



Smart Energy Demonstration Center.

KEMA and Duke Energy partnership shows benefits of two-way digital communication.



As part of our Utility of the Future vision and support for Duke Energy's industry-leading SmartGrid program, KEMA has partnered with Duke Energy to assist in the planning and design of one of the first interactive exhibits to demonstrate integrated smart grid, renewable, and energy-efficient technologies. The Duke Energy Envision Center, located in Erlanger, Kentucky, near the Cincinnati, Ohio airport, provides visitors an interactive and special effects experience that demonstrates the possibilities of modernizing to "smart grid" and energy efficient technology.

The Utility of the Future will change the relationship most utilities have with their customers, as utilities adopt technologies that cus-

tomers have come to expect in every other aspect of their lives. Duke Energy understands this and is using the Envision Center as a way of educating key stakeholders and policy makers about its planned future state operations.

The center features a movie-style studio with sets consisting of a substation with two-way, digital technology, a "smart" home — complete with solar panels and a plug-in hybrid vehicle, an apartment complex with "smart meters", and a power delivery work center — monitoring conditions with real-time data. Utility poles equipped with "intelligent" power equipment are also staged throughout.

Benefits and project details

Demonstrations illustrate how power flows from Duke's generation units to substations, and moves to neighborhoods through distribution power lines. In this future scenario, smart energy technologies will enable the utility to closely monitor the health of the power delivery system, better manage voltage levels, and restore service faster in the event of power outages.

The tour incorporates a mix of video presentations and simulations such as a thunderstorm, lightning strike and power outage, to show how, in the future, Duke will be able to more effectively pinpoint outages and restore power more quickly.

Smart home simulations feature the use of an energy-management system to control high efficiency appliances (e.g., dishwasher, water heater, air conditioning equipment), lighting, and a plug-in electric vehicle.

Duke intends to conduct tours for regulators and local government officials to show the consumer benefits of smart grid technology and increase understanding of their SmartGrid and energy efficiency initiatives. The center also promotes the importance of renewable power to meet the clean energy needs of tomorrow and helps outline how customers can play an important role in helping reducing greenhouse gas emissions.

KEMA maintains an office in the center and conducts tours for utility and technology clients, as well as for energy industry trade groups and associations.

Client

Duke Energy

Project coordinator

KEMA

Duke Energy

Location

Erlanger, Kentucky

Project duration

2008 - ongoing

Scope of work

Smart grid demonstration center

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