

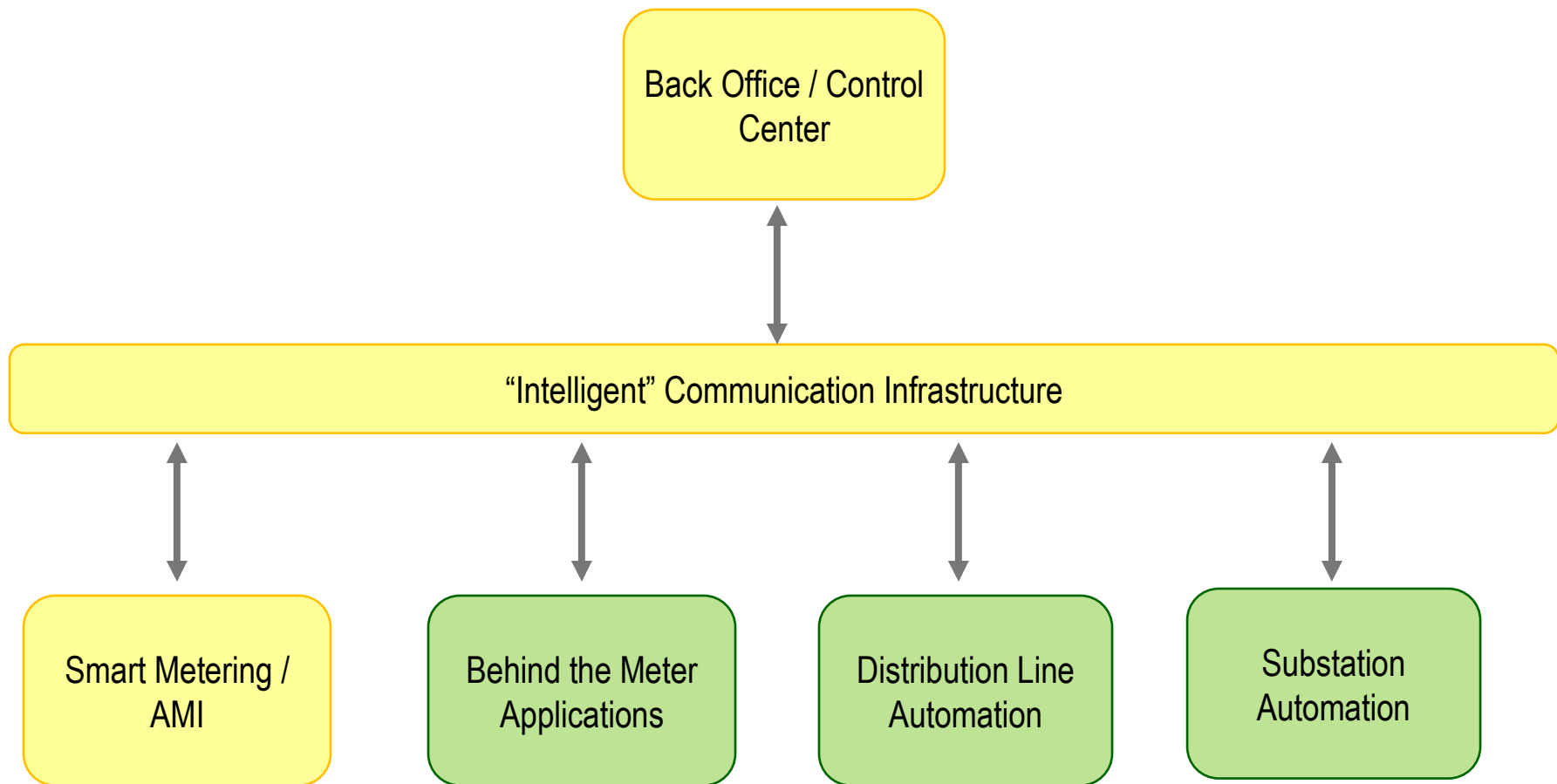
Smart Grid at Duke Energy

March 10, 2009

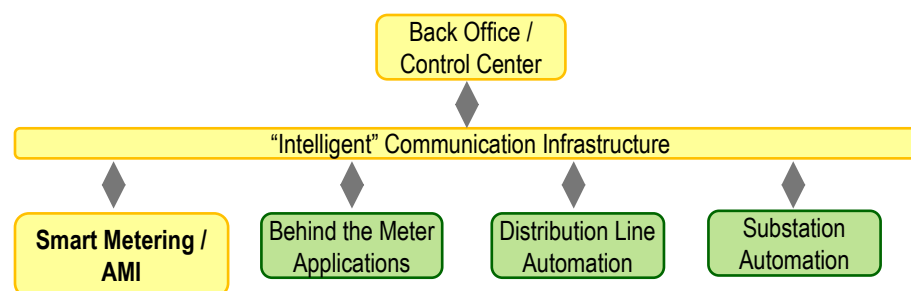
What We Want To Talk To You About

- Duke's Smart Grid Vision & Targeted Benefits
- Summary of Initial Deployment / Pilot Areas (NC, SC, Ohio)
- Overview of Network Technology Being Deployed
- Equipment Being Installed
- What's the Benefit for the Customer?

Electric Distribution Smart Grid Components



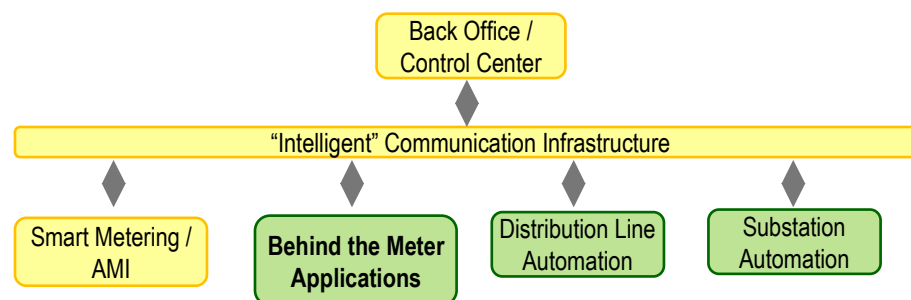
Smart Grid Components / Benefits



