

# Progress Energy's Approach to Demand Response

GovEnergy

Dallas, Texas

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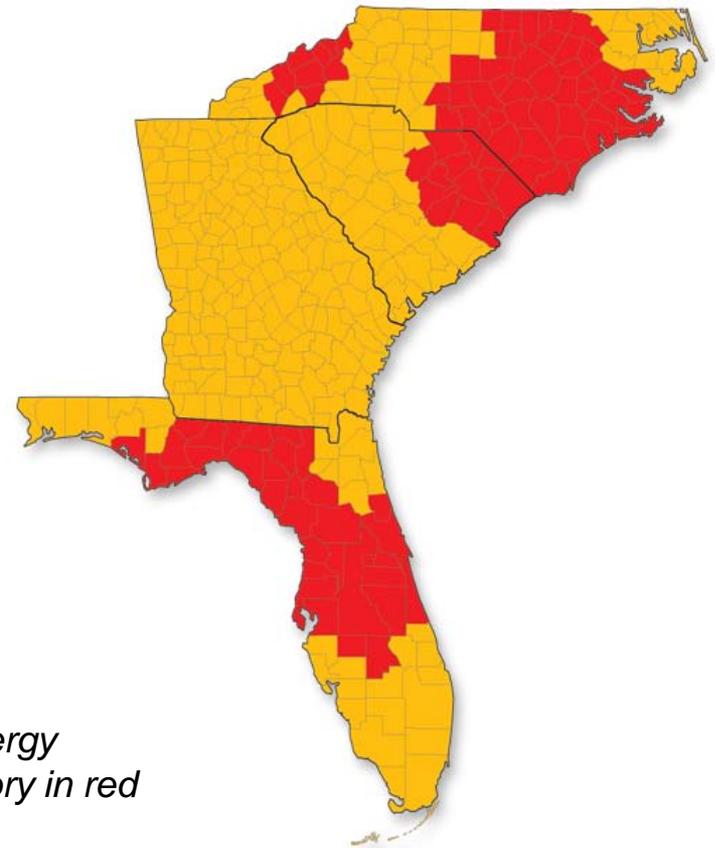


# Overview

- Who is Progress Energy?
- How do we define Smart Grid?
- Our approach to Demand Response?

