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The Changing Landscape of Meeting Energy Demand in the Southeast

NAESCO Southeast Regional Meeting

June 23, 2011

About the Southern Alliance for Clean Energy (SACE)

- **A leading voice for clean energy solutions in the Southeast for over 25 years.**
- **Five primary SE states:**
  - **Tennessee (TVA service territory)**
  - **North Carolina**
  - **South Carolina**
  - **Georgia**
  - **Florida**
- **Five primary program areas:**
  - **Energy Efficiency**
  - **Clean Energy**
  - **High Risk Energy Choices**
  - **Clean Fuels/Transportation**
  - **Climate Action Strategies**

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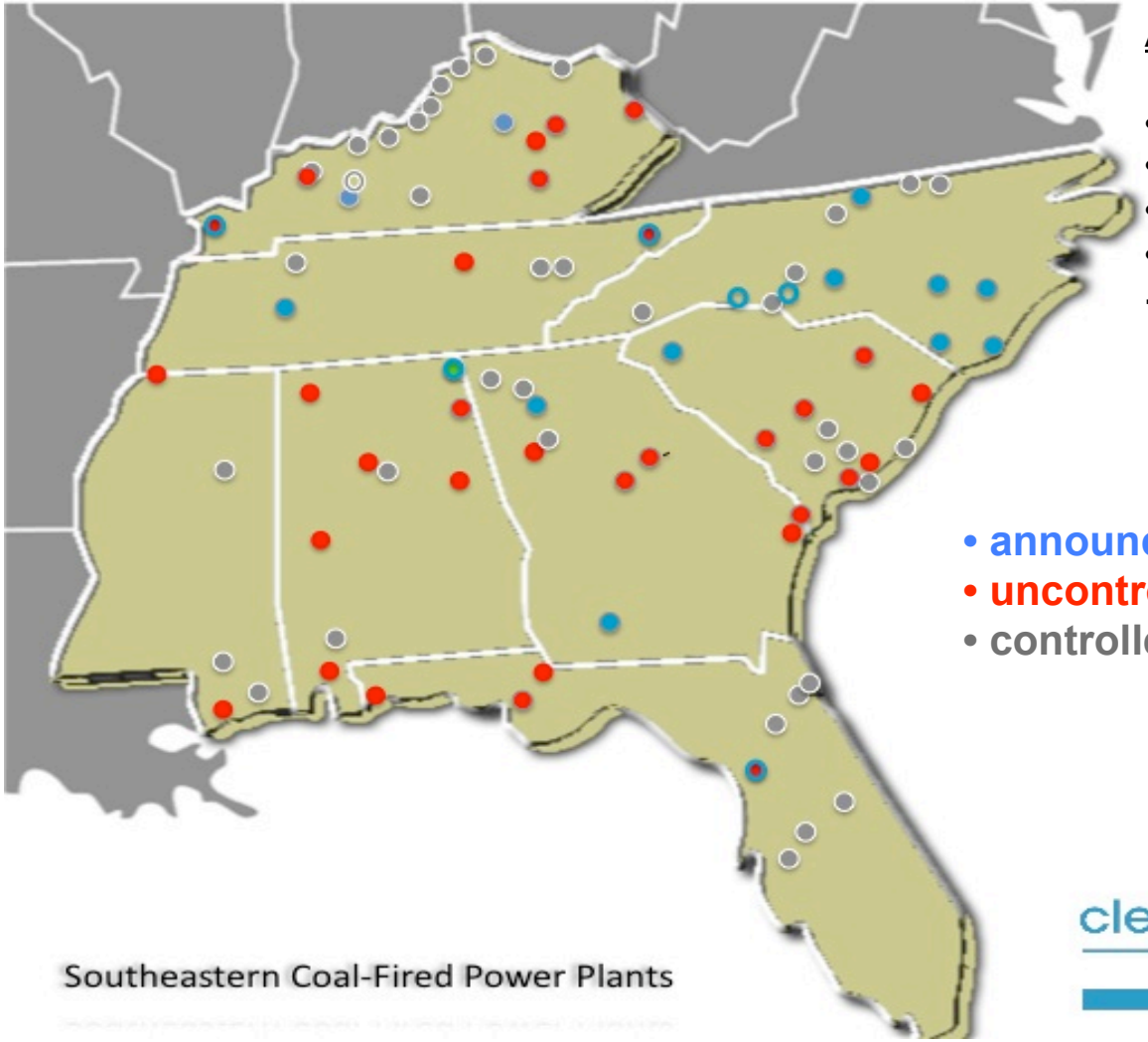
The Landscape is Changing: The Transition Beyond Old Coal



Announced Retirements:

- **TVA: 2,729 MW**
- **SoCo: 1,150 MW**
- **Duke: 1,691 MW**
- **Progress: 2,532 MW**

Total: 8,102 MW

- **announced retirements**
- **uncontrolled coal plants**
- **controlled coal plants**

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Replacing Old Coal: Nukes, Natural Gas or Beyond Traditional Resource Options?