Smart Metering/AMI

- Remote meter reading
- Remote connect / disconnect
- 'On Site' Auto Outage Reporting
- Improved meter accuracy
- Reduced energy theft
- Improved safety

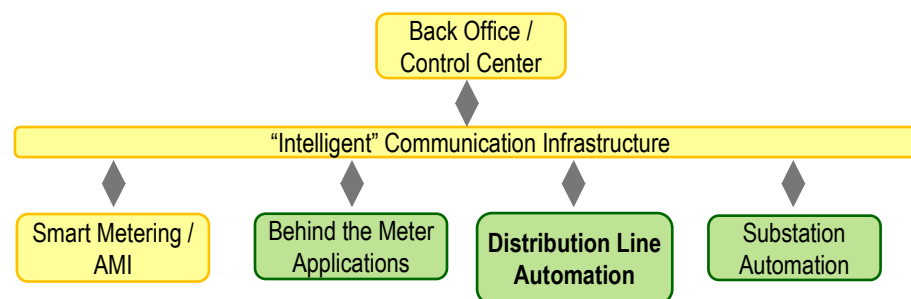
Smart Grid Components / Benefits



Behind the Meter Application

- Energy Efficiency
- More customer choices
- Peak Load Management

Smart Grid Components / Benefits

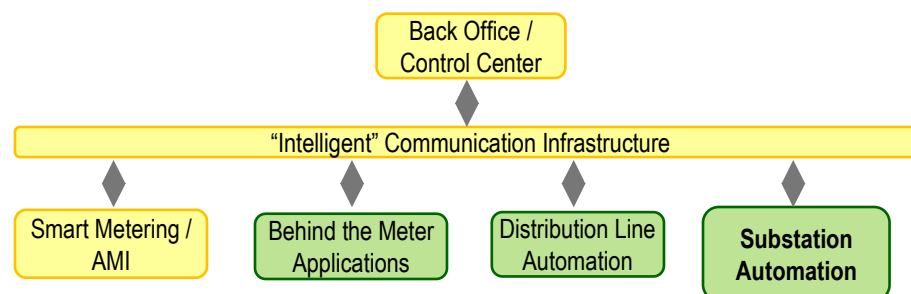


Distribution Line Automation

Improved efficiency, reliability & power quality:

