



## Energy Efficiency in the South

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THE KRESGE FOUNDATION



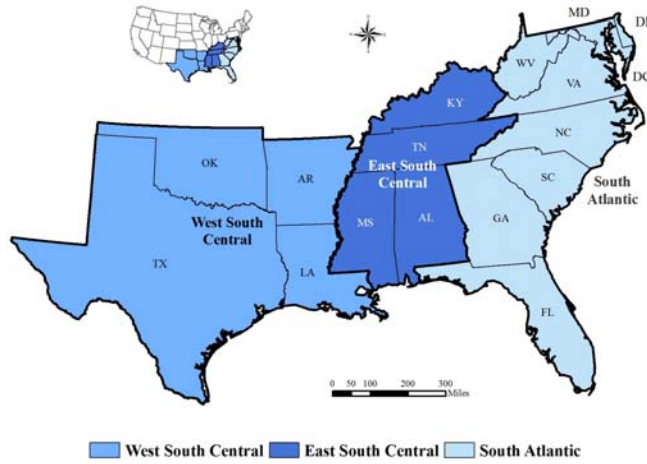
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## MOTIVATION

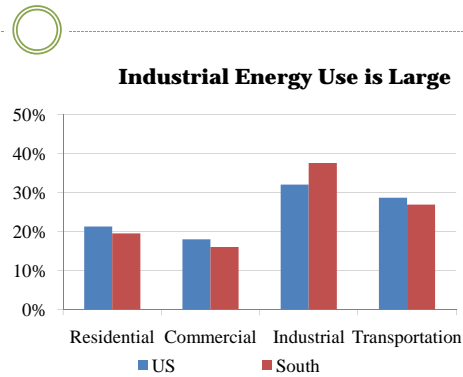
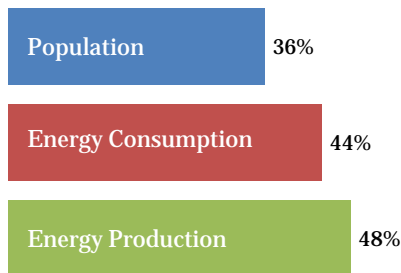


- The economic recession, climate change and rising electricity costs have motivated many states across the country to embrace energy efficiency as a way to create new local jobs, lower energy bills, and promote environmental sustainability.
- With this surge of interest in energy efficiency, policymakers in the South are asking how much wasted energy can be eliminated and at what cost?

