

POWER PROFILE

Customer: Hawthorne Cat

Location:

Rancho Bernardo, San Diego, California, USA

Customer Business Issue:

Solar power installation to address the rising cost of energy

Solution:

[1,348 Cat® PVC solar modules](#)

Cat® Dealer:

[Hawthorne Cat](#)



Situated on 30 acres of land, the headquarters of Hawthorne Cat® includes corporate offices and a 50,000 square-foot service shop with 42 fully loaded service bays.



A 492 kW solar array was installed on the roof in the summer of 2020, featuring 1,348 Cat® PVC solar modules, each providing 365 watts of power.

POWER NEED

Hawthorne Cat is the Caterpillar dealer throughout San Diego, Hawaii, Guam, Saipan and American Samoa. Headquartered in the Rancho Bernardo neighborhood of San Diego, the company has over 400 employees worldwide with locations in San Diego County, the Hawaiian Islands and throughout the Pacific Region.

Company headquarters is comprised of 30 acres including corporate offices and a main service shop with more than 50,000 square feet of floor space and 42 fully loaded service bays. State-of-the-art facilities showcase metal lathes, a 30,000 foot-pound torque wrench, line boring services, a stress relief machine, paint booths for large equipment, end mills, auto welders and the capability to reshape and re-skin moldboards, dozer blades and buckets. Additionally, Hawthorne Cat is one of a few Caterpillar dealers that can tear down and rebuild engines and components from a core, and one of only a few service facilities in Southern California with an engine dynamometer.

Operating a facility of this size requires a reliable source of energy and California's commercial energy prices are the third highest in the nation. To address the rising cost of energy, Hawthorne Cat opted to develop and install a 492 kW solar array on the roof of its Rancho Bernardo headquarters in the summer of 2020.

SOLUTION

The installation began on June 8, 2020 and the solar array was energized and producing power by September 2, 2020. The complete hybrid system features 1,348 Cat® PVC solar modules, each one providing 365 watts of power. The installation includes a data acquisition system that monitors solar energy production.

The solar array was designed to produce and offset 100 percent of Hawthorne's annual usage of electricity currently provided by San Diego Gas & Electric (SDG&E).

Rather than bear the cost of owning and operating the solar array, Hawthorne Cat opted for a Power Purchase Agreement (PPA), in which a third-party investor owns the system and hires another firm to operate and maintain it.

"We crunched the numbers, and we ultimately determined that by the time our investors bought the system and installed it on our building, then we

would buy the power back and save about 23.4% of what we would otherwise pay San Diego Gas & Electric going forward," said Russell Wittman, business development manager for Hawthorne Cat.

RESULTS

Hawthorne's electrical bill on the headquarters building is expected to be reduced by more than \$50,000 over the next 12 months. This represents a savings of nearly \$2 million over 25 years.

The PPA structure also helps insulate Hawthorne Cat from future rate increases. The California Public Utilities Commission has raised power rates between four and seven percent every year.

Solar power is a clean form of energy, which means Hawthorne's installation will have a positive environmental impact. A preliminary analysis estimated that the solar array is expected to produce 788,816 kWh in the first year. The offset of energy that would otherwise come from the grid will reduce an estimated 560 metric tons of CO₂ on an annual basis. That's equivalent to taking 120 cars off the road for one year.

The investors in the project are responsible for the maintenance of the solar array. A company that specializes in maintaining solar power systems will be retained by the investors.

"They will have the responsibility of coming out twice a year to wash the solar panels to make sure they stay clean and efficient as possible," Wittman said. "If a solar panel breaks or if the wiring goes bad or a bird builds a nest on the panel and it's not as efficient, they can evaluate the system remotely and then send out a technician to see what the problem is."

The solar array not only saves money for the Cat dealer, it also serves as a demonstration project for potential customers," said Wittman. "This is proof of concept to show that a business off-taker can use someone else's money to save on their energy bill and go green all at the same time."

Please visit cat.com/powergeneration for more information.

