Climate Action Plan

Fiscal Year 2010-2011

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1.0 INTRODUCTION

In accordance with the requirements of Chapter 9 of the Environment Code, this Climate Action Plan has been prepared to document the carbon footprint of the Port of San Francisco for FY 2009/2010 and to identify opportunities to reduce the impacts from activities at the Port that might contribute to climate change.

Carbon footprint data includes the emissions associated with energy, water, liquid fuel use and waste generation. This data is expressed as greenhouse gas (GHG) emissions and standardized as carbon dioxide equivalent (CO2e). Emissions at the Port have been calculated for Port operations, and when possible, for Port tenants, although relevant data is not always available. Once GHG emissions have been assessed it is possible to consider ways to reduce these emissions, a goal that the Port thoroughly embraces.

2.0 DEPARTMENT PROFILE

2.1 Port Mission

The Port of San Francisco is a public enterprise committed to promoting a balance of maritime, recreational, industrial, transportation, public access and commercial activities on a safe, secure, and self-supporting basis through appropriate management and development of the waterfront for the benefit of the people of the State of California. This core mandate is stipulated in the Burton Act that entrusted the Port to the City and County of San Francisco.

The Port of San Francisco owns and operates commercial real estate and maritime facilities and manages most of San Francisco's waterfront property from Fisherman's Wharf in the north to India Basin in the south. The Port oversees a broad range of commercial, maritime and public activities and is involved in a diverse range of businesses, including cargo shipping, ship repair, excursion boats, ferry boats, commercial real estate, fishing and fish processing/distribution, tourism, filming, and harbor services and cruise-shipping. Tourism is San Francisco's No. 1 industry, and many of the city's leading tourist attractions are located at the Port, including the Hyde Street Pier, Fisherman's Wharf, Pier 39 and access to Alcatraz. These attractions draw more than 15 million visitors annually to the Port's northern waterfront.

In addition to being a visitor attraction, Fisherman's Wharf is also the center of Northern California's commercial fishing industry. Pier 45 is one of the nation's most modern fish-processing centers. Recognized, as the Gateway to the Pacific and as one of the world's most popular cities, San Francisco is also a major cruise-ship destination. Sixty cruise ships are expected to call at the Port in 2011 with itineraries including Alaska, Mexico, and around-the-world cruises.

2.2 Departmental Budget

The Port of San Francisco is an enterprise department of the City and County of San Francisco. The expenditure budget is used to operate and maintain 7.5 miles of waterfront property that are held in public trust by the Port for the citizens of California. The FY 11/12 operating expenditure budget was $62,710,261; the FY12/12 budget is $65,224,596.

2.3 Number of Employees

The Port has 240 employees in several locations. Pier 1 and Pier 50 are the two primary employee locations. Several divisions are located at Pier 1 and these include Executive, Maritime, Finance and Administration, Planning and Development, Real Estate, and Engineering. Pier 50 is the primary location for the Department's Maintenance Division. The Maintenance Division includes several trade crews: Ironworkers-Welders, Sheet metal, Machinists, Gardeners, Pile Workers, Divers, Stationary Engineers, Asphalt Paving, Carpenters, Crane Maintenance, Electricians, Painter, Plumbers, Roofers, Truck Drivers, and General Laborers.

TABLE – 1: PORT OPERATIONS

LOCATIONS	***FUNCTION***	***# Employees***
Pier 1	*Executive, etc.*	*120*
Pier 50 Shed D	*Maintenance*	*99*
Fisherman's Wharf	*Harbormaster*	*3*
Pier 45 Shed A	*Laborers*	*5*
Pier 80	*Crane Shop*	*3*
Pier 50 Shed A	*Pile Driver 4**	*5*
Pier 29	*Pile Driver 1**	*5*
7	***TOTAL***	***240***

* *These operations are mobile*

2.4 Facilities

Most of the Port's 7 ½ miles of waterfront property (over 25 million square feet) consists of former tidelands, which are held in 'public trust' for the people of California. As trustee of the property, the Port is required to promote maritime commerce, navigation and fisheries, as well as to protect natural resources and develop recreational facilities for public use.

The Port's property is a complex mix of piers, structures, open land, and more than 500 tenants. The Port climate action data and analysis will be based on the Facility Identification

Number (FIN) system. The FIN system is flexible and allows for reporting energy use and waste management at the building or structure level and allows for an approximate distinction between emissions from Port operations and those from Port tenants.

Although the Port owns its facilities, the majority are operated by private entities under the commercial and maritime leasing programs and these agreements vary significantly. Some utility accounts are paid by tenants and some by the Port. The responsibility for utilities is also affected by the nature of the infrastructure, such as the location of meters and sub-meters for electricity usage. Utilities at some facilities are sub-metered, but many are metered in common. Furthermore, some routine Port Operations occur at some facilities (see Table 1), but not at all. These variables of who pays for a utility, the level of metering and sub-metering, the distribution of Port operations, and who the utility provider is, make it challenging to precisely determine the environmental impact of activities on Port property. Nonetheless, this approach is methodical and is considered a reasonable approximation. [For a list of Port facilities, see ***Appendix I***.]

