

A Commitment to the Environment

EBMUD has long been committed to renewable energy generation and wise energy use. EBMUD generates energy through hydropower, solar power, and biogas production. Sustainability practices minimize energy use and greenhouse gas emissions.

EBMUD's energy strategies protect the environment and save ratepayers money. The wastewater treatment plant is a net energy producer that sells renewable energy to the electrical power grid after meeting all of the plant's power demands to treat wastewater for seven communities. In an average year the water system generates more renewable energy from hydropower than it uses, and employs effective energy management to save ratepayers more than a million dollars per year.

Hydropower

When sufficient water flows are available, EBMUD generates and sells hydropower to electric power providers. EBMUD has been producing hydropower for more than 80 years. Two hydroelectric power plants at the dams on our Sierra reservoirs produce, on average, 185,000 megawatt-hours of electricity annually—enough to power nearly 20,000 homes for a year.

Solar Power

EBMUD's photovoltaic generation capacity is 930 megawatt hours annually. EBMUD continues installing photovoltaic systems at EBMUD facilities where feasible. Using third-party owned equipment and performance-based agreements avoids the capital and maintenance costs of photovoltaic equipment, so EBMUD only pays for the power produced. Solar energy is saving EBMUD more than \$100,000 annually.

Biogas Production

EBMUD's wastewater treatment plant transforms recyclables from the waste stream, food waste collected from local restaurants and other biodegradable waste into renewable energy. The plant is a net producer of renewable energy, selling energy back to the electrical grid to help reduce California fossil fuel use. It can generate more than 55,000 megawatt-hours annually.

With the 2012 start-up of this biogas-fired turbine (below, left), EBMUD wastewater facilities can generate more than 55,000 megawatt hours of renewable energy annually.



Reducing Our Carbon Footprint

Energy is one of the biggest costs of delivering water to taps and treating wastewater. EBMUD continuously strives to reduce its reliance on fossil fuels as it provides these essential services to customers. Statewide, the average amount of energy used to deliver one million gallons of water is more than 7,000 kilowatt-hours of electricity. EBMUD uses about 1,250 kilowatt-hours, 82 percent less than the California average.

The amount of energy needed to get water to the tap depends primarily on the water's quality and the quantity of pumping needed. EBMUD uses less energy due to high quality source water and the source's location. To reach the East Bay, Sierra snowmelt travels 90 miles in three large pipes, relying mostly on gravity rather than energy-intensive pumps. The source water is so pure that EBMUD can surpass all state and federal drinking water requirements with less energy-intensive treatment processes than many other water agencies. In the distribution system, water is pumped uphill to storage tanks during lower-cost off-peak hours whenever possible.

Although EBMUD is a net energy generator, purchases from the electrical power grid are necessary on days when power demand and renewable generation do not match. EBMUD spent \$10.5 million purchasing energy in 2011 to meet business needs. Using fossil fuels creates greenhouse gas emissions and EBMUD makes every effort to use energy efficiently. A target of reducing greenhouse gas emissions 10 percent by 2015 compared to year

2000 levels was surpassed in 2009, six years ahead of schedule.

EBMUD continues to find creative ways to generate renewable energy and reduce its carbon footprint--steps that save ratepayers more than \$1 million per year.

- More than a quarter of EBMUD employees use mass transit, carpool, walk or bike to work.
- Hybrid cars have cut carbon dioxide emissions from EBMUD's fleet by 92 percent and save an estimated 12,000 gallons of gasoline per year.
- Biodiesel, a clean-burning renewable fuel, has been tested in the truck fleet. Biodiesel is produced by converting waste greases, much of which would otherwise go into landfills. A California Energy Commission \$1 million grant is being used to research cost-effective ways to produce biodiesel from wastes.
- Natural gas microturbines at two EBMUD office buildings in Oakland generate about 1,500 MWh/year of electricity and capture exhaust heat for heating and cooling. The generated electricity meets about 25 percent of each building's annual electric load and saves about \$125,000 per year.

Building for the Future

As facilities are modernized, replaced or built, EBMUD emphasizes energy conservation and sustainability. When old reservoirs are replaced with new tanks, construction practices emphasize recycled materials, minimize truck traffic and landfill use, and include water-efficient landscaping. Office buildings use energy-efficient lighting, and controls optimize heating and cooling systems. In Walnut Creek, an

updated maintenance yard incorporates many Leadership in Energy and Environmental Design (LEED) features. Offices near Sierra reservoirs use high-performance building insulation, a photovoltaic energy system, innovative high-efficiency heating and cooling, a rain harvesting system, a gray water system for irrigation and ultra low flow water fixtures.

EBMUD continues to work to expand its renewable energy portfolio and be as efficient as possible in using energy to save money and minimize use of fossil fuels.



EBMUD has a proud history of providing high-quality drinking water for 1.3 million customers in Alameda and Contra Costa counties. The District's award-winning wastewater treatment protects San Francisco Bay and serves 650,000 customers.

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