- **Nuclear power continues to be problematic.**
- **“Clean” coal remains speculative.**
- **The viability of natural gas as a large-scale baseload resources continues to be uncertain.**
- **So where will SE utilities turn to meet future energy demand?**

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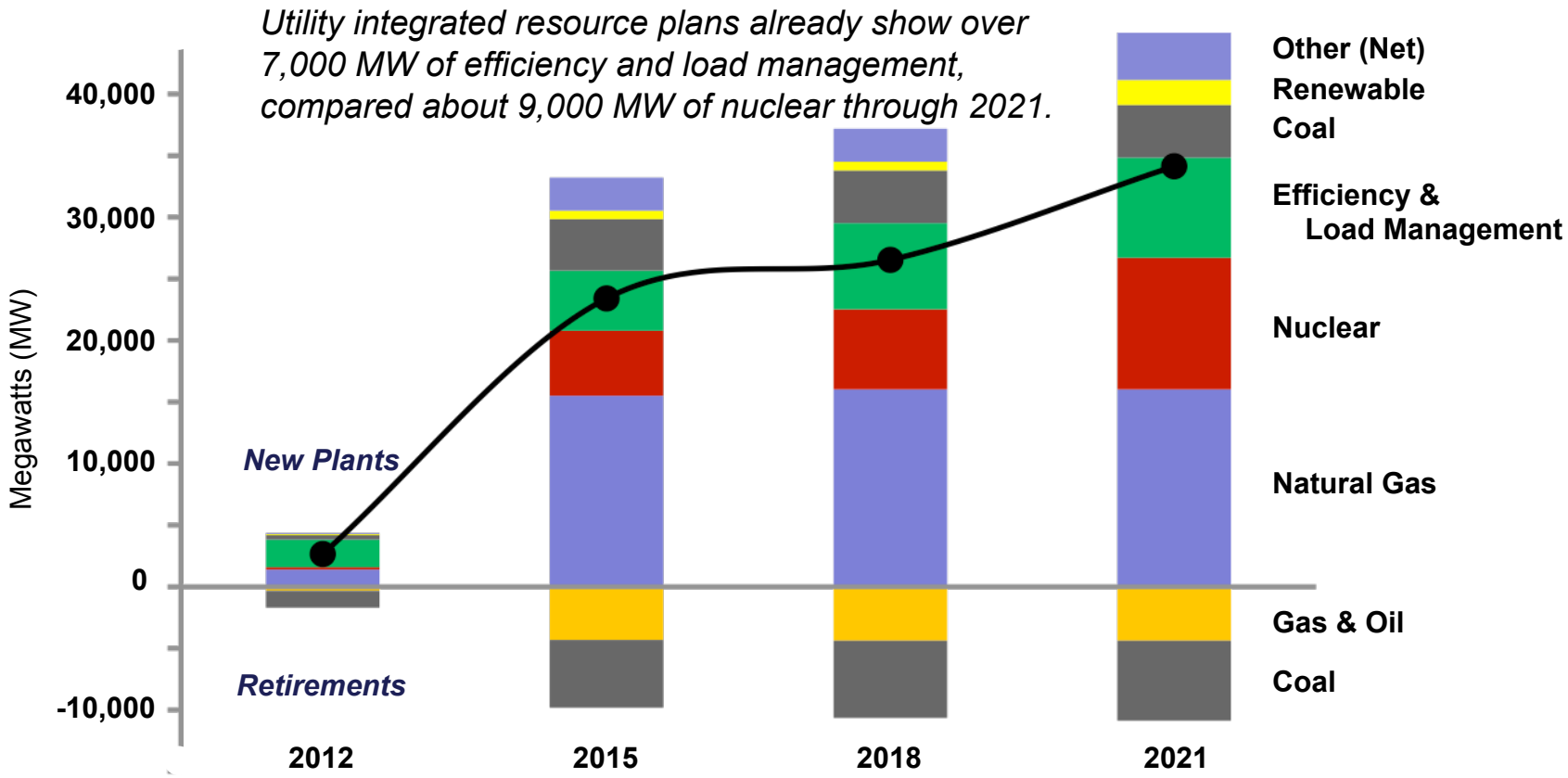
Southeast in Transformation:

