Description of innovative project—less than 250 = 250

The Bowerman Power Plant is a collaborative, renewable energy project developed through a public-private partnership. Construction took place in 2015-16; the plant became operational in March 2016, producing energy to power 14,700 homes in Anaheim, Calif.

The project leads are the County of Orange – OC Waste and Recycling and Montauk Energy. Other partners include Anaheim Public Utilities, which is a recipient of the power generated, and Caterpillar, which provided the power-generating engines and financed construction of the project. County of Orange Third District Supervisor Todd Spitzer facilitated the successful public-private partnership and continues to champion green energy projects in the County.

This is the largest project of its kind utilizing landfill gas that combines gas feedstock cleanup, large-scale Caterpillar reciprocating engine-generators and selective catalytic reduction technology to meet the strict emission requirements in Orange County. The result is efficient operations with high on-line availability, coupled with the ample and steady landfill gas supply, to ensure reliable production of renewable energy and all its benefits 24 hours a day, 365 days a year.

There are seven Caterpillar internal combustion engines with a production capacity of approximately 22 megawatts. The plant delivers 20 megawatts of renewable electricity to the City of Anaheim under a 20-year power purchase agreement, generating 160,000 megawatt-hours annually.

Describe how the innovation has led to cost savings or other types of benefits—less than 250 = 245

The 20-year contract between Bowerman Power and Anaheim Public Utilities allows Anaheim to receive electricity from the Bowerman Power plant for the stated period of time with an $87.40 per megawatt-hour price in the first year. All is made possible by transferring energy from a municipal solid waste form to cleaned-up gas and then, eventually, electricity for our cities.

In exchange for hosting the facility and providing the landfill gas rights, the County of Orange anticipates that the facility will generate $32 million in royalties in first the 20 years (approximately $1.62 million per year), with an additional $1 million annually in landfill gas system operation and maintenance subsidies.

Included among the local economic benefits of the project are the $60 million capital investment made by Caterpillar Financial Services for project construction. 60 construction jobs were generated along with the purchase of various local building materials and services. A total of seven full-time employees are employed by Bowerman Power for plant operations.

All equipment in the facility is air-cooled, requiring no water use for operations. This water-saving feature makes the technology particularly appropriate for California’s ongoing drought.

Describe how the innovation helps your city/organization and its residents short- and long-term. 243 words

The City of Anaheim is the only city in Orange County with its own electric utility. Among the benefits of the local utility is the ability support important local initiatives such as turning landfill gas into energy.

Anaheim Public Utilities faced the need to invest in new resources for its customers. Any new source needed to meet the California definition of renewable energy; it had to be local to reduce reliance on imported energy and related transmission costs; it had to be a stable resource to mitigate the ups and down of solar and wind; and it had to minimize impacts to utility rates.

The Bowerman Landfill Gas project meets all of these objectives, which is why Anaheim Public Utilities entered into a 20-year power purchase agreement. As the only recipient of the power from this plant, it also makes the utility's decision-making and problem solving much more direct with the developer and the County.

Power from the Bowerman Power project will help Anaheim Public Utilities move from 25 percent renewable power to 33 percent in 2020 and 50 percent in 2030.

The project also closes the recycling loop. Waste buried at the Bowerman Landfill produces gas that fuels the power plant. The purchase of the plant electricity by Anaheim Public Utilities provides power to Orange County residents.

The clean energy operation also prevents approximately 53,000 tons of carbon dioxide emissions annually.

Describe if another local organization could use this idea. 250 words or less = 194

Although it is difficult for other local organizations to replicate a landfill gas-to-energy project, what became clear to project partners was the importance of a project champion. The clarity of the project concept in its earliest stages can easily be muddled by unanticipated factors as it moves forward, creating a threat to the project's success.

In the case of the Bowerman Power Project, that Champion was Orange County Supervisor Todd Spitzer. When the project was approved by the Orange County Board of Supervisors, Supervisor Spitzer was Chairman of the Board. Additionally, the Bowerman Landfill is located within his 3rd supervisorial district. His support for renewable energy projects and desire to develop more such projects in the County drew him to take a personal interest in the project. Ultimately, that interest increased and Chairman Spitzer became a key problem solver and negotiator.

Bringing a public-private project to life takes collaboration of a new kind for many agencies. The resources and energy that brought the project vision to life eventually needed a champion to leap into action and keep the ball rolling in the right direction. Fortunately, it worked for the Bowerman Power Landfill Gas-to-Energy Project.

Any other relevant information 250 words or less = 233

The following data is provided as context for the scale of the Bowerman Power Project:

Approximately 83 landfill gas-to-electricity plants are operational in California with an average size of 4.5 MW. Five of these plants are 10 MW or larger and only two are larger than this project.

The operational capacity of Orange County's landfill gas-to-electricity plants put the County at third-largest in the U.S., behind Middlesex County in New Jersey and Los Angeles County in California. [EPA LMOP Database]

A California Environmental Quality Act (CEQA) analysis identified and characterize the environmental impacts of the project. Among the findings:

Stormwater Control - Due to the design of the areas surrounding the equipment pad with gravel, storm water runoff is lower that before development.

Noise Control – Each engine-generator is housed in an insulated enclosure with a muffler on the exhaust stream. A sound-deadening blanket covers compressors, avoiding potential impact to adjacent residents.

Water Use – All equipment is air-cooled, requiring no water use.

LFG Condensate Recycling – To the extent required by landfill operations, condensate is treated to meet water quality permit levels and then used for dust control. Excess condensate, such as during rainy weather, is hauled off site.

Emissions Reduction – The use of landfill gas as fuel offsets 86,106 tons of greenhouse gas emissions each year by replacing a traditional nonrenewable fuel source and its attending greenhouse gas emissions with a renewable source.

Describe project in ten words or less.

A Different Kind of Recycling—Bowerman Power Landfill Gas-to-Energy Project