2.5 Vehicles

The Port utilizes a diverse fleet of vehicles and equipment (see Table 2) that is maintained by Central Shops staff. These include cars and vans, several types of trucks, and one boat. The light-duty fleet uses include management of the harbor, regulatory oversight, Fire Code and Port Building Code implementation, planning and community outreach, and traditional property management. Most of the light-duty fleet is utilized by the Pier 1 staff and parked at Pier 3. The Maintenance Division is operated from Pier 50 and includes a wide array of trucks and heavy-equipment.

TABLE – 2: VEHICLES / EQUIPMENT

VEHICLES TYPE	COUNT
Boats	8
Cars	14
Heavy Equipment	7
Pickup Trucks	53
SUV	1
Trucks	23
Vans	6
Trailers	11
Other (e.g. carts)	5
TOTAL	**121**

2.6 Departmental Contact Information

The Climate Liaison for the Port of San Francisco is Richard Berman with the following contact information:

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3.0 DEPARTMENTAL CARBON FOOTPRINT & HISTORICAL ANALYSIS

The Port has previously verified the list of facilities in the carbon footprint spreadsheet in the Google Docs tool.

3.1 Energy

Energy used in buildings contributes greenhouse gas emissions through the consumption of electricity and natural gas, or steam, although steam is not used to supply energy to Port facilities. Natural gas is a potent greenhouse gas, meaning that it can contribute significantly to climate change when compared to other forms of energy. The greenhouse gas potential of electricity is dependent on its form of production. The SF PUC provides most of the electricity to the Port and this is primarily in the form of hydro-electric power which has a much lower greenhouse gas potential than electricity produced from a coal-burning power plant, though there can be some variation in the source/emission profile (see Table 5). For this analysis the City standardizes emissions from all forms of energy as carbon dioxide equivalent (CO2e). Data in the following tables are, therefore, reported as CO2e.

FY09/10 this data is summarized in Tables 3a, 3b, and 3c. (FY10/11 data availability is pending an interdepartmental review of consumption data by facility.) The data includes energy consumption, emissions, and costs for Port-owned facilities that received electricity from the SF PUC as well as natural gas from PG&E on Port-paid accounts. Also included is data for three facilities that receive electricity from PG&E on Port-paid accounts. Data is unavailable for energy consumption on private accounts on Port property, which would be comprised mostly of PG&E electricity and natural gas. (Details on PG&E accounts and FY09/10 consumption are provided in ***Appendix II***.)

Tables 3a and 3b distinguish between Port operations and tenant operations. Energy consumption and emissions are attributed to Port operations if they occur at facilities which are centers of Port operations, e.g. Pier 1, Pier 50, Pier 80, etc as outlined in Table 1. Energy consumption and emissions at all other facilities are attributed to tenant operations. Even this approach is not ideal as there is rarely direct correspondence between any electric or gas meter

and the operations at a facility and meters often feed several operations which might be a mix of Port and tenant operations. Separate metering, however, is a costly undertaking with implications beyond the scope of this report.

With these qualifiers, it is notable that Port operations contribute approximately 12% of greenhouse gas emissions compared to 88% by Port tenants (Table 3b). Also notable is that the Port contributes 4% of the GHG emissions from natural gas, which has a much greater global warming potential than some other forms of energy. The other 96% of GHG emissions is attributed to tenant operations.

Energy Data: Port Buildings – FY09/10
Tables (3a, 3b, 3c)

TABLE – 3a: ENERGY DATA: Actual

Consumption / Emissions* / Cost

	ELECTRICITY			NATURAL GAS			SUB - TOTALS	
	kWh	C02e*	COST	Therms	CO2e*	COST	C02e*	COST
Port Operations	3,311,170	70	$524,261	3,885	22	$4,067	116	$528,328
Port Tenants	16,579,198	354	$2,655,196	97,977	521	$94,681	851	$2,749,876
PORT-WIDE	19,890,368	424	$3,179,457	101,862	543	$98,747		
						PORT TOTALS	968	$3,278,205

TABLE – 3b: ENERGY DATA: Percentage

Consumption / Emissions* / Cost

	ELECTRICITY			NATURAL GAS			SUB - TOTALS	
	kWh	C02e*	COST	Therms	CO2e*	COST	C02e*	COST
Port Operations	17%	17%	16%	4 %	4%	4%	12%	16%
Port Tenants	83%	83%	84%	96%	96%	96%	88%	84%
PORT-WIDE	19,890,368	424	$3,179,457	101,862	543	$98,747		
						PORT TOTALS	968	$3,278,205

TABLE – 3c: ENERGY DATA: Total Emissions (C02e*)

	ELECTRICITY	NATURAL GAS	TOTAL
Actual	424	543	967
Percentage	44%	56%	100%

* Emissions are reported as actual metric tons (tons) of carbon dioxide equivalent (CO2e) which is an accepted method for standardizing the varying climate change potential among different greenhouse gases such as methane (CH4), carbon dioxide (CO2), and nitrous oxide N2O.

$$CO2e = CO2 + (21x\ CH4) + (310\ x\ N2O).$$

In the Fiscal Year 2008/2009 the Port reported electricity consumption of 19.5 million kWh and CO2e emissions of 78 tons (see Table 4). In FY 09/10 a similar electricity consumption of 19.9 million kWh resulted in CO2e emissions of 424 tons, more than a five-fold increase. In contrast, consumption of similar amounts natural gas between fiscal years resulted in similar emissions. The annual discrepancy for electricity emissions is due to the historical variation in the SF PUC conversion factor which is used to convert electricity consumption into CO2e emissions (see Table 5). This conversion factor is a complex function that reflects the annual variation in the sources of SF PUC electricity. Although the primary source of SF PUC electricity is hydro-electric power from the Hetch Hetchy system, droughts and other factors can require that the supply of electricity be supplemented by other forms of electricity generation which have different emission factors. The varying source profile of SF PUC electricity can result in a varying profile of departmental emissions, even if actual consumption is constant.