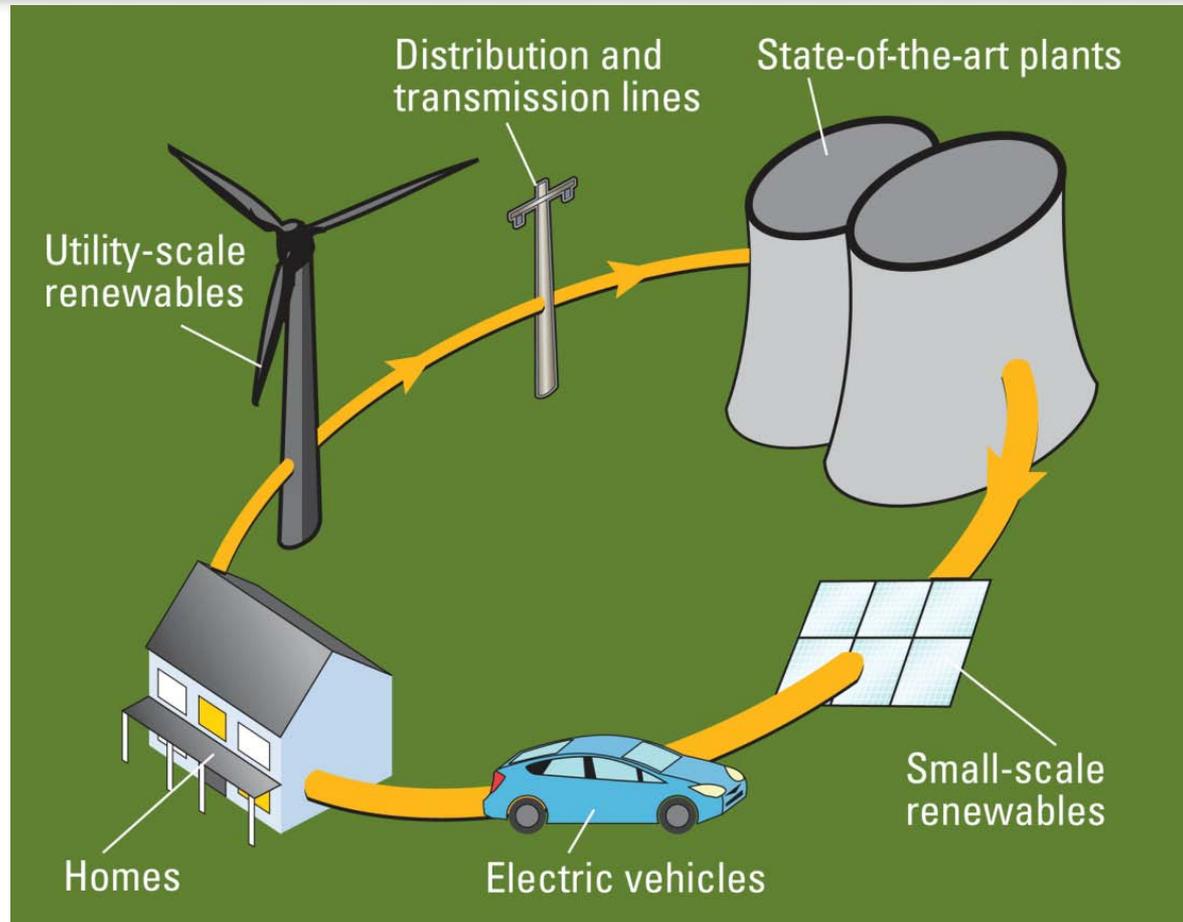
# Progress Energy – who are we

- Fully integrated IOU
- 3.1 million customers with more than 21,000 megawatts of generation
  - Progress Energy Carolinas
    - 1.5 million customers
  - Progress Energy Florida
    - 1.6 million customers



*Progress Energy  
service territory in red*

# What's our Smart Grid?



# What is Smart Grid?

- The Smart Grid is a decades long investment planning and coordination effort
  - Leverages overlay of systems, telecommunications, and technology
  - Builds real time awareness (intelligence) of grid and load conditions
  - Advanced control capabilities for ongoing real time optimization of grid and fleet
- Smart Grid investment groups
  - Customer facing capabilities and interface
  - Grid side advanced capabilities and enhancements
  - Underlying systems infrastructure

