

Local Government Case Study:
Kings County

Background

- Population: 130,000
- Size: 1,100 employees, campus facility with over 12 buildings, 350,000 sq. ft.
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Summary

The County Administrator's Office of Kings County formed a committee to help solve the energy crisis concerns in the fall of 2000. The energy goals of the committee were to save money, reduce energy usage and to "stay on" during blackouts to avoid sending employees home. The committee enacted several no-cost and low-cost conservation projects, including changing the summertime work week, altering the cold-water pump times and retrofitting lights. Additionally, Kings County bought a generator, which enabled the county to avoid financial loss due to blackouts and a fee of \$9 per kilowatt for not dropping off the grid when required to do so under the term of its interruptible rate agreement. The conservation and efficiency efforts reduced Kings County's energy usage by 71,330 kWh from 2000.

Referenced in Local Government Guides:

- #1, "Reduce Energy Use in Local Government Facilities Through Conservation Measures"

Plan

In Kings County, the County Administrator's Office formed a committee of seven people to help solve the energy crisis concerns in the fall of 2000. The plan was to save money, reduce lighting, temperature, pump usage and to "stay on" during blackouts. The committee wanted to find a way to keep operations going during the blackouts, due to the increased expense of sending employees home. The county also wanted to set an example for the community.

After several blackouts, the Board of Supervisors directed the committee to install a generator for \$550,000 or less.

The committee also targeted energy conservation and efficiency improvements in Kings County facilities, primarily those related to HVAC improvements; most of the 12 buildings have central air conditioning systems.

Programs: Conservation

✓ **HVAC:** Raised room temperature from 72° to 76-78 degrees F and installed 40 locking thermostat boxes in county facilities to insure settings were not tampered with. The county also installed automatic shut-off timers on AC units in 10 buildings to insure that they turned off after 4 p.m. and on weekends.

✓ **Lighting:** Delamped about 30 percent of ceiling lighting and outdoor lights in all county facilities.

✓ **Alternative and/or renewable energy sources:** Purchased and installed a Caterpillar 3516B Generator Set, a 2-MW diesel generator powered by a 2,800-horsepower, 16-cylinder engine and 1,800 r.p.m. in February 2001.

- Purchased a Catalytic Particle Filter by CleanAIR System. Kings County was unable to run the generator until they purchased an air filter. The filter was the first of its kind and Kings County purchased it on an experimental basis. The CleanAIR company wanted to have their filter certified for statewide use. The test for the filter was that it had to run for 500 hours off of the generator. The test was completed at the end of March 2002. After purchasing an air filter, Kings County was the first one to get 614 hours of electricity run by the generator approved by San Joaquin Valley Unified Air Pollution Control District.

✓ **Pump schedule:** Changed the scheduling on the cold-water pumps during the summer months, beginning cooling later and ending earlier during the workday. This program saved energy without inconveniencing the employees.

✓ **Work week schedule:** Changed working hours from June to August to 7 a.m. to 4 p.m. The committee had to consult the union for the changes in the work hours. The committee sent memos to all employees and put notices in the local newspaper and around county buildings to let the public aware of the changes to conserve energy. Summer hours ended in August due to child care and school issues.

Programs: Efficiency

✓ **Lighting:** Replaced some lights with more energy-efficient T8 fluorescent tubes.

Programs: Public Outreach

✓ **Printed energy information:** Issued announcements in memos, local newspapers and flyers to make the public aware of measures they could take to conserve energy.

✓ **Elderly and disabled:** Kings County was very concerned for people of poor health during the energy crisis. Over the summer the county worked closely with Emergency Care programs, such as the Red Cross, Fire Departments, Emergency Medical, to support the elderly and people who would face significant health problems during a blackout. The county also worked closely with Edison & PG&E to notify the county when a blackout would occur and the blocks that would be experiencing the blackout; the information was not publicized for fear of crimes that might have occurred.

Budget and Finance

The total purchase and installation cost of the Caterpillar 3516B Generator Set was \$550,000. The County Board felt the generator would pay for itself by producing enough power to prevent having to send employees home.

The total cost of the filter by CleanAIR System was \$25,000; the filter would have normally cost \$150,000, but CleanAIR absorbed much of the price so that King's County would test the filter.

Setting thermostats was no cost and retrofitting lighting was low cost.

Results

To track the results of the programs, the county gathered energy use data from the central plant meters, which report

electricity usage by the hour. The county also gathered usage data from SCE's website.

Public Works staff measured results by comparing the period from June 19 to July 19 of 2000 to the same period in 2001. The county found the following results:

- Overall, used 71,330 less kWh, based on 17 cents/kWh rate – 735,809 kWh in 2000 vs. 664,478 KWH in 2001.
- Saved 8,500 kWh and \$1,445 from the change of work hours during summer.
- Low-cost conservation measures (thermostats, water pump schedule) saved 62,830 kWh and \$10,681.00.
- Reduced peak usage by 22 percent for a energy cost savings of \$8,700.

Energy costs increased from \$67,969 to \$102,101 because of increased utility rates (the \$102,101 included an \$8,700 rebate from the 20/20 program). If the County had used the same amount of electricity as the last year, they would have paid \$124,600. If the 2000 rate per kWh had been applied to 2001 power usage, the county would have saved \$22,499.

On July 3, 2001, the County disconnected from Edison and saved 2,014 kWh by running the generator for two hours and 10 minutes. The purpose of this was to save electricity, even though the county was not called off of the grid. Kings County planned to run the generator/filter in the summer of 2002, and expected to save \$30,000-\$40,000 during that period.

Lessons Learned

Kings County had to buy and install an air filter system before the air pollution control district would permit it to run a generator.