TABLE – 4: ENERGY / EMISSIONS COMPARISON

(by Fiscal Year)

	FISCAL YEAR	CONSUMPTION (kWh)	ENERGY COST	CO2e (tons)
Electricity (kWh)	2008/2009	19,548,125	$1,824,093	78
	2009/2010	19,890,368	$3,179,457	424
Natural Gas (Therms)	2008/2009	97,977	$86,312	487
	2009/2010	101,862	$98,747	543

TABLE – 5: HISTORICAL VARIATION: CO2e Emission Factor

(SF PUC CO2e Emission Factor)

FISCAL YEAR	lbs. CO2 / MWh
2005/2006	76.28
2006/2007	32.90
2007/2008	48.60
2008/2009	3.67
2009/2010	43.90

3.2 Commercial Building Energy Performance Audit

Pursuant to the Existing Commercial Building Energy Performance Ordinance (Ord 17-11, San Francisco Environment Code Chapter 20) the Port provided data on several facilities. Port of San Francisco's Engineering Department was tasked to address this Ordinance. The ordinance required owners of nonresidential buildings to conduct Annual Energy Benchmark Summaries for their buildings meeting the size criteria of 10,000 square feet or more. Information was prepared as follows:

- 4 Port Facilities – Energy usage information for past year (i.e. January 2011 to December 2011) was input into Energy Star's Portfolio Manager for energy benchmarking analysis. All energy benchmark results for these facilities were released to SFDOE on 3/27/2012. (see Table 6).
- 1 Port Facility – In progress. Currently, awaiting energy usage data from specific tenants in order to capture and report total energy usage for the facility.
- 17 Tenant Responsible Facilities – The Port tenants were informed by mail of their responsibility to comply with the energy ordinance, and were advised to have them report directly to SFDOE department for any assistance they may require.
- 31 Port Facilities – In progress. Energy data collection to be done for energy intensity density tracking.

TABLE – 6: EXISTING COMMERCIAL BUILDING ENERGY PERFORMANCE

FACILITY NAME	STREET ADDRESS	STATUS
Sea Wall Lot 318 – Roundhouse 2	10 Lombard Street	Data provided
Pier 2 – Agriculture Building	101 The Embarcadero	Data provided
Pier 50 Administration Building	401 Terry Francois Boulevard	Data provided
Pier 96 Administration Building	Pier 96	Data provided
Pier 9	Pier 9	In Progress

As noted above, accurate correlation of energy consumption with specific operations or tenants is challenging. These five facilities were included because their 2011 data was most amenable to the required submittal. Staff is working on data for other facilities for submittal at a future date.

3.3 Lighting Efficiency Ordinance

In 2007 the SFPUC published a detailed investment-grade energy audit (the Audit) of Port facilities that addressed energy use in the areas of lighting, heating/ventilating/air conditioning (HVAC) and refrigeration systems. The Audit focused on several areas for which the Port directly pays the energy bills, i.e., the Port-paid accounts and resulted in recommended energy efficient measures at 18 locations (see Table 7 for locations from North to South).

TABLE – 7: INVESTMENT-GRADE ENERGY AUDIT LOCATIONS

FACILITY NAME (from North to South)
Pier 45 East
Pier 45 West
Pier 35
Pier 33
Piers 27-31
SWL 318 (Roundhouse Plaza)
Pier 15
Pier 9
Pier 1
Ferry Terminal Plaza
Agriculture Building
Pier 26
Pier 28
Pier 50
Pier 50 Administration (401 Terry Francois Blvd.)
Pier 70
Pier 80
Pier 96

Based on the Audit, the Port implemented energy efficient lighting upgrades at these 18 Port facilities. The work involved retrofitting existing lighting fixtures; replacement of older fixtures with new fixtures; and installation of lighting controls. Incandescent and halogen fixtures were replaced with screw-in compact fluorescent lamps and high efficiency halogen lamps. The following specific energy efficiency measures were being implemented:

- T-12 fixtures and older T-8 fixtures were retrofitted with T-8 lamps and electric ballasts;
- Quartz incandescent fixtures were retrofitted with linear fluorescent fixtures;

- Light-emitting diode (LED) exit signs will be installed;
- Metal halide lamps will be retrofitted with high-lumen, long-life fluorescent lamps;
- Daylighting controls were installed;
- Occupancy sensors were installed;

A subsequent light retrofit survey was performed for Port staff on November 1, 2011. This focused on Piers 19, 19.5, 23, 26, 28, and 29.5 and the findings are summarized in Table 8.

