

GREEN BUSINESS REPORT – FY 2015

I. Agency Recycling

Item	Description	Recycling Measurement	Quantity
1) Paper	Paper cups, plates, printer paper, newspaper, magazines, and other paper based materials are separately disposed of in office containers, collected by staff and transferred to 64 gallon bins that are picked up and recycled weekly by Marin Sanitary Service.	# of 64 gallon bins	60
2) Aluminum cans	Aluminum beverage cans, aluminum foil, and other aluminum materials are deposited by employees in bins outside the Agency lunch room. The bin contents are periodically transferred to a larger storage area, and the aluminum is sold at a Richmond recycling facility.	lbs. of aluminum	300
3) Plastics	Plastic food, beverage, and storage containers and other plastic materials (labeled #1-#7) are deposited by employees in bins outside the Agency lunch room. The bin contents are periodically transferred to a larger storage area, and the plastic is sold at the Marin Recycling Center.	# of 64 gallon bins	12
4) Scrap Metal	Iron, steel, and related metals are collected and then sold for scrap at a recycling facility in Richmond	lbs. of metal	120,450
5) Cardboard	Waste cardboard boxes, packing, and similar material are collected in a 3-yard dumpster. Marin Sanitary Service picks up the dumpster and recycles the materials.	# of 3 yard bins	48
6) Greenwaste	Grass clippings from lawn mowing, and tree branches and leaves from pruning and landscaping activities are deposited in 3-yard dumpsters. Marin Sanitary Service picks up the material and utilized it in a composting operation.	# of 3 yard bins	72

II. Reused Agency Products

Metric	Definition	Reuse Measurement	Quantity
1) Reclaimed water	Treated wastewater that is reused for Agency landscape irrigation, tank washdown, and cogeneration engine cooling, and used offsite at the Remillard Pond.	million gallons/year % of effluent	390 MG 15.3%
2) Biosolids	Treated biosolids that are beneficially reused as: - alternate daily cover at Redwood landfill - soil amendment/fertilizer for land application	wet tons/year wet tons/year	3,851 2,142
3) Biogas	Biogas that is generated in the Agency's anaerobic digesters is used for fuel in an engine-generator to produce on-site electricity.	ft ³ of biogas	78,929,161

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III. Hazardous Material Collection and Disposal

Metric	Description	Recycling Measurement	Quantity
1) Oils and Lubricants	Used oils and lubricants from CMSA equipment, vehicles, and engine-generators are collected and stored in a waste oil facility. The supplier periodically collects the materials for recycling.	gallons	Oil: 950 gal Coolant: 650 gal (1) 55gal drum of used oil filters. (2) 55gal drum of pig mats
2) Mercury	Collected mercury containing devices: - amalgam waste at dental offices is collected and disposed of by certified haulers - fluorescent tubes are collected by the public education program agencies - mercury thermometers exchanged for digital thermometers at CMSA	kg linear feet # of thermometers	25.5 251 3
3) Pharmaceuticals	Old or unused pharmaceuticals are brought to pharmacies and police stations by the public for proper disposal. CMSA and the Marin County public education program agencies fund the collection and disposal expenses, and the program is administered by the Marin County Environmental Health Department.	lbs. of pharmaceuticals	5,500
4) Batteries	Depleted, used, or damaged batteries collected by staff and brought to a Hazardous Waste facility and Interstate Battery. Sources of batteries include: - Agency vehicles - Devices (AA, C, D, 9V, etc.) and employee batteries brought from home	# of batteries lbs.	3 – 12V 17 – 6V 70
5) Electronic Waste	Electronic products that contain toxic materials, from Agency facilities and employees - cell phones, computers, computer monitors, process instrumentation, etc. – are collected and stored on-site, then periodically disposed of at the Marin Hazardous Household Waste Facility.	# of devices	60
6) Herbicides and Pesticides	The Agency uses the same types of herbicides and pesticide products utilized by the County of Marin as part of their Integrated Pest Management Program. Waste products are disposed of at the Marin Sanitary Service Household Hazardous Waste Facility.	gallons **	Herbicide: 34 gal Pesticide: 25 lb.

