Slate solar and storage,
a Goldman Sachs Renewable Power Project

AV≡VA

Building a data community: ZGlobal connects its business ecosystem with AVEVA™ Data Hub

ZGlobal and SVCE - www.zGlobal.biz / www.svcleanenergy.org
Industry - Power

Goals

- Securely share real-time and historical datasets with multiple organizations

- Ensure identical dataset view to all stakeholders for auditing purposes and transparency

- Provide real-time secure access to third-party power producers' datasets to manage scheduling

Challenges

- Multiple different organizations needed access to multiple different datasets from the power producer

- Traditional data-sharing methods either required too much time and effort or raised too many data security concerns

Results

- Analysis of data aggregated by AVEVA Data Hub has saved thousands of dollars on power purchases

- Simplified real-time data sharing between multiple organizations, improving data transparency, collaboration, and trust

- Enhanced security for data sharing between organizations' on-premises AVEVA™ PI Servers and AVEVA Data Hub

Solution

- AVEVA Data Hub (Powered by Azure)

- AVEVA™ PI System™

■ Microsoft Azure

Between the solar farm and the electrical outlet, electricity has a complicated journey to make. Every day, a number of key parties are hard at work behind the scenes to make sure your lights turn on when you flick the switch. First, there's the power producer, which generates and stores the electricity. Next, there's the power purchaser, which buys available energy from the producer. Then, with the help of the power scheduler and other business partners, the power purchaser sells that electricity to the electrical grid, before, finally, that electricity makes it all the way to your wall socket. But in this process, electricity isn't the only thing that's traveling; as ownership of this electricity exchanges from one party to the next, essential data is changing hands with it.

Data is the lifeblood of this complex business ecosystem, providing each participant with the information it needs to meet its specific responsibilities in a multi-organization enterprise. Securely providing each customer and business partner with the specific datasets they need, precisely when they need them, however, is much easier said than done. This is the challenge that ZGlobal and its business partners set out to solve with AVEVA Data Hub and the power of the cloud.

The who's who of renewable energies in Silicon Valley

First, there's the power provider, which develops, builds, and operates renewable power plants in many countries all around the world. Recently, the power producer built a new solar power plant and energy storage project in California. The massive, new facility has a staggering capacity of over 160 MW and can power 64,000 homes – sustainably. To put that figure in perspective, this is equivalent to avoiding more than 315,000 metric tons of CO_2 emissions per year.

The power purchaser, Silicon Valley Clean Energy (SVCE), is a public, non-profit agency that provides clean electricity for 270,000 customers across 13 Silicon Valley communities. After a competitive procurement process, which lasted for more than a year, SVCE reached an agreement with the power producer to purchase more than half of the new plant's power output.

ZGlobal, the power scheduler, helped to set this project in motion in the first place. ZGlobal is a California-based energy consulting firm and solutions provider, which provides power management services to SVCE, including scheduling coordination and asset analysis for maintenance purposes. In the fall of 2021, ZGlobal and AVEVA began discussions on a possible project. The goal was to deploy AVEVA's cloud-based data-sharing service, AVEVA Data Hub, to enable power producers to share real-time and historical data with SVCE and ZGlobal – with all the speed, ease, and security of the cloud.

Transforming the business ecosystem into a data community

Before the participating organizations adopted AVEVA Data Hub, the task of sharing data between the producer, purchasers, and schedulers, was a laborious, time-consuming, and repetitive challenge. There are two traditional methods by which the power producer might share data with its value chain partners, and neither method was ideal. Most commonly, each customer would request data in a certain format at a given interval, requiring a unique solution for each dataset and its delivery, which could include emailing or sending information to a file server. Alternatively, the producer could give purchasers and other business partners access to relevant datasets through a virtual private network (VPN). Giving a third party access to on-premises data systems, however, raises cybersecurity concerns.

The group's new data-sharing solution, configured with the cloud-native capabilities of AVEVA Data Hub, increases security and simplifies the process of sharing datasets with multiple parties. The power producer configures data flow from its AVEVA PI Server to an AVEVA Data Hub tenant. Instead of an on-premises PI Server, now data sharing originates in the cloud from AVEVA Data Hub, which reduces security risk. Rather than multiple, customized data-sharing solutions, the power producer can now configure data-sharing communities for its data consumers, each with its own AVEVA Data Hub tenant.

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This massive new power plant and storage facility in southern CA can generate enough solar electricity to power 64,000 homes.

This new solution enables near real-time data access and granular security configuration. The data consumers no longer need to wait to receive data updates; data is available immediately once the power producer publishes it to AVEVA Data Hub. The community members can configure their own security to control access to datasets as business requirements demand. The solution also eliminates the need for time-consuming system administration, which means that training can focus instead on accessing and using the data.

"I can't undersell the value of being able to integrate data with generator and scheduler data to give us a holistic view. It has lowered our overhead while we are bootstrapping."
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Mike Wardell
Contractor with Power Resource Group, SVCE

Solving numerous problems with one solution

In this new, cloud-based data community, everyone wins. With convenient, remote access to near real-time and historical data, ZGlobal builds daily heterogeneous reports, which combine the power producer's datasets with other information, such as schedule data from the California Independent System Operator as well market and meter data, to provide their customers with a full picture of exactly how their assets are performing. Now, when performance drops below the expected level, ZGlobal has the data to effectively troubleshoot the issue. The new system has also given the company a competitive advantage in attracting new customers. "It's a big deal to be this transparent," said Kevin Coffee, Vice President of Electric Operations at ZGlobal. "We have the same data as our clients and we can look at the same data with them at the same time. This helps to differentiate us from competitors."

As for SVCE, the company enjoys a much more simplified and sophisticated process of settling and validating invoices every month to ensure that the power it pays for matches the performance it expects from its assets. It also allows the company to collaborate more seamlessly and productively with ZGlobal and other business partners, which enables SVCE to sell energy to the grid much more effectively and efficiently. "I can't undersell the value of being able to integrate data with generator and scheduler data to give us a holistic view," said Mike Wardell, a contractor with the Power Resources Team at SVCE. "It has lowered our overhead while we are bootstrapping."

The power producer, like the other members of this new data community, can now share and access data with greater ease, speed, transparency, and security. What's especially valuable, for the power producer, is the repeatability that the new data-sharing infrastructure enables. Now that the company has licensed, constructed, and mastered the learning curve of its new data-sharing infrastructure, the cost of onboarding new projects and partners into the program is incremental and low.

"Using the tools AVEVA provided has given us the insight to flag things that aren't working. To be able to see the data behind it and show exactly when it wasn't working, and how it wasn't working has been very valuable."

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Kevin Coffee
Vice President of Electric Operations at ZGlobal

Today, AVEVA is hard at work developing new features and improvements based on feedback from the participating companies that helped pioneer this project. Meanwhile, those pioneers are already eyeing future uses for their new data-sharing infrastructure. SVCE, which became an AVEVA customer over the course of this initial project, is already preparing to expand its use of AVEVA Data Hub in a new project with an additional power producer.

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