TAKE 5 FOR ENERGY CONSERVATION!

KERN energy watch

The City of McFarland

Rushes for Energy Dollars

During the California Gold Rush people were motivated by the hope of finding gold — striking it rich. The rush is on for many California cities to discover energy dollars which are roaring by them like a river of gold. Every day, municipalities grapple with big questions: Are we losing energy dollars? How much? Where do we start to prospect for those dollars? Kern Energy Watch is determined to help cities figure out where dollars are being lost and greenhouse gas emissions are being produced.

Kern Energy Watch is coordinated by Kern Council of Governments (Kern COG) with funding from PG&E, Southern California Gas Company and Southern California Edison (SCE).* In 2010, on behalf of the local government partners based in the SCE service area, Kern COG applied for and was awarded $1.76 million to conduct the Kern Region Energy Action Plans (Kern REAP) project in support of California's Long-Term Energy Efficiency Strategic Plan. The Kern REAP project helps the County of Kern, and the cities of California City, Delano, McFarland, Ridgecrest and Tehachapi. The City of McFarland jumped at the opportunity to receive help to develop an energy action plan. This allowed the city to understand where energy dollars are being spent and areas where efficiency could be improved.

Step One - Benchmarking and Calculating: Kern REAP includes the development of energy action plans that identify electricity efficiency strategies. Kern COG contracted with Environmental Science Associates (ESA) to consult on Kern REAP. Energy use in city operations is identified through meter data and vehicle fleet data.

Some funding has been dedicated to enrolling and training local government staff on US EPA Portfolio Manager benchmarking software. Then the city staff, SCE engineers, and ESA looked at the data to identify opportunities to save energy and money. "It was amazing how the engineers could walk into a room and just by looking at the way the lighting reflected know what was installed and how we could save money by updating to more energy efficient lights," Dennis McNamara, Planning Director, city of McFarland described. The engineers prospected city buildings in every possible area from water supply, electricity, vehicle fuel, employee commutes, natural gas, electricity use, and even the optimum placement for shade trees to keep city buildings cool and warm naturally.

GEM cars, the electric vehicles the City purchased.

By measuring energy use in the years 2005 and 2010 to calculate greenhouse gas emissions, the areas with high ratings that were losing the most energy dollars could be pinpointed, and energy use trends could be identified. The top culprits in McFarland were: (1) electricity consumption for delivering water, (2) fuel consumption of the aging city fleet, (3) employee commutes, and (4) electricity consumption in municipal buildings. The most glaring result from audits was the increase in greenhouse gas emissions, from approximately 388 metric tons in 2005 to 702 metric tons 2010. Electricity use measured at 1,750,000 kilowatt-hours in 2005 and nearly doubled to 3,490,000 kilowatt-hours in 2010. But this was understandable due to the huge increase for city services brought on by three new residential developments.

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Step Two - Developing Potential Energy Efficiency Measures: ESA engineers' meticulous details provided a map for the city of McFarland. ESA created a cost-benefit tool to help McFarland choose strategies. The strategies and policies then became part of the McFarland Energy Action Plan. It didn't take long for city staff to develop goals, form a plan and get approval from city council.

Step Three - Fast Start for Plan Implementation: "First we took immediate action in areas that required little capital. We replaced lights," explained McNamara. The city of McFarland is served by SCE east of Highway 99 and by PG&E west of Highway 99. Both utilities provided incentives for more efficient lighting in city buildings and street lighting. McFarland had a vineyard which was used as a way to recharge ground water. The vineyard used water from an on-site well to supplement that supply. The well pump accounted for 1% of the city's electricity usage. The solution was obvious to remove the vineyard and the pump. ESA even looked at the old water heater in the Police Department and determined $966 per year could be saved with a new replacement, setting the payback at 2.6 years.

Step Four - Intermediate Range Implementation: "We have developed a more energy resourceful approach when replacing tangible assets such as vehicles, landscaping, pumps, and upgrading facilities," McNamara stated. Using numbers from ESA, the city applied for a Federal Energy Efficiency Conservation Block Grant and received funding to replace the City Hall HVAC unit. Considering the power savings, it is estimated this system will pay for itself in 6 years. The San Joaquin Valley Air Pollution Control District awarded a grant to McFarland to purchase neighborhood electric vehicles for times when only staff needed to be transported. The city of McFarland recently worked with SolarCity to install an 842Kw solar array at the wastewater treatment plant which, when energized, is expected to provide the city with an estimated annual savings of $60,000 to $70,000. PG&E is also assisting with a study of expanding and upgrading the wastewater treatment plant with variable-frequency pumps and an improved aerator system. Future plans include controlling many potable and wastewater processes by computer which will automatically adjust during peak demand.

McFarland staff uses four electric John Deere Gators

Step Five - Long Range Goals: The city of McFarland plans to improve transportation for those on the east side, as well as encourage other forms of commuting such as riding bikes and walking. The city is also considering making buildings energy-smart and promoting green energy savings building guidelines. All of these plans will have long term effects on the city.

Moving Forward - Organized Approach for Assistance: The city grant writer now has great application material thanks to the comprehensive energy inventory and energy action plan. The city is applying for Federal Energy Efficiency Conservation Block Grants and pursuing other funding opportunities as they are announced. The McFarland Energy Action Plan is benefiting the city in their goal to become better stewards of tax dollars and the environment. McFarland has found many veins of gold — energy gold.

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Visit www.kernenergywatch.com

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