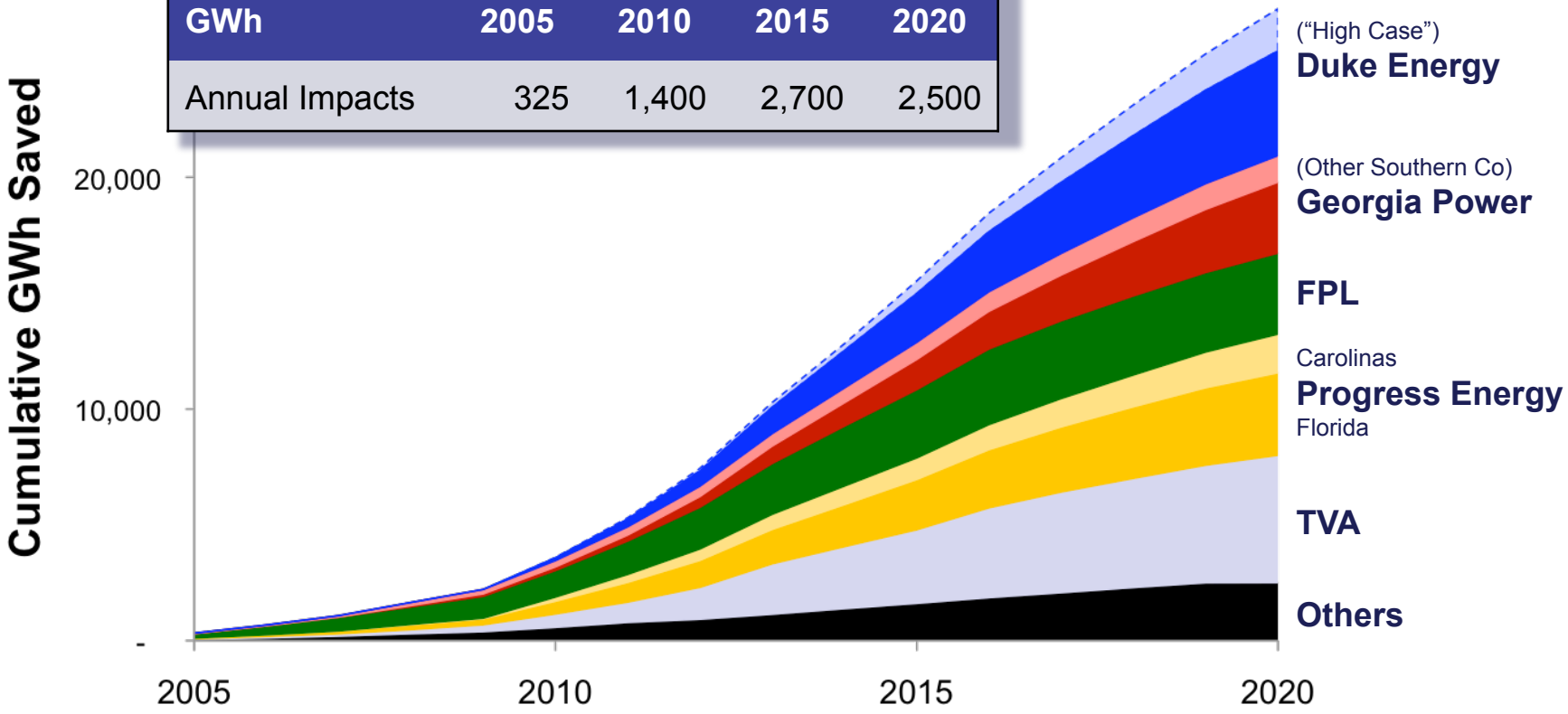
Efficiency & Load Management
Meeting Nearly As Much Load As Nuclear



Source: SACE analysis of selected utility resource plans in the Carolinas, Georgia, Florida, Virginia and Tennessee Valley Authority.

