



# Helping the city of Charlotte ENVISION A MORE SUSTAINABLE FUTURE

## UNITING FOR A SUSTAINABLE CITY

Envision Charlotte—a 501(c)3 non-profit organization—and its committees are composed of representatives of city and county government, major employers, educators, building owners and managers, and mobile network operators who have truly embraced the motto of “Uniting for a Sustainable City.”

*“Envision Charlotte aligns with Verizon’s Smart Cities initiatives by leveraging smart technology to heighten awareness and drive the efficient consumption of limited resources”*

—Dan Feldman, Director of Product and New Business Innovation—Smart Cities, Verizon

In 2010, Charlotte, NC-based Duke Energy—along with the local organization Charlotte Center City Partners—launched a new partnership called Envision Charlotte. Unveiled during the annual Clinton Global Initiative meeting, the program represented a rare public-private partnership between heads of business, building owners and managers, utilities chiefs, city planning professionals, and more. Their common goal? To achieve up to 20 percent energy reduction by 2016.

Today, Envision Charlotte continues to empower its citizens to be better stewards of the environment, offering a replicable example for other cities interested in reducing energy consumption and creating greater sustainability.

## CHALLENGES

As the largest city in North Carolina—and the second largest in the southeastern U.S.—Charlotte is considered the second major U.S. financial center behind New York. Home to more than 1 million residents, the city has experienced exponential growth over the past decade due to its burgeoning business climate. Envision Charlotte was developed to help accelerate that momentum—fueled by civic and corporate leaders committed to further transforming the city into the country’s most sustainable urban core.

But building smarter, more sustainable cities isn’t easy. Urban centers are complicated ecosystems, and Charlotte is no exception. The program aimed to transform 60+ commercial buildings, encompassing 21 million square feet and housing 70,000 occupants. This would require the support of public, private, and civic stakeholders—backing that’s not always easy to obtain, due to differing priorities and issues with funding and timing.

By taking a holistic and integrated approach to engaging these disparate groups and demonstrating the benefits—both environmental and economic—of real, lasting change, the initiative has assembled a strong consortium of public and private interests with shared vision and momentum.

## SOLUTIONS

Duke Energy invited Verizon Wireless to take on a major role in the project at its outset—an invitation based on a long-standing relationship between the two companies. Efforts began with the Smart Energy Now®—program, which focuses on educating office workers about small, simple changes they can make that, collectively, have a huge impact on the city’s energy usage.

Envision Charlotte’s smart grid captures information using smart meters at 61 buildings within the City of Charlotte. That data is sent across Verizon’s wireless network and delivered via the cloud to Verizon-supplied kiosks and displays in the building lobbies.

These live feeds provide both a centralized view of the overall program, and usage data for individual buildings. They also display tools, tips, and facts about energy use in terms that are easy to understand—for example, turning off lights when not in use, setting back the thermostat when buildings are unoccupied, and revising janitorial practices to reduce “lights-on” hours. This delivery model makes information actionable, turning tenants, workers, and visitors into project stakeholders.

In 2013, Duke Energy introduced Smart Water Now as a new initiative pillar. The measure emphasized implementing simple everyday actions, like reporting problems to building managers, creating incentive programs to encourage water-saving ideas, and competitions focused on water conservation. As with Smart

*“Eventually, we want to use the data we’re gathering, network all pillars together, and truly create a smart city that is a model of efficiency.”*

—Amy Aussieker, Executive Director, Envision Charlotte

#### VERIZON SMART CITIES SOLUTIONS CAN HELP CITIES AND MUNICIPALITIES:

- Manage energy and control carbon emissions by monitoring HVAC and lighting systems.
- Reduce unnecessary use and provide timely maintenance.
- Improve water and power management by providing utility companies with cloud technologies supporting analytics on supply and demand, or system waste.

Energy Now, the program leveraged Verizon network technology to collect hourly water usage data from 28 buildings, using that information to measure the program’s effectiveness.

Next on the Envision Charlotte agenda is tackling the waste pillar. The fourth and final initiative is air quality—seen by many as the most difficult pillar to institute, measure, and replicate.

#### RESULTS

To date, Envision Charlotte has reduced energy consumption by 8.4 percent—driving an estimated \$10 million in savings.

Recently, Envision Charlotte announced a plan to help streamline building operations and infrastructure processes. Envision Charlotte’s “Energy Roundtable” provides free audits by bringing building managers together with University of North Carolina (UNC) Charlotte’s Center for Sustainably Integrated Buildings and Sites program. The partnership is a win-win: Engineering and architecture students have a chance to conduct hands-on audits and make strategic recommendations, and the building managers have a trusted third party helping to educate them about how the building systems work together.

#### ENVISION CHARLOTTE CHALLENGES

- Meet goal of making Charlotte the most sustainable urban core in the U.S.
- Develop measurable sustainability programs for the four pillars of energy and water, and later waste and air.
- Reduce energy use by up to 20 percent by 2016.
- Retrofit legacy systems whenever possible to reduce costs.
- Engage participants to increase adherence to environmental and energy consumption goals.

#### VERIZON SOLUTIONS

- Implementation support for Smart Energy Now, including wireless network transport to cloud, and kiosks and monitors

#### ENVISION CHARLOTTE RESULTS

- Reduction of energy consumption by 8.4 percent for an estimated \$10M in savings
- Accelerated deployment of the Smart Water Now pillar due to the success of grass roots engagement with the Smart Energy Now pillar
- International acclaim: Envision Charlotte named as a finalist in 2014 at the Smart City Expo World Congress

#### WHY VERIZON

As cities look for new ways to boost efficiency, safety, and environmental sustainability, Verizon Smart City solutions can help. From the machines that collect data, to the network that delivers it and to the cloud that disseminates it, our solutions and guidance can help cities reach their unique goals.

#### LEARN MORE

Find out how Verizon can help your city navigate these integrated technologies. Visit [verizonenterprise.com/solutions/connected-machines/smart-cities/](http://verizonenterprise.com/solutions/connected-machines/smart-cities/) to learn more.