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IV. Green Activities

Metric	Description	Environmental Benefit
1) Potable Water Conservation	High efficiency water fixtures have been installed in all Agency facilities and buildings. Staff records the Agency’s daily potable water use.	Reduced potable water use 152 CCFS or 113,696 gallons used in FY15 2,992 less gallons used than FY14
2) Green Commuting	Programs encourage employees to use alternate commute methods such as carpool, biking, public transit, etc., when convenient and affordable for Agency employees. Administrative procedures are in place to assist in registering, tracking, and utilizing these modes of transportation.	In FY15, 19 Agency employees participated in the program, which reduces the number of vehicles on roads during commute hours, emissions and fossil fuel use.
3) Spare the Air Days	Participation in the Bay Area Air Quality Management District’s Spare the Air Day program. The Agency does not use gasoline fueled landscape maintenance equipment on these specified days.	30 days in FY14 that resulted in lower emissions and GHG reduction
4) Increased Digital Document Management	Digital and email correspondence to replace hard copy mailing. Many agency documents are now posted on the Agency website for viewing.	Reduced use of paper, toner, and postage
5) Green vehicle fleet	Agency staff use bicycles and electric carts to travel around Agency property and within the treatment plant, and 50% of agency vehicles are alternate fuel – Hybrids.	Fuel savings and reduced GHG emissions

V. Energy Saving Activities

Project/Initiative	Description of energy saving aspect of initiative
1) Sludge Thickening System Replacement Project	The Sludge Thickening System Replacement Project (Project) construction is underway. The Project will replace the existing dissolved air flotation (DAF) thickeners with rotary drum thickeners (RDT). RDTs have a fewer mechanical systems and will reduce the power demand to thicken waste activated sludge before it is pumped to the digesters. CMSA applied for a PG&E energy reduction rebate, and PG&E has accepted the application, measured the energy usage of a DAF, and will measure the energy usage of a RDT. The net reduction in energy will be used to calculate the actual rebate amount and the annual energy savings from the project.
2) Desktop Replacement	Six desktop computers were replaced with new, energy efficient units. The computer replacements are estimated to have an annual energy savings of 3,600 kWh.
3) Hydrostatic Drive Replacement with VFD Systems	Four waste activated sludge progressive cavity pumps operating with hydrostatic drives were converted to energy efficient variable frequency drives (VFD). A VFD uses approximately half the the energy of a hydrostatic drive, and the project is expected to save approximately 19,000 kWh annually.

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VI. Energy Saving Activities, cont.

Project/Initiative	Description of energy saving aspect of initiative
4) Lighting System Replacement	<p>The Agency has a multiyear program to replace fluorescent, incandescent, and metal halide fixtures/bulbs throughout the Agency’s facilities with energy efficient lighting – electronic ballast fluorescents or LEDs. Light pollution is considered while researching replacement fixtures.</p> <p><u>LED Wall Pack Lighting Replacement:</u> Twenty four high efficiency LED wall pack lighting fixtures replaced original high pressure sodium fixtures throughout the Agency in FY15. These fixtures are expected to generate an annual electricity savings of 3,100 kWh.</p> <p><u>Fluorescent Fixture Conversion in Galleries :</u> Two florescent lamps in the solids handling building elevator needed replacement and were replaced with new florescent lamps with electronic ballasts resulting in an estimated annual energy savings of 460 kWh.</p>
5) Energy Generation	<p>The Agency uses a cogeneration system comprised of an internal combustion engine coupled to a generator to produce over 90% of the Agency’s energy needs. The system is fueled by biogas generated in the Agency’s anaerobic digesters and purchased natural gas; a small amount of utility electricity is purchased to minimize system disruptions when energy demand instantaneously changes. For FY15, metrics for energy generation and the resulting electricity procurement savings are:</p> <ul style="list-style-type: none"> - Biogas generation (from Table 2): <i>78.9 million cubic feet or 50.5 million cubic feet of NG (equivalent gas)</i> - Natural gas purchase: <i>251,367 therms (SPURR invoices)</i> - Annual energy costs without cogeneration: <i>\$ 885,173 (assumes purchasing all electricity and 1/6 current NG for boiler fuel)</i> - Electricity savings due to cogeneration: <i>\$ 722,124 (non-cogen energy costs less electric usage FY 15)</i> - Electricity savings due to biogas use: <i>\$ 502,859 (value of biogas used as engine fuel used during peak and part-peak hours)</i>