## The South: The Fastest-Growing Region

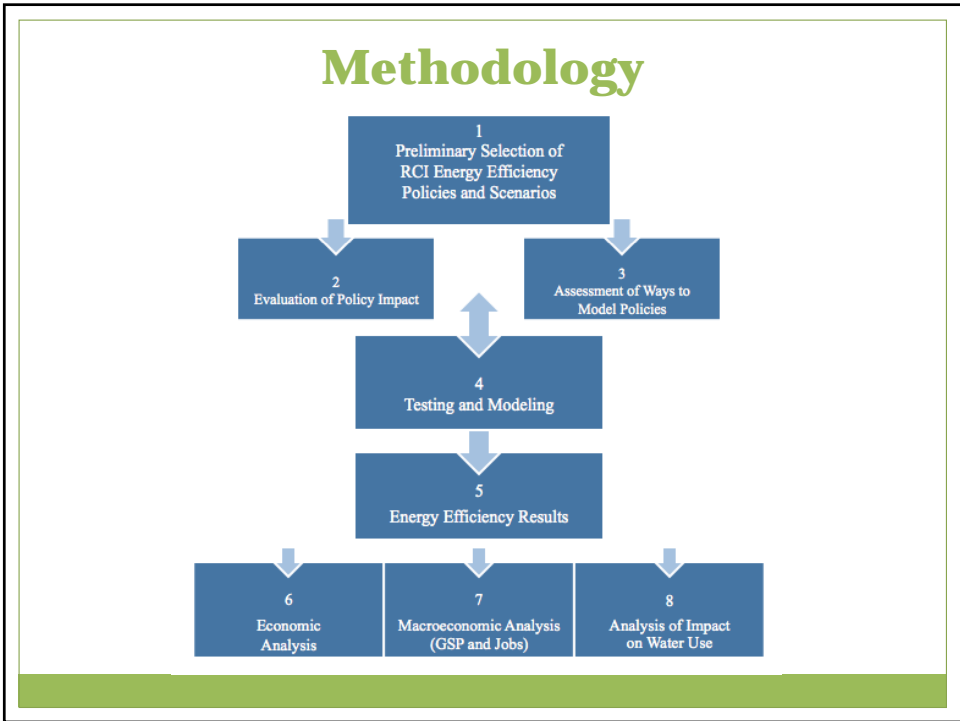
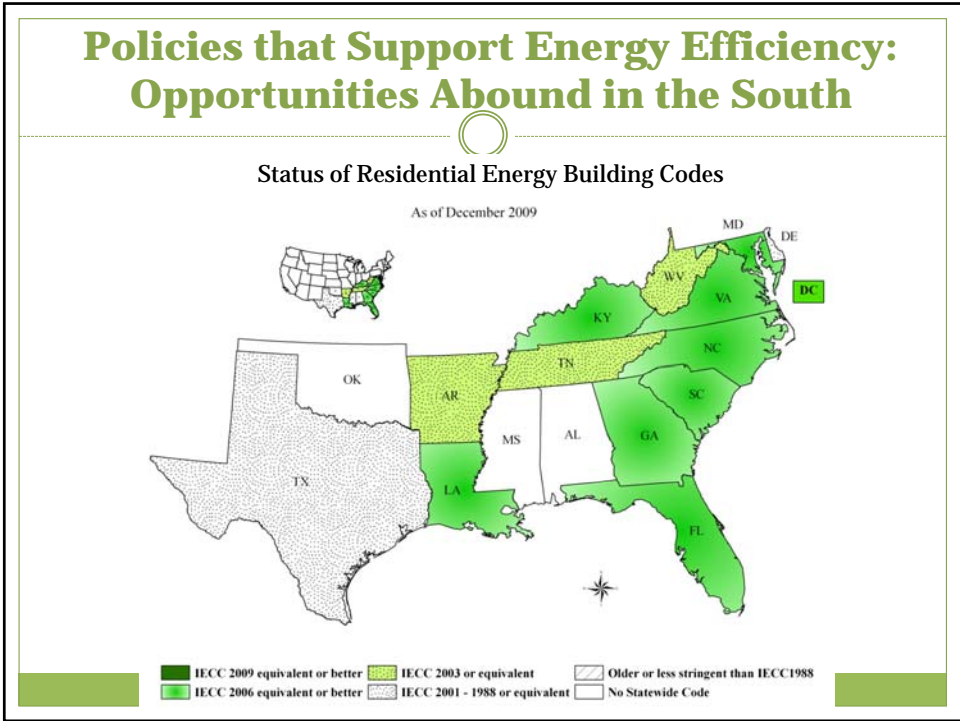


## The South: Energy and Carbon Intensive



|       | Coal  | Renewables | Fuel Oil | Petroleum Coke | Natural Gas | Nuclear | Imports |
|-------|-------|------------|----------|----------------|-------------|---------|---------|
| US    | 51.3% | 8.7%       | 1.2%     | 0.4%           | 17.3%       | 20.9%   | 0.3%    |
| SOUTH | 53.8% | 2.9%       | 1.2%     | 0.7%           | 20.8%       | 20.5%   | 0.0%    |

