, 2009 (Page 32). http://www.ci.hayward.ca.us/CAP08/pdfs/2009/CAP_Final/Hayward_CAP_FINAL_11-6-09%20-%20full%20document.pdf

[5] Staff calculations show GHG figures for 2005, 2009 and 2010. While 2009-2010 escalations were close to 2.1%, staff used the CAP annual escalation factor of 1% per year to estimate future emissions.



When the City's performance is compared to the 2013 interim goal of reducing emissions by six percent below 2005 levels (see below), it is likely the City will miss the goal by over 80,000 metric tonnes.[6]



For the purpose of this analysis, the nine CAP strategies are grouped into major sectors shown below to identify priority actions and opportunities that can accelerate the pace of reducing emissions in Hayward:

- Municipal Sector
- Transportation Sector
  - State Highways
  - Local Roads
- Building Sector
  - Residential
  - Commercial
- Renewable Energy Generation
- Solid Waste
- Carbon Sequestration
- Climate Change Adaptation
- Community Education

Following is a summary of the updated emissions inventory (see Attachment I), discussed by the sectors identified above. Also, included as Attachment II to this report is an update on the

[6] See Footnote 4 above for calculation methods.

actions identified in the CAP that have a recommended commencement date occurring prior to 2015.

Reprioritization of CAP Actions - Appendix D of the CAP describes the process that was used to determine the priority in which to implement CAP Actions. The evaluation criteria used were: (1) ease of implementation; (2) time to full implementation; (3) potential emissions reductions; and (4) cost. Numerical values ranging from 1 to 4 were assigned to the evaluation criteria for each action. The values were weighted based on the anticipated impact the action would have on reducing GHG emissions and the time it was assumed before impacts would occur. The resulting scores established the priority rank of the action.

When the priorities were established, experience with efforts to implement the actions was limited. Experience has now been accumulated based on efforts to implement the actions to date. Staff compared its experience against initial scores used to establish new priorities. Based on additional knowledge and experience related to CAP action implementation, staff changed the numerical value assigned to the evaluation criteria of some actions, as reflected in Attachment II. For example, CAP Action 3.7 calls for the City to establish a residential energy efficiency retrofit financing program for single-family homes.

The CAP Prioritization Score classified this as an action that would be easy to implement. As a result, a numerical value of 2 was assigned to each element of the "ease of implementation" criteria. Experience has demonstrated that implementation of this action will require significant effort on multiple fronts, including litigation and legislation at all levels of government. Based on this experience, a numerical value of 1 was assigned to elements of the "ease of implementation" criteria for the action. The result was a lower prioritization for the action. All action items were reviewed by applying staff experience to the CAP evaluation process. New scores and priorities were developed based on staff experience to date.

CAP prioritization changes are a policy matter, given they help guide the City decision-makers in resource allocation for CAP implementation. Upon a recommendation from the Committee, staff's suggested changes in the priorities, as shown in Attachment II, may be referred to the City Council for review and ultimately, direction or approval.

DISCUSSION

Municipal Sector

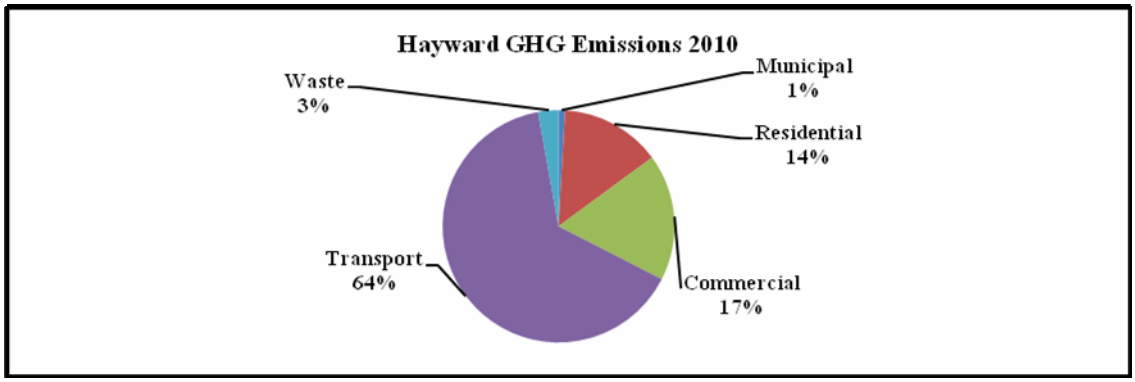
In 2010, municipal sector emissions represented about one percent of Hayward's total emissions. Despite the proportionately small quantity of emissions produced by municipal activity and facilities, the impact of municipal emissions is significant, because the municipality of Hayward can set the tone for action for the rest of the Hayward community. Municipal emissions are divided into three categories: Buildings, Fleet, and Utilities. Overall emissions have decreased since 2005.

Between 2005 and 2009, municipal emissions increased about five percent in Buildings and Utilities. Fleet emissions decreased despite big increases associated with diesel fuel. This was due to an increase in the use of alternative fuels by the City's waste contractor.

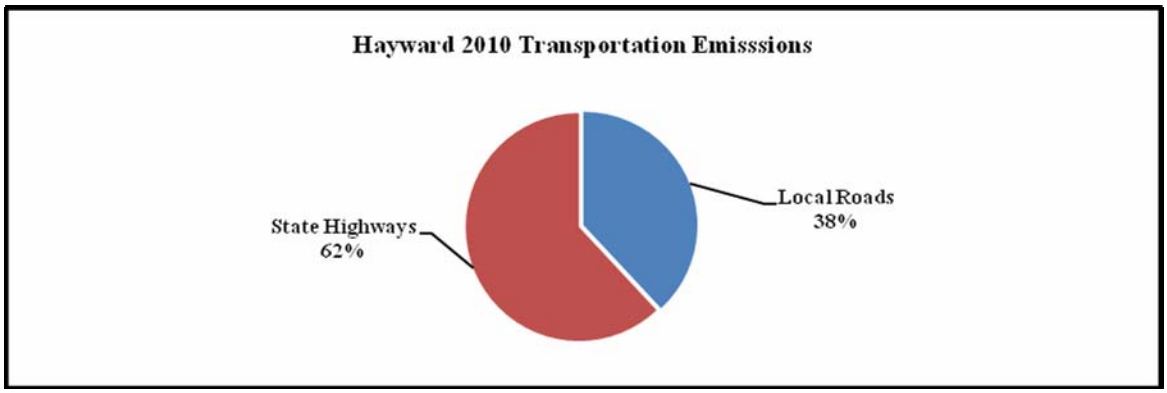
From 2009 to 2010, Municipal emissions showed a ten percent decrease. This included a ten percent decrease in City Facilities (Centennial Hall deconstruction), one percent decrease in Fleet, and twenty-three percent decrease in Utilities. The Utilities emissions decrease came from the new 1MW solar facility at the treatment plant.

Transportation Sector

The Transportation Sector is a significant contributor to greenhouse gas emissions, representing the largest contributor to Hayward's GHG emissions. Transportation emissions are calculated as the sum of vehicle emissions generated on State Highways plus vehicle emissions generated on Local Roads. In 2010, Transportation emissions were sixty-four percent of community-wide emissions.



As shown in the following pie chart, State Highway emissions in 2010 were sixty-two percent of Transportation emissions, while Local Roads emissions were only thirty eight percent of Transportation emissions. From 2005 to 2010, State Highway emissions have ranged from sixty to sixty-two percent of Hayward Transportation emissions.



The 2009-2010 increase in State Highway Transportation emissions added over 32,000 metric tonnes of CO2e to the City of Hayward GHG inventory. The increase in State Highway

Transportation emissions is over *three times* the City's 2010 total emissions of 10,300 metric tonnes. Reducing such emissions associated with vehicles on State Highways is a major challenge for the City of Hayward, given its limited control on reducing vehicle miles travelled on such highways. Local control on emissions from vehicles on local roads is easier to control through good land use planning that places more housing and businesses near transit and local services, to reduce vehicle use and miles travelled on local roads.

Strategy 1 – Transportation and Land Use: Reduce Vehicle Miles Traveled - Strategy 1 of the CAP recommends fifteen actions to reduce Vehicle Miles Traveled on local roads.

While the CAP recommends advocacy for reduced regional, state-wide and national vehicle emissions standards, the CAP does not offer strategies or actions to reduce State Highway Vehicle Miles Traveled. According to the CAP "a majority of (these) State-highway emissions come from people driving through the City without stopping. Hayward is depending on regional, state and federal action to help reduce emissions from state-owned highways"[7] The California Air Resources Board approved the Low Carbon Fuel Standard (LCFS) regulations to reduce the State's transportation emissions by 16 million metric tons. [8] The US District Court blocked enforcement of the regulations as violations of the Commerce Clause of the US Constitution (Action 2.2).

Actions to reduce travel on Local Roads have ranged from implementing the Bicycle Master Plan (Action 1.5) to improving traffic flow to reduce idling car emissions (Action 1.8). Planning is underway to encourage Smart Growth near transit stations via adoption of form-based codes and plans to develop a Pedestrian Master Plan for Hayward (Actions 1.9 and 1.10).

Strategy 2 – Transportation: Decrease the Carbon-Intensity of Vehicles - Strategy 2 of the CAP recommends four actions to reduce the Carbon Intensity of Vehicle Traveled, which if implemented aggressively at the state and federal levels, could significantly reduce the large amount of GHG emissions associated with State Highway emissions. The actions recommended in Strategy 2 can affect both State Highway Transportation emissions and Local Road Transportation emissions. Actions to reduce the Carbon Intensity of vehicles on both State and Local Roads have included expansion of the number of fuel efficient and alternative fuel vehicles providing municipal services (Actions 2.3 and 2.4).

Buildings Sector

The Buildings Sector has the second greatest impact on Hayward GHG emissions.

Strategy 3 – Energy: Improve Performance of Existing Buildings -The CAP recommends twelve actions to reduce GHG emissions in buildings. Seven actions address the residential sector, two

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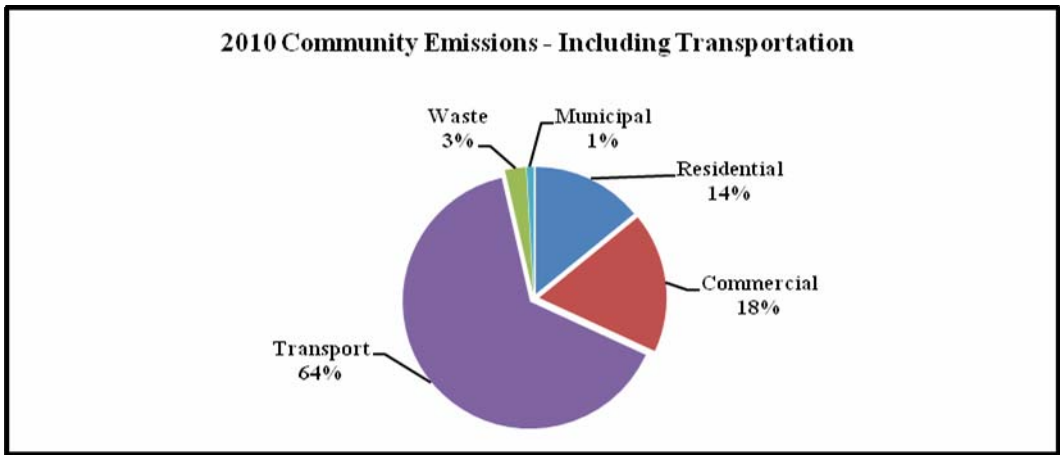
[7] City of Hayward, Climate Action Plan, adopted July 28, 2009 (Page 38). http://www.ci.hayward.ca.us/CAP08/pdfs/2009/CAP_Final/Hayward_CAP_FINAL_11-6-09%20-%20full%20document.pdf

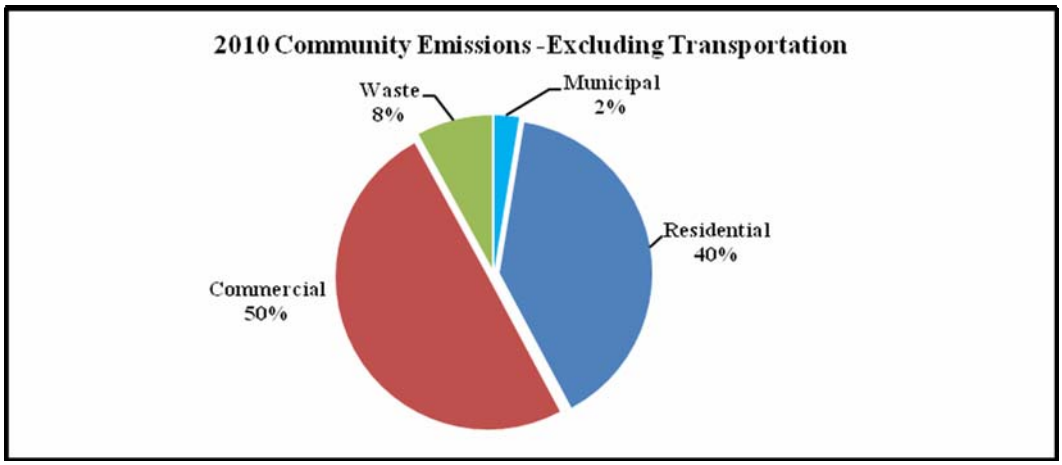
[8] Judge Blocks a California Fuel Regulation. New York Times, December 29, 2011. http://www.nytimes.com/2011/12/30/us/judge-blocks-californias-low-carbon-fuel-standard.html?_r=1

address the commercial sector, and three address the Municipal sector. Combined emissions from the residential and commercial buildings sectors represent thirty-two percent of community emissions. The actions recommended have strong merit because if implemented, they will lead to sustained reductions in community-wide energy consumption.

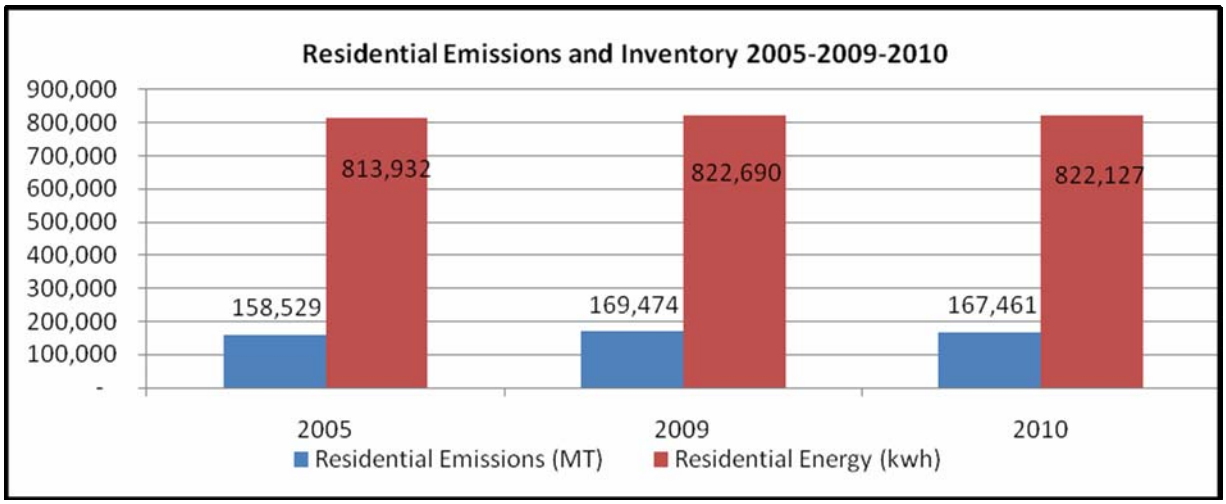
Residential Sector -The Residential sector impact on Community-Wide emissions is substantial (14 percent).



If Transportation related emissions are excluded, Residential Sector emissions are forty percent of Community-Wide emissions.



While local residential emissions and energy consumption increased from 2005 to 2009, both fell slightly from 2009 to 2010.



