



CENTRAL MARIN SANITATION AGENCY GREEN BUSINESS REPORT – FY 2018

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	52 <i>FY 17 - 62</i>
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 picked up and recycled weekly by Marin Sanitary Service, and bins may be partially full.	# of 90 gallon bins	52 <i>FY 17 - 127</i>
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	22 <i>FY 17 - 9</i>
4) Scrap Metal	Iron, steel, and related metals are collected in 20 yard bins and then recycled, typically four times per year, by Marin Sanitary Service.	lbs. of metal	122,790 <i>FY 17 -134,650</i>
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	53 <i>FY 17 - 52</i>
6) Green waste	Grass clippings, tree branches, and trimmings from pruning and landscaping activities are deposited in 3-yard dumpsters, and used by Marin Sanitary Service in a composting operation.	# of 3 yard bins	63 <i>FY 17 - 89</i>

II. Reused Agency Products

Metric	Definition	Reuse Measurement	Quantity
1) Recycled water	Treated wastewater that is reused for Agency landscape irrigation, tank wash down, and cogeneration engine cooling, used offsite at the Remillard Pond, and delivered through the Agency's truck fill station.	million gallons/year % of effluent	395 8.66% <i>FY 17 – 5.8%</i>
2) Biosolids	Treated biosolids that are beneficially reused as: - alternate daily cover at Redwood landfill - soil amendment/fertilizer for land application - biofertilizer production for agricultural use	wet tons/year wet tons/year wet tons/year	3,392 1,383 1,782
3) Biogas	Biogas generated in the Agency's anaerobic digesters is used for fuel in an engine-generator to produce on-site electricity.	Million ft ³ of biogas	102.3 <i>FY 17 – 104.7</i>

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: 625 <i>FY 17 – 983</i> Coolant: 200 <i>FY 17 – 200</i>
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	36.75 620 0
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	7,871 <i>FY 17 – 7,413</i>
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.	28 110
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	291 <i>FY 17 - 341</i>
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/lbs	Herbicide: 1.54 <i>FY 17 – 2.82 gal</i> Insecticide: 0 <i>FY 17 – 0 lb</i> Fungicide: 2.0 <i>FY 17 – 0 gal</i>

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.	Potable water use in FY17 was 163,064 gal <i>FY 17 – 169,048 gallons</i>
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.	During FY 18, 18 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.	24 days in FY 18 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 40% 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) PG&E Interconnection Agreement Modification Project and Power Delivery	CMSA’s electrical cogeneration system currently powers the Agency’s facilities for an average 22-23 hours per day with biogas as its fuel source. In May 2017, CMSA obtained a new utility interconnection agreement (IA) from PG&E, and the Agency is working with PG&E to upgrade on-site and off-site electrical systems to allow CMSA to supply excess generated power to the grid. PG&E has determined it does not need to upgrade its system, and CMSA’s system design has been approved by PG&E and the improvements should be completed in 2018. CMSA has also executed a power sale agreement with MCE for future power delivery.
2) Power Monitoring Equipment	In addition to the power monitoring system installed in the switchgear building in FY17, the Agency’s Green House Gas/Energy Efficiency team completed a facility energy consumption audit. Their report of findings identified facility equipment, in order from highest to lowest energy consumption, that should be monitored and the proper monitoring equipment to be used. The team was authorized to procure and install the additional power monitoring devices on the top 10 energy consuming pieces of equipment. In addition to installing monitoring devices, staff installed a monitor in the Agency’ main office entry way which allows visitors to view the Agency’s power consumption, by specific area, in real time along with several other key facility performance measures.

VI. Energy Saving Activities, cont.

Project/Initiative	Description of energy saving aspect of initiative
<p>3) Lighting System Replacement</p>	<p>The Agency has a multi-year program to replace fluorescent, incandescent, and metal halide fixtures/bulbs throughout the Agency’s facilities with energy-efficient lighting – electronic ballast fluorescents or LEDs. In FY18, the Agency replaced eighty-five high pressure sodium fixtures in the Solids Handling Building’s Gas Compressor Room, Hypochlorite and Sodium Bisulfite chemical storage rooms, and underground Galleries B, E, and F with new high-efficiency LED fixtures, or retrofitted existing fixtures to utilize high efficiency LED’s lighting. These upgrades will save the Agency 54,644 kWh of electricity annually.</p>
<p>5) Energy Generation</p>	<p>The Agency uses a cogeneration system comprised of an internal combustion engine coupled to a generator to produce over 95% 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 FY 18, metrics for energy generation and the resulting electricity procurement savings are:</p> <ul style="list-style-type: none"> - Biogas generation (from Table 2): <i>102.3 million cubic feet or 65.5 million cubic feet of NG (equivalent gas)</i> - Natural gas purchase: <i>77,254 therms</i> - Annual energy costs without cogeneration: <i>\$ 1,140,984 (assumes purchasing all electricity and 1/6 current NG for boiler fuel)</i> - Electricity savings due to cogeneration: <i>\$ 970,539 (use of biogas and natural gas as cogeneration fuel)</i> - Electricity savings due to biogas use: <i>\$ 870,600 (value of biogas used as engine fuel)</i>