Cities of Gilroy and Morgan Hill
South County Regional Wastewater Authority
Gilroy, California

I. Respondent:

Saied Vaziry, Environmental Program Manager

II. Presenters:

- Plant staff

III. Treatment Plant Characteristics:

- Wastewater Treatment and Water Reclamation
- ~20 employees
- ~100,000 customers served

IV. Innovation:

A. Description

Award-wining facility that is model of energy efficiency and cost-effective operations. The South County Regional Wastewater Authority won the California's 2018 CWEA "Plant of the Year" and "Operator of the Year" in the medium-sized category.

Completed in 2016, they installed a fine-bubble aeration system and a solar system with two arrays that are projected to save $6.8 million over 20 years.

B. Type of Innovations

- New Treatment Process – Fine-bubble diffusion
- Modification of workflow processes or classifications
- Optimization of Existing Resources

C. Motivation for Innovations

Going "green," reducing carbon footprint, saving resources, and cost. An annual rate increase of 3 to 5 percent from Pacific Gas and Electric was a big motivator.

Starting in 2014 the authority started a major improvement program that included upgrading the aeration system and two solar energy projects. The new system went online in 2016.

The old aeration system, with three mechanical surface aerators in each of two oxidation ditches, was beyond its life expectancy. In researching replacements, operators performed a stress test that revealed the tanks could handle more volume with more efficient aeration.

D. Barriers/Challenges

We were unsure whether to build and maintain our own solar system or choose a power purchase agreement (PPA) with a contractor. We had four bids and chose SolarCity who handled the design, permitting, construction, financing, and interconnectivity, and now handles the operations and maintenance.

E. Benefits

The efficiency of fine-bubble aeration exceeded expectations. It uses variable-speed drives on the blowers with automated dissolved oxygen control. The aerobic and anoxic sections for the ditches are still served by the old mechanical aerators, but only one per ditch which operate at much lower speeds.

The 20-year PPA term with SolarCity is risk-free with 100 percent performance guarantee and a fixed energy price for 20 years, reducing our facility demand charges.

Between the fine-bubble aeration and the solar system with two arrays, we are generating significate power excess which is sold back to Pacific Gas and Electric. We also received a rebate of $170,119 that will cover 8.6 percent of the $198 million project cost.

Both systems are projected to save significant money — an estimated $6.8 million over the 20-year PPA term as opposed to utility power.

F. Effect on Staff Training

Since the solar system is subcontracted, there is no training involved.

G. Lessons Learned:

Project scope and schedule impacts associated with the elongated construction and interconnection process of the system and obtaining utility permits to operate.