Meeting Future Energy Demand: It Starts with Energy Efficiency

GWh	2005	2010	2015	2020
Annual Impacts	325	1,400	2,700	2,500



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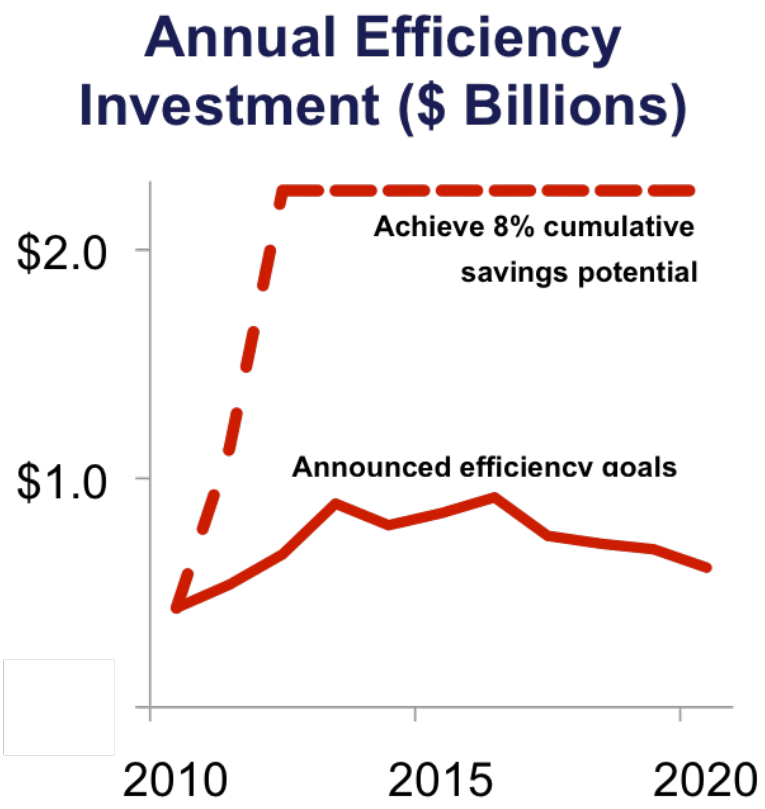
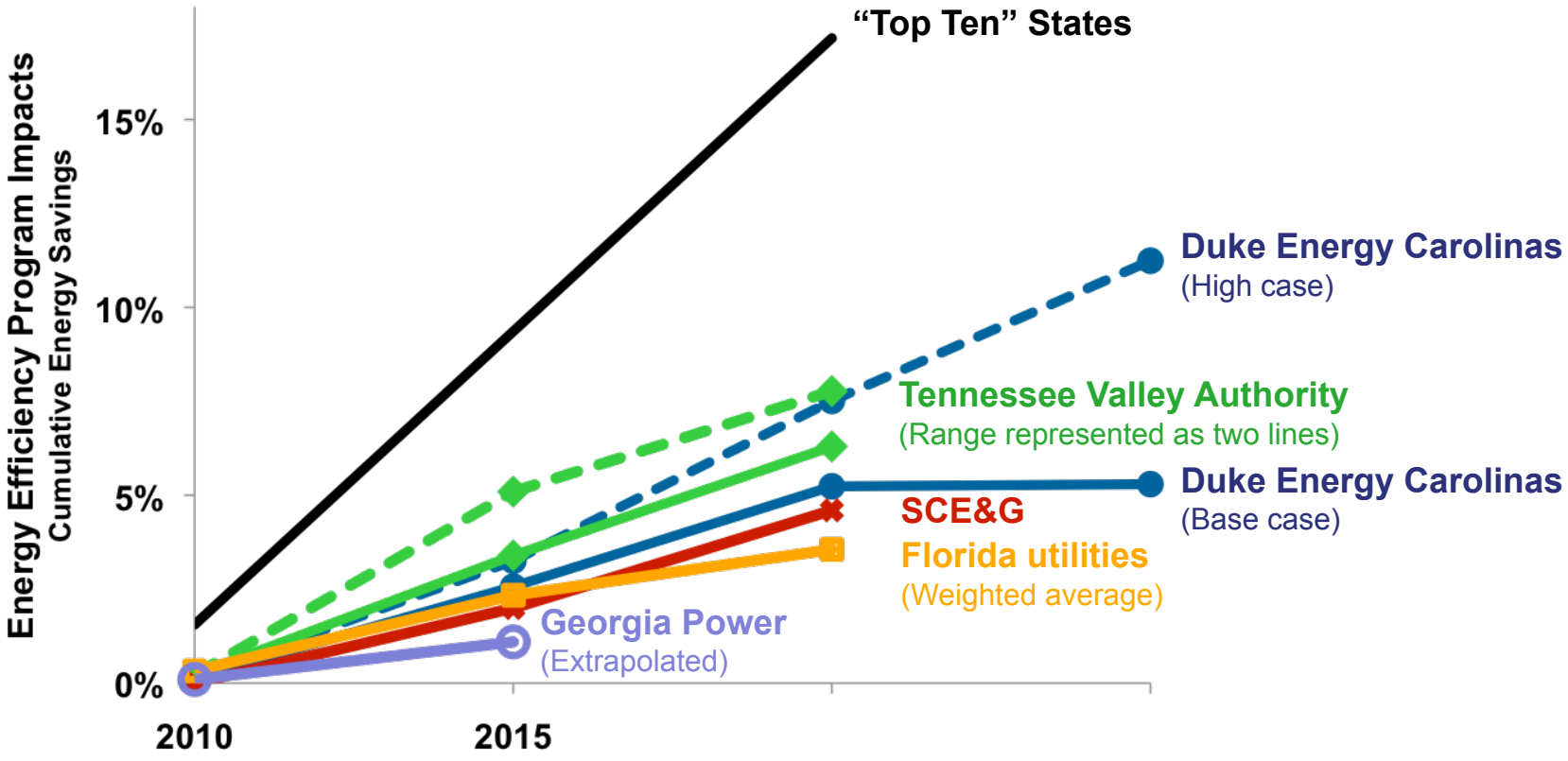
Investments in Efficiency Mean Business Opportunities

- **2009 efficiency budgets: $304 million**
  - Plus $345 million for load management
- **Efficiency budgets over next decade will approach $1 billion / year**
  - Based on announced goals
- **With more aggressive targets, investments could climb above $2 billion/year *plus* increased spending on load management.**



Sources, cost and budget data: CEE, *The State of the Efficiency Program Industry: Budgets, Expenditures and Impacts, 2009*; 2008 annual energy savings calculated from US Energy Information Administration data.

