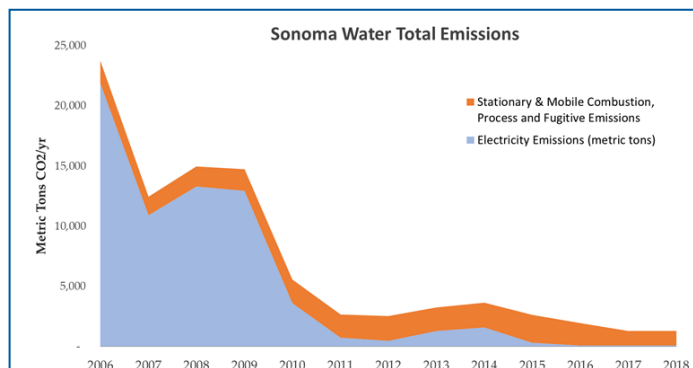


CARBON FREE WATER: SONOMA WATER

Sonoma, California



Sonoma Water's annual CO2 emissions since 2006

PROJECT DESCRIPTION

Sonoma County Water Agency (Sonoma Water) is primarily a water wholesaler with eight main customers that ultimately deliver water to 600,000 people. Additionally, Sonoma Water is a wastewater utility that serves a total of 70,000 people and also has flood management responsibilities in the Sonoma County area. Sonoma Water recognizes that the more stable the atmosphere is and the cleaner the environment is, the easier it is to do the job of a water, flood management, and wastewater utility. With this mindset as guidance, in 2006 Sonoma Water's Board adopted a draft energy policy to use carbon free energy by 2015—what they refer to as *carbon free water*—as well as to collaborate with other entities on energy, greenhouse gas mitigation, and climate adaptation projects. The board then officially adopted that energy policy in 2011. Sonoma Water has achieved its goal of carbon free water and now avoids roughly 22,000 metric tons of emissions each year. Annually, they consume about 42 million kilowatt hours (kWh) of carbon free electric power (33 million kWh for water, 9 million kWh for wastewater).

The following projects have allowed Sonoma Water to achieve *carbon free water*:

- Most important has been creating entities that allow the purchasing of renewable energy. For example, Sonoma Water helped create the Power and Water Resources Pooling Authority (PWRPA) with a collective of agencies throughout California to purchase more hydro and solar power. Notably, Sonoma Water is a reliable purchaser of energy, which helps with contracting.
- Sonoma Water also helped create Sonoma Clean Power to broker where power comes from and to source power from local renewable sources. Sonoma Clean Power offers a 100% renewable option.
- Sonoma Water has four different solar power systems that have a generation capacity totaling around 2 Megawatts (MW) and also has hydropower at its Warm Springs dam that is rated at 2.79 MW and usually runs at 1.2 MW to 1.6 MW
- Sonoma Water electrified some of its fleet.
- Sonoma Water is looking into battery storage and pumping water to its water storage tanks mostly during the daytime when energy is cleaner and cheaper (i.e. load shifting).

While Sonoma Water has achieved carbon free energy, it still does have some remaining sources of emissions. Notably from septic waste; stream maintenance equipment such as weedwhackers, chainsaws, leaf blowers, etc.; some building natural gas heating of air space and potable water; refrigerants in HVAC systems; fugitive emissions from wastewater treatment processes; standby power generators; and fleet emissions.



CARBON FREE WATER PROJECT

Sonoma Water

MAKING THE PROJECT HAPPEN

The motivating factor for Sonoma Water to pursue carbon free water was that being a water district, it relies on a healthy environment to do its work. Creating the Board-supported energy policy gave Sonoma Water the necessary direction to make it happen and provided a broader agency mindset beyond collecting and delivering water. With this policy as the guiding light, the work is consistently encouraged by staff, management, and the board. For Sonoma Water, its Board of Directors is also the county Board of Supervisors, which has helped to bring the broader systems perspective to Sonoma Water.

FINANCES



The most important step for Sonoma Water in making the transition to carbon free water was to aggregate all of its power accounts into one and buy power in bulk so that every enterprise within Sonoma Water pays the same amount per kWh. Through its Power Enterprise, power bills for all water pump stations, treatment plants, and buildings are lumped together then paid in aggregate, so they all get the same cost-effective price for power. The only power Sonoma Water buys that's more expensive than PG&E is from Sonoma Clear Power, which contributes less than 10% of its total energy use. Having Sonoma Water's energy policy in place helps the organization justify buying from Sonoma Clean Power even though it's slightly more expensive. Additionally, hydropower energy from PWRPA is cheaper than PG&E. For each individual energy project that Sonoma Water evaluates, they analyze whether it will be cheaper than purchasing power from the power purchase agreement.



CARBON FREE WATER PROJECT

Sonoma Water



IMPLEMENTATION

To implement this work, initially there were only a few people contributing from different departments within Sonoma Water. Once it had the carbon free goal and energy policy in place, Sonoma Water created the energy resources group (ERG) in 2011. The group is currently 2.5 people and has had many interns over the years. In terms of project permits, for the solar infrastructure there were permits needed but they were not too difficult to achieve. With a couple of projects Sonoma Water explored, like floating solar and using chicken manure for an energy source, had difficult permits that turned away the project developers. Project developers also had difficulty financing the projects cost effectively. For the power purchasing programs, no permits were required.

CHALLENGES

One of the challenges for Sonoma Water was defining what “carbon free water” means. It ultimately decided that carbon free water means obtaining their electric power from carbon free sources, but it was a challenge to completely hone in on electricity. There remain perceptions that Sonoma Water is completely carbon neutral. Additionally, at the beginning of the process, they didn’t quite have any energy experts on the team and were learning as they went along. This resulted in a few decisions that were not ideal in hindsight, such as buying and maintaining their own solar infrastructure instead of entering into a power purchase agreement. However, Sonoma Water notes that this decision should be made on a case-by-case basis, as some agencies have entered into power purchase agreements a long time ago and now have bad deals.



ADVICE AND LESSONS LEARNED

Sonoma Water’s advice is that pursuing this type of work is absolutely worth it. They recommend that if you’re in the water business and want to stay in business, then you need some water and a clean planet to do that. They also recommend looking at the long-term cost effectiveness of this type of work. Look at it as a necessary investment that’s cheaper to do now than paying for it later—you’d be surprised at how many opportunities there are and contracts to lock into.

LEARN MORE

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