- Automated Cap Banks
- Automated Electronic Reclosers
- Automated Line Voltage Regulators (SE)
- Increased Sectionalization
- Self Healing
- Reduced manual inspections
- Line Sensors
- Real time field data

Smart Grid Components / Benefits

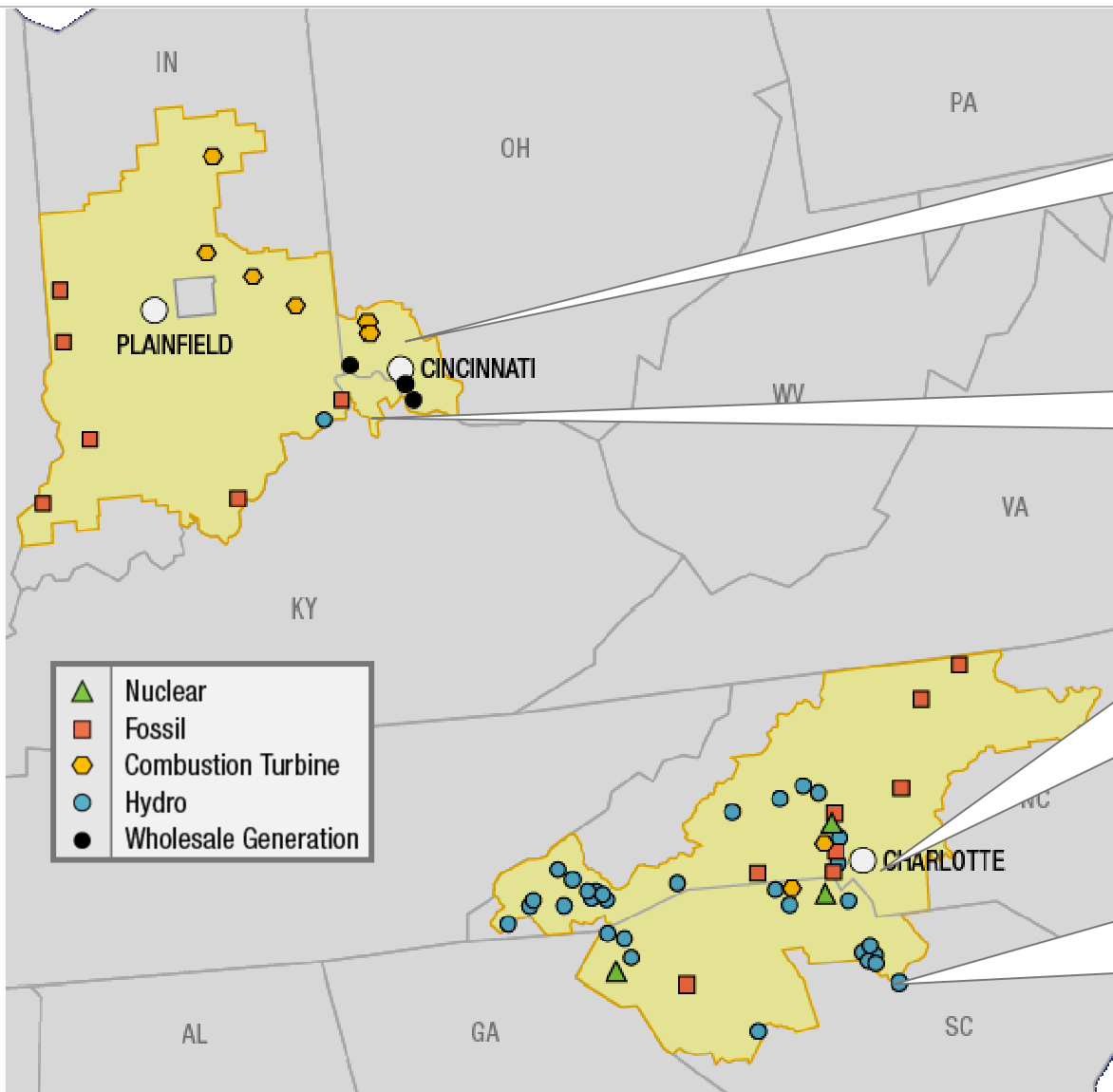


Substation Automation

Improved efficiency, reliability & power quality:

- Automated Breakers
- Automated Station Voltage Regulation
- Automated Capacitors (SE)
- Reduction in load via Volt / Var Optimization
- Reduced energy consumption
- Reduced manual inspections
- Real time data / asset management
- Replacement of obsolete equipment (breakers, regulators, control panels)

Smart Grid Efforts to Date



OH Overview

- Deployment began in mid-May. We expect to replace ~50,000 electric meters and ~42,000 gas modules by early 2009.

