



CUSTOMER CASE STUDY

DERNetSoft: Enhancing energy efficiency with data

DERNetSoft - www.dernetsoft.com

Industry - Infrastructure, power and utilities

Challenges

- Need to reduce energy consumption across 1,200 buildings
- On-site DERs such as solar and fuel cells were difficult to track and manage, with multiple DERs managed by different vendors
- Lack of digitization, data availability and standardization across multiple utility territories

AVEVA Solution

- Deployed a SaaS platform built with CONNECT data services to collect, track and analyze data from DERs and other energy sources

Results

- Health care customer saved millions of dollars (USD) in energy costs and reimbursements for overproduction, with possible further savings of tens of millions of dollars if all identified measures are implemented
- Enabled health care customer's management teams to provide assurance that DER investments are the right size and scope
- Expanded low-cost/high-impact opportunities for customer to operate more efficiently

With 35 MW of fuel cells, 60 MW of solar, a dozen or so battery installations, and several micro-grids, DERNetSoft's health care customer had many on-site renewable energy sources—but little ability to track how they were all performing. Renewable energy sources such as fuel cells, solar, and wind enable companies to operate more efficiently and cut costs while reducing their carbon footprints. But a lack of digitization, data availability, and standardization makes managing these resources difficult, especially given that different vendors often use disparate systems. Multiple renewable energy sources managed by different vendors often lead to data silos. It becomes extremely challenging to conduct data analysis when there are six or seven different energy streams that need to be integrated in one place. DERNetSoft, a provider of energy resource management solutions, helped centralize and visualize its health care customer's energy data with the help of CONNECT data services, leading to millions of dollars in savings and more sustainable operations.

“We’re using [CONNECT data services] as a main data store, which is perfect to also integrate data from other cloud service platforms.”

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Alberto Colombo
Founder and President, DERNetSoft

Understanding energy production of fuel cells

The health care provider had originally installed fuel cells to save money on ever-rising utilities costs. After a while, though, the company noticed its gas bills had been going up while its electricity bills hadn't been going down much. So, it reached out to DERNetSoft to help figure out what was going on. DERNetSoft's energy information systems help companies collect and manage data from distributed energy resources (DERs) like fuel cells, solar and wind.

DERNetSoft built its software-as-a-service (SaaS) platform using CONNECT data services. This solution gave the customer a cloud-based, scalable platform that could collect, automate, and digitize data from DERs.

With integration between cloud and on-site data, the company could collect data in CONNECT data services, standardize it, then run a suite of analytics on the data. This integrated data platform enabled the team to break behind-the-meter (BTM) data silos and see exactly how their fuel cells were performing.

It turned out the cells were generating more electricity than the facility needed and were exporting energy back to the grid, which meant the company was losing money. By using 15-minute interval fuel cell production data from the platform, the company's energy management team discovered that a number of their fuel cells were oversized.

The team went back to the fuel cell vendor with this new data in hand. This enabled them to work on a solution with the vendor that included downsizing or moving existing cells and better-sizing future cells, which lowered the customer's electricity bill.



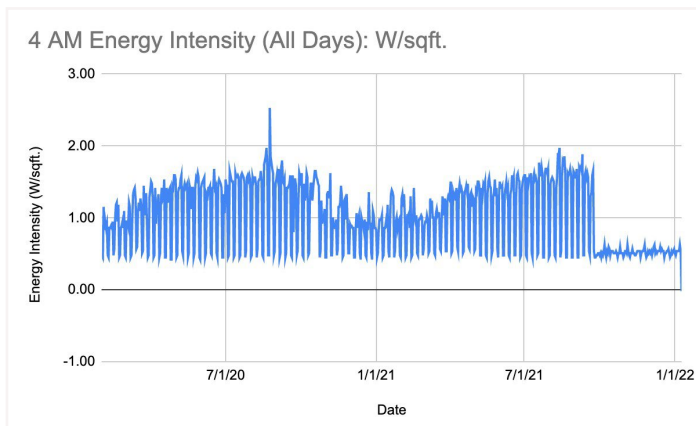
This dashboard shows energy production from fuel cells, indicating an excess of net metering on the weekends.

Saving with solar energy and nighttime setbacks

This was only the beginning of the platform's benefits. After the customer noticed some solar billing errors, it used the data platform to systematically audit more than 100 on-site solar locations. It discovered that the production level, in some cases, was less than what it had contracted for. Looking at the data, the customer could see exactly how much solar energy was being produced and how much it would have cost if it were buying that electricity from a utility company. In some cases, the PPA rate was slightly higher than the avoided cost because it was on the wrong tariff.

Buoyed by the savings it discovered through its solar data, the customer decided to use DERNetSoft's platform to track and manage nighttime setbacks. Although every building is different, and some need all systems running, the data platform enabled the customer to set a standard and brainstorm energy-saving solutions. Maybe a facility doesn't need to have the HVAC system on overnight. If electricity needs to be on because of a lab or a pharmacy, maybe there are other possibilities, such as sectionalizing or rezoning it to optimize efficiency.

These small changes added up to significant savings. In one building, facilities had been turning down the HVAC system only on the weekends. After the customer's energy management team showed them the data illustrating the advantages of nightly setbacks, the facility began to turn HVAC systems off every night, with an estimated savings of US\$20,000 a year. If every building the customer was focusing on in its initial study got down to one watt per square foot from 10pm to 4am, the data showed the savings would be US\$1.7M per year.



Energy saved from one building from nighttime setbacks going down to 1 W/ft² from 10pm to 4am.

“The energy community ecosystem provides many benefits and is an easily replicable model that can be adopted by other industries.”

- Alberto Colombo

Founder and President, DERNetSoft

The energy community ecosystem

The platform DERNetSoft created using CONNECT data services makes integrating and analyzing energy data a lot easier. Sharing that data securely across the organization is also much easier. At a company like DERNetSoft's health care customer, where there are so many stakeholders, it's important they all have access to the same data to make informed decisions. The data platform is also a key tool for educating facility directors, chief engineers and regional executives about the benefits of the company's sustainability programs.

Along the way, DERNetSoft is also able to provide data and services to vendors and organizations outside its health care customer, expanding the data ecosystem even further. In addition to the financial and operational benefits to both the customer and DERNetSoft, this kind of data-connected network is key to the transition toward cleaner and more community-driven energy systems.

Implementing DERNetSoft's platform has saved its customer millions of dollars in energy costs. The subscription model, using DERNetSoft's SaaS with CONNECT data services, gives companies like DERNetSoft's health care customer a scalable solution easily integrated with other cloud platforms that can be applied across operations. Access to utility interval data, advanced analytics, and machine learning will only improve over time—making this kind of data-driven solution key for continued investment in renewable energy. Partnerships such as the one between DERNetSoft and AVEVA will continue to strengthen the energy community ecosystem through smart data solutions, creating more opportunities for a more sustainable future.

For more information, please visit:
aveva.com/en/products/connect-data-services

