



Case Study: Parachute, Colo.

By Cam Burns



CLEER's Navigator Helping Parachute Take a Bite out of Energy Use

Most residents of Parachute are well aware of the solar flow-ers at the rest area off I-70, and of the solar arrays on Parachute's Town Hall, water treatment facility, and library. But there's a new that's doing the heavy lifting when it comes to cutting fossil-fuel-based energy use in the town.

The Energy Navigator (garfieldenergynavigator.org) is a web-based tool that provides data on energy use in any building it's connected to. It tracks energy use, then displays the used energy in a simple-to-understand format on any computer.

While the solar arrays on town hall, water treatment, and library facility make a very public statement about clean energy use in Parachute, the Navigator does something more important—it changes how the building operates.

Last year, CLEER, a Carbondale-based non-profit that does clean energy work, developed the Navigator to address energy use in buildings.

The Navigator uses energy data from buildings' utility bills and get uploaded into "Utility Manager," a type of energy accounting software.

The data then gets put in the Navigator where it becomes accessible to anyone with an internet connection. The easy-to-use display shows monthly energy use and cost in dollars as well as the carbon emissions associated with the electricity use.

Then, those in charge of running the buildings can adjust how they're heated, cooled, ventilated, and lit.

"We can make lots of energy with solar panels and other devices, but if we were making all that energy and then using it wastefully, there's not much point," said Mike Ogburn, an energy engineer with CLEER, Clean Energy Economy for the Region. "The Navigator is a unique energy solution because it gives us the detailed information about energy use so we can use it more more efficiently."

As of early 2012 the Navigator was tracking 80 buildings across the re-



Parachute Town Hall. Photo by CLEER staff

gion, including libraries, town halls, recreation centers, and wastewater treatment plants. Alpine Bank, recently added its Central Operations facility to the Navigator.

For 25 specially selected buildings—including Parachute's town hall—the Navigator can be used to view 15-minute "live" electricity use by day, week, and month. Eleven of the 25 buildings include live solar tracking. The information is displayed on a screen according to physical location (Parachute, Rifle, Glenwood Springs, etc.) and building type (town hall, recreation center, etc.). When energy use information is then used with "Active Energy Man-

agement”—CLEER’s term for actively managing how a building is operated—the drop in energy use can be dramatic.

Active Energy Management

Several years ago, Parachute re-modeled its town hall and installed a state-of-the-art heating and cooling system. After moving into the building in December 2008, it became apparent to town officials the system was not operating as expected. Parachute had multiple service calls from a variety of vendors with no improvement to the system.

“With only a two-hour visit from CLEER engineer Mike Ogburn the issue was identified and corrections made to the system,” explained town administrator Robert Knight. “The building now operates at a consistent temperature, which will result in energy savings in addition to the solar panels already installed. This has been a great partnership and Parachute looks forward to do our part in helping others achieve similar results.”

Information from the Navigator led Ogburn to adjust the building heating, ventilation, and air conditioning (HVAC) system’s software so that the HVAC system went to “unoccupied mode” after normal business hours. When set to unoccupied mode, the building heating and cooling runs much less often.

After changes were made in early August, energy savings over the first full week were 27 percent of electricity use, which included electricity savings of 39 percent on Saturday and 48 percent on Sunday. Savings

on natural gas are also expected in winter after additional boiler setting changes. The total forecasted energy savings from this simple software change are \$3,000–5,000 per year.

Operational and energy use cost savings aren’t the only benefit. After changing the software so that the building uses “unoccupied mode” in the evenings and on weekends, the equipment runs less, meaning fewer repairs and maintenance costs.

According to Ogburn, with the new settings, the heating and cooling equipment in the east wing of the building now runs 118 fewer hours per week—a 70 percent reduction in run time. The west wing heating and cooling system still operates 24/7, but town hall officials made changes to operational schedules in the lobby and council areas. All told, the west wing heating and cooling system now runs roughly 30 percent less each week.

Use of the Navigator along with Active Energy Management has also improved comfort in town hall. South-facing office airflow settings have been reset to match the building’s original design, keeping staff more comfortable on sunny days. The council chambers are now set to “on demand only” operation, allowing occupants to request cooling or heating only during meetings, saving energy and allowing staff to turn off one or both systems in the room if not needed during meetings.

“The utility bills of all the governments in our countywide partnership add up to more than \$4 million per year for our buildings,” said Frosty Merriott, the Carbondale rep-

resentative to the Garfield Clean Energy board. “That’s a substantial amount of money going just to light, heat and operate these structures. What we’ve found is that we can save huge amounts of energy, thereby cutting costs just by tracking and managing this considerable energy use.”

The Navigator was developed by the CLEER team, with Mike Ogburn, CLEER’s energy engineer, leading the effort. Primary support came from a Department of Local Affairs New Energy Communities Initiative grant with additional support coming from a Department of Energy Better Buildings grant. The tool was based on an energy management concept used by New Energy Technology (NET), a Grand Junction consulting firm, and on web-based solar energy tracking systems in use at existing solar installations in the county. CLEER partnered with Lucks Digital of Carbondale for software development and Bailey Haines for graphic design.

Now, additional communities in Colorado are expressing interest in also using the Navigator. “If every public building in Colorado were using the navigator, we could be saving millions in wasted dollars,” said Ogburn.

The Energy Navigator’s website is www.garfieldenergynavigator.org.

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