# What our customers think

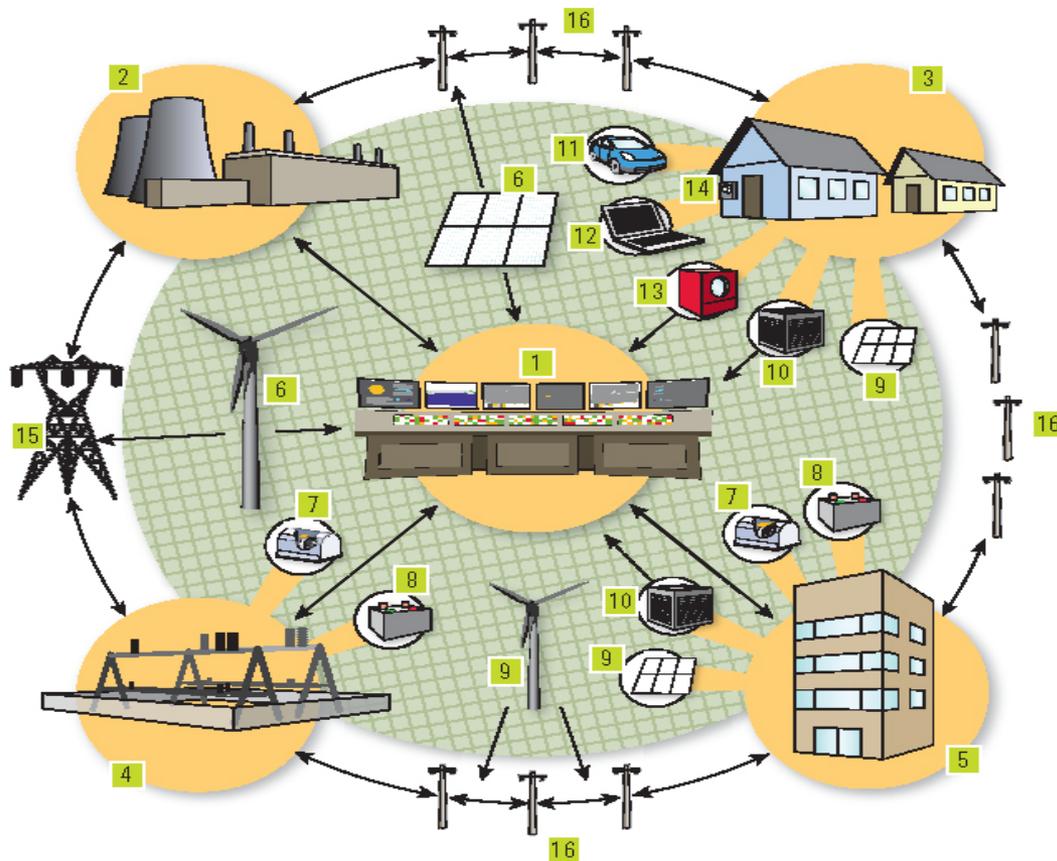
- According to a recent Harris Poll, 68% of consumers have not heard of smart grid and smart meters, and even those who have heard of the concepts are not entirely certain of the benefits. This presents an opportunity to educate, brand and shape the discussion around our smart grid.
- The most prevalent positive perceptions of a smart grid concept among Progress Energy customers included:
  - Improved Power Quality/Reliability
  - Expectations of saving money
  - Possibility of integrated renewable energy resources to the grid
  - Promoted energy efficiency/increased energy awareness
- Negative perceptions of a smart grid concept included:
  - Higher bills/added costs
  - Privacy/control issues
  - Technology breakdowns/overloads

# The Challenge for the Customer Side of Smart Grid

- Not the technology
- Need to better understand our customers
  - Smart Grid – Customer Research & Product Development
    - Residential Usage, Behaviors, and Attitudes Study
    - Behavioral Change Programs
- Need to understand changing business environment
  - Economic considerations for different segments
  - Customers will demand options around needs and values
  - New technologies and processes will impact operating model
  - New revenue model

# Smart Grid Vision

## Our Smart Grid Vision



- 1 Command center at Progress Energy
- 2 Baseload state-of-the-art power plants
- 3 Residential homes
- 4 Substations
- 5 Commercial, industrial and government (CIG) facilities
- 6 Utility-scale renewable energy generation
- 7 Distributed traditional generation
- 8 Distributed energy storage
- 9 Distributed renewable energy generation
- 10 Energy-efficient appliances
- 11 Electric vehicles
- 12 Real-time customer info
- 13 Demand-side management programs
- 14 Smart meters
- 15 Transmission lines
- 16 Distribution lines

# Grid Side Demand Response

## Distribution System Demand Response

New 21<sup>st</sup> Century Capability

Peak Load Reduction Tool

Combustion Turbine  
construction deferral

Increased value of the  
distribution system

DSDR Components	% of Total cost
Feeder Conditioning	40
Grid System Design	20
IT Systems & Integration	10
Telecom	20