**Heavily Reliant on Coal for Power Generation**



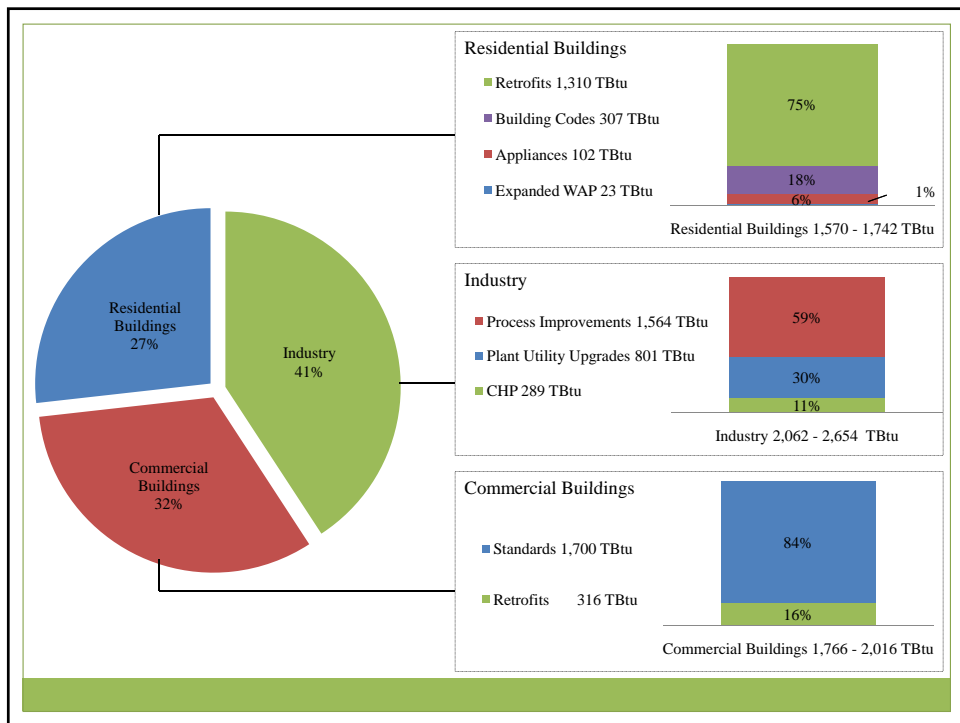
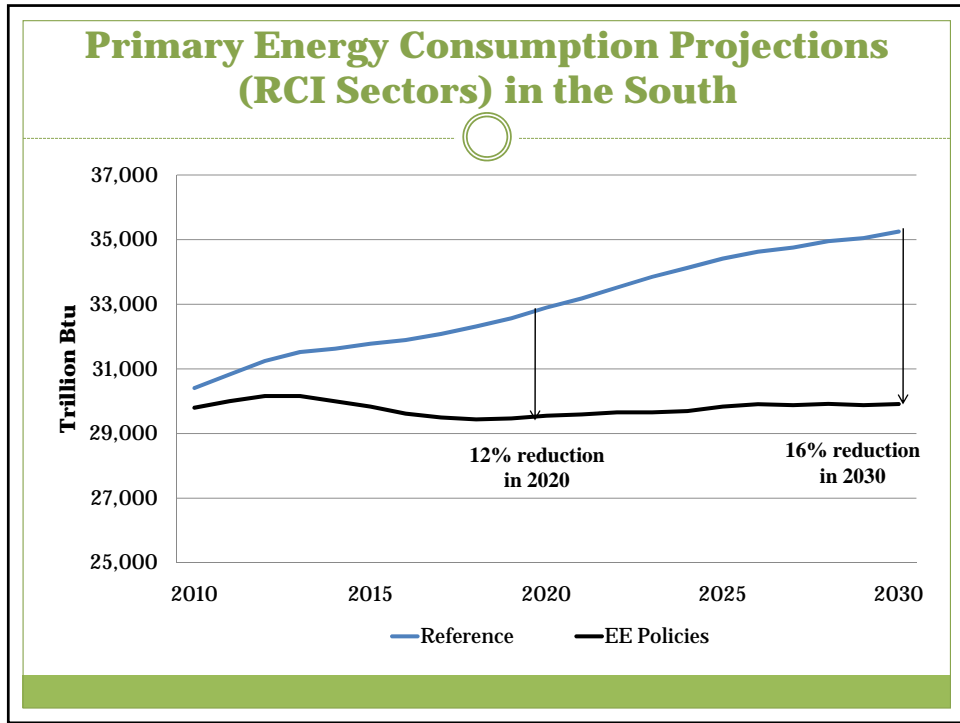
| <b>Portfolio of Energy-Efficiency Policies</b> |   |                                       |
|--|---|---------------------------------------|
| <b>Residential Buildings</b>                   | <b>Commercial Buildings</b>               | <b>Industry</b>                       |
| Appliance Incentives and Standards             | Aggressive Commercial Appliance Standards | Process Improvement Policy            |
| Residential Retrofit & Equipment Standards     | Commercial Retrofit Incentives            | Assessments of Plant Utility Upgrades |
| Expanded Weatherization Assistance Program     |   | Combined Heat and Power Incentives    |
| Building Codes with Third-Party Verification   |   |                                       |

**RESULTS**

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**Energy Efficiency and Generation Capacity**  
**Cost Effectiveness of Policies**  
**Macroeconomic Implications**  
**Water**

