



# Case Study: Summit Schools, Summit County

By Cam Burns

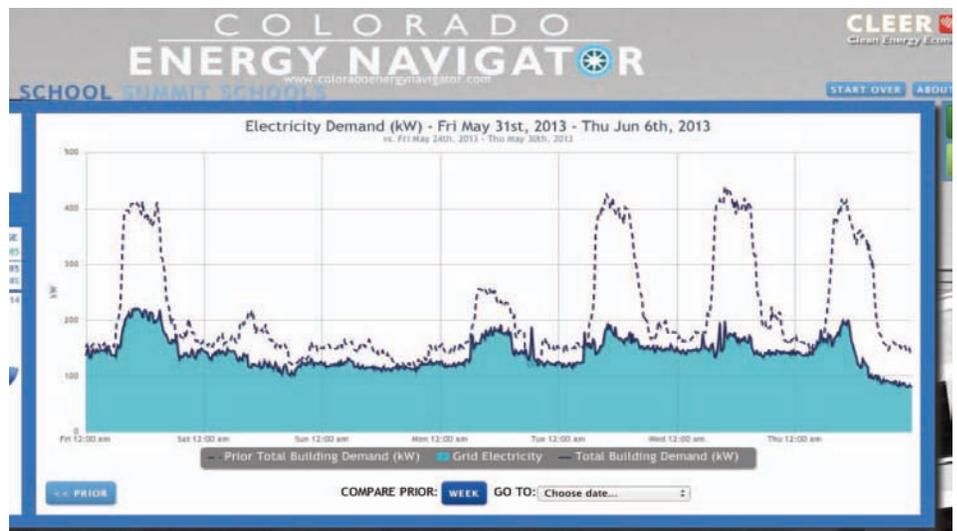


## Actively managing energy use brings big cost savings to Summit Schools

Through a combination of energy efficiency and actively managing energy use, the Summit School District is on track to save more than \$100,000 in energy costs this year.

In fact, after investigating the operation of lighting and HVAC equipment at Summit High School in the summer of 2012 with a new energy-management system called the “Colorado Energy Navigator,” Summit School District Facilities Manager Woody Bates and his staff were able to cut energy use by over \$50,000 during the three-month June-to-August 2012 period compared to the same period in 2011. The energy-saving techniques they used are now being replicated across the district. Data recently compiled by Carbondale-based Clean Energy Economy for the Region (CLEER), which is helping Bates and his staff, show that in the three-month period of September, October, and November, energy savings across the district totaled about \$24,000 compared to the prior year.

“What’s going on in the district is quite astonishing” Bates said. “We knew we could reduce energy use, but what we’re seeing is beyond anything we thought possible.”



This screen shot shows energy used during the first week of June 2013 (blue area) versus the energy used the previous week.

The district’s push to save energy began in spring 2012 when Bates was introduced to CLEER’s “Navigator.” Lynne Green of the High Country Conservation Center, who facilitates the Summit County Energy Advisory Group, was working on Summit County’s energy plan when she heard about the Navigator, which governments in Garfield County use on their buildings. She arranged for CLEER engineer Mike Ogburn to show it to several Summit County facility managers, including Bates.

The Navigator tracks energy use,

then displays the energy used in a building in a simple-to-understand format on the web. The straightforward display shows energy use over various time periods—e.g., days, weeks, and months—as well as cost in dollars and the carbon emissions asso-

### Lessons Learned

- Sometimes the most effective energy upgrades are extremely “low-tech” (like turning unused equipment off)
- Building managers often don’t know where energy is being used

ciated with that energy use.

It was developed in 2011 by CLEER with support from Garfield Clean Energy, the Department of Local Affairs, the Governor's Energy Office, and the Department of Energy's Better Buildings program, based on concepts developed by New Energy Technology. The Navigator currently hosts energy data for more than 90 public buildings, mostly in Garfield County.

By following the energy use, managers of these facilities are able to adjust how a building uses energy, and, more importantly, how a building can save energy.

"It's an incredible product because we can quickly see changes in energy use," Bates said.

Bates and Ogburn set up the Navigator at Summit High School, the district's largest building, last summer. Bates and his staff then began adjusting the building's operations and tracking energy use on a daily basis.

"We shut down refrigerators and freezers, kept lights off during the day when possible, shut down everything we could on all HVAC systems, unplugged appliances, shut off computers when we could and turned off parking lot lights," Bates said. "We also shut down nearly every boiler in the district which saved huge amounts in natural gas."

The key to energy savings, according to Ogburn, is not just having data available, but reacting to it, something Ogburn calls "active energy management."

The results during summer 2012 were impressive.

"From the day we installed the Navigator at the high school in June to around the first week in August, our daily consumption went down to around 1,800 kilowatt-hours—or less—from our typical 6,000 kilowatt-hours per day when school is in session," Bates said. "Our monthly summer bill at the high school went down to 54,000 kilowatt-hours from the usual 180,000 kilowatt-hours."

Another big savings Bates anticipates will undoubtedly be in what electricity utilities call "demand charges"—charges paid by commercial utility customers to ensure the utility can cover

any peak electricity demand the district might require. Peak demand charges are notoriously big, and can reach \$9,000 per month at Summit High School, or more than 50 percent of the total energy bill.

"By being active in managing our energy use and monitoring the results on the Navigator, we dropped our peak to around 100 kilowatts most days last summer," Bates said.

During the period June 24 to July 24, 2012, utility bills showed that the high school's peak electricity demand was 189 kilowatts "and we're typically up around 450 kilowatts," Bates said. "Our total bill for that time period was only \$7,700 and it's typically around \$14,000."

The energy savings are tracking into the 2012–13 school year. In the months after Bates had tried the Navigator at the High School, it was added to other schools and Bates and his staff have used the Navigator as well as active energy management in all the dis-

trict's buildings to achieve September, October, and November 2012's \$24,000 savings.

An additional factor in the huge energy savings the district is achieving comes from changes in policy. By managing how the school is operated, even the simplest things like turning off a light can have big consequences.

"The district never had a policy of asking the custodians to leave the lights off in the building when possible," Bates said. "And we've never had a policy of shutting off HVAC fans. So just over the summer, in those two months, we saved a lot of money."

High Country Conservation Center's Greene said she and Bates and others are working with the District to develop a curriculum that will engage students with regards to energy. A number of schools in Garfield County's three school districts have energy clubs, and Greene said such clubs might work in Summit County.

"Obviously, with more energy savings, the less we pay for utilities and more money stays in the school district for education," Bates said. "I am always looking for ways to save energy and money and the Navigator is exciting stuff. I think we have just scratched the surface with what we can do with it."

For more, go to <http://coloradoenergynavigator.com>

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—Woody Bates,  
Summit Schools facilities manager

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