Between May of 2011 and January 31, 2012, the City of Hayward used federal Energy Efficiency and Conservation Block Grant (EECBG) funds provided by the US Department of Energy to offer Hayward homeowners financial rebates of up to $4,000 to make energy efficiency upgrades to their homes. The program also leveraged the PG&E residential energy efficiency rebate program, which is part of Energy Upgrade California. Public notice of the City rebates was posted on the City's website and the Energy Upgrade California website.

The City also did extensive outreach to Hayward residents to encourage participation in the Hayward rebate program. Outreach included posting advertisements on billboards along I-880, holding and advertising a contest in which two homeowners received free upgrades, sending inserts in water bills to all single-family homes in Hayward, reaching out to local realtors by participating in realtor meetings, attending neighborhood homeowners association meetings, posting a notice in *The Daily Review* newspaper, mentioning the program at Neighborhood Partnership meetings, walking neighborhoods to distribute information, passing out flyers and engaging residents at the Hayward Farmer's Market and community events, and holding two homeowner workshops - one in September and a second in November of 2011 (Actions 3.5, 3.6 and 3.7).

The City did not offer energy efficiency rebates before March 2011, PG&E has not provided Hayward specific rebate figures for periods prior to March 2011. Between March of 2011 and January 31, 2012, seventeen Hayward homeowners had reserved $70,750 in rebates from the City of Hayward. Two homeowners signed up to receive incentives to get an energy assessment of their homes. Over $40,750 has been paid in rebates to date; $60,000 has been reserved for two contest winners who have received upgrades to their homes. PG&E reports that between August 1, 2010 and January 31, 2012, 128 energy efficiency upgrades have been completed in Alameda County, with an additional forty-four pending projects.[9]

Commercial Sector -The impact of the Commercial sector on Community-Wide emissions is substantial. In 2010 and as shown in the pie chart on the previous page,

[9] In response to requests from the community the Residential Energy Efficiency Incentive program was reopened on March 20. Reservations for projects will be accepted through April 30. Projects must be completed by June 30, 2012.

Commercial emissions were eighteen percent of total community-wide emissions. If Transportation emissions are excluded, then Commercial emissions represent fifty percent of community-wide emissions. The CAP has identified significant emissions reductions opportunities in the Commercial Sector. Success in meeting these two CAP goals will result in reducing emissions by 6,794 metric tonnes each year or about fifty percent of the emissions reductions needed to meet the CAP goals.

Between May 2011 and January 31, 2012, the City of Hayward used EECBG funds to incentivize Hayward commercial business owners to make energy efficiency upgrades to their facilities. The program leveraged PG&E's commercial energy efficiency incentive programs. Response was strong. The program is projected to reduce the City's GHG emissions by over 1,000 metric tonnes per year. EECBG incentive funding for commercial businesses is projected to total $298,000 (Action 3.9).

The US EPA provides commercial building owners an online tool to compare the energy usage of their building against past performance as well as the performance of comparable buildings. The tool is called the EPA Portfolio Manager Benchmarking Tool[10]. In August and November of 2011, the City hosted PG&E-sponsored benchmarking training sessions for the City's leading building owners and managers. There was good turn-out from the City's commercial building owners. All expressed a strong interest in using benchmarking as a tool to encourage reduction in energy consumption and energy-related costs (Action 3.3).

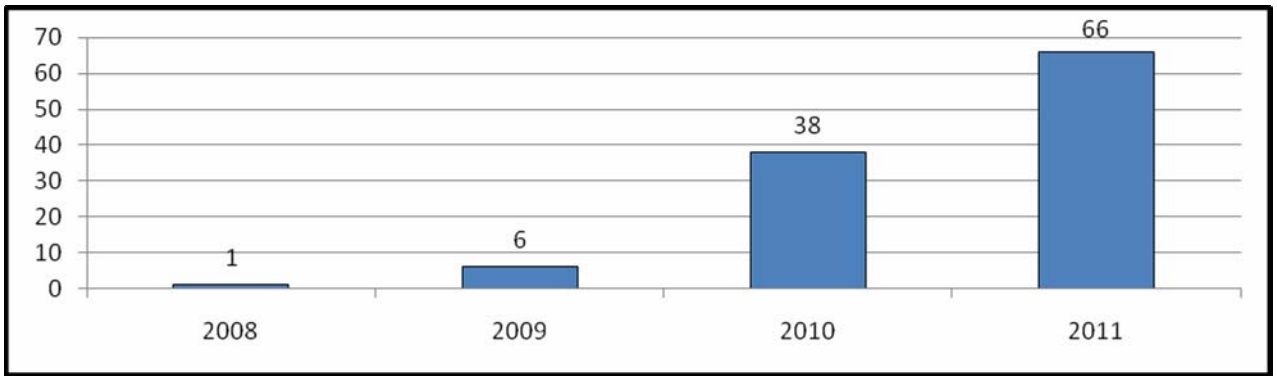
PG&E has a professional workforce that helps commercial building owners identify ways to reduce energy consumption and GHG production. PG&E also has a commercial business energy efficiency financing program that can provide customers loans of up to $100,000 for a sixty month term at zero percent interest. Additionally, PG&E provides financial incentives to help business owners make the improvements that will lead to energy and emissions reductions. The City's ability to leverage PG&E resources can have an impact on reducing GHG production in the City.

Strategy 4 – Improve Energy Performance of New Buildings - Strategy 4 of the CAP recommends three actions to reduce GHG emissions associated with new buildings by setting minimum energy and environmental performance standards for all new construction. The City's Green Building Ordinance remains in effect (Action 4.1).While CalGreen, the State of California's Green Building Code, became effective on January 1, 2011, the City's Green Building Ordinance for Private Development continues to set more aggressive energy performance standards than the State's mandatory requirements. The City's Green Building Ordinance for Municipal Buildings requires at least a LEED Silver standard and certification.

[10]Benchmarking is a process that either compares the energy use of a building or group of buildings with other similar structures or looks at how energy use varies from a baseline.
http://www.energystar.gov/index.cfm?c=business.EPA_BUM_CH2_Benchmarking#S_2_1

Renewable Energy Generation

Strategy 5 – Energy: Use Renewable Energy -Strategy 5 of the CAP recommends six actions to reduce GHG emissions by encouraging the development of renewable energy projects. While the CAP did not specify renewable energy projects envisioned, projects could range from solar photovoltaic and solar hot water to wind projects. The number of local private renewable energy projects per year is increasing, as shown below.



The City continues to expand its renewable energy portfolio with two new solar PV rooftop projects scheduled for installation in 2012 (Action 5.5).

Solid Waste

Strategy 6. Solid Waste Reduction - The City is engaged in a number of City initiatives from increasing participation in recycling services (Actions 6.1, 6.2, 6.3, 6.5, 6.7, 6.8, and 6.9) through reducing certain materials sent to landfills (Action 6.4). Landfilling, the most common waste management practice, results in the release of methane from the anaerobic decomposition of organic materials. Methane is 21 times more potent a GHG than carbon dioxide[11]. Recycling organic materials instead of placing them in landfills eliminates methane production associated with anaerobic decomposition.

Each step in the extraction, transportation, manufacturing, and disposal cycle requires energy and produces emissions. Recycling and reduction in disposal takes materials out of the cycle. Emissions are reduced as a result.[12] According to the CAP "energy savings from re-manufacturing recycled materials will result in GHG savings that are not accounted for in Hayward's inventory."

Recent adoption of Stopwaste.org's ordinance by City Council to prohibit use of single-use plastic bags in grocery stores and participation in Phase 1 of Stopwaste.org's ordinance requiring recycling by multi-family residences, businesses and self-haulers are recent examples of such initiatives.

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[11] US EPA, Life Cycle of Waste. http://www.epa.gov/climatechange/wycd/waste/lifecycle.html
[12] City of Hayward, Climate Action Plan, adopted July 28, 2009 (Page 88).

Carbon Sequestration

Strategy 7. Sequester Carbon - The City has participated in carbon offset programs (Action 7.1) as well as engaged in carbon sequestration projects to identify assets and increase the City's ability to sequester carbon (Actions 7.1 and 7.2). The City has been responsible for planting over 424 trees in Hayward over the past two fiscal years: 244 of the trees have been planted this fiscal year and 180 were planted through the City's Urban Forest program, which provides Hayward residents a free tree in exchange for their commitment to take care of the tree.

Climate Change Adaptation

Strategy 8. Climate Change Adaptation - The City is actively engaged in planning for weather related impacts of climate change including sea level rises, flooding, drought and wildfires. Staff has been working with the Hayward Area Shoreline Planning Agency (HASPA) on preparing for rising sea levels. The report, titled *Preliminary Study on the Effect of Sea Level Rise on the Resources of the Hayward Shoreline*, was completed in March 2010. The study identifies the resources and infrastructure along the Hayward Shoreline that are vulnerable to sea level rise and the potential strategies for protecting or adapting those resources. Staff is also participating in the San Francisco Bay Conservation and Development Commission's (BCDC) and National Oceanic and Atmospheric Administration's (NOAA) Adapting to Rising Tides (ART) project, which will further develop ways to address sea level rise along the Hayward and East Bay shoreline.

In addition, the City adopted in late 2011 a Local Hazard Mitigation Plan as part of the Association of Bay Area Government's update of its regional Hazard Mitigation Plan. Such plan includes strategies for local response to sea level rise related to climate change.

Community Education

Strategy 9. Engage and Educate Community - While the Climate Action Management Team was dissolved in 2011, staff continues to develop initiatives to engage and educate the community on ways to address Climate Change (Actions 9.1 through 9.6). Maintenance of the City's website and distribution of materials at Neighborhood Partnership meetings are examples of such efforts.

Outreach efforts to the business community, a significant source of GHG emissions, can include working with the local business associations to encourage business and building owners to reduce their energy consumption and their GHG emissions. Key elements of this effort may include working with PG&E to let local businesses know about the customized retrofit incentives, equipment rebates, and zero percent financing opportunities available to PG&E customers to reduce their energy consumption.

ECONOMIC IMPACT

As stated in the 2009 CAP Update, while some programs called for in the CAP will require upfront investment, many will benefit the community by reducing energy costs over the longer term. As noted above, the priority level for each action was established, in part, based on the cost

of implementation and the potential GHG reduction associated with each action. The continued implementation of the CAP is expected to result in a community with cleaner air, healthier residents, and recognition that Hayward is doing its part to mitigate the effects of global climate change. Each action or program is analyzed on its own merit as it is developed and implemented.

FISCAL IMPACT

As stated in the 2009 CAP Update, implementation of the CAP is currently being administered by the City's Sustainability Coordinator. This position is currently being funded by federal Energy Efficiency and Conservation Block Grant funds from the Department of Energy. Various City staff also support CAP implementation as part of their day-to-day work. Grant funding for the Sustainability Coordinator will expire in December 2012. Additional resources will need to be identified to continue CAP implementation in 2013 and beyond.

PUBLIC CONTACT

Public contact is a major element of the CAP. Outreach to energy providers and vendors, as well as the Hayward business and residential sectors, is a necessary and continuous component of successful implementation of the CAP.

NEXT STEPS

The City of Hayward is making progress in reducing emissions. However, the City is likely to miss the interim goal of reducing GHG emissions six percent below 2005 levels by 2013. Also, significant effort will be required to meet the 2020 goal.

Key to achieving the 2020 goal will be CAP Actions 2.1 and 2.2, related to state and national standards associated with the transportation sector. As shown in Attachment II, Action 2.1 states "*Play an active role in collaborating with regional, state and federal efforts to provide financial and non-financial incentives for residents to purchase low-carbon vehicles.*" Action 2.2 states "*Play an active role in collaborating with regional, state and federal efforts to promote the use of alternative fuels and increase vehicle fuel efficiency standards.*" More than fifty percent of the emissions reductions needed to meet the CAP goals are addressed by these two action items. Fuel efficiency and vehicle emissions standards are not under local control. Efforts by the US and to a lesser degree, California, to promote or mandate emissions reductions are required to implement these Actions. In 2009, the California Air Resources Board approved the Low Carbon Fuel Standard (LCFS) regulations for adoption. The low-carbon fuel rule was expected to account for 10 percent of the State's overall reduction in emissions, or about 16 million metric tons. [13] Although these rules were rejected by the US District Court as violations of the Commerce Clause, City leaders and staff can continue to work with regional and state agencies to support l policies that promote vehicle emissions reductions.

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[13] Judge Blocks a California Fuel Regulation. New York Times, December 29, 2011. http://www.nytimes.com/2011/12/30/us/judge-blocks-californias-low-carbon-fuel-standard.html?_r=1

At the same time, the City is taking action to implement the CAP actions that affect Local Roads. Streetlight timing improvements are projected to reduce emissions by over 23,000 metric tonnes per year. Increases in recycling rates are projected to reduce emissions by over 15,900 metric tonnes per year. Implementation of the Bicycle Master Plan is projected to reduce emissions by 2,400 metric tonnes each year. Specific Plan and General Plan policies that encourage development of neighborhoods that make it easier for people to walk or bicycle to high value destinations like markets should continue to be emphasized

Municipal emissions are down. The City has implemented renewable projects and energy efficiency projects. The City is purchasing alternative fuel vehicles and encouraging vendors to use alternative fuel sources. Participation in regional projects that support development of renewable and energy efficiency projects are a way for the City to demonstrate leadership. Public disclosure of City facility benchmarking data combined with plans to enhance each facility's energy performance is a leadership strategy to demonstrate the value of benchmarking and energy management to the City's building sector.

Engaging the City's commercial sector in energy efficiency is a significant opportunity. Successful engagement of this sector in the following actions would help businesses reduce their costs and establish the business community as a partner in emissions reductions:

1. Encourage development of tax-free commuter benefits or employer-provided voluntary benefits that allow employees to reduce their monthly commuting expenses for transit, vanpooling and work-related parking costs. The City of San Francisco requires employers offer commuter benefits to employees. Successful work with the business community through local business associations to encourage commuter benefits programs has the potential to reduce emissions by over 2,200 Metric Tonnes (CAP Action 1.1).
2. Alameda County is developing a Property Assessed Clean Energy (PACE) and Energy Efficiency Financing program. If Alameda County is successful in introducing the program, City staff should participate in introducing it to the business community through the Chamber of Commerce, the Rotary Club, the Latino Business Roundtable and other business associations. Additionally, PG&E currently provides businesses zero percent loans for up to five years to make energy efficiency improvements to their facilities. Staff should work with business associations to introduce local businesses to this program. The CAP projects emissions reductions associated with this Action to be 10,700 metric tonnes (CAP Action 3.9 and 5.2).
3. The City will participate in an Innovator Pilot Program with StopWaste.Org to assess the value of a Building Asset Rating system based on the energy performance of the building. Data gathered from a Building Asset Rating system could be used to ultimately develop a commercial energy conservation ordinance that requires building owners to improve the energy efficiency of their buildings. The CAP projects emissions reductions associated with this action to be 5,100 metric tonnes (CAP Action 3.3).
4. Through its Green Building Ordinance, Hayward requires advanced energy performance in new buildings. It is the policy of the State of California to require increasing levels of energy efficiency from new buildings in each update of the building code between 2013 and 2030. In 2013, the State will increase its energy efficiency requirements for new buildings. Staff is reviewing opportunities for the City to require new buildings in Hayward to demonstrate advanced levels of energy performance and GHG reductions as

defined by updates to the State Building Code. The CAP projects emissions reductions associated with this Action to be 4,400 metric tonnes (CAP Action 4.2).

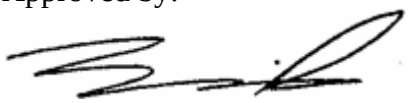
Successful implementation of these actions over the upcoming year has the potential to ultimately reduce Community-Wide emissions by over 20,000 metric tonnes per year.

As stated in last year's CAP update staff report, staff will continue to implement the CAP, following the Implementation Timeline, to the extent possible, giving staffing levels and resources.