TABLE – 8: LIGHT RETROFIT SURVEY - November 2011

BUILDING	FLOOR	LOCATION	AREA TYPE	FIXTURE	TOTAL FIXTURES
Pier 19	1	Entire Pier	Common Area	8'Fixture w/ 2x12 Lamps	86
Pier 19.5	1	Entire Pier	Common Area	8'Fixture w/ 2x12 Lamps	42
Pier 23	1	Entire Pier	Common Area	8'Fixture w/ 2x12 Lamps	104
		S. Bulkhead	Office	4'Fixture w/ 2x12 Lamps	44
Pier 23	1	S. Bulkhead	Office	Incandescent	1
Pier 26	1	S. Bulkhead	Office / Storage	4'Fixture w/ 2x12 Lamps	11
Pier 26	1	S. Bulkhead	Office / Storage	8'Fixture w/ 2x12 Lamps	3
Pier 26	1	S. Bulkhead	Common Area	4'Fixture w/ 2x12 Lamps	3
Pier 26	1	S. Bulkhead	Common Area	4'Fixture w/ 2x12 Lamps	1
Pier 26	1	N. Bulkhead	Office	Incandescent	1
Pier 26	1	N. Bulkhead	Office	8'Fixture w/ 2x12 Lamps	9
Pier 26	1	Bay 85	Restroom	Incandescent	2
Pier 28	1	Bay 3	Storage	4'Fixture w/ 2x12 Lamps	4
Pier 28	1	Bay 5	Storage	4'Fixture w/ 2x12 Lamps	4
Pier 28	2	Bulkhead	Office	4'Fixture w/ 2x12 Lamps	1
Pier 28	2	S. Bulkhead	Office	Incandescent	5
Pier 28	2	N. Bulkhead	Office	4'Fixture w/ 2x12 Lamps	31
Pier 29.5	1	NE Office	Office	4'Fixture w/ 2x12 Lamps	4

BOILER MAINTENANCE PROGRAM

In prior years the Port reported that consumption of natural gas from buildings comprised slightly more than 50% of our carbon dioxide-equivalent (CO2e) emissions. To address this, staff has developed a boiler maintenance program to ensure efficiencies in the consumption of natural gas, reduce the Port's CO2e emissions, and save money. ***Appendix III*** is a list of all of the PG&E natural gas meters that are on Port-paid accounts. There are twenty-two (22) facilities that receive natural gas from thirty-one (31) meters; there are up to three meters per facility. The plan is based on an inspection program of each of these facilities.

In 2011 the Port replaced several or upgraded several units (see Table 9). The building known as the Roundhouse 2 received a temporary replacement and in 2012 is scheduled for a more complete upgrade. The boiler in the Pier 50 Administration Building (401 Terry Francois Blvd.) was replaced in 2011. Agriculture Building is scheduled to receive a new boiler in 2012.

TABLE – 9: BOILER REPLACEMENTS

BUILDING	STATUS	WORK IN 2012
Roundhouse 2	Temporary Replacement in 2011	Upgrade in Cooling tower, boiler, pumps, tanks, air separator, associated piping, control panels, instrumentation, electrical and structural demo.
Agriculture Building	Needs replacement	To be replaced 2012 Scoped, spec'd, signed on March 20 Approved purchase install in 2012
401 Terry Francois BL.	Replaced in 2011	Maintenance only
501 Cesar Chavez	Needs replacement	TBD

3.4 Green Building

The Port maintains its own building code and issues building permits for work on Port property. In 2010, the Port building code was updated with incorporation of the 2010 CALGreen Code. The Port has submitted a report on three buildings that are going through the LEED certification process or have completed this. These are the Pier 27 Cruise Ship Terminal, the Pier 15/17 Exploratorium, and the Ferry Building. Additional information is available in ***Appendix IV***.

3.5 Water Efficiency and Conservation

SFPUC data indicate that the total water consumption on Port property for FY10/11 is 37,204,772 gallons. For FY09/10 this amount was 51,207,332. This represents a decrease of approximately 14 million gallons or 27%. Staff will be reviewing the data to understand this discrepancy.

Port staff have been working on several fronts to introduce greater efficiencies in the use of water and to improve overall conservation of water .

Automated Water Meter Installation

The Port has been working with the SFPUC to implement the Automated Water Meter Program throughout Port property. This will allow for highly accurate data collection and timely leak detection. The ability to identify consumption spikes as they occur will also enable Port staff to investigate potential water leaks, stop discharges, and make repairs in a matter of hours. More than 300 automated water meters are anticipated to be installed during 2012. Work was

originally scheduled earlier, but Port meters are larger than residential meters, and SFPUC had to procure special metering technology for these larger meters.

Infrastructure Over Water

Many Port piers extend almost 1000 feet over the bay. As originally constructed, the water supply and waste water lines were located underneath the pier deck. This is a harsh environment due to tidal action, debris, and corrosion. Port Maintenance has been diligent about repair leaks when they are found. A more strategic approach when possible is to move these utilities above the pier deck and away from the damaging forces underneath the facility. The Port just completed the complete re-piping of the water supply lines for Piers 26 and 28 in which these lines were relocated above deck.

