Powering Art, Science and Creative Education at the Exploratorium

Challenge
When the Exploratorium moved to its new campus at Pier 15 on the San Francisco waterfront in 2013, the internationally renowned museum of science, art and human perception was striving to meet a net-zero energy goal. This meant utilizing environmentally friendly, highly energy-efficient systems throughout the historic building – and solar to power the organization’s educational mission.

SunPower’s Solution
The Exploratorium partnered with SunPower to design and install a rooftop solar system using 5,874 high-efficiency SunPower® solar panels. The 1.3 MW installation was designed to maximize available roof space and generate a large percentage of the electricity needed to keep the Exploratorium educating and entertaining more than one million visitors each year.

Customer Benefit
The SunPower system now generates approximately 80% of all electric power used on site and is critical to helping the Exploratorium minimize its environmental impact on the Bay Area. The money saved from lower energy costs enables the Exploratorium to invest more in creating the innovative educational experiences that are at the heart of this one-of-a-kind museum.

Quick Facts

- **1.3 MW**
  Total System Size

- **5,874**
  Total number of solar panels

- **2,000 MWh**
  Estimated Annual Output

- **73,201,165 miles not driven**
  Equivalent greenhouse gas emissions offset over 30 years
Learning About Solar Starts when You Walk in the Door

Visitors to the Exploratorium find themselves surrounded by exhibits that demand to be pushed, pulled, turned, twisted, watched and heard. From generating tornadoes out of pressured air to creating pendulum drawings to experiencing the 3D reflection of a flawless parabolic mirror, the Exploratorium is like no other museum in the world.

Since it opened in 1969, the Exploratorium has sought to create playful experiences that transform learning. The downtown San Francisco museum embraces visitors’ curiosity by offering a true “hands-on” approach to learning, with exhibits and experiences that encourage exploration and interaction. A key component of that educational experience is an innate approach to sustainability.

In 2013, the Exploratorium relocated to the historic Pier 15 at the Embarcadero on San Francisco Bay. The new 330,000-square-foot indoor and outdoor campus is three times larger than the museum’s original location at the Palace of Fine Arts. Although the new space would be enormous, featuring six main galleries, a 200-seat theater, a life sciences laboratory as well as wired classrooms and labs, it would also be designed and built to be a certified LEED Platinum facility with maximum energy efficiency and sustainability measures as required by the US Green Building Council.

Building a state-of-the-art solar solution on such historic building presented unique challenges, from getting maximum exposure out of limited space to ensuring the installation was consistent with the original character of the building. The rooftop system – the crown jewel of the museum’s sustainability commitment – is nothing short of an engineering and design feat in the form of 5,874 high-efficiency SunPower solar panels that generate 1.3 MWp of clean electricity.

To help make the connection from the rooftop system to the electricity it powers for educational exhibits inside, visitors are greeted with a solar...
Reducing Energy Costs Means More Funding for Inspiration

The Exploratorium is a vibrant public environment that demonstrates its extraordinary commitment to sustainability at every opportunity, from utilizing Bay water to radiantly heat and cool the buildings, to leveraging collected rainwater to flush toilets, to using a combination of LED, fluorescent, and induction lighting to keep the facility bright and energy efficient.

Finding the right solar solution to power the museum was crucial to the Exploratorium for two reasons: fulfilling its educational mission and reducing its environmental impact.

During the move between buildings, leadership at the Exploratorium was working to understand how to arrive at the best solar solution for the new facility. Would they purchase the system or would a power purchase agreement (PPA) make the most financial sense? Were there state initiatives that could help reduce costs? Were federal grants available for nonprofits?

“That’s where SunPower became our real partner,” explains Laura Zander, Chief Operating Officer at the Exploratorium. “They worked with us during every phase of the project, from initial pricing options to providing ongoing support. SunPower had the most efficient panels available, and from our research we learned that they had an outstanding reputation for quality. They really were the perfect fit for our needs.”

Working with SunPower, the Exploratorium was able to purchase the panels outright. This proved to be a more cost-effective solution than a PPA for the non-profit museum. SunPower also identified a number of state and federal initiatives that would help offset costs. Operations and maintenance for the project are

“SunPower was a tremendous partner through every step of the project. The team’s attitude was always ‘What can we do to make you look great?’”

Laura Zander
Chief Operating Officer
“Working with SunPower was an outstanding experience. They figured out the best solution for our needs, from aesthetics to performance.”

Shani Krevsky
Campus Project Director

covered by a 20-year agreement between the Exploratorium and SunPower.

“By reducing our energy costs, we are better able to fulfill our mission of creating inquiry-based experiences that transform learning,” says Shani Krevsky, Campus Project Director. “Keeping that money focused on newer and better exhibits benefits every visitor who walks through our doors.”

Demonstrating sustainability to visitors from around the world.

The Exploratorium has become its own extremely large, interactive exhibit that educates and inspires multiple generations about the importance of sustainability. As one of the greenest museums in the world, the Exploratorium has made solar energy a centerpiece of its sustainability efforts, even in a city better known for dense fog than sunny days.

The solar installation also helped the Exploratorium achieve LEED Platinum certification from the US Green Building Council, one of only two projects in San Francisco to achieve Platinum status in the Building Design and New Construction categories in 2014. The museum’s LEED scorecard included 33 out of a possible 35 points for “Energy and Atmosphere” and five points out of six for “Innovation.”

“It’s one thing to say your museum uses solar power. It’s completely different to show visitors exactly how you do it,” says Zander. “That’s especially true for kids. They understand the environmental challenges ahead. Our goal is to make the biggest impact we can on our visitors while ensuring we make the least impact possible on the environment.”

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