Prepared by: Marc McDonald, Sustainability Coordinator

Recommended by: David Rizk, AICP, Development Services Director

Approved by:



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Fran David, City Manager

Attachments

Attachment I: 2012 Emissions Inventory Update
Attachment II: CAP Action Priorities

Community Greenhouse Gas Emissions in 2005-2009-2010
Summary Report

		Equiv CO2 (tonnes)			Equiv. CO2 % Change	Energy (MWh)			Energy % Change
Residential		**2005**	**2009**	**2010**		**2005**	**2009**	**2010**	
	Electricity	54,252	66,172	64,088	-3%	242,674	253,711	252,754	0%
	Natural Gas	104,277	103,302	103,373	0%	571,258	568,979	569,373	0%
Subtotal Residential		158,529	169,474	167,461	-1%	813,932	822,690	822,127	0%
Commercial/Industrial		**2005**	**2009**	**2010**		**2005**	**2009**	**2010**	
	Electricity	151,793	136,933	130,668	-5%	678,989	525,012	515,332	-2%
	Natural Gas	86,434	78,577	79,874	2%	473,507	456,400	463,934	2%
Subtotal Commercial/Industrial		238,227	215,510	210,542	-2%	1,152,496	981,412	979,266	0%
Subtotal Residential/Commercial/Industrial		**396,756**	**384,984**	**378,003**	**-2%**	**1,966,428**	**1,804,102**	**1,801,393**	**0%**
Transportation - Local Roads		**2005**	**2009**	**2010**		**2005**	**2009**	**2010**	
	Gasoline	227,502	241,598	237,930	-2%	926,326	977,896	977,896	0%
	Diesel	59,429	52,514	52,515	0%	208,359	210,137	210,137	0%
Subtotal Transportation - Local Roads		286,931	294,112	290,445	-1%	1,134,685	1,188,033	1,188,033	0%
Transportation - State Hwy		**2005**	**2009**	**2010**		**2005**	**2009**	**2010**	
	Gasoline	354,540	356,357	393,455	10%	1,443,589	1,442,395	1,617,105	12%
	Diesel	92,615	89,873	85,237	-5%	324,707	359,627	341,075	-5%
Subtotal Transportation - State Hwy		447,155	446,230	478,692	7%	1,768,296	1,802,022	1,958,180	9%
Subtotal Transportation		**734,086**	**740,342**	**769,137**	**4%**	**2,902,981**	**2,990,055**	**3,146,213**	**5%**
Subtotal Community (exclu Waste) - Hayward		**2005**	**2009**	**2010**		**2005**	**2009**	**2010**	
	Buildings	396,756	384,984	378,003	-2%	1,966,428	1,804,102	1,801,393	0%
	Transportation	734,086	740,342	769,137	4%	2,902,981	2,990,055	3,146,213	5%
Total - Community (exclu Waste) - Hayward		**1,130,842**	**1,125,326**	**1,147,140**	**2%**	**4,869,409**	**4,794,157**	**4,947,606**	**3%**

		Equiv. CO2 (tonnes)			Equiv. CO2 (% Change)	Tonnage Tons			Equiv. CO2 (% Change)
Waste		**2005**	**2009**	**2010**		**2005**	**2009**	**2010**	
ADC Tonnage									
	Plant Debris	119	173	177	2%	1,436	697	711	2%
Subtotal ADC Tonnage		119	173	177	2%	1,436	697	711	2%

Landfill Waste		2005	2009	2010			2005	2009	2010	
	Paper Products	29,052	16,694	18,927	13%		38,733	21,515	24,393	13%
	Food Waste	9,094	9,857	10,757	9%		21,432	22,442	24,492	9%
	Plant Debris	2,276	1,666	1,241	-26%		9,436	6,694	4,988	-25%
	Wood/Textiles	11,898	2,594	2,750	6%		44,908	10,530	11,361	8%
	All Other Waste	0	-	0	N/A		-	-	0	N/A
Subtotal Landfill Waste		52,320	30,811	33,675	9%		114,509	61,181	65,234	7%
Subtotal Waste		52,439	30,984	33,852	9%		115,945	61,878	65,945	7%
		2005	**2009**	**2010**			**2005**	**2009**	**2010**	
Total - Community Hayward		**1,183,281**	**1,156,310**	**1,180,992**		**2%**	**4,985,354**	**4,856,035**	**5,013,551**	**3%**
Total - Community Energy MWh (exclu Waste Tonnage) - Hayward		**1,130,842**	**1,125,326**	**1,147,140**		**2%**	**4,869,409**	**4,794,157**	**4,947,606**	**3%**
Total - Community Waste Tonnage - Hayward		**52,439**	**30,984**	**33,852**		**9%**	**115,945**	**61,878**	**65,945**	**7%**

Government Greenhouse Gas Emissions in 2005-2009-2010
Summary Report

	Equiv CO2 (tonnes)			% Δ	Energy (MWh)			% Δ	Cost ($)			
	2005	2009	2010		2005	2009	2010		2005	2009	2010	
Hayward Centennial Hall (22292 Foothill Blvd)	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Electricity	76	66	20.0	-70%	340	228	80	-65%	39,177	$37,882	$13,602	-64%
Natural Gas	64	53	2.4	-95%	353	292	13	-96%	14,465	$8,758	$376	-96%
Subtotal Hayward Centennial Hall	**140**	**119**	**22**	-81%	**693**	**520**	**93**	-82%	**$ 53,642**	**$46,640**	**$13,978**	-70%
Hayward City Center Building Parking Garage (Foothill Blvd & City Center Dr)	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Electricity	34	57	39	-32%	153	195	155	-20%	17,726	$24,251	$26,954	11%
Natural Gas			0	N/A		0	0	N/A			$0	N/A
Subtotal Hayward City Center Building Parking Garage	**34**	**57**	**39**	-32%	**153**	**195**	**155**	-20%	**$ 17,726**	**$24,251**	**$26,954**	11%
Hayward City Hall	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Electricity	336	416	363	-13%	1504	1431	1430	0%	202,967	$215,340	$216,092	0%
Natural Gas	190	179	189	6%	1039	987	1046	6%	40,860	$27,579	$31,329	14%
Subtotal Hayward City Hall	**526**	**595**	**552**	-7%	**2,543**	**2,418**	**2,476**	2%	**$ 243,827**	**$242,919**	**$247,421**	2%
Hayward City Hall Parking Garage	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Electricity	34	4	4	0%	151	16	16	2%	19,404	$2,737	$2,912	6%
Natural Gas				N/A			0	N/A				N/A
Subtotal Hayward City Hall Parking Garage	**34**	**4**	**4**	0%	**151**	**16**	**16**	2%	**$ 19,404**	**$2,737**	**$2,912**	6%
Hayward Equipment Management	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Electricity	21			N/A	93			N/A	13,982			N/A
Natural Gas	15			N/A	83			N/A	2,303			N/A
Subtotal Hayward Equipment Management	**36**			N/A	**176**	**-**	**-**	N/A	**$ 16,285**			N/A
Hayward Facilities (16 Barnes Court)	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Electricity	75	6	8	33%	334	19	34	76%	42,269	$1,266	$236	-81%
Natural Gas	171	172	181	5%	936	951	999	5%	27,778	$28,455	$29,896	5%
Subtotal Hayward Facilities	**246**	**178**	**189**	6%	**1,270**	**970**	**1,033**	6%	**$ 70,047**	**$29,721**	**$30,132**	1%
This record includes Barnes Ct., Animal Shelter, Facilities Division and Landscape Division												
Hayward Fire Stations	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Electricity	113	161	128	-20%	505	539	505	-6%	68,028	$87,976	$84,036	-4%
Natural Gas	147	120	100	-16%	805	655	555	-15%	33,757	$20,962	$18,251	-13%
Subtotal Hayward Fire Stations	**260**	**281**	**228**	-19%	**1,310**	**1,194**	**1,060**	-11%	**$ 101,785**	**$108,938**	**$102,287**	-6%
Hayward Main Library	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Electricity	64	102	90	-12%	285	349	357	2%	41,118	$55,909	$57,549	3%
Natural Gas	33	24	31	28%	180	133	169	27%	7,492	$4,039	$5,178	28%
Subtotal Hayward Main Library	**97**	**126**	**121**	-4%	**465**	**482**	**526**	9%	**$ 48,610**	**$59,948**	**$62,727**	5%
Hayward Police Department	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Electricity	233	329	298	-9%	1042	1134	1171	3%	12,739	$148,181	$162,948	10%
Natural Gas	153	92	175	90%	840	512	967	89%	24,656	$14,687	$28,236	92%
Subtotal Hayward Police Station	**386**	**421**	**473**	12%	**1,882**	**1,646**	**2,138**	30%	**$ 37,395**	**$162,868**	**$191,184**	17%

Hayward Police Radio Tower	2005	2009	2010	Δ	2005	2009	2010	Δ	2005	2009	2010	Δ
Electricity	12	14	3	-79%	53	47	10	-79%	8,139	$8,168	$1,880	-77%
Natural Gas	0	0	0	N/A	0	0	0	N/A	-	$0		N/A
Subtotal Hayward Police Radio Tower	**12**	**14**	**3**	-79%	**53**	**47**	**10**	-79%	**$ 8,139**	**$8,168**	**$1,880**	-77%
Hayward Streets and Water Department Buildings (24505 Soto Road)	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Electricity	15	48	40	-17%	66	164	158	-4%	10,240	$28,401	$28,355	0%
Natural Gas	24	41	41	-1%	130	227	224	-1%	5,375	$7,168	$7,514	5%
Subtotal Hayward Streets and Water Department Buildings	**39**	**89**	**81**	-10%	**196**	**391**	**382**	-2%	**$ 15,615**	**$35,569**	**$35,869**	1%
Hayward Utilities Building (24499 Soto Road)	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Electricity	26	30	28	-7%	116	105	110	5%	16,413	$16,904	$17,921	6%
Natural Gas	9	17	19	9%	50	91	102	12%	2,164	$3,157	$3,436	9%
Subtotal Hayward Utilities Building	**35**	**47**	**47**	-1%	**166**	**196**	**212**	8%	**$ 18,577**	**$20,061**	**$21,357**	6%
Hayward Weekes Library	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Electricity	20	26	23	-12%	90	90	91	2%	12,993	$17,985	$19,651	9%
Natural Gas	6	7	7	2%	33	39	39	1%	1,516	$1,321	$1,302	-1%
Subtotal Hayward Weekes Library	**26**	**33**	**30**	-9%	**123**	**128**	**130**	1%	**$ 14,509**	**$19,306**	**$20,953**	9%
				Δ				Δ			Δ	Δ
Facilities	**1,871**	**1,964**	**1,789**	**-10%**	**9,181**	**8,204**	**8,230**	**0%**	**$ 665,561**	**$761,126**	**$757,654**	**0%**

Government Greenhouse Gas Emissions in 2005-2009
Detailed Report - VEHICLE FLEET

	Equiv CO2 (tonnes)				Energy (MWh)				Cost ($)			
Building Inspections	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	36	22	26	20%	136	91	107	18%	9,110	$6,159	$8,380	36%
Diesel				NA/				N/A				N/A
CNG	-	-	-	N/A	-	-	-	N/A	$ 1,096	$0	$0	N/A
Total Building Inspections	36	22	26	20%	136	91	107	18%	10,206	$6,159	$8,380	36%
Community Preservation	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	5	3	0.5	-84%	19	12	2	-83%	1,273	$827	$151	-82%
Diesel				NA/				NA/				NA/
CNG	-	-	-	N/A	-	-	-	N/A	$ -	$ -	$ -	N/A
Total Community Preservation	5	3	0.5	-84%	19	12	2	-83%	1,273	827	151	-82%
Construction Inspection	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	35	20	20	-2%	133	85	80	-6%	9,076	$5,775	$6,213	8%
Diesel				NA/				NA/				NA/
CNG	-	-	-	N/A	-	-	-	N/A	$ -	$ -	$ -	N/A
Total Construction Inspection	35	20	20	-2%	133	85	80	-6%	9,076	5,775	6,213	8%
Engineering	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	6	9	6	-38%	22	38	23	-40%	1,525	$2,535	$1,781	-30%
Diesel				NA/				NA/				NA/
CNG	-	-	-	N/A	-	-	-	N/A	$ -	$ -	$ -	N/A

Total Engineering	6	9	6	-38%	22	38	23	-40%	1,525	2,535	1,781	-30%
Equipment Management	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	21	7	8	19%	78	30	34	12%	5,228	$2,062	$2,615	27%
Diesel				NA/				NA/				NA/
CNG	-	-	-	N/A	-	-	-	N/A	$ -	$ -	$ -	N/A
Total Equipment Management	21	7	8	19%	78	30	34	12%	5,228	2,062	2,615	27%
Facilities Department	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	40	27	29	6%	152	111	117	5%	10,004	$7,448	$9,108	22%
Diesel		2		-100%		5		-100%		$446		-100%
CNG	-	-	-	N/A	-	-	-	N/A	$ -	$ -	$ -	N/A
Total Facilities Department	40	29	29	-1%	152	116	117	1%	10,004	7,894	9,108	15%
Fire Department	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	80	33	9	-72%	301	23	37	61%	18,709	$1,581	$2,718	72%
Diesel	49	31	32	3%	183	75	126	68%	11,038	$6,978	$8,843	27%
CNG	-	-	-	N/A	-	-	-	N/A	$ -	$ -	$ -	N/A
Total Fire Department	129	64	41	-36%	484	98	163	66%	29,747	$8,559	$11,561	35%
Airport	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	60	64	3	-96%	229	261	11	-96%	14,354	$17,740	$773	-96%
Diesel	9	1	2	60%	32	2	6	214%	1,917	$162	$424	162%
CNG	-	-	-	N/A	-	-	-	N/A	$ -	$ -	$ -	N/A
Total Airport	69	65	4	-94%	261	263	17	-94%	16,271	17,902	1,197	-93%
Housing (Conservation & Inspection)	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	9	2	2	20%	32	7	10	41%	2,185	$454	$777	71%
Diesel				N/A				N/A				N/A
CNG	-	-	-	N/A	-	-	-	N/A	$ -	$ -	$ -	N/A
Total Housing (Conservation & Inspection)	9	2	2	20%	32	7	10	41%	2,185	454	777	71%
Landscape Department	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	173	92	111	20%	655	377	450	19%	43,772	$25,247	$35,132	39%
Diesel	10	21	26	25%	36	50	103	107%	2,726	$4,879	$7,215	48%
CNG	-	-	-	NA/	-	-	-	NA/	$ -	$ -	$ -	NA/
Total Landscape Department	183	113	137	21%	691	427	553	30%	46,498	30,126	42,347	41%
Library	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	3	-	2	N/A	10	-	8	N/A	698	$0	$658	N/A
Diesel	-	-		N/A	-	-		N/A	-	$0		N/A
CNG	-	-	-	N/A	-	-	-	N/A	$ -	$ -	$ -	N/A
Total Library	3	-	2	N/A	10	-	8	N/A	698	-	658	N/A
Mayor Fleet	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	2	-	-	N/A	152	-	-	N/A	403	$0	$0	N/A
Diesel	-	-	-	N/A	-	-	-	N/A	-	$0	$0	N/A
CNG	-	-	-	N/A	-	-	-	N/A	$ -	$ -	$ -	N/A
Total Mayor Fleet	2	-	-	N/A	152	-	-	N/A	403	-	-	N/A
Police Department	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**