3.6 Fleet

The Port maintains an inventory of 100 vehicles and more than 100 other types of equipment (see Table 2) that run on various fuels. This inventory in Google Docs has been verified. Central Shops provides maintenance and fueling services to the Port for all vehicles. The Port manages the replacement schedule and procurement specifications, which is done in conjunction with Central Shops. When possible, newer equipment is selected to operate with fuels such as biodiesel that minimize GHG emissions.

Fuel

Fuel consumption for the Port fleet is summarized in Table 10.

TABLE – 10: FUEL AND EMISSIONS

Emission Source	FY10/11 Consumption	CO2e Emissions (metric tons)
Gasoline (gallons)	26,776.10	235.83
CNG (GGE)	2,067.59	12.62
LPG (gallons)	19.50	0.11
B5 (gallons)	8,808.00	84.91
B20 (gallons)	693.50	5.63
Total Mobile Fuel CO2 (mt)		**339.11**

Health Air Clean Transportation Ordinance

In 2008, the City and County hired Mercury Associates, Inc. to conduct a 'Fleet Right Sizing' evaluation of the City's light-duty fleet. The study included preliminary recommendations for the retention and removal of light-duty vehicles from participating departments. The Port was

one of several departments that supported this effort and participated in the study, which was the basis for the subsequent Healthy Air Clean Transportation Ordinance (HACTO). The study considered 18 Port light-duty vehicles, attributing the main function of these vehicles to property management. The consultants then recommended that four vehicles be eliminated and that four needed further review. The Port eliminated one vehicle and assigned five vehicles to the storage facility at Pier 50, to be used only during emergencies. This was a 28% reduction of the daily light-duty fleet. It is the position of the Port that this implementation satisfies the series of 5% fleet reductions required of the HACTO.

To preserve its capabilities of meeting its emergency responsibilities as well as its mandates under the state trust and its many regulatory obligations, the Port implemented a modified version of the consultant's preliminary recommendations. With seven and one-half miles of waterfront to manage, the Port's light-duty fleet is an essential asset. Property management activities are significant and account for an important component of the demand for the Port's light-duty fleet; the Mercury study described this as the main function of the assigned vehicles. As described above in the department profile, the Port's activities are among the most diverse of any California port, extending beyond property management. Many of these other activities conform directly to the Port's core mandate of managing the harbor, as stipulated in the Burton Act. An emphasis on property management can underestimate the demand on the light-duty fleet that derives from these other activities, among them: harbor management, regulatory oversight, planning and development and community outreach, and implementation of the Port Building Code. As an example, Port regulatory staff frequently responds to environmental reports and inquiries that can trigger a string of urgent field activities; a typical scenario would involve a report of a sheen on the bay. This always requires an initial field investigation and oftentimes additional trips. It is the Port's intent to comply with the City light-duty fleet reduction requirements to the extent that it does not compromise staff's ability to meet its obligations.

In addition to the initial 5% reductions, HACTO requires that by July 1, 2014, each department develop a written plan for eliminating passenger vehicles and light-duty trucks that are 12 years or older, effective July 1, 2015. The Port's initial analysis indicates that there are 40 vehicles that are affected and by FY2015/16, 85% of these vehicles will be older than 12 years. This suggests that compliance will require a phased approach to the vehicle replacement that will extend beyond the July 1, 2015 date. Port staff is exploring options that will allow the earliest compliance with this requirement.

4.0 OTHER SUSTAINABLE PRACTICES

4.1 Zero Waste

Composting and recycling are available to all Port staff. Recent efforts have focused on tenant compliance with the Mandatory Recycling and Composting Ordinance and the City's zero waste goals.

Fisherman's Wharf Restaurants

The Port is a member of the Fisherman's Wharf Community Benefits District (FWCBD) and a co-chair of the FWCBD Sustainability Committee. Many of the Port's tenants in Fisherman's Wharf operate restaurants and public input has indicated a community desire to see improved housekeeping. As reported last year, the FWCBD received an $80K grant in October 2010 to assist the restaurants in complying with the City's 2008 mandatory composting ordinance. The purpose of the grant is to promote and enhance organics and recyclable diversion from Fisherman's Wharf restaurants, hotels, retails, excursions, and to ensure compliance with the City Composting Ordinance with the goal of diverting 2,000 tons over a two year period.

Much of the grant focused on the Taylor Street restaurants and Port operations. A zero waste consultant worked with the Taylor Street restaurants to improve their housekeeping and comply with the composting mandate. Organic wastes can be easily contaminated by non-compostable wastes and the individualized service reduces this risk and associated costs. Additionally, poor waste management contributes to contamination of stormwater by trash and debris. The restaurants transitioned from use of a shared compactor to individual cart service. This transition improves accountability for properly separating the waste streams as well as for the maintenance of their waste storage areas, which are now separate.

An ongoing challenge in the Fisherman's Wharf area is the management of trash generated by the millions of visitors each year. In 2011, Port staff initiated a pilot project with BigBelly Solar, Inc. that manufactures waste receptacles with solar compaction features and wireless communications technology. The receptacles can be used for compostables, recyclables, and landfill trash. The compaction allows for the collection of more material before they are full and the pressure can be adjusted to allow for post-collection separation to maximize landfill diversion. The wireless technology informs staff when the receptacles are full enough to be emptied. This allows staff to increase the efficiency of labor and to reduce the number of truck trips. Initial data suggests the number of collection trips has been reduced by more than 50%. This also reduces the problems of overflowing receptacles and scavenging of waste by birds and people. Both problems create an unsightly mess in a tourist area and increase the debris that is carried to the bay by wind or stormwater runoff.

