



Self-Healing Networks – Carolinas

Seven days a week, 24 hours a day, more than 4 million customers in North Carolina and South Carolina count on Duke Energy. Our generation, transmission and distribution systems provide electric power to homes, schools, businesses, hospitals and manufacturing plants. We have made sizable investments to modernize our system in order to deliver safe, reliable and affordable energy solutions to meet the future needs and expectations of our customers.

Grid Automation

A networked system of sensors, switches and controls is helping us improve reliability, service quality and operational efficiency. These smart monitoring technologies allow us to react to changes in the system, like a damaged power line or transformer, in real time. Before anyone even reports a power outage, the technology immediately detects it and allows us to restore outages quickly.

Self-Healing Networks

An important aspect of our grid automation efforts involves self-healing technology. These advancements transform the grid into a dynamic electrical system with the ability to automatically detect, isolate and reroute power when a problem occurs. The grid is constantly monitoring and running tests, recognizing electrical outages and instantly making necessary adjustments to minimize impact to you and restore power as quickly as possible.

CUSTOMER BENEFITS

There are many benefits to our modernization efforts, including:

- Reducing the number of power outages
- Reducing the duration of outages so that when they do occur, power is typically restored in less than a minute
- Automatically redirecting the flow of power so fewer people are affected



Scan the QR code to view our video about self-healing technology.



BUILDING A SMARTER ENERGY FUTURESM

Where We Are Today

We have installed 146 self-healing networks in the Carolinas, with plans to install over 30 more by the end of 2017. In 2017, these networks have operated 71 times and prevented over 67,000 customer outages. Customers were saved from experiencing nearly 8 million minutes in outage time.

SELF-HEALING NETWORK OPERATIONS CAROLINAS SNAPSHOT

| Inception to date* | Self-healing networks | Number of customers saved from outages** | Minutes of customer outages prevented*** |
|-----------------------------|-----------------------|--|--|
| Duke Energy Carolinas (DEC) | 58 | 198,278 | 37,159,403 |
| Duke Energy Progress (DEP) | 88 | 119,346 | 18,206,249 |
| Carolinas Cumulative | 146 | 317,624 | 55,365,652 |

*DEC: 2012, DEP: 2014

**Total number of customers who would have experienced power outages if self-healing technology had not been installed.

***Total number of power outage minutes prevented for customers because of self-healing technology operations.

Investments to Date

Self-healing networks have been installed throughout the Carolinas.

NORTH CAROLINA

| | | |
|--------------|----------------|----------------|
| Andrews | Four Oaks | Oxford |
| Apex | Franklin | Pinebluff |
| Archdale | Fuquay-Varina | Pinehurst |
| Arden | Garner | Pittsboro |
| Asheboro | Goldsboro | Raleigh |
| Asheville | Greensboro | Reidsville |
| Bailey | Henderson | Rural Hall |
| Burlington | Hendersonville | Rutherfordton |
| Candler | High Point | Sanford |
| Cary | Hillsdale | Southern Pines |
| Castle Hayne | Jacksonville | Stokesdale |
| Chapel Hill | Knightdale | Timberlake |
| Charlotte | Lewisville | Waynesville |
| Cherokee | Liberty | Weaverville |
| Clayton | Marion | Wendell |
| Clyde | McAdenville | Willow Springs |
| Concord | Mt. Holly | Wilmington |
| Conover | N. Wilkesboro | Winston-Salem |
| Durham | New Bern | |
| Fayetteville | New Hill | |

SOUTH CAROLINA

| |
|--------------|
| Anderson |
| Cheraw |
| Chesterfield |
| Duncan |
| Florence |
| Greenville |
| Hartsville |
| Lake City |
| Simpsonville |
| Spartanburg |
| Sumter |
| Taylors |