Gasoline	935	898	898	0%	3,543	3,691	3,651	-1%	235,794	$249,062	$285,026	14%
Diesel	-	-		N/A	-	-		N/A	-	$0		N/A
CNG	-	-	-	N/A	-	-	-	N/A	$ -	$ -	$ -	N/A
Total Police Department	935	898	898	0%	3,543	3,691	3,651	-1%	235,794	249,062	285,026	14%
Source Control	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	19	1	1	0%	70	3	6	86%	4,651	$206	$437	112%
Diesel	-	-		N/A	-	-		N/A	-	$0		N/A
CNG	-	-	-	N/A	-	-	-	N/A	$ -	$ -	$ -	N/A
Total Source Control	19	1	1	0%	70	3	6	86%	4,651	206	437	112%
Streets Maintenance	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	71	60	50	-17%	269	248	203	-18%	18,252	$16,713	$15,763	-6%
Diesel	50	129	169	31%	187	314	665	112%	13,700	$29,340	$46,814	60%
CNG	-	-	-	N/A	-	-	-	N/A	$ -	$ -	$ -	N/A
Total Streets Maintenance	121	189	219	16%	456	562	869	55%	31,952	46,053	62,577	36%
Traffic Maintenance	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	18	13	22	66%	68	52	88	69%	4,496	$3,432	$6,841	99%
Diesel	-	7	9	31%	-	16	36	125%	-	$1,443	$2,536	76%
CNG	-	-	-	N/A	-	-	-	N/A	$ -	$ -	$ -	N/A
Total Traffic Maintenance	18	20	31	54%	68	68	124	82%	4,496	4,875	9,377	92%
Transportation Services	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	3	1	1	40%	10	6	6	-8%	670	$387	$426	10%
Diesel	-	-		N/A	-	-		N/A	-	$0		N/A
CNG	-	-	-	N/A	-	-	-	N/A	$ -	$ -	$ -	N/A
Total Transportation Services	3	1	1	40%	10	6	6	-8%	670	387	426	10%
Utilities	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	44	73	76	3%	168	300	307	2%	11,302	$20,212	$23,946	18%
Diesel	15	13	13	1%	58	32	52	62%	4,075	$3,044	$3,601	18%
CNG	-	-	-	N/A	-	-	-	N/A	$ 3,300	$ -	$ -	N/A
Total Utilities	59	86	89	3%	226	332	359	8%	18,677	23,256	27,547	18%
Waste Management	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	1	-		#DIV/0!	3	-		#DIV/0!	-	$0		#DIV/0!
Diesel	2,227	1,222	1,222	0%	8,294	4,891	4,891	0%	-	$308,164	$308,164	0%
LNG		973	973	0%		3,472	3,472	0%		$185,195	$185,195	0%
CNG	-	-	-	#DIV/0!	-	-	-	#DIV/0!	$ -	$ -	$ -	#DIV/0!
Total Waste Management	2,228	2,195	2,195	-2%	8,297	8,363	8,363	1%	-	493,359	493,359	0%
Waste Water Fleet	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	23	25	24	-2%	85	102	99	-3%	5,393	$6,839	$7,716	13%
Diesel	5	-		N/A	19	-		N/A	998	$0	$0	N/A
CNG	-	-	-	N/A	-	-	-	N/A	$ -	$ -	$ -	N/A
Total Waste Water Fleet	28	25	24	-2%	104	102	99	-3%	6,391	6,839	7,716	13%
Water Distribution	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	110	83	78	-6%	415	342	317	-7%	27,774	$23,135	$24,727	7%
Diesel	48	62	72	17%	179	152	285	88%	13,116	$14,212	$20,030	41%

CNG	-	-	-	N/A	-	-	-	N/A	$ 2,654	$ -	$ -	N/A
Total Water Distribution	158	145	150	4%	594	494	602	22%	43,544	37,347	44,757	20%
New Fleet - Community & Economic Development	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	-	4	5	15%	-	16	19	18%	-	$1,127	$1,480	31%
Diesel	-	-		N/A	-	-		N/A	-	$0		N/A
CNG	-	-	-	N/A	-	-	-	N/A	$ -	$ -	$ -	N/A
Total New Fleet - Community & Economic Development	-	4	5	15%	-	16	19	18%	-	1,127	1,480	31%
New Fleet - Centennial Hall	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	-	1	-	-100%	-	3		-100%	-	$229		-100%
Diesel	-	-	-	N/A	-	-		N/A	-	$0		N/A
CNG	-	-	-	N/A	-	-	-	N/A	$ -	$ -	$ -	N/A
Total New Fleet - Centennial Hall	-	1	-	-100%	-	3	-	-100%	-	229	-	-100%
New Fleet - City of Hayward	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	-	27		-100%	-	112		-100%	-	$7,473		-100%
Diesel	-	37		-100%	-	89		-100%	-	$8,340		-100%
CNG	-	-	-	N/A	-	-	-	N/A	$ -	$ -	$ -	N/A
Total New Fleet - City of Hayward	-	64	-	-100%	-	201	-	-100%	-	15,813	-	-100%
New Fleet - EMD	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	-	1	1	0%	-	6	4	-32%	-	$411	$322	-22%
Diesel	-		3	N/A	-	1	12	N/A	-	$45	$805	N/A
CNG	-	-	-	N/A	-	-	-	N/A	$ -	$ -	$ -	N/A
Total New Fleet - EMD	-	1	4	298%	-	7	16	125%	-	456	1,127	147%
New Fleet - Emergency Use	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	-	2		-100%	-	7		-100%	-	$544		-100%
Diesel	-	-		N/A	-	-		N/A	-	$0		N/A
CNG	-	-	-	N/A	-	-	-	N/A	$ -	$ -	$ -	N/A
Total New Fleet - Emergency Use	-	2	-	-100%	-	7	-	-100%	-	544	-	-100%
New Fleet - MH	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	-	1	2	60%	-	3	6	116%	-	$203	$520	156%
Diesel	-	-	3	N/A	-	-	12	N/A	-	$0	$863	N/A
CNG	-	-	-	N/A	-	-	-	N/A	$ -	$0	$0	N/A
Total New Fleet - Mike Higares	-	1	5	353%	-	3	18	500%	-	$203	$1,383	582%
New Fleet - Pool	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	-	3	2	-27%	-	13	9	-32%	-	$866	$680	-21%
Diesel	-	-		N/A	-	-		N/A	-	$0		N/A
CNG	-	-	-	N/A	-	-	-	N/A	$ -	$0	$0	N/A
Total New Fleet - Pool	-	3	2	-27%	-	13	9	-32%	-	$866	$680	-21%
					2005	2009	2010					
New Fleet - Shop Pickup	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	-	5	6	20%	-	20	24	22%	-	$1,324	$1,903	44%
Diesel	-	-		N/A	-	-		N/A	-	$0		N/A
CNG	-	-	-	N/A	-	-	-	N/A	$ -	$0	$0	N/A
Total New Fleet - Shop Pickup	-	5		-100%	-	20	24	22%	-	$1,324	$1,903	44%

New Fleet - Shop Truck	2005	2009	2010	Δ	2005	2009	2010	Δ	2005	2009	2010	Δ
Gasoline	-	4	6	49%	-	15	24	62%	-	$1,035	$1,903	84%
Diesel	-	3	3	-1%	-	8	12	46%	-	$766	$805	5%
CNG	-	-	-	N/A	-	-	-	N/A	$ -	$0	$0	N/A
Total New Fleet - Shop Truck	-	7	9	28%	-	23	36	57%	-	$1,801	$2,709	50%
New Fleet - Spare	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	-	3		N/A	-	11		N/A	-	$777		N/A
Diesel	-	-		N/A	-	1		N/A	-	$51		N/A
CNG	-	-	-	N/A	-	-	-	N/A	$ -	$0	$0	N/A
Total New Fleet - Spare	-	3	-	N/A	-	12		N/A	-	$828	$0	N/A
New Fleet - Technical Services	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	-	1	1	-35%	-	3	3	-11%	-	$166	$208	25%
Diesel	-	-		N/A	-	-		N/A	-	$0		N/A
CNG	-	-	-	N/A	-	-	-	N/A	$ -	$ -	$ -	N/A
Total New Fleet - Technical Services	-	1	1	-35%	-	3	3	-11%	-	166	208	25%
New Fleet - Water Pollution Control Facility	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	-	10	19	88%	-	41	77	87%	-	$2,801	$6,001	114%
Diesel	-	-		N/A	-	-		N/A	-	$0		N/A
CNG	-	-	-	N/A	-	-	-	N/A	$ -	$ -	$ -	N/A
Total New Fleet - Water Pollution Control Facility	-	10	19	88%	-	41	77	87%	-	2,801	6,001	114%
2011 - 1st Year - Animal Control	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	-	-	8	N/A	-	-	33	N/A	-	$0	$2,536	N/A
Diesel	-	-		N/A	-	-		N/A	-	$0		N/A
CNG	-	-	-	N/A	-	-	-	N/A	$ -	$ -	$ -	N/A
Total 2011 - 1st Year - Animal Control	-	-	8	N/A	-	-	33	N/A	-	-	2,536	N/A
Diesel Pumped at Fire Stations & WPCF Pumps	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	-	-		#DIV/0!	-	-		#DIV/0!	-	$0		#DIV/0!
Diesel	-	15	35	133%	-	205	138	-33%	-	$22,593	$9,096	-60%
CNG	-	-	-	#DIV/0!	-	-	-	#DIV/0!	$ -	$ -	$ -	#DIV/0!
Total - Diesel Pumped at Fire Stations & WPCF Pumps		15	35	133%	-	205	138	-33%	-	22,593	9,096	-60%
City of Hayward - Fleet	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
Gasoline	1,694	1,495	1,414	-5%	6,550	6,029	5,753	-5%	$ 424,669	$406,770	448,742	10%
Diesel	2,413	1,543	1,590	3%	8,988	5,841	6,338	9%	$ 47,570	$400,463	409,197	2%
LNG		973	973	100%		3,472	3,472	N/A		185,195	185,195	N/A
CNG	-	-	-	N/A	-	-	-	N/A	$ 7,050	$ -	$ -	N/A
Fleet	**4,107**	**4,011**	**3,977**	-1%	**15,538**	**15,342**	**15,563**	1%	**479,289**	**$992,428**	**$1,043,134**	5%

Government Greenhouse Gas Emissions in 2005-2009
Detailed Report - STREETLIGHTS

	Equiv CO2 (tonnes)			% Δ	Energy (MWh)			% Δ	Cost ($)			
Streetlights	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**	**2005**	**2009**	**2010**	**Δ**
	Equiv CO2 (tonnes)				Energy (MWh)				Cost ($)			

Hayward, CA

Streetlights	2005	2009	2010	Δ	2005	2009	2010	Δ	2005	2009	2010	Δ
Electricity	1122	1457	1276	-12%	5017	5031	5051	0%	552,000	$621,207	$630,771	2%
Natural Gas	0	0	0	N/A	0	0	0	N/A	-	$0	$0	N/A
Subtotal Streetlights	1,122	1,457	1,276	-12%	5,017	5,031	5,051	0%	$552,000	$621,207	$630,771	2%

Traffic Signals	2005	2009	2010	Δ	2005	2009	2010	Δ	2005	2009	2010	Δ
Electricity	97	97	149	54%	435	304	526	73%	74,000	$50,919	$88,855	75%
Natural Gas	0	0	0	N/A	0	0	0	N/A	-	$0	$0	N/A
Subtotal Traffic Signals	97	97	149	54%	435	304	526	73%	$74,000	$50,919	$88,855	75%

Untitled Streetlights	2005	2009	2010	Δ	2005	2009	2010	Δ	2005	2009	2010	Δ
Electricity	1,031	1,278	1,119	-12%	4,648	4,397	4,413	0%	489,680	543,008	551,546	2%
Natural Gas	0	0	0									
Subtitle Untitled	1,031	1,278	1,119	-14%	4,648	4,397	4,413		$ 489,680	$543,008	$551,546	**2%**
Streetlights	**2,250**	**2,832**	**2,544**	-10%	**10,100**	**9,732**	**9,990**	3%	**1,115,680**	**1,215,134**	**1,271,172**	5%

Government Greenhouse Gas Emissions in 2005-2009-2010
Detailed Report - WATER AND WASTEWATER

	Equiv CO2 (tonnes)			% Δ	Energy (MWh)			% Δ	Cost ($)			
Water/Sewage	Equiv CO2 (tonnes)				Energy (MWh)				Cost ($)			

Hayward, CA

Hayward Lift Stations	2005	2009	2010	Δ	2005	2009	2010	Δ	2005	2009	2010	Δ
Electricity	125	11	21	91%	561	36	79	116%	151,401	$6,413	$14,650	128%
Natural Gas												
Subtotal Lift Stations	125	11	21	91%	561	36	79	116%	$ 151,401	$6,413	$14,650	128%

Wastewater/Treatment Plant - Hayward	Equiv CO2 (tonnes) 2005	2009	2010	Δ	Energy (MWh) 2005	2009	2010	Δ	Cost ($) 2005	2009	2010	Δ
Electricity	1,056	1861	1362	-27%	4723	6401	5367	-16%	521,000	$729,103	$606,923	-17%
Natural Gas	156	171	166	-3%	855	942	313	-67%	34,000	$27,173	$27,822	2%
Subtotal Wastewater/Treatment Plant	1,212	2,032	1,528	-25%	5,578	7,343	5,680	-23%	$ 555,000	$756,276	$634,745	-16%

Water Supply - Hayward	2005	2009	2010	Δ	2005	2009	2010	Δ	2005	2009	2010	Δ
Electricity	717	572	472	-17%	3208	1971	1861	-6%	378,854	$285,200	$369,161	29%
Natural Gas								#DIV/0!				#DIV/0!
Subtotal Water Supply - Hayward	717	572	472	-17%	3,208	1,971	1,861	-6%	$ 378,854	$285,200	$369,161	29%
Water/Wastewater	**2,054**	**2,615**	**2,021**	**-23%**	**9,347**	**9,350**	**7,620**	**-19%**	**$ 1,085,255**	**$1,047,889**	**$1,018,556**	**-3%**
City of Hayward - Total	**10,282**	**11,422**	**10,331**	**-10%**	**44,166**	**42,628**	**41,402**	**-3%**	**$ 3,345,785**	**$4,016,577**	**$4,090,516**	**2%**

Community Greenhouse Gas Emissions in 2005-2009 - 2010
Detailed Report

	Equiv. CO2 (tonnes)			Equiv. CO2 (% Change)	Energy (MWh)			Energy (% Change)
Transportation - Local Roads	**2005**	**2009**	**2010**		**2005**	**2009**	**2010**	
Gasoline	227,502	241,598	237,930	-2%	926,326	977,896	977,896	0%
Diesel	59,429	52,514	52,514	0%	208,359	210,137	210,137	0%
Subtotal Transportation - Local Roads	286,931	294,112	290,444	-1%	1,134,685	1,188,033	1,188,033	0%
Transportation - State Hwy	**2005**	**2009**	**2010**		**2005**	**2009**	**2010**	
Gasoline	354,540	356,357	393,455	10%	1,443,589	1,442,395	1,617,105	12%
Diesel	92,615	89,873	85,237	-5%	324,707	359,627	341,075	-5%
Subtotal Transportation - State Hwy	447,155	446,230	478,692	7%	1,768,296	1,802,022	1,958,180	9%
Subtotal Transportation	**734,086**	**740,342**	**769,136**	**4%**	**2,902,981**	**2,990,055**	**3,146,213**	**5%**

CLIMATE ACTION PLAN ACTION ITEMS

Strategy 1 – Transportation and Land Use: Reduce Vehicle Miles Traveled

Strategy 1 of the CAP recommends fifteen actions to reduce Vehicle Miles Traveled on local roads. The CAP does not offer Strategies or Actions to address State Highway Vehicle Miles Traveled.

Action 1.1 – (Community Wide Action Priority: CAP Priority #36; ***Recommended Priority #8)*** *Assist businesses in providing commuter benefits programs. 2020 reduction target: 2,286 metric Tonnes. Date to commence Action: 2012.*

Tax-free commuter benefits are employer-provided voluntary benefit programs that allow employees to reduce their monthly commuting expenses for transit, vanpooling and work-related parking costs. Expenses eligible for the benefits include mass-transit services and vanpooling.

ABAG reports that with the support of the business community, the City of San Francisco requires employers with 20 or more full-time employees to offer commuter benefits to employees. Work with the business community to encourage commuter benefits programs could have a positive impact on community-wide emissions.

Action 1.4. – (Community Wide Action Priority: CAP Priority #30; ***Recommended Priority #30)*** *Expand public transit services to encourage reductions in vehicle travel. Pursue a hydrogen fueling station for both buses and personal vehicle use. 2020 reduction target: 3,062 metric tonnes. Date to commence Action: 2012*

Staff has been in discussions with AC Transit to increase and manage headways to major destinations, like Cal State East Bay. Staff will continue to work with AC Transit to find opportunities to increase service to the school.

Staff has had discussions with AC Transit about establishing a hydrogen fuel station at the Hayward AC Transit bus yard. In support of a pilot program to test the effectiveness of using hydrogen fuel buses in the Bay Area, AC Transit established a hydrogen fuel at the Emeryville yard. A second hydrogen fuel station is being developed at the Oakland Yard. There are no plans to establish additional fueling stations under the pilot program.