KY Overview

- In 2007 and early 2008 we deployed 37,300 electric AMI meters and 25,800 gas modules.

NC Overview

- 5,000 electric meters were deployed in South Charlotte in early 2008. We plan to deploy an additional 11,000 by early 2009. This area is an ongoing test bed for products and services related to the SmartGrid

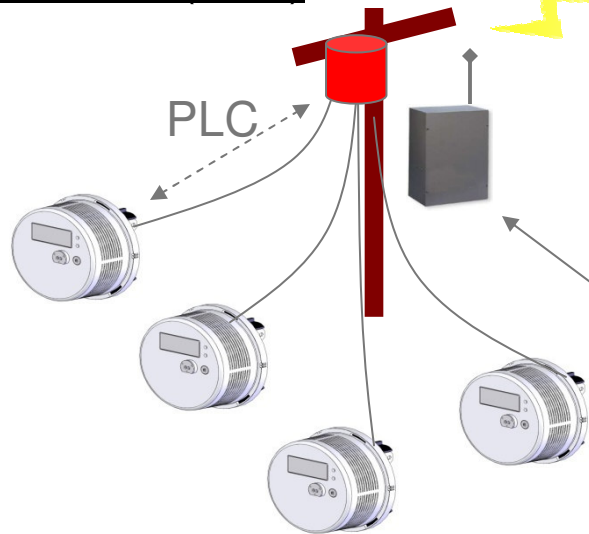
SC Overview

- 2,500 meters have been replaced and an additional 5,000 will be implemented by year end. We continue to test configuration of communication and endpoints in this area.

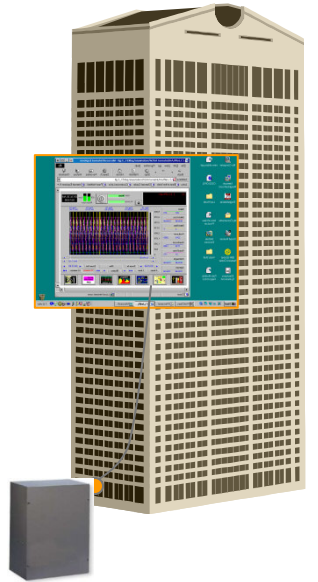
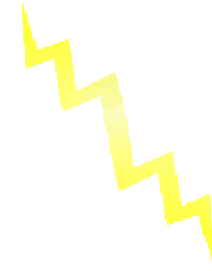
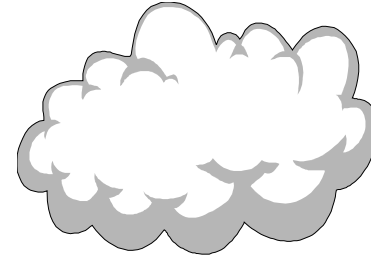
Primary Network Architect Being Piloted

WAN: Digital Cellular (back haul)

LAN: Echelon Meter
& Data Collector (PLC)

