

Case study

Orange County Convention Center

Orlando, Florida



Sunshine state convention center soaks up solar power

Orange County, Florida, has been an early adopter in the quest to reduce greenhouse gas emissions. The county made a commitment in 2005 to reduce petroleum consumption, and has been implementing energy efficiency measures ever since. Continuing on this path, and recognizing the impact of global warming, Orange County established a comprehensive Climate Change Protection Plan with a dedicated staff to support it. This plan included installing solar photovoltaic (PV) panels at the Orange County Convention Center (OCCC).

Johnson Controls was awarded a contract to design and build five solar photovoltaic systems. The \$8.8 million project included a 1.016 megawatt PV array on the roof of the Convention Center's North/South Building, and four smaller 10 kW demonstration PV systems for educational purposes that feature a variety of module and racking types. The Convention Center now has the largest rooftop solar array in the southeast, encompassing the space of five football fields and generating an estimated 1,158,253 kilowatt-hours of AC electricity per year – without producing any greenhouse gases. That's equivalent to the power used by 100 typical homes annually. The sun fuels about 10 percent of the Convention Center's North/South Building.

The State of Florida awarded a \$2.5 million grant to install the system, and the Orlando Utilities Commission contributed \$1.5 million to the project in exchange for the Renewable Energy Credits generated in the first 10 years of operation. Construction began in 2008 and the system was dedicated on May 20, 2009 at the opening session of the Green Cities Florida 2009 conference.

Solar project details

Johnson Controls provided overall project development and management support for the installation of the high-efficiency solar PV modules, which occupy approximately 200,000 square feet of roof space on the south roof of the North/South Building.



"I want this project to show the world that Orange County embraces green technology. We are committed to reducing our carbon footprint while recruiting 'clean tech' companies that will help the world go green."

RICHARD CROTTY
ORANGE COUNTY MAYOR



The solar photovoltaic panels feature all American-made materials. And the Climate Change Education Center was constructed with 100 percent recycled materials.

"Solar PV technologies provide several environmental and energy-related benefits. They produce electricity without generating greenhouse gas emissions or any other air pollutants. Using PV also helps increase energy independence and security, create jobs, promote economic growth, and reduce energy bills. We were pleased when Johnson Controls was awarded the design/build contract, and we've been more than satisfied with the performance of their team on this project."

JERRY DAIGLE
OCCC PROJECT MANAGER

1.016 MW Rooftop Array

The rooftop and demonstration systems consist of 5,913 solar panels, which have been built to withstand a Category 3 hurricane and temperatures in excess of 120 degrees Fahrenheit.

To allow for the proper array configuration and optimum use of available roof space, Johnson Controls specified the use of a mounting system with direct connections to adhere the arrays to the roof. The PV array modules selected for this installation were chosen because they are highly efficient and are constructed with all American-made materials.

Climate Change Education Center

An important component of this project is the Climate Change Education Center – a working laboratory that offers Convention Center visitors as well as the general public a real-time view of the PV system's performance. The Center also features displays from several local companies involved in solar and other alternative energies, in addition to conservation efforts occurring throughout Florida. Electrical vehicles are showcased, as well.

Construction of the Climate Change Education Center was accomplished by using 100 percent recycled materials. The center's data collection system measures the project's energy production and efficiency.

Green leadership

The Orange County Convention Center is not only known for being the second largest convention center in the nation and "The Center of Hospitality" located in the heart of Orlando's tourism district, but it is also becoming nationally recognized for its green initiatives. The OCCC exemplifies its commitment to environmental stewardship through ongoing projects and consistent review of its facilities and processes.

It is the first convention center in the United States to receive International Organization for Standardization (ISO) 14001:2004 certification for its Environmental Management System (EMS) in the buildings services section.

The OCCC works with its clients to ensure that any leftover food and/or products after events are donated to local schools, hospitals, or other non-profit organizations in the surrounding communities of Central Florida.

Two Ford hydrogen-powered V-10 E-450 shuttles are among the OCCC's fleet of vehicles, which are part of the effort to find alternative fuel resources for the future and the community. The hydrogen-fueled shuttle buses can carry up to 12 passengers and are being used for the convenience of OCCC visitors, employees, and tours.

The Convention Center uses reclaimed water for landscaping irrigation, has utilized Xeriscape™ plantings, and has installed low-flow faucets within restroom facilities to assist with water conservation efforts.

The OCCC provides clients and guests with recycling opportunities through placement of numerous recycling containers located throughout the entire facility, paper-recycling efforts by staff and clients, and the enforcement of the OCCC's Environmental Management System (EMS) certification guidelines.

For more information, please visit: http://occc.net/Community/solar_project.asp