Action 1.5. – (Community Wide Action Priority: CAP Priority #37; ***Recommended Priority #40)*** *Continue to implement Bike Master Plan. 2020 reduction target: 2,419 metric tonnes. Date to commence Action: Ongoing*

As noted in last years' 2009 CAP Update the Bicycle Master Plan continues to be implemented. Most of the bikeway network improvements recommended in the Plan have been completed, with the exception of the Centennial-Cannery Connector Bridge and the East Bay Greenway. Progress has slowed on projects due to lack of funding. Measure B funds[1], if approved by voters in November of 2012, will provide up to $651 million for county-wide bicycle and pedestrian

[1] Alameda County Transportation Expenditure Plan 2012-2014.
http://www.alamedactc.org/files/managed/Document/6898/AlamedaCounty_Final_TEP_DRAFT_012012.pdf

infrastructure projects. Hayward projects scheduled to be affected by the bond include the East Bay Greenway from Oakland to Fremont, a path that will run parallel to the existing BART right of way and improvements to local portions of the Bay Trail with gap closures and access trails.

The City's form based codes encourage bicycle usage by incorporating bicycle parking as an element of parking standards[2].

Action 1.6. – (Community Wide Action Priority: CAP Priority #39; ***Recommended Priority #40)*** *Develop and implement a pedestrian master-plan. 2020 reduction target: 1,394 metric tonnes. Date to commence Action: 2012*

While the City has not developed a Pedestrian Master Plan, such a Plan is expected to be included in the circulation element of the General Plan when it is updated – currently anticipated for 2013 – 2016. The City is already taking action to enhance pedestrian access citywide. The City's Specific Plan process incorporates planning for pedestrian accessibility. The Draft Mission Boulevard Corridor Specific Plan notes: "A high level of accessibility and ease of travel to key destinations and public services provides a framework for long-term sustainability. "[3]

Measure B funds[4], if approved by voters in November of 2012, will provide up to $651 million for county-wide bicycle and pedestrian infrastructure projects.

Action 1.7. – (Community Wide Action Priority: CAP Priority #25; ***Recommended Priority #15)*** *Update circulation element of the general plan to evaluate expansions of appropriate modes of transit. 2020 reduction target: Not estimated. Date to commence Action: indeterminate.*

As noted above staff expects to begin a comprehensive General Plan update in 2013.

Action 1.8. – (Community Wide Action Priority: CAP Priority #22; ***Recommended Priority #13)*** *Prioritize traffic-flow management practices to reduce idling time. 2020 reduction target: 23,061 metric tonnes. Date to commence Action: 2015.*

On December 7, 2010 Public Works Department staff presented City Council with information about a $614,000 grant received from the Alameda County Transportation Commission for a traffic signal timing and controller replacement program that will have the effect of improving traffic flow and reducing idling time on Hesperian Boulevard, Tennyson Road and Winton Avenue. Staff estimates the project will be complete by July 2012.

Action 1.9. – (Community Wide Action Priority: CAP Priority #27; ***Recommended Priority #24)*** *Encourage High Density-Mixed Use, Smart-Growth development in areas near public transit stations. 2020 reduction target: Not quantified. Date to commence Action: Ongoing.*

On March 17, 2009, the Hayward City Council approved a high-density, mixed-use transit-oriented development project at the South Hayward BART station.

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[2] Form Based Code – South Hayward BART/Mission Boulevard, Section 10-24.245. a. vii. http://www.hayward-ca.gov/forums/SHBARTFBC/pdf/2011/SOUTH%20HAYWARD%20BART%20MISSION%20BLVD%20FBC.pdf

[3] Mission Boulevard Corridor Specific Plan Draft, Section 5.3.3, January 28, 2011. http://www.hayward-ca.gov/forums/MBCSP/pdf/2011/plan/Chapter%205%20-%20Infrastructure%20Plan.pdf

[4] Alameda County Transportation Expenditure Plan 2012-2014. http://www.alamedactc.org/files/managed/Document/6898/AlamedaCounty_Final_TEP_DRAFT_012012.pdf

Action 1.10. – (Community Wide Action Priority: CAP Priority #9; ***Recommended Priority #11)*** *Encourage High Density-Mixed Use, Smart-Growth development in areas near public transit stations. 2020 reduction target: Not quantified. Date to commence Action: Ongoing.*

The City's Planning Department developed a Form-based code for the South Hayward BART – Mission Boulevard Corridor. The intent of the Plan is to Encourage High Density-Mixed Use, Smart-Growth development in areas near the BART station.

Action 1.11. – (Community Wide Action Priority: CAP Priority #13; ***Recommended Priority #32)*** *Explore strategies to create affordable housing sales to buyers employed n Hayward. 2020 reduction target: Not estimated. Date to commence Action is undetermined.*

Staff has not taken action on this item yet.

Action 1.12. – (Community Wide Action Priority: CAP Priority #31; ***Recommended Priority #29)*** *Develop an incentive plan to maximize the number of residents that work within the city to eliminate commutes. 2020 reduction target: Not estimated. Date to commence Action is undetermined.*

Staff has not taken action on this item yet.

Action1.13 – (Community Wide Action Priority: CAP Priority #7; ***Municipal Action Priority #10)*** *- Reinstate commuter benefits such as Commuter Checks to City employees. 2020 reduction target: Not Determined. Date to commence Action: undetermined.*

At the June 1, 2011, meeting of the Sustainability Committee, action on this item was deferred because the fiscal impact of this program could outweigh its value to the small number of employees likely to use the benefit.[5] If BART does proceed with a proposal to charge for parking at the BART garage, local parking inventory may be affected. At that time this Action may be a subject for review.

Action 1.14. – (Community Wide Action Priority: CAP Priority #15; ***Recommended Priority Municipal Action Priority #15)*** *– Potential emissions not calculated) Develop a car-sharing and/or bike sharing program for City Employees. 2020 reduction target: 54.28 metric tonnes. Date to commence Action: Continuous*

As noted in the 2009 CAP Update, staff has discussed such programs with the firms City Car Share and Zip Car. They have not expressed in interest to locate in Hayward.

Action 1.15. (Community Wide Action Priority: CAP Priority #18; ***Recommended Priority Municipal Priority Action #1)*** *When making decisions about where to rent or build new City facilities, give preference to locations that are accessible to an existing public transit line. 2020 reduction target: 54.28 metric tonnes. Date to commence Action: Continuous*

As noted in the 2009 CAP Update: "Plans have been prepared for a new library to be constructed at the corner of C Street and Mission Boulevard, which is approximately one block from the

[5] Staff Report: Implementation of Climate Action Plan Update – Transportation Demand (TDM) Programs (Commuter benefit programs for City employees). City County Sustainability Committee Meeting of June 1, 2011. http://www.hayward-ca.gov/citygov/meetings/csc/ccsc/2011/CSC-CCSC060111.pdf

Hayward BART station. Staff is currently also exploring the possibility of constructing a new police station in the downtown area. No other new City facilities are being considered."

Strategy 2 – Transportation: Decrease the Carbon-Intensity of Vehicles

Strategy 2 of the CAP recommends four Actions to reduce the Carbon Intensity of Vehicle Traveled. The Actions recommended in Strategy 2 can affect both State Highway Transportation emissions and Local Road Transportation emissions.

Action 2.1. – (Community Wide Action Priority: CAP Priority #5; ***Recommended Priority #20)*** *Play an active role in collaborating with regional, state and federal efforts to provide financial and non-financial incentives for residents to purchase low-carbon vehicles. 2020 reduction target: 129,060 metric tonnes. Date to commence Action: Continuous*

City leaders' work with State and Regional agencies to support policies that encourage consumers to purchase less carbon-intensive vehicles should continue. Emissions reductions associated with local initiatives to encourage consumers to purchase less carbon-intensive vehicles have not been quantified.

Action 2.2. – (Community Wide Action Priority: CAP Priority #4; ***Recommended Priority #24)*** *Play an active role in collaborating with regional, state and federal efforts to promote the use of alternative fuels and increase vehicle fuel efficiency standards. 2020 reduction target: 129,060 metric tonnes. Date to commence Action: Continuous*

As stated in the 2009 CAP Update, "In January 2007, Governor Schwarzenegger signed Executive Order S-01-07, which directed the development of protocols for measuring the "life-cycle carbon intensity of transportation fuels. Te executive order sets an initial goal of reducing the carbon intensity of fuels used by California's passenger vehicles by at least 10% by 2020."

On April 23, 2009, the California Air Resources Board approved the Low Carbon Fuel Standard (LCFS) regulations for adoption. The regulations became effective on April 15, 2010. The low-carbon fuel rule was expected to account for 10 percent of the State's overall reduction in emissions, or about 16 million metric tons. [6] In December of 2011, the US District Court in Fresno blocked enforcement of California's LCFS regulations,[7] stating that the LCFS regulations unconstitutionally discriminate against out-of-state producers and tries to regulate activities that take place entirely outside state boundaries.

Action 2.3. – (Community Wide Action Priority: CAP Priority #6; ***Municipal Action Priority #9****) Continue to procure fuel efficient and alternative fuel vehicles for municipal vehicle fleet. 2020 reduction target: 54.28 metric tonnes. Date to commence Action: Continuous*

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[6] Judge Blocks a California Fuel Regulation. New York Times, December 29, 2011. http://www.nytimes.com/2011/12/30/us/judge-blocks-californias-low-carbon-fuel-standard.html?_r=1

[7] **United States: Federal District Court Invalidates California Low Carbon Fuel Standard. Law Firm of Holland & Knight.** http://www.mondaq.com/unitedstates/x/164200/Environmental+Law/Federal+District+Court+Invalidates+California+Low+Carbon+Fuel+Standard

City staff is actively engaged in procuring fuel efficient and alternative fuel vehicles for the municipal fleet.

The City has a total of 21 fuel efficient and alternative fuel vehicles. The vehicles range from hybrid SUVs, cargo vans, sedans and pick-up trucks through all electric sedans.

Action 2.4. – (Community Wide Action Priority: CAP Priority #12: ***Municipal Action Priority #12****) Continue to, whenever possible, negotiate an alternative fuel requirement into new services provided by the City's franchisee. 2020 reduction target: 54.28 metric tonnes. Date to commence Action: Continuous*

As mentioned in the 2009 CAP Update, the City's waste collection franchisee, Waste Management has used alternative fuel vehicles for Residential collection of Garbage, recyclables and organics since 2007. The process of replacing diesel vehicles continues.

The alternative fuel used by Waste Management is Liquid Natural Gas, a byproduct of waste decomposition at landfills managed by Waste Management.

2005 transportation related waste emissions for the all diesel Waste Management collection fleet were 2,228 metric tonnes. Energy consumed by the fleet in 2005 was 8,294 kWh.

In 2010 forty one percent of the fuel used by the collection fleet was LNG. The energy consumed by the fleet had increased by one percent due to route changes. Despite the increase in energy consumed emissions decreased by two percent or 22 metric tonnes.

Strategy 3 – Energy: Improve Performance of Existing Buildings

Strategy 3 of the CAP recommends twelve Actions to reduce greenhouse gas emissions associated with the City's building stock. Seven of the Actions address the single-family and the multi-family sectors; two of the Actions address the commercial sector; and, three address the Municipal sector. The Buildings Sector has the second greatest impact on Hayward greenhouse gas emissions. Combined emissions from the residential and commercial buildings sector represent 32% of community emissions.

Action 3.1. – (Community Wide Action Priority: CAP Priority #23; ***Recommended Priority #25)*** *Develop a Residential Energy Conservation Ordinance for detached single family homes. 2020 reduction target: 639 metric tonnes. Date to commence Action: 2012*

At the City Council meeting of May 31, 2011, the Sustainability Committee recommended and the City Council agreed to defer review of the staff analysis of Residential Energy Conservation Ordinance (RECO).[8] This recommendation was made in response to concerns raised by the public at the Sustainability Committee meeting of March 3, 2011. The Sustainability Committee recommended that residential energy efficiency initiatives should be voluntary for now, that staff

[8]Staff Report: Update on Efforts to Develop a Residential Energy Conservation Ordinance (RECO) for Single-Family Homes. Meeting of the City Council for the City of Hayward, May 31, 2011. http://www.hayward-ca.gov/citygov/meetings/cca/2011/CCA11PDF/cca053111full.pdf

should work with Stopwaste.org and the other cities in Alameda County to pursue development of a County-wide model ordinance; and that the City should emphasize education, outreach, and incentives. Also, the Sustainability Committee encouraged staff to monitor and measure the success of voluntary efforts.

In support of the recommendations, staff implemented a program to provide $250,000 in EECBG Grant funds as incentives for homeowners to make energy efficiency upgrades to their homes. All rebate recipients have agreed to allow the City to collect energy use data from PG&E. The data will be analyzed to evaluate the cost-effectiveness of the upgrades.

Action 3.2. – (Community Wide Action Priority: CAP Priority #24; ***Recommended Priority #25)*** *Develop a Residential Energy Conservation Ordinance for multiple unit homes. 2020 reduction target: 983 metric tonnes. Date to commence Action: 2012*

The City has deferred taking initial steps to develop a Residential Energy Conservation Ordinance for multiple unit homes. City staff will work with Stopwaste.org on a PG&E Innovator Pilot Program for a building energy rating system for residential as well as commercial buildings. The result of this program may lead to development of a county-wide model residential energy efficiency ordinance.

Action 3.3. – (Community Wide Action Priority: CAP Priority # 2; ***Recommended Priority #13)*** *Develop a Commercial Energy Conservation Ordinance to require energy efficiency and energy conservation in commercial buildings. 2020 reduction target: 5,164 metric tonnes. Date to commence Action: 2012*

At the Sustainability Committee meeting of June 1, 2011, staff recommended that the City encourage the commercial sector to begin benchmark their buildings using the US EPA Energy Star benchmarking tools and to voluntarily share the data collected with the City. Information gathered would be used to develop appropriate commercial energy conservation measures.

At the Committee meeting of October 5, 2011 staff noted that StopWaste.Org is negotiating a contract with PG&E to conduct an Innovator Pilot Study to develop a Building or Asset Rating Program for commercial buildings.[9] The Committee agreed that staff should work with StopWaste.Org to determine whether the data available from the Program would be sufficient to support development of local measures reduce energy consumption by the commercial sector.

The City's commercial building owners have informed staff that they would oppose local efforts to implement a local Commercial Energy Conservation Ordinance.

Active City engagement with community business and building owners to develop and implement advanced energy efficiency codes for Hayward's commercial sector based on CalGreen advanced tiers can have a significant effect on reducing the City's greenhouse gas emissions.

[9] StopWaste.Org staff report to the WMA Programs and Administration Committee, March 1, 2012. http://www.stopwaste.org/docs/03-08-12-pa-pge.pdf

Action 3.4. – (Community Wide Action Priority: CAP Priority #2; ***Recommended Priority #1)*** *Actively participate in low-income weatherization programs. 2020 reduction target: Not quantified. Date to commence Action: 2013*

Staff has not taken action on this Action.

Action 3.5. – (Community Wide Action Priority: CAP Priority #10; ***Recommended Priority #2)*** *Develop public information campaign to encourage households businesses to reduce energy consumption by 10 per cent over ten years. 2020 reduction target: Not quantified. Date to commence Action: 2012.*

Action 9.2 below provides a review of staff actions to reach out to the public to encourage households and businesses to reduce energy consumption. The message of reducing energy consumption by ten percent over ten years has not been addressed.

Action 3.6. – (Community Wide Action Priority: CAP Priority #21; ***Recommended Priority #19)*** *Develop a program to encourage or require installation of Home Energy Monitors. 2020 reduction target: Not quantified. Date to commence Action: 2012*

Home Energy Monitors may have an effect on homeowners' awareness and willingness to manage energy consumption[10]. Voluntary use of Home Energy Monitors should be encouraged.

Action 3.7. – (Community Wide Action Priority: CAP Priority #6; ***Recommended Priority #11)*** *develop a residential energy efficiency retrofit financing program for single unit homes.2020 reduction target: 181 Metric Tonnes. Date to commence Action: 2010*

Staff provided an update on development of a statewide Property Assessed Clean Energy (PACE) program called California First to the City Council on September 14, 2010[11] and to the Council Sustainability Committee on November 3, 2010. Lawsuits were filed against the Federal Housing Finance Agency (FHFA) and other federal agencies by the State of California, Sonoma County, the City of Palm Desert and others for actions taken by the federal agencies to block homeowners' access to PACE instruments. [12]

On December 20, 2010, the US District Court for the Northern District of California ordered FHFA and other agencies to begin Administrative Rulemaking to determine whether concerns expressed by the federal agencies could be addressed[13]. PACE Now, a PACE advocacy group anticipates the rulemaking process will continue through the second quarter of 2012.