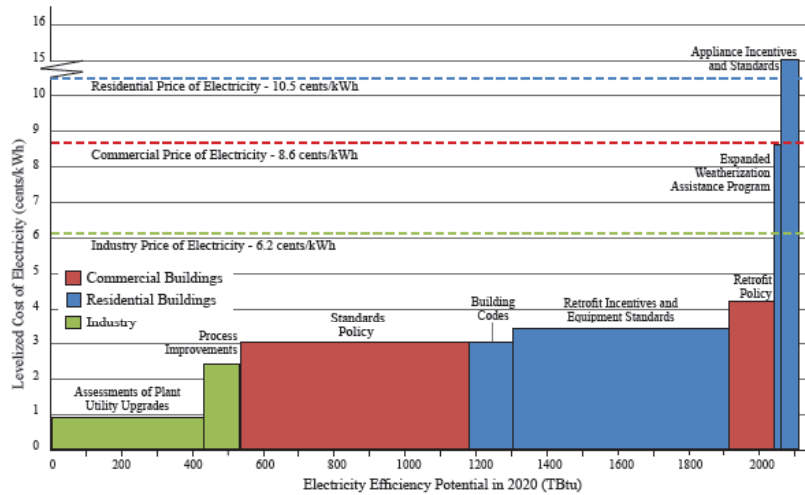


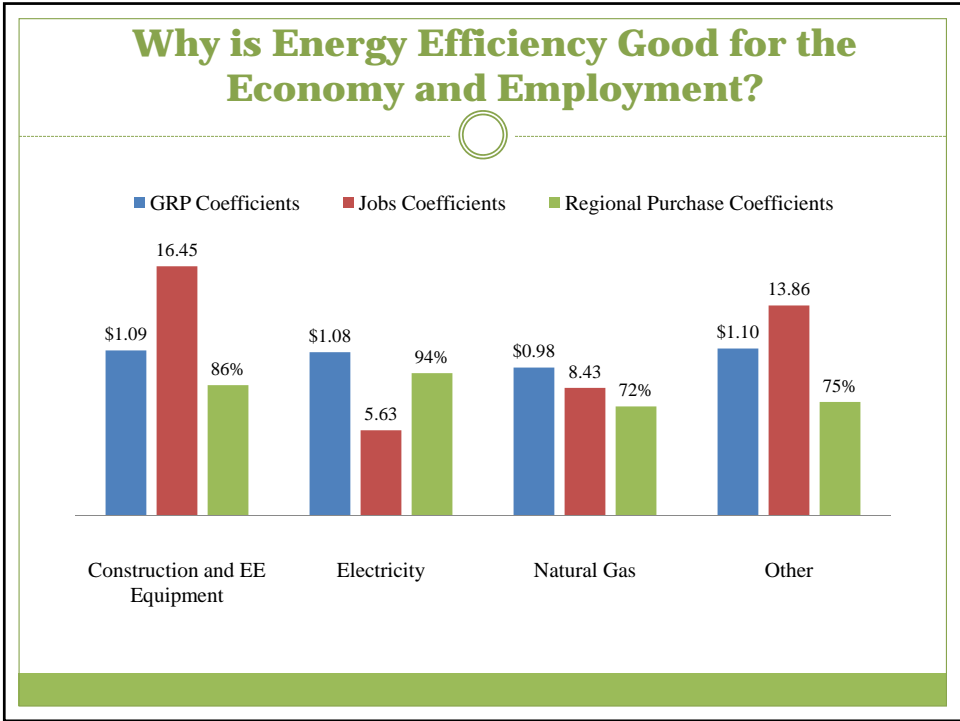
## The Policies Portfolio is Cost Effective

### Total Resource Cost Tests (Million \$2007)

|                             | NPV Cost  | NPV Benefit | B/C Ratio |
|-----------------------------|-----------|-------------|-----------|
| Residential Sector Policies | \$115,000 | \$143,000   | 1.3       |
| Commercial Sector Policies  | \$31,500  | \$126,000   | 4.0       |
| Industrial Sector Policies  | \$53,200  | \$179,000   | 3.4       |

