

Powering the Classroom, Overcoming Design Challenges

CHALLENGE

Work within the Division of the State Architect's structural safety requirements to deploy solar on two Portola Valley schools

SOLUTION

Use Enphase microinverters to create a custom design that minimizes wire runs

RESULT

Reduce electricity bills by nearly 80%



“In the end, using Enphase resulted in a superior installation that exceeded the schools’ expectations.”

—Stu Davis
Project Engineer
Real Goods Solar

Complex roof surfaces, shading issues, and safety requirements at two schools in the Portola Valley district presented system design challenges for every array. The Enphase System allowed the pros at Real Goods Solar to deliver an optimal 265kW system.

Complex Situation Made Simple

Surrounded by redwood trees, the Corte Madera and Ormondale campuses of the Portola Valley district needed a solar system that is capable of maximizing energy harvest in times of periodic shading while being flexible to address multiple roof surfaces, orientations, and angles. Microinverter technology made it possible to install each array as its own system, without the string design constraints found with traditional inverters.

“The unique structural requirements and multiple buildings necessitated complex design and installation solutions. Microinverters were the only way to optimize



Nearly 700 students go to school each day within classrooms, cafeterias, and libraries powered by the Enphase System.

the system for the specific needs of the school. Plus we were very grateful to Enphase for the support they provided. In the end, this turned into a superior installation that exceeded the client's expectations," said Stu Davis, project engineer at Real Goods Solar.

A year after the system went live, Portola Valley Schools reports they've slashed nearly 80% off their electricity bill.

Microinverter Flexibility Optimizes System Needs

Spread across two campuses, and 10 different buildings each with a unique design and custom size requirement, the 265kW solar installation in the Portola Valley School District would not have been feasible with traditional string inverters. Working under the oversight of the California Division of the State Architect (DSA), which develops structural safety requirements for K-12 schools, Real Goods Solar needed to work closely with the district to present a custom design to meet strict safety and structural guidelines.

Design challenges associated with the schools' varying roof surfaces and tilts would have prohibited traditional string inverters from being installed on certain buildings and could not have accommodated each array's unique size and configuration. The flexibility of the Enphase System allowed Real Goods Solar to tailor each array specifically for its building's structural needs and electrical requirements, which would have been nearly impossible under DC stringing requirements.

Of the two campuses, the Corte Madera School proved most challenging. Needing to minimize new wire runs connected to the

INSTALLATION SUMMARY

Client **Portola Valley School District**

Location **Portola Valley, CA**

Installer **Real Goods Solar**

System Size **265kW**

Microinverters **Enphase M215**

Modules **Sharp 235W**

system, Real Goods Solar was able to terminate each inverter AC branch circuit at the host building's subpanel, a unique capability that comes with microinverters. While the Ormondale campus was also subject to DSA guidelines, the process was much simpler. Enphase once again enabled a range of system sizes to be installed, from large arrays typical of commercial sites to smaller arrays made of just a few inverters and modules.

The Portola Valley School demonstrates how the modularity of Enphase microinverters can be applied to commercial sites, giving multiple roof structures a system designed for optimal production. Enphase's Enlighten also offered module-level monitoring desired by the school district, enabling them to track the health and performance of their solar investment.

About Enphase Energy

The Enphase System revolutionizes solar power generation with industry-leading technology innovation. Enphase's proven microinverter technology maximizes production of each module, which works together with advanced communications hardware and an intelligent software platform to deliver a reliable, high-performance solar array.

To learn more about the benefits of the Enphase System, visit enphase.com/commercial.