Marine Plastics Event

In August of 2011, the Port participated in a Bay Area Press event to draw attention to the harm plastic debris has on the marine environment. The event was hosted by the Sea Scavenger Conservancy, Pangaea Explorations, and 5 Gyres, which are all dedicated to research and conservation of the marine ecosystem. The event involved a sail on the research vessel, the Sea Dragon. The Sea Dragon is a 72ft steel hulled sailing vessel built in in 2000. Pangaea Exploration leases the Sea Dragon for its work in marine exploration, education and conservation. In August of 2011, the team arrived in the San Francisco Bay Area and collaborated with the local organization Sea Scavenger Conservancy, whose mission is to rid the ocean of plastics pollution. Sea Scavenger Conservancy conducts several shoreline clean up events throughout the year on Port property. The event coverage included KQED radio. It was also a precursor to the Port's initiative to ban certain types of plastics at Port hosted events and activities.

Zero Waste Events Policy

The Port of San Francisco is host to dozens of public events and activities each year. In the Fall of 2011, the Port began exploring a policy that would restrict the types of plastics that an event sponsor could use on Port property. At Port facilities there are inherent challenges managing waste at large events that are compounded by the windy environment and proximity to the San Francisco Bay. Port staff worked with the San Francisco Department of the Environment to develop a new policy to address the issues associated with waste generated at these events. The purpose of this policy is to 1) ensure that food waste streams from large outdoor events can be easily composted, and 2) marine life in the Bay is protected from plastics and litter through elimination or reduction of plastics at these events. Based on these discussions, Port staff proposed a Policy for Zero Waste Events and Activities.

Plastic wastes are of increasing concern in marine environments and are a focus of volunteer and non-profit clean-up activities along the waterfront and bay shoreline. Plastics from litter, stormwater and maritime sources enter the marine environment where they degrade into microscopic bits and damage the ecology of our oceans. They can entangle wildlife and disrupt their internal organs and, when digested by marine life plastics can function as a pathway of exposure to several pollutants such as polychlorinated biphenyls (PCBs), dichlorodiphenyltrichloroethane (DDTs) and polycyclic aromatic hydrocarbons (PAHs). These pollutants can bio-accumulate and bio-magnify in the food chain, eventually making their way into human food sources. There are five ocean gyres, or large bodies of water that contain massive accumulations of degraded plastics around the globe. (Policy Excerpt)

The adopted policy bans the sale, use, and distribution of single-use plastic bottles, bags, and food ware, all of which can be replaced with reasonable alternatives. Additionally, the policy prohibits the intentional release of balloons. The policy applies to Events that attract 5,000 or more people. The Policy was adopted by the San Francisco Port Commission in February 2012.

Waste Assessment Questionnaires

Separate Waste Assessment Questionnaires are provided for Pier 1, Pier 50, Pier 45, and Pier 80 respectively as ***Appendices V - VIII***.

4.2 Employee Commute

The annual transportation survey was suspended during the previous year. In lieu of this the Port hosted representatives from the Department of the Environment to provide training on the Commuter Benefits Pre-Tax Program. In early 2012, the Port hosted commuter benefit trainings for employees from every division. Each division arranged directly for training in association with their staff meetings. The Port has approximately 60 employees who are enrolled in the Commuter Benefits Pre-Tax Program.

The Port's offices at Pier 1 are centrally located and are well situated to promote the use of bicycles for work trips and commuting. Pier 1 has several amenities that support bicycling including a bike storage area for 10 bicycles, showers, and five Port bicycles with helmets, locks, and safety vests. There are two additional bicycles at the Pier 45 Harbor Master's office.

The Port also participates in the Emergency Ride Home Program. If an employee has a personal emergency and uses alternative transportation to commute work that day, they can take a taxi, rent a car, or use transit to deal with the emergency and the employee will be reimbursed for the trip.

4.3 Green Purchasing

Port operations have incorporated the Green Purchasing requirements and programs that are available to City departments. The Virtual Warehouse is used for both securing goods and discarding unwanted items. Staff purchasing is consistent with the distinction between 'Required/Suggested' green products and 'Limited Use/Prohibited products. Staff has a green purchasing consultation scheduled for April 2011. The Port's Buy Green Scorecard is included as ***Appendix IX***.

The Port ensures that its hazardous waste streams such as batteries, fluorescent lights, electronics, and oil filters are properly recycled. The pilot study with the Departments of the Environment and Public Health to identify toxics use reduction opportunities for marine paints is in its latest phase.

4.4 Information Technology

Port IS staff continues to incorporate energy efficiency in decisions about infrastructure and equipment procurement. The transition to a virtual infrastructure with consolidated enterprise storage and fewer storage devices remains an effective way to maximize resources, improve storage capacity and efficiency, and reduce power consumption. Previous hardware purchases for consolidated enterprise storage include NetApp SAN/NAS devices. This is a compliment to procurement of Cisco UCS virtualization appliances (blade servers) that was reported in the 2008/2009 Port Climate Action Plan.

