

# Northeast Blackout



## All fads start in California...



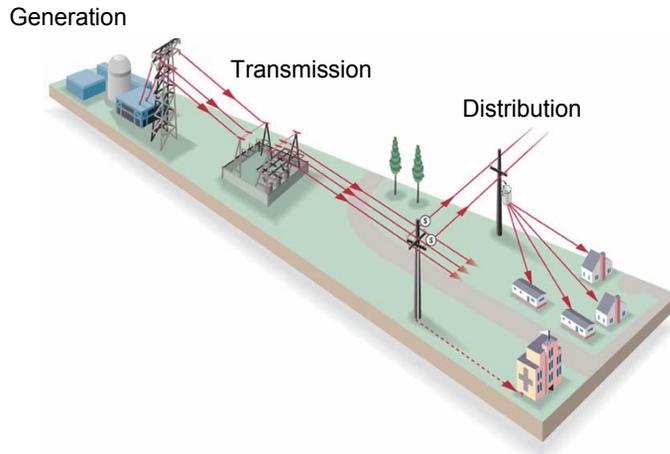
Courtesy NBC.com

To quote the great philosopher Jay Leno, California is a trend-setter. All fads start in California. California had the first blackout, and now everybody wants one: Detroit, New York, New Jersey, Cleveland, Toronto...

That might not be true, but on August 14<sup>th</sup> at 4:11pm, something that began in California two years ago did happen in the Northeast and Great Lakes region. And like the blackouts in California in 2001, it often takes months or even years to fully understand the causes and impacts of these events.

But even without a specific event identified, we know generally what happened on August 14<sup>th</sup>. Let's spend a few minutes talking a bit about blackouts – why they occur, and why we believe we're positioned to avoid such massive events here in the Southeast.

# The electric system



Blackouts are typically caused by an imbalance between electricity supply and demand.

It might help to have a little background on how the system works. Our electric system in the Carolinas and throughout the region and country has three major components: power plants that generate electricity; high-voltage transmission lines that carry power over long distances to communities; and distribution lines that bring power to our homes, businesses and factories. All these components must work in unison to ensure a dependable supply of electricity to our 1.3 million customers in the Carolinas

## Generation

- Generation must be increased during a time when customer use continues to grow.



Let's talk for a minute about the generation component. Progress Energy Carolinas adds about 30,000 customers each year. It stands to reason that we must increase our electricity generation capability from time to time to ensure that there is enough power to meet our customers' needs 24 hours a day. We look out over 10-year periods to plan power plant additions. Over the last 5 years, we have constructed a number of new plants and added significant capacity to existing plants in the Carolinas – most of it fueled by clean-burning natural gas. Of course, we've also increased the efficient output of our nuclear plants. The result is a highly reliable system of generation that maximizes the use of different types of resources.

We can contrast our experience in the Carolinas with what happened in California two years ago. While California's population grew 17% between 1990 and 2000, there had been no significant power plant additions there in over a decade due in part to uncertainty over regulation and cost recovery. The utilities were reluctant to invest hundreds of millions of dollars in the '90s because the regulatory system was in disarray, and there was no guarantee they would be able to recover that investment from consumers.

As a result, the state became dependent on resources in neighboring states to fulfill the needs of California's 35 million people. And that issue was likely an aggravating factor in the Northeast in August as well. Most of the areas impacted are densely populated, with much of their electric generation imported from surrounding areas. And that resulted in transmission lines operating at capacity, with little margin for error.

## Transmission



That brings us to the transmission system. Electricity must be produced in real time to meet customer demand. It cannot be stored, except in relatively small applications. That means that the systems that produce and transmit electricity must work in tandem every second of every day. And just like power plants, the transmission system must be expanded to ensure a continuous, reliable supply of electricity to our communities.

While we are investing more than \$200 million in the Carolinas in transmission system expansion, the systems in some other areas of the country have not kept pace with growth. In some instances, siting and building transmission lines has become nearly impossible due to the nation's pervasive not-in-my-backyard (NIMBY) philosophy. And the lack of new transmission capacity in the Northeast and around Lake Erie certainly contributed to the impact of the August event.

## Transmission



In the U.S., our transmission systems are highly interconnected. Progress Energy Carolinas has more than 30 points of connection with our neighboring utilities. That aspect of the system was designed to promote reliability.

Over the last several years, however, a system built for reliability has been increasingly used as an interstate highway for buying and selling of large blocks of wholesale energy. And that shift has created areas where transmission lines in some regions are operating at or above capacity – with little to no margin for responding to situations like what happened in the Northeast.

## Good planning and execution

- Coordinated plans and protective systems



So how do we at Progress Energy mitigate the possibility of large-scale blackouts? Through continued good planning and execution.

We must continue to plan many years in advance to ensure we have facilities and systems in place to meet the needs of a growing service area.