On July 20, 2011 HR 2599[14], the PACE Assessment Protection Act of 2011 was introduced in the US House of Representatives. The Act requires the FHFA and other federal agencies to issue guidance providing that the levy of a PACE assessment and the creation of a PACE lien do not constitute a default on any loan secured by the Agencies instruments. The bill has 51 co-sponsors from both sides of the aisle.

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[10] The Design of Eco-Feedback Technology. http://dub.washington.edu/djangosite/media/papers/tmpssyQcm.pdf

[11] The September 14, 2010 Council report is at http://www.hayward-ca.gov/citygov/meetings/cca/rp/2010/rp091410-11.pdf

[12] See Report #1 at http://.hayward-ca.gov/citygov/meetings//ccsd/2010/CSC-CCSD110310.PDF

[13] Order Regarding Sonoma County's Motion for a Preliminary Injunction in the Sonoma County Action, 10-cv-03270 (Docket No. 33). http://pacenow.org/blog/wp-content/uploads/10-20-10-Court-suggests-Sonoma-ask-FHFA-to-commence-notice-and-comment-process-2.pdf

[14] HR 2599, Bill Text. http://thomas.loc.gov/cgi-bin/query/z?c112:H.R.2599:

On January 25, 2011 the City Council endorsed an energy efficiency incentive program for single family homes funded by Energy Efficiency and Conservation Block Grant funds as part of the American Recovery and Reinvestment Act (ARRA). Seventeen homeowners signed up to receive incentives from the City to help pay for energy efficiency upgrades to their homes. Two homeowners signed up to receive incentives to get an energy assessment of their homes and two homeowners received complete free energy efficiency upgrades to their homes. Forty-four homeowners signed up to receive incentives Alameda County wide.

Action 3.8. – (Community Wide Action Priority: CAP Priority #7; ***Recommended Priority #19)*** *Develop a residential energy efficiency retrofit financing program for multi unit homes. 2020 reduction target: 126 Metric Tonnes. Date to commence Action: 2010*

The status of the PACE program mentioned above also applies to multiple-family homes.

Action 3.9. – (Community Wide Action Priority: CAP Priority # 1; ***Recommended Priority #3)*** *Develop a Commercial Energy retrofit financing program. 2020 reduction target: 1,630 metric tonnes. Date to commence Action: 2010*

PG&E is offering the commercial sector 0% On-Bill-Financing for energy efficiency retrofit projects.

The Alameda County Community Development Agency (CDA) is working on development of a commercial PACE program that could provide energy retrofit financing.

Action 3.10. – (Community Wide Action Priority: CAP Priority #1; ***Recommended Priority Municipal Action Priority #1****) Take advantage of California Energy Commission's low interest loans for efficiency retrofits and LED Street lighting. 2020 reduction target: 969 metric tonnes. Date to commence Action: Ongoing*

$70,000 of EECBG funds were allocated to a pilot program to retrofit seventy high pressure sodium streetlights with LED equipment in the vicinity of the South Hayward BART Station. Widespread adoption of LED streetlight technologies allowed the City to use fewer dollars to get better equipment that delivered better results than anticipated. In response to these results, City staff is developing a strategic plan to retrofit all the City's streetlights with LEDs.

Action 3.11. – (Community Wide Action Priority: CAP Priority #3; ***Recommended Priority Municipal Action Priority #2****) Continue to implement energy conservation practices in City-owned buildings. Prepare an energy conservation plan and update it on a regular basis. 2020 reduction target: 330 metric tonnes. Date to commence Action: Ongoing*

There was a small increase in City Hall and a significant increase in the Police Station. Police Station and City Hall increases are likely to be reversed as the City staff completes energy efficiency upgrades to both buildings.

There was an increase in Natural Gas consumption in the library. The library may be a candidate for an audit followed by recommendations for energy efficiency improvements.

Action 3.12. – (Community Wide Action Priority: CAP Priority #2; ***Recommended Priority Municipal Action Priority #2****) Improve energy performance of City buildings. Begin by auditing*

City buildings to identify opportunities for efficiency improvements from both operations and equipment upgrades. 2020 reduction target: 330 metric tonnes. Date to commence Action: Ongoing

All City facilities have been enrolled in the EPA Portfolio Manager benchmarking tool. Current building energy data will be available for comparison against historical data. Benchmarking is the first step in assembling the information to support a clear understanding of a building's energy performance. The second step is to secure audits of facilities to help building managers design a data-driven implementation plan. Staff is planning to make additional improvements to the City's facilities with the following lighting retrofit projects. All are scheduled for completion in 2012. The result of completion of these projects will be a reduction of an additional 22 metric tonnes of greenhouse gas emissions.

2012 Energy Efficiency Improvement Projects				
Facility	Annual Electricity Savings (kWh)	Reduced greenhouse gas Emissions (MT)	Annual Cost Savings	Project Cost
Police Dept	55,154	30,831	$13,800	$67,500
City Hall	98,600	55,117	$24,700	$110,556
Fleet	54,706	30,581	$3,128	$15,350
City Hall Parking Garage	101,569	56,777	$25,444	$104,175
Cinema Place Parking Garage	84,414	47,187	$21,109	$66,629
Total	**394,443**	**220,494**	**$88,181**	**$364,210**

Strategy 4 – Improve Energy Performance of New Buildings

Strategy 4 of the CAP recommends three Actions to reduce greenhouse gas emissions associated with new buildings by setting minimum energy and environmental performance standards for all new construction.

*Action 4.1 – (Community Wide Action Priority: CAP Priority #20; **Recommended Priority #8)** Continue to implement the private development green building ordinance for residential buildings. 2020 reduction target: 979 metric tonnes. Date to commence Action: Ongoing*

This Action is being implemented. The Green Building Ordinance related to private development was initially adopted on December 2, 2008. The Ordinance was revised to incorporate provisions related to energy efficiency and cost-effectiveness on December 15, 2009 which became effective on January 15, 2010. On October 6, 2010 staff provided the

Sustainability Committee with an overview of California' new green building code known as CalGreen[15] which took effect on January 1, 2011.

Action 4.2. – (Community Wide Action Priority: CAP Priority #18; ***Recommended Priority #8)*** *Continue to implement the private development green building ordinance for commercial and industrial buildings. 2020 reduction target: 4493 metric tonnes. Date to commence Action: Ongoing*

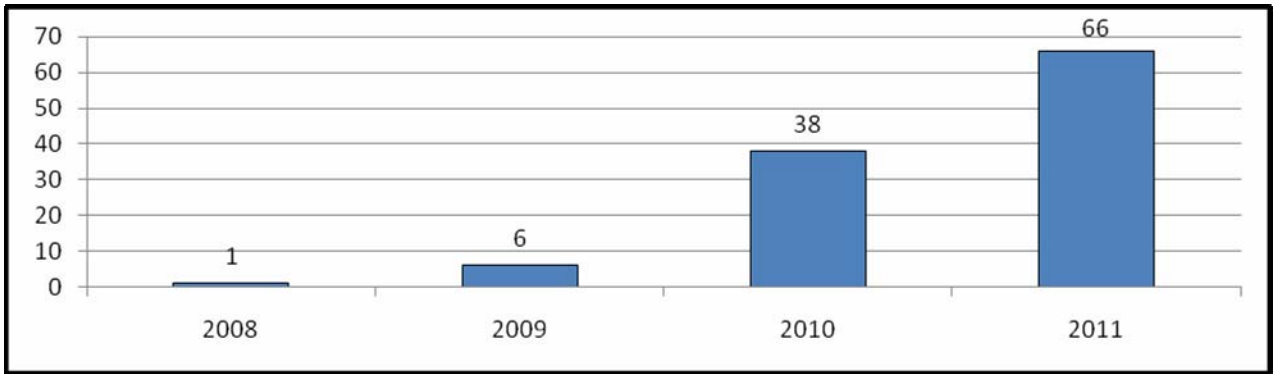
As recommended by the Sustainability Committee during its October 6, 2010 meeting, all new nonresidential buildings are required to exceed Title 24 energy efficiency standards by at least 15 percent.

Action 4.3. – (Community Wide Action Priority: CAP Priority #9; ***Recommended Priority Municipal Action Priority #16****) Continue to implement the Municipal Green Building Ordinance. Evaluate the program every 5 years to ensure buildings are becoming more efficient over time. 2020 reduction target: 47 metric tonnes. Date to commence Action: Ongoing*

In 2008 the City adopted a Green Building Ordinance requiring LEED Silver certification for new municipal facilities. The certification goal for the new Library and Community Learning Center is LEED Gold or higher.

Strategy 5 – Energy: Use Renewable Energy

Strategy 5 of the CAP recommends six Actions to reduce greenhouse gas emissions by encouraging the development of renewable energy projects in the City. The number of renewable energy projects per year is increasing.



Action 5.1. – (Community Wide Action Priority: CAP Priority #29; ***Recommended Priority #35)*** *Develop a program for financing and installation of photovoltaic renewable energy systems on residential buildings. 2020 reduction target: 850 metric tonnes. Date to commence Action: 2010*

Residential PACE programs were addressed in a review of Action 3.7.

[15] California Green Building Code Standards (2010). http://www.documents.dgs.ca.gov/bsc/CALGreen/2010_CA_Green_Bldg.pdf

Solar developers have identified the wide variety of permitting processes employed by local municipalities region-wide as a barrier to solar development.[16] Through its membership in the East Bay Economic Development Alliance (East Bay EDA) City staff is engaged in a region-wide pilot program to standardize solar permitting processes and develop "best in class" tools to speed the solar development process. Outcomes might include on-line solar permitting.

Action 5.2. – (Community Wide Action Priority: CAP Priority #8; ***Recommended Priority #15)*** *Develop a program for financing and installation of photovoltaic renewable energy systems commercial buildings. 2020 reduction target: 10,768 metric tonnes. Date to commence Action: 2010*

Commercial PACE programs were addressed above in a review of Action 3.8.

Action 5.3. – (Community Wide Action Priority: CAP Priority #19; ***Recommended Priority #28)*** *Incorporate a renewable energy requirement into Private Development Green Building Ordinance. 2020 reduction target: 2,980 metric tonnes. Date to commence Action: 2014*

The City's residential Green Point Rating System allocates points for the incorporation of renewable energy measures into the overall project. Similarly, the City of Hayward Green Building Ordinance allows commercial building owners to incorporate renewable energy projects into mandatory energy efficiency upgrades when improvements are made to buildings.

Action 5.4. – (Community Wide Action Priority: CAP Priority #32; ***Recommended Priority #31)*** *Increase the renewable portion of utility electricity generation by advocating for increased state-wide renewable portfolio standards. 2020 reduction target: undetermined. Date to commence Action: Ongoing*

State efforts to increase the renewable energy portfolio standard of 33 percent by 2020 have accelerated. Senate Bill X1-2 signed by Governor Brown in April of 2011, requires all electricity retailers in the state including publicly owned utilities, investor-owned utilities, electricity service providers, and community choice aggregators, to adopt new RPS goals of 20 percent of retails sales from renewables by the end of 2013, 25 percent by the end of 2016, and 33 percent by the end of 2020.[17]

PG&E reports that in 2011 19.4 percent of its 2011 electricity sales were produced from renewable sources, such as wind, solar, geothermal, biomass and small hydro. Currently, 12 renewable energy projects for PG&E's clean energy portfolio are under construction.

Action 5.5– (Community Wide Action Priority: CAP Priority #4; ***Recommended Priority Municipal Action Priority #4****) Conduct a City-wide renewable energy assessment to estimate the*

[16] Slashing the Solar Power Paperwork. East Bay Express, June 1, 2011. http://www.eastbayexpress.com/ebx/slashing-the-solar-power-paperwork/Content?oid=2682365

[17] **Renewables Portfolio Standards (RPS) Proceeding Docket # 11-RPS-01 and 03-RPS-1078.** http://www.energy.ca.gov/portfolio/index.html

total renewable energy potential and costs and benefits of developing that potential within City bounds. 2020 reduction target: 76.4 metric tonnes. Date to commence Action: Ongoing

The City is participating in the Alameda County Regional Renewable Energy Procurement Project (R-REP). Under the direction of Alameda County, Joint Venture Silicon Valley Network and the Contra Costa Economic Partnership, this initiative will utilize collaborative procurement to purchase renewable energy systems for public agencies throughout the East Bay and Silicon Valley.

Two rooftop solar projects are scheduled for completion in 2012.

2012 Rooftop Solar Projects			
Site	Annual Savings (Kwh)	Electricity Cost Savings	Project Cost
Streets Building	45,212	$9,000	$194,978
Utilities Building	76,860	$14,800	$327,955

Action 5.6. – (Community Wide Action Priority: CAP Priority #5; ***Recommended Priority Municipal Action Priority #4****) Ensure that all new City owned facilities are built with PV and/or solar hot water. 2020 reduction target: 76.4 metric tonnes. Date to commence Action: Ongoing*

In 2008 the City adopted a Green Building Ordinance requiring LEED Silver certification for new municipal facilities. Staff anticipates that appropriate renewable, PV and/or solar hot water systems will be incorporated into development of these facilities.

Strategy 6. Solid Waste Reduction

Action 6.1. – (Community Wide Action Priority: CAP Priority #28; ***Recommended Priority #22)*** *Increase participation in the recycling services offered businesses. 2020 reduction target: 15,916 metric tonnes. Date to commence Action: 2010*

Staff reported progress on this action at the April 6, 2011, Sustainability Committee Meeting. Since August 2009, business participation in programs offered by the City's franchisee to collect recyclables and organics has doubled from about 650 businesses to nearly 1,500 businesses. At the February 28, 2012 City Council meeting[18], staff reported that 68% of all businesses in the City and 95% of all multi-family complexes have implemented programs to collect recyclables. City staff offers, at no charge, waste assessments to assist businesses in implementing recycling programs, plastic containers for temporary indoor storage, decals for those containers, and posters for reference by employees and patrons. Tonnage recycled increased 9.6% in calendar year 2010 over 2009[19].

[18] City of Hayward City Council Agenda, February 28, 2012, Agenda Item IV, Approval of City's Participation in Phase 1 of Alameda County Waste Management Authority Ordinance No. 2012-1 Regulating Recycling by Multi-Family Residences, Businesses and Self-Haulers; http://www.hayward-ca.gov/citygov/meetings/cca/2012/CCA12PDF/cca022812full.pdf

[19] City of Hayward Council Sustainability Committee, April 6, 2011, Agenda Item VI, Update on Food Scraps Program. http://www.hayward-ca.gov/citygov/meetings/csc/ccsc/2011/CSC-CCSC040611.pdf

*Action 6.2. – (Community Wide Action Priority: CAP Priority #26; **Recommended Priority #16)** Increase participation in recycling services offered single-family homes through the City's contract with its franchisee. 2020 reduction target: 1,495 metric tonnes. Date to commence Action: 2010*

Staff reported progress on this action at the April 6, 2011 Sustainability Committee meeting. Since January 2009 residential food scraps and food-soiled paper have been collected along with yard trimmings in residents' green carts at no additional charge. Staff estimates that about 34% of all single-family households in Hayward recycled food scraps and food-soiled paper in 2010. Total tons of organics collected increased 9.5% over calendar year 2009[20].

*Action 6.3. – (Community Wide Action Priority: CAP Priority #14; **Recommended Priority #6**) Improve the City's construction and demolition debris recycling ordinance. 2020 reduction target: 1,953 metric tonnes. Date to commence Action: 2011*

The City continues to implement the Construction and Demolition Debris Waste Reduction and Recycling Requirements Ordinance. Total estimated tons recycled in calendar year 2010 are 37,000.