Southeast Energy Efficiency in Context



Sources: Integrated resource plans of Duke Energy Carolinas (2010), Georgia Power (2011), Tennessee Valley Authority (2011), and SCE&G (2011). Florida Public Service Commission orders (2010). ACEEE (2011), *Energy Efficiency Resource Standards: A Progress Report on State Experience*.

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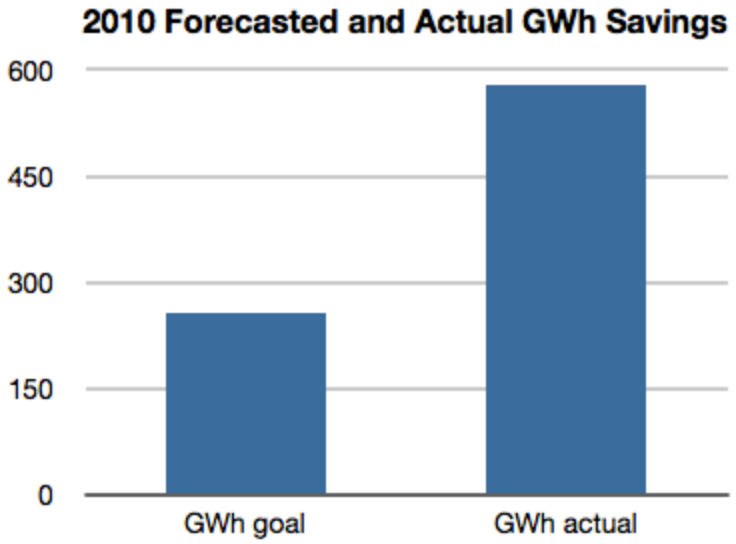
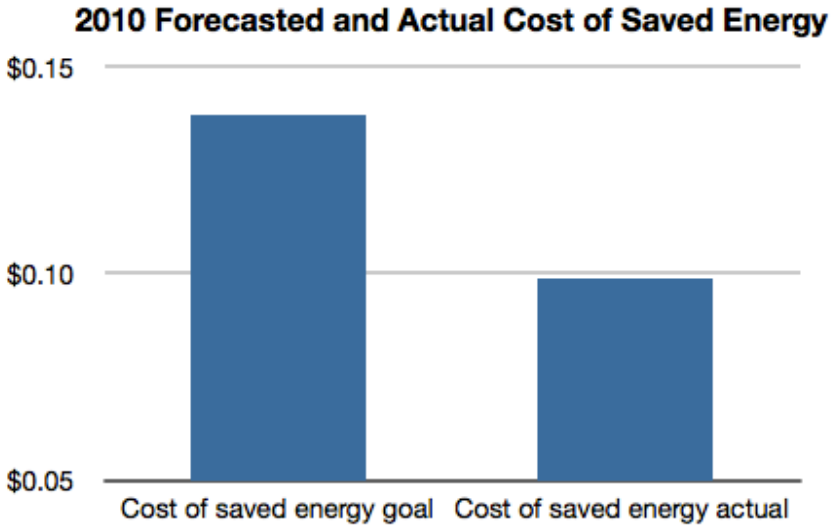
Planning Gets Us Started, But Success Will Carry us Forward.

- **Preliminary results are positive:**
  - Duke Energy, in its first year, achieved nearly 3X its 2010 goal in GWh at about 70% of the estimated cost of saved energy.