We work to ensure plans are coordinated and protective systems are installed in cooperation with neighboring utilities in surpassing reliability standards:

This plays out every hour of every day through:

- Constant control room-to-control room communication
- Power reserve sharing with other utilities
- Reliability agreements
- Transmission coordination to ensure a continuous, reliable flow of electricity throughout the region

## Progress Energy - Generation

- Top 10 generator
- 38 plants
- 8 plants built in last 5 years
- More than 23,000 megawatts of capacity
- Fuel diversity
- Meeting customer needs



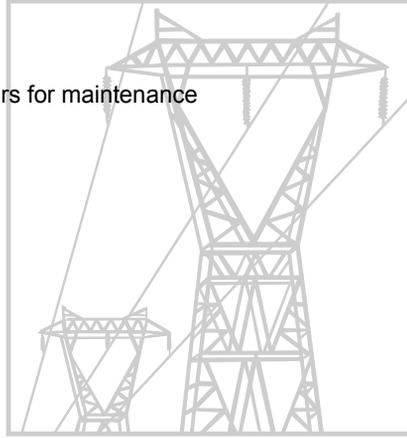
Here's what we're doing at Progress Energy with regard to the generation component of the system:

- We are a top-10 generator of electricity in the country;
- We have 38 generation plant sites in operation, with one additional site under construction;
- Our generation fleet is capable of producing more than 23,000 megawatts of electricity. At full power, that's enough to power tens of millions of average homes.
- Our fleet includes a variety of generation resources: nuclear, coal- and oil-fired, natural gas fired and hydroelectric. That diversity provides for reliability and protects our customers from volatility in fuel prices or constraints in fuel availability.
- We've built 8 new generation plants in the last 5 years in the Southeast
- We're also re-licensing our HB Robinson Nuclear Plant, (one of the most efficiently and safely run plants in the country), as well as the Blewett and Tillery Hydro plants on the Pee Dee River.
- We have increased the capacity of our nuclear plants, which provide our most efficient source of electric power to our customers.
- We've added efficient combustion turbine units at several of our plants to add to our ability to meet customer demand during periods of peak customer demand.

**All in an effort to ensure that there is plenty of electricity for our customers when they need it.**

## Progress Energy - Transmission

- \$214 million invested
  - \$120 million over 3 years for maintenance
- ...All to ensure reliability



We're also making continuous investments in our transmission system in the Carolinas.

- We've announced transmission system enhancements representing more than \$200 million in the Carolinas over the next several years. Currently, we have 10 major projects under way, including three lines of more than 30 miles.
- We have a system of 6,000 miles of transmission lines in Carolinas.
- We also invest significantly in maintaining and enhancing our existing system:
  - We have invested \$120 million over the last three years in maintenance and equipment improvement;
  - We conduct proactive inspections, including helicopter fly-overs, ground inspections and remote monitoring;
  - And since trees and limbs pose the most significant threats to service reliability, we spend approximately \$6 million each year on tree trimming in the Carolinas alone.

## Collaboration

- Excellent collaboration in the SE through SERC (Southeastern Reliability Council)
- Technology safeguards



Of course, we also collaborate continuously with our neighbors.

- Progress Energy Carolinas and the other utilities in the Southeast are part of the Southeastern Reliability Council, which formalizes standards and coordination agreements. That benefits all consumers in the region.
- We have built the system with technology safeguards to prevent the kinds of cascading effects that impacted the Northeast and Great Lakes region. You can equate the safeguards to circuit breakers in your home; they're designed to ensure that the system that serves our customers remains intact if there are problems in a neighboring system.
- We have more reserve capacity in our transmission systems in the Southeast than in many parts of the country, particularly the densely populated regions. That means we are better positioned to handle changes in customer demand.

## Can it happen here?



There are several factors that make our region less susceptible to large scale blackouts:

- Utilities in the Southeast have invested in new power plants and transmission capacity to keep up with growing customer demand.
- At Progress Energy, we are focused on providing reliable electric service for our customers. We are increasing generation capacity and constructing substations and transmission lines to ensure that we meet our customers' needs.
  - Progress Energy Carolinas is investing \$214 million in transmission over the next two years (maintenance and growth).
  - Progress Energy Florida is investing \$174 million in transmission over the next two years.
  - Annual tree-trimming and right-of-way maintenance spending (approximate):
    - \$6 million Carolinas
    - \$5 million Florida
- While all utility companies are regulated to some extent and must meet certain national standards, the Southeast's standards exceed national reliability requirements. We have ensured that our transmission system can handle worst-case scenarios, and then some.
- There has always been a tremendous amount of cooperation among utilities in the Southeast regarding transmission construction and system management and our system is generally free of transmission bottlenecks that plague parts of the country.





WE'RE INVESTING TIME  
AND TECHNOLOGY TO ENHANCE  
OUR POWER SYSTEM.  
**TRANSLATION:  
WE'RE REDUCING OUTAGES.**

**REDUCE OUR  
CONSTANT DEMAND  
FOR FUEL**

We're spending billions of dollars on our power system to bring you reliable, affordable power. Using advanced technology like solar photovoltaics to help us deliver power that doesn't depend on a constant problem. And so much more. To learn more about us, visit [www.progress-energy.com](http://www.progress-energy.com)

 Progress Energy



To learn more about Progress Energy and our planning, please visit our About Energy section of our website at:  
<http://www.progress-energy.com/aboutenergy/index.asp>