*Action 6.4. – (Community Wide Action Priority: CAP Priority #40; **Recommended Priority #38**) Evaluate the viability of implementing a ban on certain materials from landfills, e.g. Yard trimmings, untreated wood, cardboard, plastic bags, or polystyrene. 2020 reduction target: 2,487 metric tonnes. Date to commence Action: 2014.*

A ban on land filling plant debris, including yard trimmings and untreated wood became effective January 2010 and is enforced by the Alameda County Waste Management Authority at all landfills in Alameda County[21].

At the February 28, 2012 City Council meeting, the City Council approved an ordinance that will prohibit distribution of single-use plastic bags at the point of sale and to regulate the distribution of paper reusable carryout bags[22]. After January 1, 2013, supermarkets, drug stores and other larger stores that sell foods will be prohibited from distributing free single-use carryout paper or plastic bags at checkout. All jurisdictions in Alameda County will adopt this ordinance.

The City Council also approved an ordinance prohibiting the use of polystyrene foam food service containers and requiring compostable or recyclable take-out food service ware. The ordinance became effective July 1, 2011.[23]

*Action 6.5. – (Community Wide Action Priority: CAP Priority #12; **Recommended Priority #3**) Require residents and businesses to participate in recycling programs. Emissions reductions: Not Estimated. Date to commence Action: 2014*

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[20] Ibid.

[21] Alameda County Waste Management Authority, Landfill Ban: Keep Plant Debris Garbage-Free; http://www.stopwaste.org/home/index.asp?page=941

[22] City of Hayward City Council Agenda, February 28, 2012, Agenda Item IV, Approval of City's Participation in Phase 1 of Alameda County Waste Management Authority Ordinance No. 2012-1 Regulating Recycling by Multi-Family Residences, Businesses and Self-Haulers; http://www.hayward-ca.gov/citygov/meetings/cca/2012/CCA12PDF/cca022812full.pdf

[23] Information about the ordinance is available at this link on the City's website: http://user.govoutreach.com/hayward/faq.php?cid=17071.

At the February 28, 2012 City Council meeting, the City Council decided to participate in Phase 1 of an ordinance that requires businesses with four cubic yards or more of weekly garbage collection service (typically larger businesses) and all multi-family property owners to have recycling services by July 1, 2012[24]. The ordinance was prepared by the Alameda County Waste Management Authority in response to State laws with similar but less stringent provisions.

Action 6.7. – (Community Wide Action Priority: CAP Priority #11; ***Recommended Priority #3)*** *Advocate for waste management strategies that aim to maximize the useful value of solid waste. Emissions reductions were not quantified. Date to commence Action: 2010*

The City of Hayward does not own or operate any landfill. However, Waste Management of Alameda County, the City's franchisee, operates the Altamont Landfill. Landfill gas is collected on the site to fuel two internal combustion engines. In addition, a portion of the landfill has been set aside for 248 windmills which generate about 20 megawatts annually.

Action 6.8. – (Community Wide Action Priority: CAP Priority #16; ***Recommended Priority Municipal Priority #18****) Continue to implement recycling programs in City-occupied buildings. 2020 reduction target: 31.86 metric tonnes. Date to commence Action: On-going*

Collection of recyclables at all City buildings continues. Materials collected include household batteries, a wide variety of paper types, and containers made of metal, plastic and glass.

Action 6.9. – (Community Wide Action Priority: CAP Priority #13; ***Recommended Priority Municipal Priority #13****) Implement organics collection programs in City-occupied buildings. 2020 reduction target: 73.34 metric tonnes. Date to commence Action: 2012*

Collection of organic materials at City buildings will be implemented in calendar year 2012.

Action 6.10. – (Community Wide Action Priority: CAP Priority #14; ***Recommended Priority Municipal Priority #13****) Potential emissions not calculated) Develop an Environmentally Friendly Purchasing Policy. 2020 reduction target: Not Estimated. Date to commence Action: 2011*

The City's Environmentally Preferred Purchasing Policy was formally established in October 2011. The policy affirms the City's continued purchase of environmentally preferable products and services.

Strategy 7. Carbon Sequestration

Action 7.1. – (Community Wide Action Priority: CAP Priority #35; ***Recommended Priority #39****) Maximize carbon sequestration. 2020 reduction target: Not quantified. Date to commence Action: Timing not determined*

At the Sustainability Committee of January 4, 2012, PG&E presented the Sustainability Committee with a plaque to thank the City for its participation in PG&E's Climate Smart

[24] Ibid, Agenda Item III, Approval of City's Participation in the Alameda County Waste Management Authority's Ordinance No. 2012-2 Regulating the Use of Carryout Bags and Promoting the Use of Reusable Bags

Program. The City's contributions to the Climate Smart Program were used to offset 1,848 tons of greenhouse gas emissions.

The City landscape department has been responsible for planting over 424 trees over the past two fiscal years. 244 of the trees were planted in FY 2011-2012. 180 were planted through the City's Urban Forest program which provides Hayward residents a free tree in exchange for their commitment to take care of the tree.

Action 7.2. – (Community Wide Action Priority: CAP Priority #17; ***Recommended Priority Municipal Priority #17****) Implement a program to maximize carbon sequestration activities within Hayward. 2020 reduction target: 5.4 metric Tonnes. Date to commence Action: Timing not determined*

The City's Landscape Department is inventorying trees in Hayward. The 38,000 trees counted to date are located on land maintained by the City, the Hayward Unified School District and the Hayward Area Recreation District. Staff anticipates completing the inventory this fiscal year.

Strategy 8. Climate Change Adaptation

As reported in the 2009 CAP update, there are no specific actions listed in Strategy 8. However, staff has been working with the Hayward Area Shoreline Planning Agency (HASPA) on preparing for rising sea levels. The report, titled Preliminary Study on the Effect of Sea Level Rise on the Resources of the Hayward Shoreline was completed in March 2010. The study identifies the resources and infrastructure along the Hayward Shoreline that are vulnerable to sea level rise and the potential strategies for protect or adapting those resources.

In addition, the City adopted a Local Hazard Mitigation Plan in late 2011.

Strategy 9. Engage and Educate Community

The Climate Action Management Team was dissolved in 2011 due to lack of participation. The Sustainability Committee may reconsider a citizen's climate action committee at a later date.

Despite the dissolution of the Climate Action Management Team, staff has executed initiatives to engage and educate both the residential and commercial sectors of the community.

Action 9.1. – (Community Wide Action Priority: CAP Priority #15; ***Recommended Priority #23)*** *Create a stand-alone Green Portal. Target Reductions are not quantified. Date to commence Action: Ongoing*

This is an ongoing activity jointly performed by staff and the City's IT Department.

Action 9.3. – (Community Wide Action Priority: CAP Priority #17; ***Recommended Priority #17)*** *Develop and implement a plan to engage local businesses in emissions reductions actions. Target Reductions: Not quantified. Date to commence Action: Ongoing*

In November of 2011, the City sponsored a PG&E benchmarking training session for commercial business owners. There was good turn-out from the City's commercial building owners. All expressed a strong interest in using benchmarking as a tool to reduce their energy consumption and energy-related costs.

In December of 2011, staff made a presentation about Benchmarking to the City's Chamber of Commerce Green Task Force.

Action 9.4. – (Community Wide Action Priority: CAP Priority #9; ***Recommended Priority Municipal Priority #6)*** *- Offer climate education programs to City employees. 2020 reduction target: Not Quantified. Date to commence Action: Timing not determined*

Action has not been taken on this item.

Action 9.5. – (Community Wide Action Priority: CAP Priority #11; ***Recommended Priority Municipal Priority #6)*** *Demonstrate leadership by setting municipal reduction targets. 2020 reduction target: Not Quantified. Date to commence Action: Timing not determined*

Action has not been taken on this item.

Action 9.6. – (Community Wide Action Priority: CAP Priority #9; ***Recommended Priority Municipal Priority #6)*** *When awarding contracts, request applicants provide information about sustainability practices. 2020 reduction target: Not Quantified. Date to commence Action: Timing not determined*

Under review by purchasing. A final recommendation by staff will occur in 2012.

CITY OF
HAYWARD
HEART OF THE BAY

DATE: April 4, 2012

TO: City Council Sustainability Committee

FROM: Development Services Director

SUBJECT: Incorporation of a Renewable Energy Requirement for New Residential Subdivision Development into Hayward's Green Building Ordinance

RECOMMENDATION

That the Committee reads and comments on this report, and provides direction regarding the incorporation of renewable energy measures into Hayward's "Green Building Requirements for Private Development" ordinance (Green Building Ordinance).

SUMMARY

Action 5.3 of Hayward's Climate Action Plan calls for the City to, "incorporate a renewable energy requirement into the Private Development Green Building Ordinance and the Residential and Commercial Energy Conservation Ordinances" (RECO and CECO). The timeline for commencement of this action is Fiscal Year 2013.

This report only addresses the Green Building Ordinance because the RECO will not be adopted in the near term and because the CECO is anticipated to only be considered after completion of a PG&E Innovator Pilot Study, which is anticipated to be completed by late calendar year 2013.

Staff has reviewed renewable energy programs from cities throughout California. This report summarizes those findings and suggests several possible actions for Hayward to consider with respect to revisions to the Green Building Ordinance.

BACKGROUND

The Committee has discussed renewable energy requirements and incentives in the past, including the merits of a Property Accessed Clean Energy (PACE) program, Community Choice Aggregation, and solar photovoltaic (PV) and thermal system requirements for new residential construction. Committee members have expressed concern with the additional costs associated with such requirements to the City and the impacts on developers, weighed against the desire to promote renewable energy systems within the City to help reduce greenhouse gas (GHG) emissions. The paragraphs below summarize the State's goals for renewable energy, including the concepts of zero net energy and grid neutral buildings, as well as Hayward's current efforts to promote renewable generation systems.

Zero Net Energy and Grid Neutral - There are two ways to achieve GHG savings in buildings. First, the building can consume less energy though increased efficiency. Features that achieve this outcome are called passive/energy efficiency features, which include insulation, duct sealing and weatherization, high performance lighting, building orientation, ventilators, and skylights. Second, the building can use renewable energy sources, preferably by producing this energy onsite. Features that achieve this outcome are called active features, which include solar PV panels, solar hot water systems, and wind turbines.

Both "grid neutral" and "zero net energy" (ZNE) buildings use active (renewable energy production) and passive (energy efficiency) features with the goal of producing at least as much energy as the building consumes. Therefore, to qualify as a grid neutral or ZNE building, a building needs to include onsite renewable energy generation. The definitions of both of these terms vary depending on the user. One major distinction is that most definitions of ZNE attempt to take into account a building's use of natural gas. Conversely, definitions of grid neutral are often limited to the electrical grid. The California Building Standard's 2010 Green Building Code (CALGreen) defines a grid neutral site as, "A site that produces at least as much electricity as it uses in a year." Staff feels that grid neutral is the more useful concept for Hayward at this time because it is clearly defined and because there are known examples of such buildings in the region.

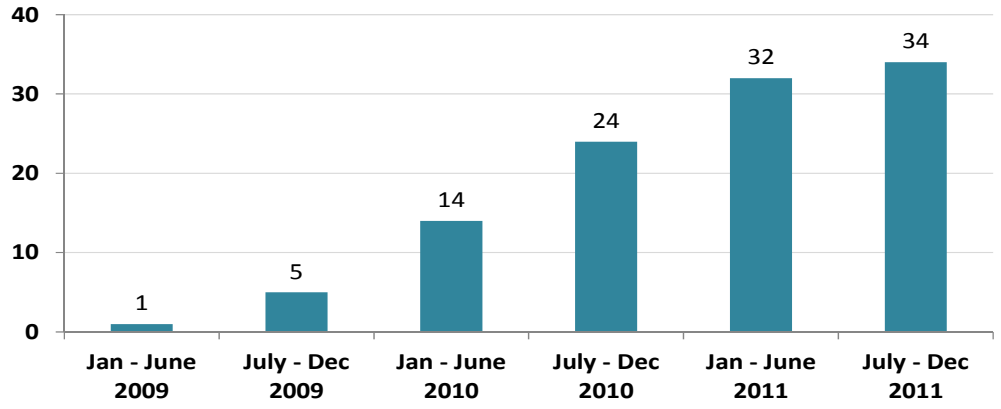
State Goals for Renewable Energy in New Buildings - Up until recently, the State has primarily promoted onsite renewable energy through incentives, most notably through the 2007 legislation that created the California Energy Commission's (CEC) New Solar Homes Partnership[1] and the California Public Utilities Commission's (CPUC) California Solar Initiative[2]. However, the CEC is currently moving forward with a plan that would effectively require renewable energy to be included in all new buildings. In its 2007 Integrated Energy Policy Report, the CEC recommended incrementally adjusting Title 24, Part 6 (the energy efficiency portion of the State Building Code) to require ZNE performance in new residential buildings by 2020 and in new commercial buildings by 2030.

Also, the CPUC released a *Long Term Energy Efficiency Strategic Plan*[3] in 2008 that outlines the same ZNE goals as the CEC, in order "to set forth a roadmap for energy efficiency in California through the year 2020 and beyond." The Plan articulates a long-term vision and goals for each economic sector and identifies specific near-term, mid-term and long-term strategies to assist in achieving those goals. In 2010, the CPUC launched a 2010-2012 Zero Net Energy Action Plan to help California's commercial building sector move towards these goals. In addition, PG&E runs a Zero Net Energy Pilot Program for new residential construction. Governor Jerry Brown and the CPUC are encouraging the evolution of Code standards to achieve these goals. According to CEC staff, future code updates will increase mandated energy efficiency and renewable energy standards until the 2020 and 2030 ZNE goals are achieved.

Current Renewable Energy Activities in Hayward - Hayward currently promotes the adoption of private, onsite renewable generation systems in two ways. First, the City subsidizes the permit fees to install a PV system. The subsidy ranges from $340 to $450 for each permit, which equates to $39,100 to $51,750 in subsidies since 2009. A total of 115 permits for residential and commercial PV systems have been issued since 2009. The number of PV permits issued has consistently increased each six months since 2009 (see Figure 1).

[1] http://gosolarcalifornia.org/about/nshp.php
[2] http://gosolarcalifornia.org/about/csi.php
[3] http://www.cpuc.ca.gov/PUC/energy/Energy+Efficiency/eesp/

Figure 1:
Number of Permits Issued in Hayward for Residential and Commercial Solar PV Systems Since 2009



In addition to the PV permit subsidy, the City promotes the adoption of renewable energy systems through promotion of rebates and through its Green Building Ordinance. The City has used Department of Energy Efficiency Conservation Block Grant Funds to match Energy Upgrade California rebates of up to $4,000 for homeowners to make energy efficiency upgrades to their homes. Also, using the same source of funding, rebates of up to $50,000 for energy efficiency improvements have been made available to the City's largest commercial sector energy users, the City's non-profit sector, and for City facilities.

Also, Alameda County is working with the company, Renewable Funding, and others, including Hayward, to develop a Property Assessed Clean Energy (PACE) Program to support the development of renewable and energy efficiency projects for commercial properties and ultimately for residential properties, once legal issues are resolved with the Federal Housing Finance Agency (FHFA), Fannie Mae and Freddie Mac. Renewable Funding is a company that provides turnkey administration, financing and technology services for renewable energy programs to hundreds of cities and counties across the country. Finally, in addition to the wide variety of measures-based, equipment-based and performance-based incentives available through PG&E, PG&E offers businesses five year loans up to $100,000 at zero percent interest to make energy efficiency upgrades to their facilities.

The City's Green Building Ordinance does not currently require renewable energy generation for any projects. However, builders can use renewable generation to meet part of the City's requirements for all projects, except new commercial construction (see Table 1 below).

