

Smart Communities In Focus

Spotlight: San Diego, CA



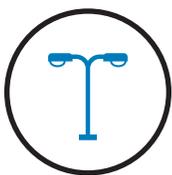
San Diego's smart community effort is aided through its partnerships with San Diego Gas & Electric (SDG&E), Black & Veatch, Center for Sustainable Energy, CivicSD, Cleantech San Diego, Dell, Free Ride, General Electric, IKE Smart City, Intel Corporation, OpConnect, OSIssoft, Port of San Diego, Qualcomm, San Diego Metropolitan Transit Authority, and UC San Diego.

San Diego's Goals

- Improve the region's energy independence
- Empower citizens to use electric vehicles
- Reduce greenhouse gas emissions
- Encourage economic growth

Smart communities are built on smarter energy infrastructure and leverage the power of data and technology to improve sustainability, spur economic development, help drive efficiencies, and enhance the overall quality of life for their citizens. This summary focuses on specific opportunities where communities and electric companies can collaborate to make communities smarter, including projects that advance: Smart Street Lighting, Smart Transportation, Smart Buildings, Distributed Energy Resources, and Data Analytics and Intelligent Services.

What Makes San Diego Smart?



Smart Street Lighting—*Saves energy, improves safety, and reduces traffic congestion.*

- San Diego is replacing 14,000 (of 60,000) streetlights with LED lamps. This is part of a \$30 million upgrade effort that includes sensors, monitoring, and adaptive controls that provide the ability to dim the lights on fixtures remotely, based on need or situation, and lumen maintenance capabilities. Estimated savings are \$2.4 million annually.
- The adaptive control system monitors the fixtures, and provides maintenance notifications, and the GPS coordinates for each fixture. Fixtures are expected to be installed by fall 2018.
- San Diego also is installing cameras, microphones, and sensors on 3,000–6,000 street lights in downtown San Diego, covering 160 miles in 2017/2018. The system will use sensing nodes on light poles to locate gunshots, estimate crowd sizes, check vehicle speeds, optimize parking and traffic flow, enhance public safety, and track air quality. Data will be provided to entrepreneurs and students to develop applications.
- San Diego installed 30 adaptive traffic signals, which adjust timing based on real-time traffic conditions, and integrated them with the freeway on-ramp metering system.



Smart Transportation—*Improves safety and mobility, reduces carbon footprint, and provides greater access to services.*

- San Diego installed 68 electric vehicle (EV) charging ports at 15 locations—including 9 spots installed in 2014.
- SDG&E is installing 3,500 EV charging stations beginning in 2017.
- Free Ride Everywhere Downtown (FRED), a free, electric-powered, smart-phone ride-hailing service, began operating in downtown San Diego in 2016.
- San Diego Metropolitan Transit Authority is investing \$2 billion in the electric-powered San Diego Trolley system to develop an 11-mile extension from downtown to UC San Diego.



Smart Buildings—*Save energy and improve sustainability.*

- The San Diego Airport is the country's first LEED Platinum-certified commercial airport, with a 12 kV microgrid.
- In December 2014, the Port of San Diego became the first demonstration site in a series of regional public-private smart building initiatives. The smart building project uses sensors to detect energy consumption and translates it into easy-to-manage, real-time data for building operators at the Port of San Diego. Similar sensor and smart building technology was piloted at PetCo Park and the San Diego Airport.



Distributed Energy Resources—*Improve sustainability, efficiency, and reliability.*

- A 45-megawatt microgrid provides UC San Diego with 85–90 percent of its power needs.
- SDG&E operates a 30-megawatt lithium-ion battery storage facility in Escondido that supports the electricity needs of San Diego.



Data Analytics and Intelligent Services—*Increase efficiency, improve city services, and enhance quality of life.*

- San Diego provides free Wi-Fi at all public libraries and at the convention center.
- The Port of San Diego will install 30 networked, interactive public kiosks in 2018. The effort is funded through advertising.

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