Demand Side Resource

Cost Effective Investment

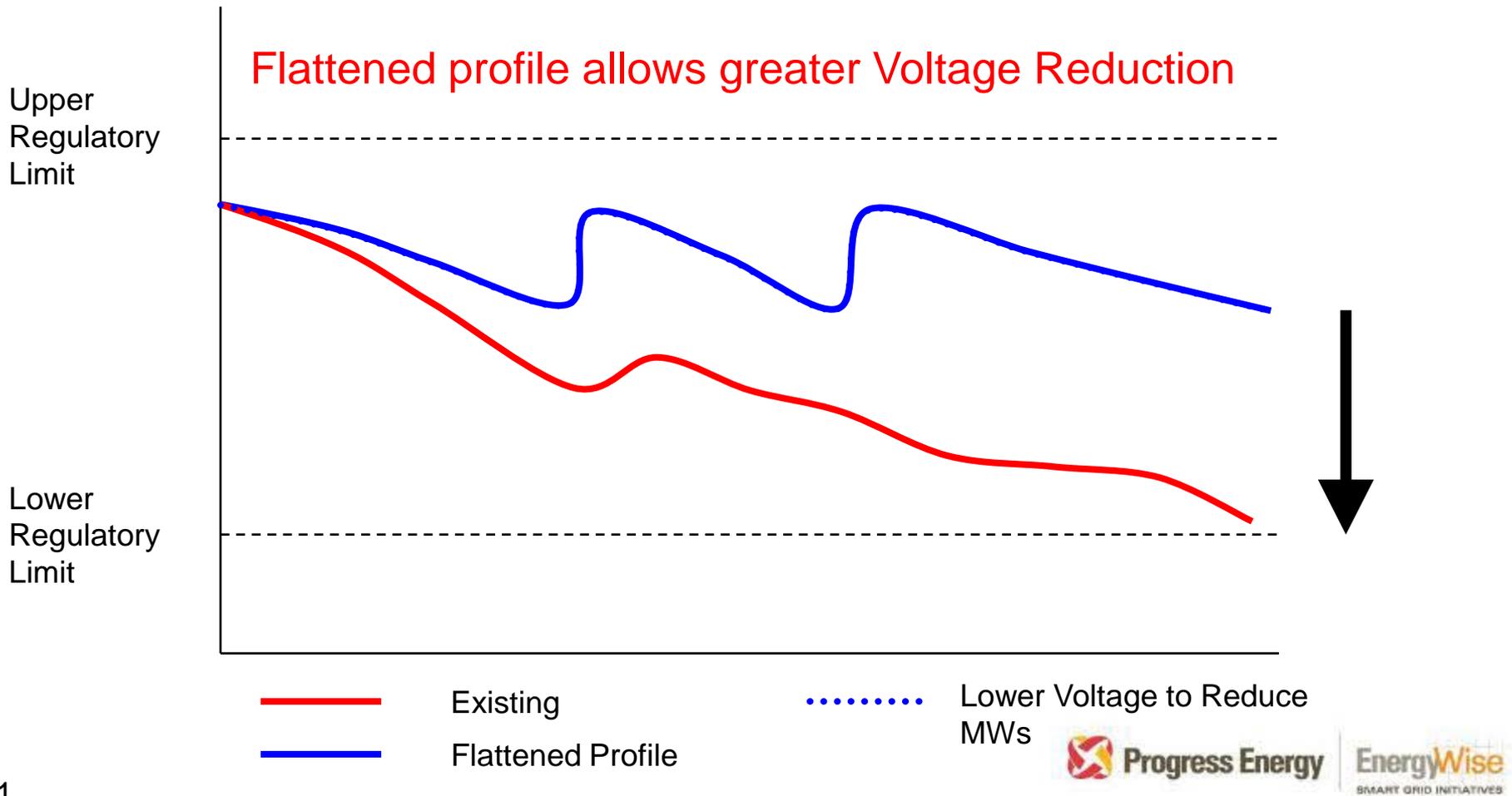
Designed for system  
dispatch



**310 MW Capability**

# Distribution System Demand Response

## *How Does it Work?*



# Questions?