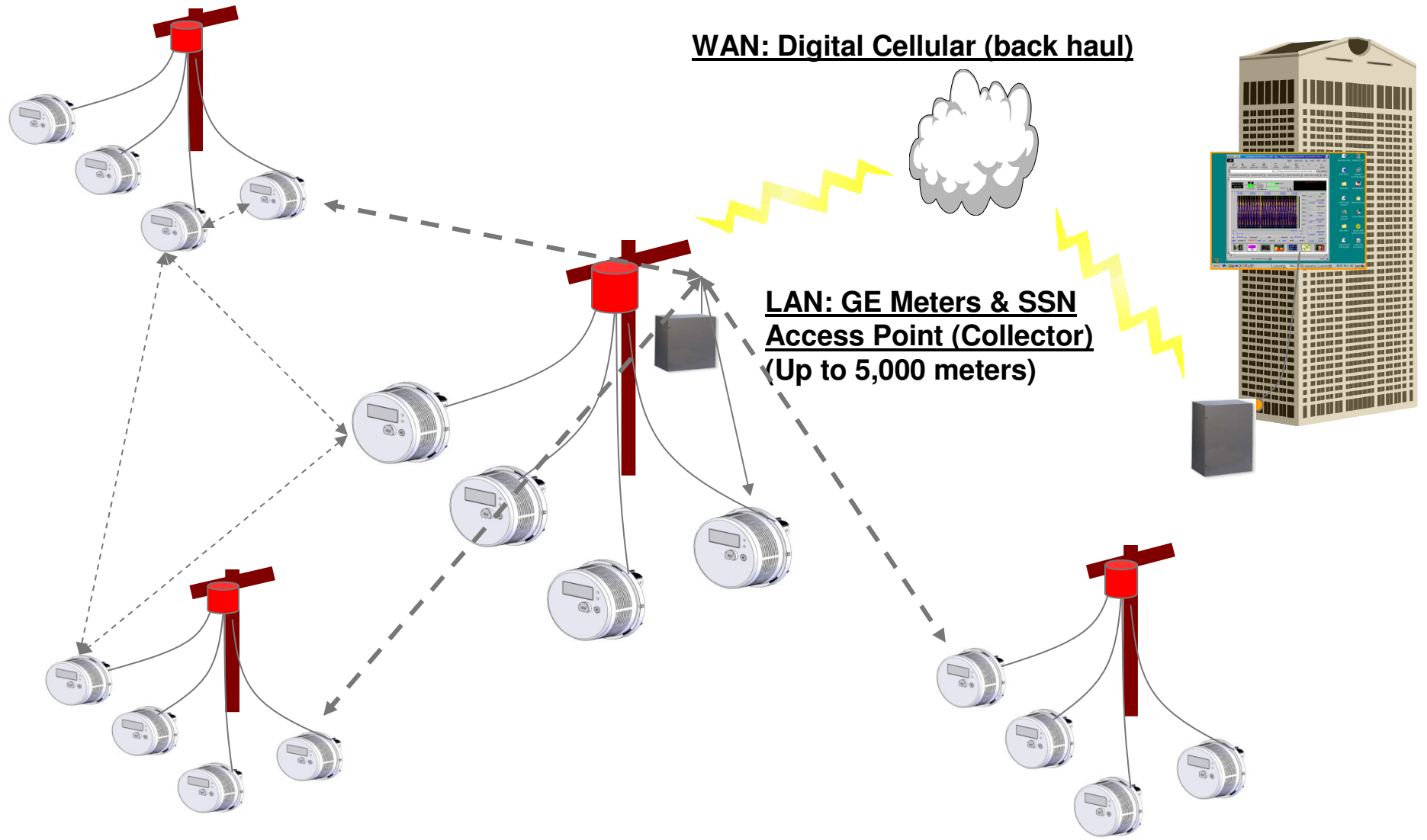


Comm. Box – Data Collector + Dig Cel Modem



HAN: Home Area Network (TBD)

Alternate Network Architect Being Piloted



WAN: Digital Cellular (back haul)

LAN: GE Meters & SSN
Access Point (Collector)
(Up to 5,000 meters)

HAN: Home Area Network (TBD)

Field Equipment – Communication Box



Field Equipment – Toll Grade Line Sensors



From A Customer Service Perspective, Why do SmartGrid?

SmartGrid Will Transform The Way We Do Business



Monthly Mystery Bill

Customer in Control

Meter reader reads on premise each month



Daily automated reads

Respond to high bill complaints



Provide energy education

Minimal information about energy usage



In-home displays with messages and information

Monthly validations



Daily validations

Assigned due date for billing



Customer selected due dates

Traditional billing



Prepaid billing, pricing options and standard offers

SmartGrid Will Transform The Way We Do Business



Customers Waiting on Us

Schedule field visits to reconnect/disconnect service

Customers wait for us to reconnect service

Transfer of service within 24 hours of request



On Their Terms

Remote connection and disconnection

Within the hour

Normally scheduled work day
– same day service

SmartGrid Will Transform The Way We Do Business



I didn't know
you're in the dark

Rely on customer to verify if
service is on or off

Power outages identified by
customer reporting them



I do know
you're in the dark

Verify remotely if service is
on or off

We know when outages
occur

Envision!



www.duke-energy.com