Table 1: Renewable energy components in the City of Hayward's Green Building Ordinance

	Activity	Requirement	Renewable Energy Component
Residential	New multi or single family unit(s)	Documentation demonstrating that the building has been GreenPoint rated	**25 of the 50 points needed for certification can come from onsite renewable generation**
	Additions or remodels over 500 square feet	Complete the GreenPoint checklist	**Checklist includes onsite renewable generation**
Commercial	New construction over 1,000 square feet	Exceed the 2008 Building Energy Efficiency Standards of the CA Building Code (Title 24, Part 6) by at least 15% using the performance method	**None (see topic number 3 under the DISCUSISION section below)**

	Activity	Requirement	Renewable Energy Component
	Tenant improvement projects over 1,000 sf where at least half of the light fixtures are new or replaced	1. Exceed the lighting load requirements of the 2008 Title 24, Part 6 by 15%, <u>or</u> **2. Include at least 1% or 1kw (whichever is greater) of the electrical power from a renewable source, <u>or</u>** 3. Exceed Title 24, Part 6 by at least 5% using the performance method	

DISCUSSION

Action 5.3 of Hayward's Climate Action Plan specifically calls for the City to incorporate a renewable energy requirement into its Green Building Ordinance. Staff recommends considering the following:

<u>1. Require a Percentage of New Subdivision Units to be Grid Neutral</u> - As discussed earlier, to qualify as a grid neutral or ZNE building, a building needs to include onsite renewable energy generation. Staff could only find two examples of local governments in California that require renewable generation on new construction. Culver City requires new commercial and multifamily construction to install one kilowatt of solar PV for each 10,000 square feet of construction. Marin County requires all new single or two family residential projects over 7,000 square feet to be ZNE.

Staff feels that requiring renewable energy for small or single-unit projects may make the project cost-prohibitive, especially onsite installations that are not conducive to solar energy systems. However, such a requirement may be cost-feasible for subdivisions over a certain number of units. Staff also feels that the City should consider a grid neutral requirement, rather than a solar PV requirement. A grid neutral requirement would give developers flexibility to choose the most cost-effective renewable generation system for the site. In addition, it would support the State's goal of ZNE for all new residential buildings by 2020[4]. Hayward would be one of the first cities in the State to adopt such a requirement.

Depending on information and analysis from a full cost-effectiveness study, staff recommends preliminarily to require all new single-family subdivisions encompassing twenty units or more to build five percent of units (one in twenty) to be grid neutral, as defined by CALGreen. Based on conversations with a local residential developer, solar PV systems can add between $15,000 to $20,000 to the cost of a detached residential home and the recommended five percent threshold was indicated as feasible by the developer.

<u>2. Require All New Buildings to be "Solar Ready"</u> - A few California cities, including Dublin, have incorporated a solar ready requirement into their green building ordinances. Solar ready building modifications include providing sufficient roof space and electrical capacity to support a solar system and documenting pathways for routing conduit and plumbing. Dublin's ordinance requires solar ready improvements for new residential projects involving subdivisions.

The California Building Standards Commission plans to require all new buildings to be solar ready as part of the 2013 update of the State Energy Code (Title 24). The Commission has released draft language for this measure (see Attachment I). Hayward could continue to promote itself as a "green" city by requiring this measure before the 2013 Energy Code goes into effect, which probably will not be until July of 2014. The California Utilities Statewide Codes and Standards Team completed a preliminary cost-effectiveness

[4] As stated at the beginning of this report, staff feels that the grid neutral concept as defined by CALGreen is more appropriate for Hayward at this time than the ZNE concept. However, Hayward could revisit the requirement in future years to include a renewable energy offset for natural gas consumption.

study of the 2013 draft solar ready measures. The study estimated the added construction cost of the solar ready measures to be $182 per unit.

3. Allow New Commercial Construction to Use Renewable Generation to Meet the City's Green Building Ordinance Requirement – As reflected in Table 1 above, Hayward provides three options for certain commercial tenant improvements of at least 1,000 square feet to comply with the City's green building standards. One of those options requires that at least one percent or 1kw of electrical power come from a renewable energy source. A renewable energy option could be included with new commercial construction requirements. Additional analysis is needed to determine what quantity of renewable generation would be appropriate for this option.

4.Revise the Solar Access Section of Hayward's Design Guidelines - The San Jose Environmental Services Department has developed voluntary guidelines to encourage solar orientation in new construction. These Solar Access Design Guidelines specify that the long axis of new dwellings should face within 30 degrees west and 45 degrees east of true south.[5] Similarly, the City of Santa Cruz has incorporated solar orientation guidelines into that city's residential design guidelines[6]. Staff could review incorporation of similar measures into Hayward's design guidelines for residential and commercial construction.

5. Set Standards for Small Wind Energy Systems - Fremont is holding hearings for a zoning amendment to update regulations for solar and wind energy systems. The amended language includes procedural regulations and standards for the placement of roof mounted and ground mounted wind turbines. The purpose of the amendment is to facilitate the development of wind systems by clarifying the use allowances and permitting processes.[7] Hayward could undertake a similar effort or develop guidelines to pave the way for the possibility of encouraging small wind energy systems in future construction projects.

6. Host an Annual Rewards Program - Public Works staff already conducts Hayward's Annual Environmental Achievement Awards to recognize businesses and schools for their waste reduction, recycling, and organics collection programs. Additional rewards to recognize outstanding renewable energy projects could be incorporated into this event.

FISCAL AND ECONOMIC IMPACTS

Staff foresees the following potential General Fund fiscal impacts resulting from the above recommendations. A five percent grid neutral requirement for subdivisions would trigger a cost-effectiveness study for CEC approval. Consultant Mike Gabel, who produces cost-effectiveness studies (like the one Hayward used in developing its Green Building Ordinance) through grants from PG&E, recently informed staff that it would likely be no cost for him to produce such a study for Hayward, but due to his current backlog of projects for PG&E, it would be "a while" before he could produce a study for Hayward. Staff has not identified a consultant at this time who performs similar services, but will conduct further research if the Committee and ultimately City Council authorizes proceeding with development of amendments to the City's Green Building Ordinance necessitating such a study in the near future. No similar studies have been done that the City could use.

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[5] San Jose - Solar Access Design Guidelines. http://energy.gov/savings/san-jose-solar-access-design-guidelines

[6] SANTA CRUZ SOLAR PHOTOVOLTAIC INSTALLATION GUIDELINE (Page 4). http://www.cityofsantacruz.com/Modules/ShowDocument.aspx?documentid=23158

[7] City of Fremont Renewable Energy Ordinance. http://www.fremont.gov/DocumentView.aspx?DID=6844

Creating standards for small wind energy systems in Hayward would require potentially significant time from City planning and building staff. Such costs could be absorbed by existing General Fund resources, but allocation of staffing resources would likely delay other priority projects, such as completing the General Plan update. Therefore, staff recommends that such effort be delayed and resources and project priorities be reassessed next fiscal year.

In terms of impacts on the development community, requiring all new buildings to be "solar ready" and all new residential subdivisions of 20 units or more to be "grid neutral" will need to be further analyzed, which would be addressed in the cost-effectiveness study. As indicated in the next section, staff is proposing that meetings occur with the development community to gauge concern or support for such requirements.

NEXT STEPS

Contingent upon direction from the Committee, staff will complete the following tasks:

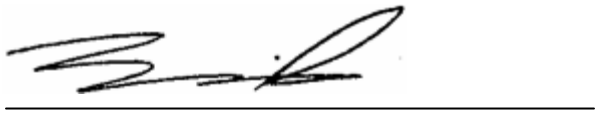
1. Seek input from developers on the impacts of a grid neutral requirement for five percent of subdivisions of at least twenty single-family units and requiring all new development to be "solar ready." In addition, staff will follow up with PG&E, Mike Gabel, and other consultants to determine the plausibility and timeframe for completing a cost-effectiveness study.
2. Move forward with a renewable energy option that can be used for new commercial construction to meet the City's Green Building Ordinance requirement. Staff will conduct an analysis to determine what quantity of renewable generation would be appropriate for this option.
3. Move forward to revise the Solar Access section of Hayward's Design Guidelines to incorporate optimal solar orientation of buildings for new residential and commercial construction, to be completed next fiscal year.
4. Develop guidelines to encourage use of small wind energy systems in future construction projects, to be completed next fiscal year.
5. Incorporate awards for outstanding renewable energy projects into Hayward's Annual Environmental Achievement Awards.

Staff will also continue to track the number of permits for solar PV and other renewable energy systems and report annually to the Committee.

Prepared by: Mary Thomas, City Management Fellow

Recommended by: David Rizk, Development Services Director

Approved by:



Fran David, City Manager

Attachment 1 Solar Ready Standards – State of California 2013 Draft Mandatory Requirements

SECTION 110.10 – MANDATORY REQUIREMENTS FOR SOLAR READY BUILDINGS

(a) Buildings listed below shall provide for the future installation of a solar electric or solar thermal system.

1. **Single Family Residences.** Single family residences located in subdivisions with ten or more single family residences and where the application for a tentative subdivision map for the residences has been deemed complete, by the authority having jurisdiction, on or after January 1, 2014, shall comply with the requirements of Section 110.10(b) through 110.10(e).
2. **Low-rise Multi-Family Buildings.** Low-rise multi-family buildings with eight or more dwelling units or with a water heating system serving multiple dwelling units shall comply with the requirements of Section 110.10(b) through 110.10(d).
3. **Hotel/Motel Occupancies and High-rise Multi-Family Buildings.** Hotel/motel occupancies and high-rise multi-family buildings shall comply with the requirements of Section 110.10(b) through 110.10(d).
4. **All Other Nonresidential Buildings.** All other nonresidential buildings with three stories or fewer shall comply with the requirements of Section 110.10(b) through 110.10(d).

(b) **Solar Zone.**

1. **Minimum Area.** The solar zone shall have a minimum area as described below. The required area may be divided into noncontiguous sections, with a minimum section area of 80 square feet. No dimension of the solar zone shall be less than five feet.

   A. **Single Family Residences.** The solar zone shall have a minimum area of 250 square feet.

   EXCEPTION to Section 110.10(b)1A: Single family residences with three stories or more and with a total floor area less than or equal to 2000 square feet shall have a solar zone with a minimum area of 150 square feet.

   B. **Low-rise Multi-Family Buildings.** The solar zone shall have a minimum area equal to 15 percent of the total roof area excluding any skylight area.

   EXCEPTION 1 to Section 110.10(b)1B: An alternate reserved space for the future installation of a solar electric or solar thermal system with an area equal to 30 percent of the total roof area may be located elsewhere on the building site in lieu of the solar zone.

   EXCEPTION 2 to Section 110.10(b)1B: Buildings that install a solar water-heating system complying with the requirements of Section 150.1(c)8Ciii.

   C. **Hotel/Motel Occupancies and High-rise Multi-Family Buildings.**

      i. Buildings with ten stories or fewer. The solar zone shall have a minimum area equal to 15 percent of the total roof area excluding any skylight area.

      ii. Buildings with greater than ten stories. The solar zone shall have a minimum area equal to 1.5 percent of the total roof area excluding any skylight area times the number of stories and a maximum area equal to 30 percent of the total roof excluding any skylight area.

   EXCEPTION 1 to Section 110.10(b)1C: An alternate reserved space for the future installation of a solar electric or solar thermal system with an area equal to two times the otherwise required area of the solar zone may be located elsewhere on the building site in lieu of the solar zone.

   EXCEPTION 2 to Section 110.10(b)1C: Buildings that install a solar water-heating system complying with the requirements of Section 150.1(c)8Ciii.

   D. **All Other Nonresidential Buildings.** The solar zone shall have a minimum area equal to 40 percent of the total roof area excluding any skylight area.

EXCEPTION to Section 110.10(b)1D: An alternate reserved space for the future installation of a solar electric or solar thermal system with an area equal to 60 percent of the total roof area may be located elsewhere on the building site in lieu of the solar zone.

EXCEPTION to Section 110.10(b)1: The area of any permanent solar electric or solar thermal system installed on the building site, including non-roof installations, at the time of construction shall be counted as part of the solar zone minimum area requirement. Solar thermal systems that provide water heating exclusively for swimming pools or spas shall not be counted as part of the solar zone minimum area requirement.

NOTE: The solar zone shall comply with access, pathway, smoke ventilation, and spacing requirements as specified in Title 24, Part 9 (California Fire Code) or in any similar requirements adopted by a local jurisdiction.

2. **Orientation.** All sections of the solar zone shall be either oriented between 110 degrees and 270 degrees of true north or located on a flat roof.

3. **Shading.**

   A. No roof obstructions, including but not limited to, vents, chimneys, architectural features, and roof mounted equipment, shall be located in the solar zone.

   B. Any obstruction that projects above a solar zone shall be located at least twice the distance, measured in the horizontal plane, of the height difference between the highest point of the obstruction and the horizontal projection of the nearest point of the solar zone, measured in the vertical plane. Obstructions subject to this requirement include:

      iii. Any vent, chimney, architectural feature, roof mounted equipment or other obstruction that is on the roof or any other part of the building.

EXCEPTION to Section 110.10(b)3: Any roof obstruction that is oriented north of all points on the solar zone.

4. **Structural Integrity.** The as-designed roof dead load and live load for the solar zone shall be clearly indicated on the construction documents.

EXCEPTION to Section 110.10(b)4: If an alternate reserved space located elsewhere on the building site is provided in lieu of the solar zone, the requirements of Section 110.10(b)4 shall not apply.

(c) **Interconnection Pathways.**

1. The construction documents shall indicate a pathway for routing of conduit from the solar zone or alternate reserved space to the main electrical service panel of the building.

2. The construction documents shall indicate a pathway for routing of plumbing from the solar zone or alternate reserved space to the building's water-heating system.

(d) **Documentation.** A copy of the construction documents or a comparable document indicating the information from Section 110.10(b) through Section 110.10(c) shall be provided to the occupant.

(e) **Main Electrical Service Panel.**

1. The main electrical service panel shall have a minimum busbar rating of 200 amps.

2. The main electrical service panel shall have a reserved space to allow for the installation of a double pole circuit breaker for a future solar electric installation.

   A. **Location.** The reserved space shall be positioned at the opposite (load) end from the input feeder location or main circuit location.

   B. **Marking.** The reserved space shall be permanently marked as "For Future Solar Electric".

EXCEPTION 1 to Section 110.10: If documented that there is no viable solar zone, or alternate reserved space where allowed, due to shading which reduces the annual solar access to 70% or less, the requirements of Section 110.10 shall not apply. Solar access is the ratio of solar insolation on a given roof section or alternate reserved space including shade to the solar insolation available on that roof section or alternate reserved space without shade. It must be documented that all viable roof sections or alternate reserved spaces have insufficient annual solar access. Shading from on roof obstructions shall not be included in the determination of annual solar access.

Suggested Sustainability Committee Quarterly Meeting Topics for 2012

Presenting Department	Date	Topics	Climate Action Plan Action Number (Priorities are per Appendix D in the Climate Action Plan)
~~PW~~	~~January 2012~~	~~Countywide Single-Use Bag Reduction: StopWaste's Proposed Revised Ordinance~~	~~6.4 (40)~~
~~PW~~		~~Countywide Mandatory Recycling: StopWaste's Proposed Revised Ordinance~~	~~6.1 (28), 6.3 (14), 6.6 (34), 6.7 (11), 6.8 (16*)~~
~~DS~~		~~Climate Action Team (continuation of July 6 meeting discussion)~~	
~~DS~~		~~Possible Benchmarking Requirements for Commercial Buildings~~	~~3.3 (3)~~
DS	April 2012	Require Energy Efficiency and Renewable Energy for New Construction	5.3 (19)
DS		Annual Update on Climate Action Plan Implementation and GHG Emissions Inventory Update	
DS		Status of Benchmarking Municipal Buildings	3.12 (2*)
DS	July 2012	Require Energy Efficiency and Renewable Energy for New Construction – Revisions to the City's Green Building Ordinance	5.3 (19)
DS		Update on Building Asset Rating Pilot Study	3.3 (3)
PW	October 2012	Maximize Renewable Generation on Municipal Property	5.5 (4*), 5.6(5*)
DS/PW		Update on Financing for Efficiency and Renewables, including Property Assessed Clean Energy (PACE)	3.9(1), 3.7(6), 3.8(7), 5.2(8), 5.1(29)
PW		Waste Reduction Report – Annual Update on Recycling Programs (food scraps, construction & demolition debris, multi-family recycling, recycling and organics collection in City facilities and waste to energy)	6.1 (28), 6.2 (26), 6.3 (14), 6.6 (34), 6.7 (11), 6.8 (16*), 6.9 (13*)
PW		Discussion of Agenda Topics for 2013	
Standing Committee	January 2013	Environmentally Preferred Purchasing Policy Annual Report	

*Municipal Actions Priority per Appendix D in the Climate Action Plan.