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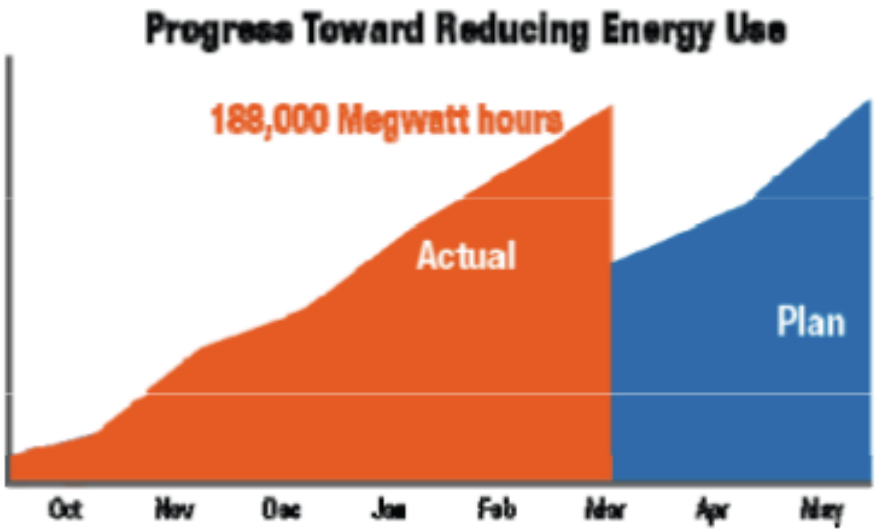
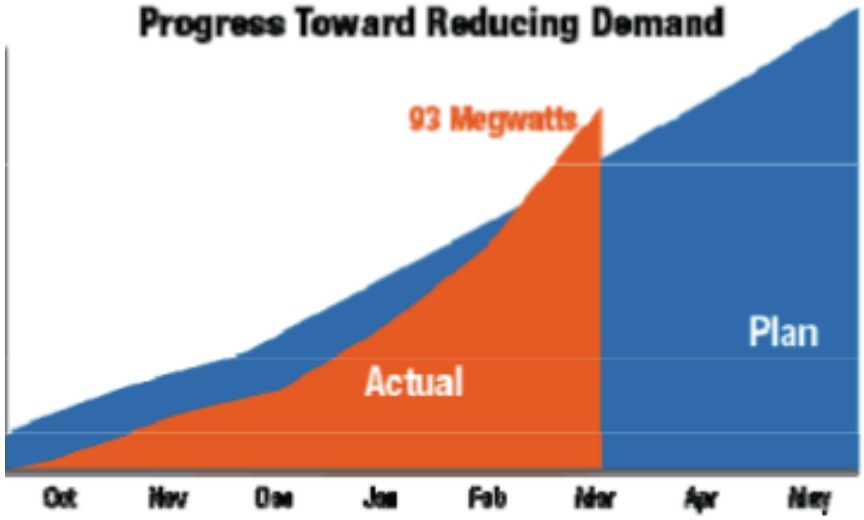
Planning Gets Us Started, But Success Will Carry us Forward.

- **Preliminary results are positive:**
  - After a slow start and some repositioning, TVA is now exceeding its short term benchmarks for both MWh of efficiency and MW of demand management.





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Can We Up the Ante: The Role of Recycled Energy

- **To date SE Utilities have essentially ignored the potential for recycled energy or combined heat and power (CHP) despite a wide range of benefits:**
  - Increased competitiveness of host business;
  - Avoided line losses;
  - Potential for demand management and/or spinning reserves.

Recycled energy offers enormous potential for increased efficiency, increased investments in local industries, and additional work for energy-related businesses.

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It May Start with Energy Efficiency, But it Leads to Renewables.

- **As additional coal plants come offline, there will be a need for additional capacity.**

- **The difficulties with developing traditional baseload resources will drive SE utilities to think creatively and develop non-traditional partnerships.**

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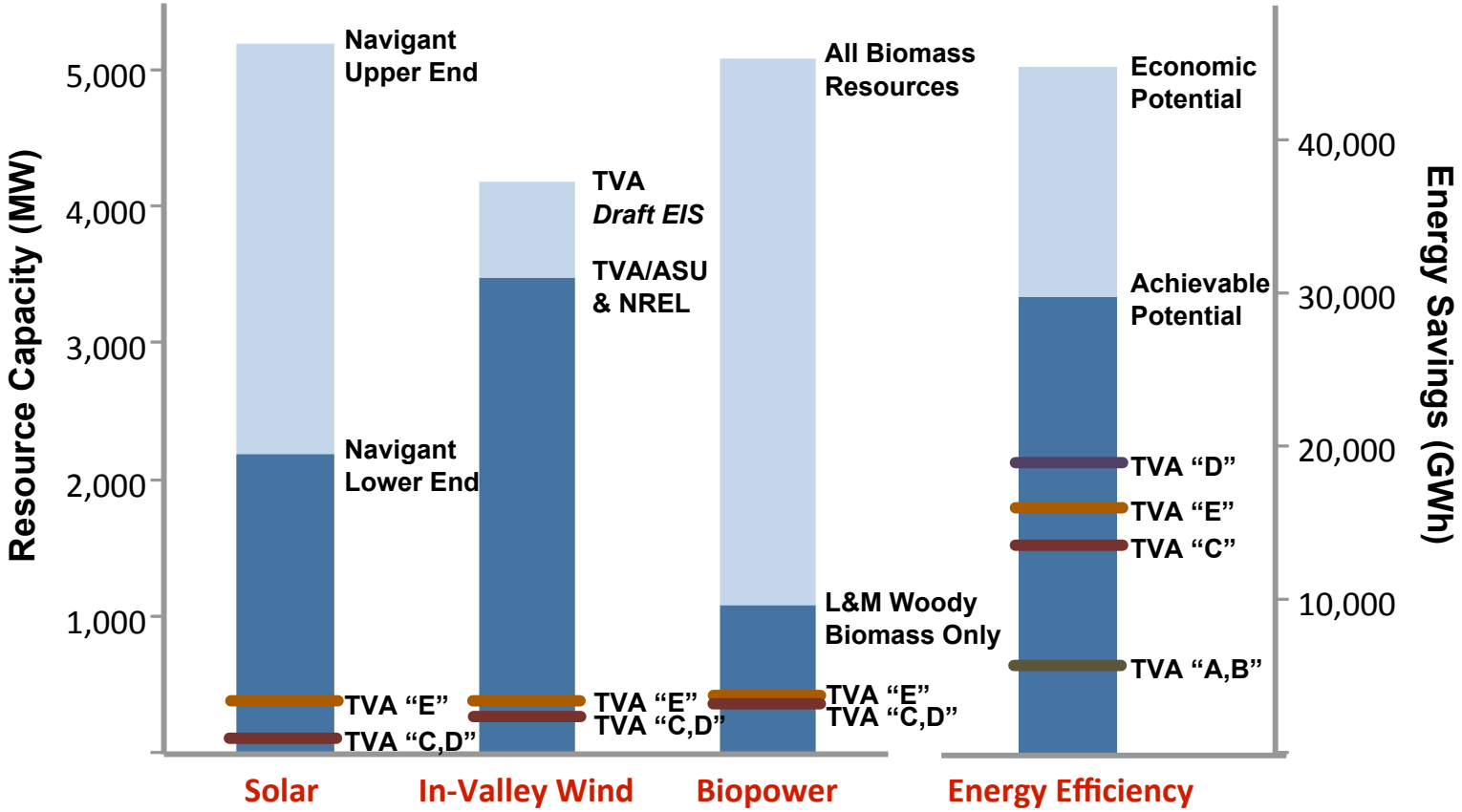
So Far, SE Utilities are Taking Efficiency More Seriously than Renewable Energy Resources