All desktop PC and laptop purchases are certified for EPEAT Gold (Electronic Product Environmental Assessment Tool); this is standard purchasing policy at the Port of SF. (Previously only desktop PCs were required to have EPEAT certification, which could be gold or silver.) Desktop systems are configured with remote power-on capabilities, enabling system maintenance and administration without the need to keep desktop computers on all night. Finally, more staff have VPN remote access which allows for reduced commuting. Several other standard practices remain in effect such as efficient default settings for printers and computers, and the use of multi-function devices that combine printing, copying, faxing, and scanning. The Energy Conservation Liaison is Richard Berman richard.berman@sfport.com 415-274-0276).

4.5 Carbon Sequestration / Urban Forest

The Port maintains large areas of open space including landscaping for parks and public access, and streets. Port gardeners, on their own initiative, completed a street tree inventory that includes species, location by street, coordinates for latitude/longitude, basin type and size, canopy, height, condition and age of the tree. The inventory will improve pruning cycles and introduce efficiencies into landscape maintenance. The inventory includes 1,677 trees, 86.5% of which have been identified (see ***Appendix X***).

4.6 Sustainability Planning

The Port recently reported on two sustainability planning projects. In 2008 staff worked with four Coro Fellows that were hosted by the Port. This effort was discussed more fully in the 2008/2009 Climate Action Plan.

In 2010 the Port participated in in the initial effort by the American Association of Port Authorities (AAPA) to establish guidelines for sustainable marine industrial development. As the project evolved it focused more on civil engineering project management and the Port decided it would be best to apply its resources to other issues.

5.0 COMMUNITY WIDE IMPACT

As the trustee of a large inventory of infrastructure and open space, the Port recognizes its responsibilities to the larger community, including potential impacts from its tenants. The Port has set up several Advisory Committees made up of community stakeholders for all areas along the waterfront (see Table 11). The Advisory Committees meet regularly, which also provides a public forum for interested citizens to participate. Port projects and policies often routinely reflect the input of these groups. Through policy and the standard lease agreement the Port encourages or requires its tenants to adopt environmental best management practices, some of which contribute directly to a reduction in GHG emissions.

TABLE – 11: COMMUNITY ADVISORY GROUPS

COMMUNITY ADVISORY GROUP	COMMUNITY AREA
Fisherman's Wharf Waterfront Advisory Group (FWWAG)	Aquatic Park through Pier 39
Northeast Waterfront Advisory Group (NEWAG)	Pier 35 through Agriculture Building
Rincon Point-South Beach Citizens Advisory Group	Rincon Park through China Basin
Central Waterfront Advisory Group (CWAG)	China Basin through Pier 70
Southern Waterfront Advisory Committee SWAC	Western Pacific/Pier 80 through India Basin
Maritime Commerce Advisory Committee (MCAC)	Composed of enterprises, entreprenuers, and the employed, it supports, advises, and advocates on behalf of the Port's maritime industries.
Waterfront Design Advisory Committee	Design review of major Port development projects

5.1 Southern Waterfront Beautification

In November 2007, the Port adopted the Policy For Southern Waterfront Community Benefits and Beautification. These assets include Pier 66 public access area, Warm Water Cove, Islais Creek, Heron's Head Park, India Basin and the forthcoming Blue Greenway. The Policy is intended to ensure to ensure that industrial, maritime and commercial uses on Port property contribute rather than detract from the open space and public assets in this area. The Port requires that the following minimum measures, benefits and rental surcharge be included in the terms of any new, amended or extended leases, licenses, permits, operating agreements or memorandums of understanding (together, "Leases").

COMMUNITY BENEFITS AND BEAUTIFICATION MEASURES

The Port seeks the following beautification measures and community benefits from its Southern Waterfront tenants in consideration for the use of its facilities or properties in the Southern Waterfront:

1. *Beautification, greening and maintenance of any outer edges of and entrances to the site or premises under the Lease;*
2. *Creation and implementation of a Community Outreach and Good Neighbor Policy to guide Lessee's interaction with the Port, its neighbors, visitors and users;*
3. *Use, as needed, or support of job training and placement organizations serving southeast San Francisco;*
4. *Commitment to engage in operational practices that are sensitive to the environment and the neighboring community by reducing engine emissions consistent with the City's Clean Air Program, and use of machines at the site that are low-emission diesel equipment and utilize biodiesel or other reduced particulate emission fuels;*
5. *Commitment to use low impact design and other "green" strategies when installing or replacing stormwater infrastructure;*
6. *Employment of a large percentage of the managers and staff at the site who live in the local neighborhood or community;*
7. *Use, as needed, of Local Truckers; for purposes of this Policy, "Local Truckers" means those truckers that are certified by the San Francisco Human Rights Commission as a "Local Business Enterprise" pursuant to the City's Local Business Enterprise and Non-Discrimination Ordinance; and*
8. *Use, as needed, of Local Businesses; for purposes of this Policy, "Local Businesses" means those businesses that are located within the Potrero Hill and Bayview Hunters Point Neighborhoods. Local businesses may include, but are not be limited to contractors, printers and service providers*

5.2 Renewable Energy

The Port's standard lease agreement is used to emphasize specific local ordinances, such as mandatory recycling, as well as Port specific requirements. The following standard lease item reserves the Port's opportunities to develop On-Site Renewable Energy:

At any time during the Term, Port shall have the right, at its sole and absolute discretion, to install, or cause another party to install, a renewable energy system, using sources such as solar (photovoltaic or solar thermal power), wind, tidal or biofuel power ("Renewable Energy System") on the roof of the Facility or otherwise on or near the Premises for the purpose of supplying power to the Facility or other locations. Unless the cost per kilowatt of power to Tenant from such Renewable Energy System is greater than the cost per kilowatt Tenant would otherwise pay for power, Tenant shall purchase all or a portion of its power needs from the operator of the Renewable Energy System.