TVA's 2011 IRP significantly discounts the potential for renewables.



Source: Southern Alliance for Clean Energy, Comments in response to Tennessee Valley Authority's Draft Integrated Resource Plan and accompanying Environmental Impact Statement (No. 20100379), November 15, 2010.
Note: Renewable energy resources in strategies "A" and "B" rely primarily on out-of-Valley wind resources and a small amount of capacity from TVA's Generation Partners program.

Utility-Scale Renewables Can Cost-Effectively Meet Utility Needs.

- **Large scale solar projects are becoming more viable as costs continue to decline.**
  - **Solar costs in the Valley have come down 20% or more in the last year. We are now seeing costs for large-scale projects below 15 cents/kWh, with projections for continued decreases over the next several years.**

- **Southeast wind resource estimates continue to increase while development costs continue to decline.**
  - **DOE estimates now identify more than 1,200 MW of wind capacity ready to go in the Valley and the potential for tens-of-thousands of MW at 80-100 meter hub heights in the western part of the region.**

****TVA's current standard offer for large-scale renewables offers a time-based price averaging less than 6 cents/kWh with a 20 MW project cap and prohibitive contractual requirements.**

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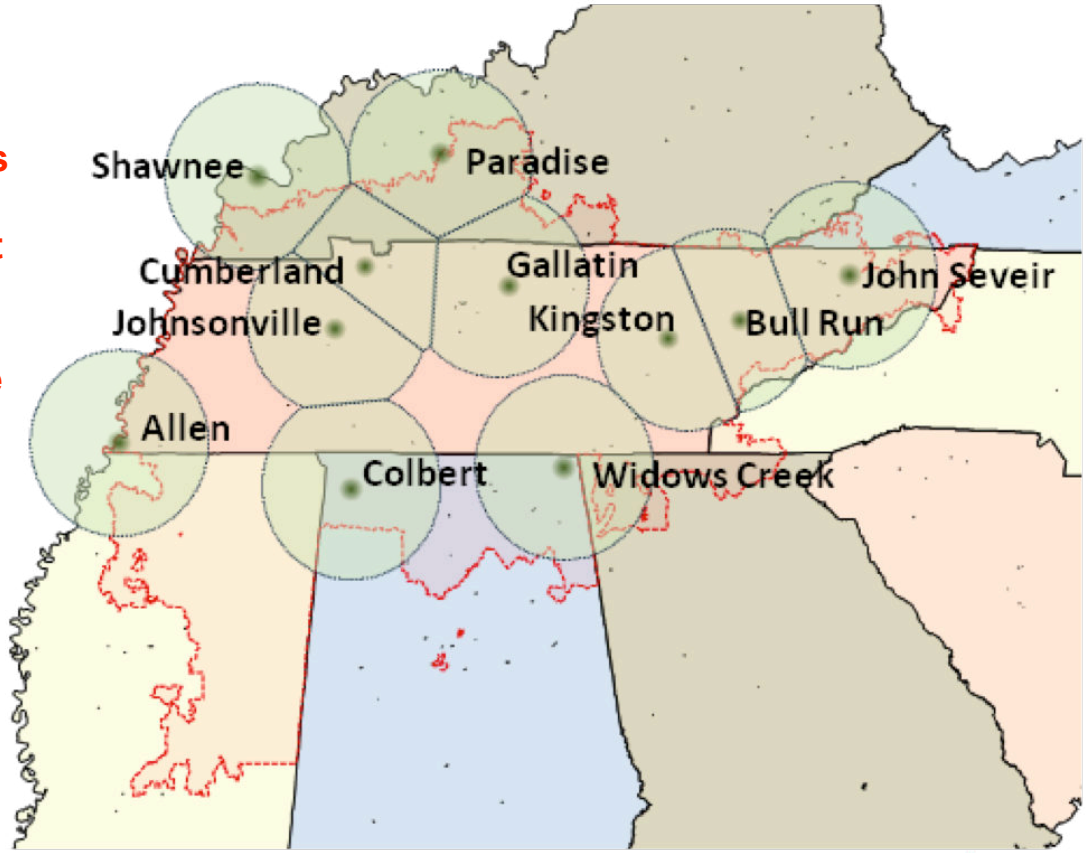
Untapped Resources Need to be Developed