5.3 Biodiesel Production Project

Recently, the Port executed an amendment to a lease with a tenant, Darling International, Inc., to allow them to produce 10 million gallons annually of pure biodiesel, also known as B-100; this is in addition to their current production of tallow and bone meal from rendered animal fats, grease and oils. Biodiesel is an alternative fuel with a lower climate change emissions factor than standard petroleum diesel. The project received high profile community interest that led to in-depth analysis and several operational requirements. A formal health risk assessment of the emissions from the Darling facility was conducted that demonstrated that current emissions from the facility did not pose a significant public health risk. The facility was also required to implement an odor management plan and upgrade the odor control system, both of which will reduce emissions even further. The consumption of locally produced biodiesel has the potential to reduce greenhouse gas emissions throughout the community.

5.4 34th America's Cup Event / Cruise Terminal

In December 2010, the City and County of San Francisco and the America's Cup Event Authority agreed to bring the 34th America's Cup (AC34) yachting event to San Francisco. The AC34 event will occur over a two year period and as originally planned would involve multiple locations on Port property as well as additional locations in San Francisco and elsewhere. The magnitude of this two year event has dominated much of the environmental planning work at the Port during 2011. Additionally, construction of the James R. Herman Cruise Terminal is scheduled for 2012 and most of the environmental permitting for this project occurred in 2011. Because these two projects share the Pier 27/29 location and the projects overlap in time, much of the environmental review treated them as a single project.

The agreement that was the basis for this AC34 planning outlined as much as $100 million to be invested into Port property and included significant upgrades to buildings and infrastructure at

several piers including the James R. Herman Cruise Terminal at Pier 27. This was subsequently revised, resulting in an agreement that limited development and focused on the regatta.

Under the California Environmental Quality Act (CEQA), the project was required to file a Notice Of Preparation (NOP) and to prepare an Environmental Impact Report (EIR). The AC34 Project and the Cruise Terminal projected were analyzed together under CEQA. The EIR was then released for public review and comment.

Public comment on environmental issues for the AC34/Cruise Terminal projects included coordination among several leading environmental groups. The America's Cup Environmental Council is a collection of environmental groups, neighborhood groups, and individuals that was formed in 2011 to work closely with the City and Port of San Francisco during the environmental review for the 34th America's Cup and JRH Cruise Terminal projects. The Environmental Council includes: the Sierra Club, Golden Gate Audubon, San Francisco Baykeeper, National Resource Defense Council, Arc Ecology, The Bay Institute, Planning and Conservation League, San Francisco Tomorrow, Telegraph Hill Dwellers, Livable City, Arc Ecology, San Francisco League of Conservation Voters, the Presidio Environmental Council, California Native Plant Society-Yerba Buena Chapter, and Clean Water Action. The America's Cup Environmental Council was actively involved in reviewing and providing recommendations for the projects throughout the environmental review process. During 2011 much of the routine effort to involve the public through the community advisory groups was directed towards public involvement for the America's Cup/Cruise Terminal project.

In collaboration with the Port and other City departments, the America's Cup Event Authority produced an event sustainability plan that,

> *provides information on how the Event Authority and the City intend to promote resource sustainability and environmental stewardship. The Sustainability Plan provides an overarching view of event-related sustainability actions that will be implemented by various organizations involved in delivering the AC34 events in San Francisco. It describes how these organizations intend to deliver the AC34 as an event with a positive social purpose and lasting legacy. It includes nine implementation plans described in the Host Agreement were designed to be complementary and include public comment received over the past year in over 100 related community meetings throughout San Francisco and the region or submitted on-line via email to City and America's Cup Event Authority.(Sustainability Plan p.4).*

Among these implementation plans is the Zero Waste Plan which outlines the commits and actions to comply with the zero waste goals of the Port and the City. The Zero Waste Plan is posted on the AC34 website (www.americascup.com).

Several Port facilities will be used for the event under the terms of various leases and licenses. The activities will be varied and will include hospitality venues, temporary floating docks, a media center, as well as team base operations for the actual maintenance of the race vessels. The Port will be approving an operations plan that will document the required standards and best management practices for these operations to ensure that they comply with the Port and City's environmental standards and protect the bay.

6.0 APPENDICES

I) Port Facilities

II) PG&E Consumption Data

III) PG&E Meter List

IV) Green Building Reports

V) Pier 1 – Waste Assessment Questionnaire

VI) Pier 50 – Waste Assessment Questionnaire

VII) Pier 45 – Waste Assessment Questionnaire

VIII) Pier 80 – Waste Assessment Questionnaire

IX) Buy Green Scorecard

X) Tree Inventory