Local, low-value biomass resources have the potential to displace at least 1,000 MW of coal-fired generation with relatively little infrastructure investment.



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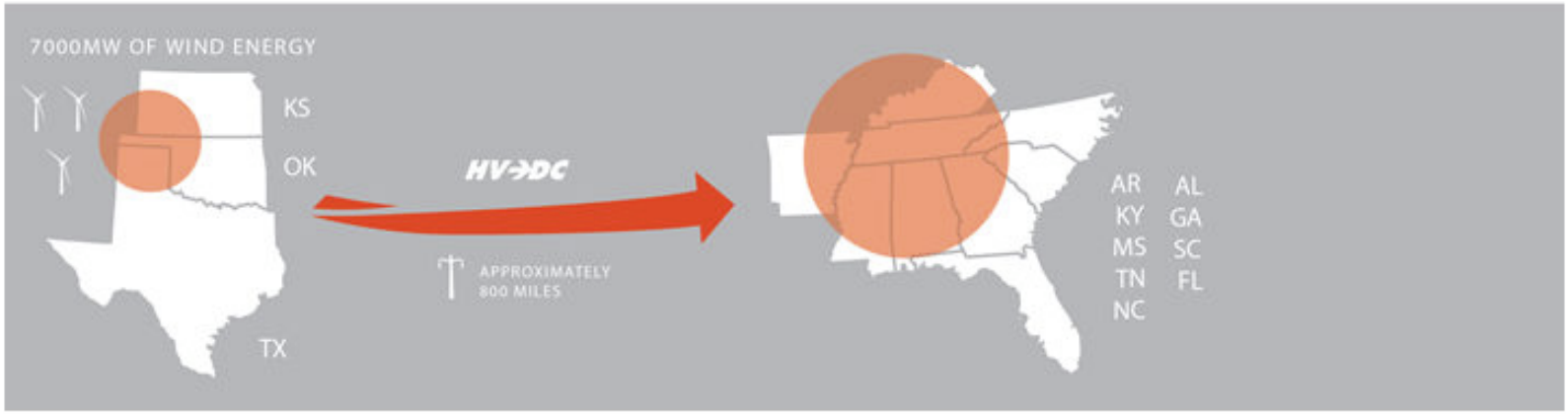
Creative Thinking Leads to Creative Solutions

Clean Line Energy Energy Partners has proposed a high-voltage direct-current transmission line that could bring 3,500 to 7,000 MW of wind power to the TVA service territory at 5 cents/kWh or less.



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Distributed Generation Will Play a Larger Role in Meeting Energy Demand.

- **The SE is experiencing rapid growth in small-scale distributed solar as a result of market forces combined with state/local policies.**

  – TVA's Generation Partners Program has approved more than 40 MW of distributed solar generation projects in the past year.

  – Key state policy drivers in North Carolina have supported the development of more than 900 MW of non-hydro renewables in NC, including almost 60 MW of solar projects.

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What is it Going to Take to Move These Markets Forward?

- **Utilities willing to build institutional knowledge and commit resources to developing non-traditional resources.**

- **Creative thinking on the part of utilities, industry and constituents to develop these resources in ways that will satisfy utility needs.**

- **Transparent collaboration among stakeholders to craft solutions that work for utilities, developers and ratepayers.**

To date, we have not seen this happening in the Southeast.

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Key Takeaways:

- **The landscape is changing. The Southeast is moving beyond old, dirty coal-fired generation.**
- **Traditional resource options such as coal and nuclear do not present attractive options for meeting future energy demand.**
- **SE Utilities are getting serious about energy efficiency, but there's still a significant way to go before all cost-effective efficiency is being captured.**
- **The outlook for renewables is less certain. While the potential is there, SE utilities will need to think outside the box and work with a variety of stakeholders to properly develop these resources.**

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