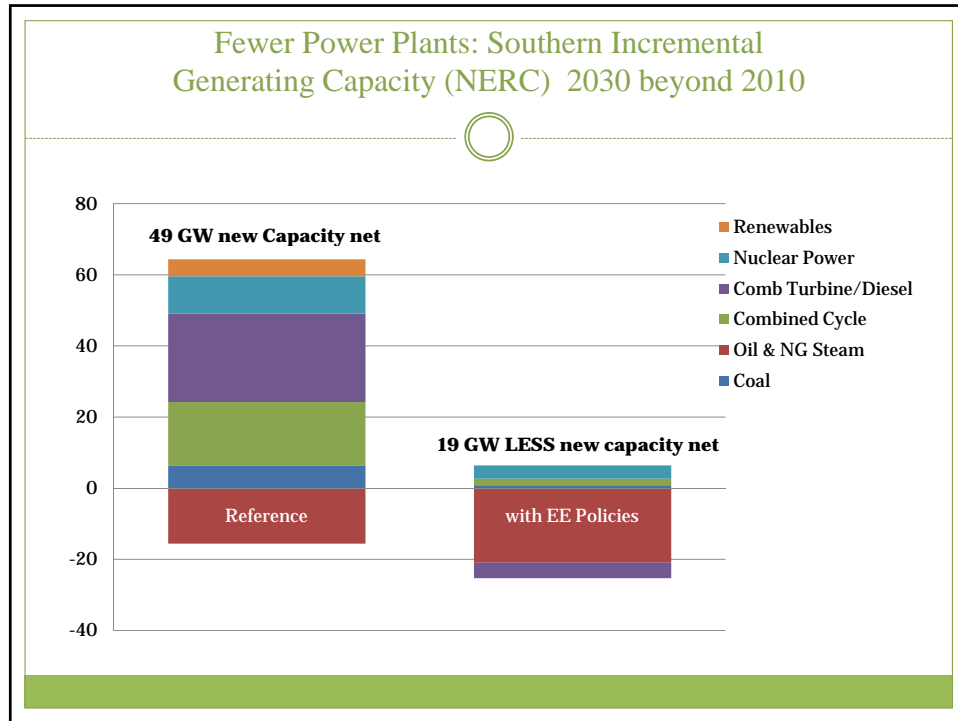
## Supply Curve for Electricity Efficiency in the South in 2020 (RCI Sectors)





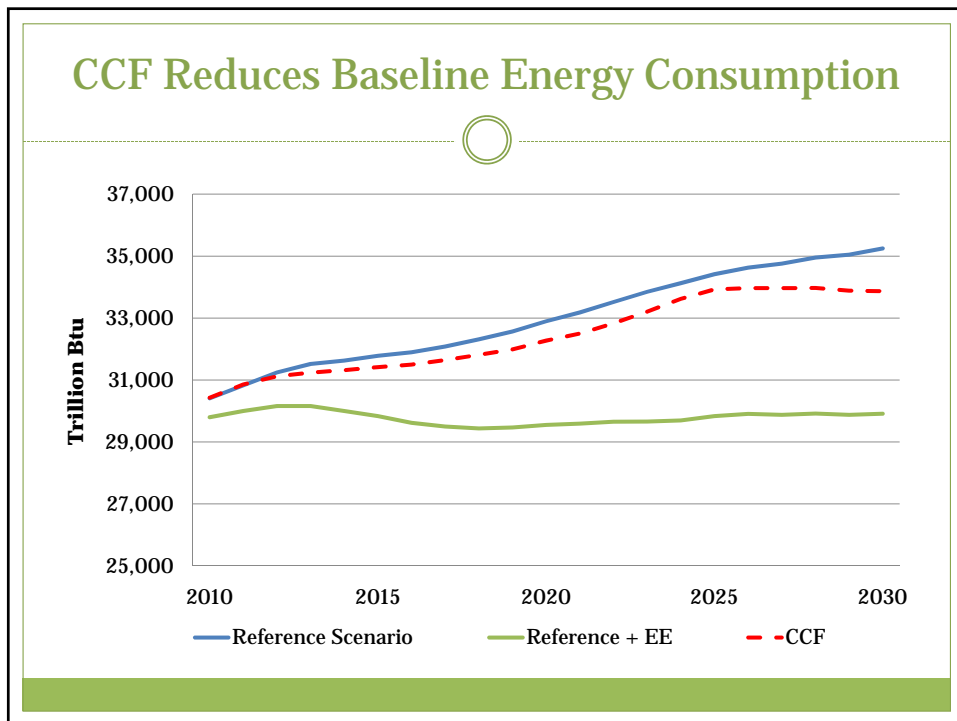
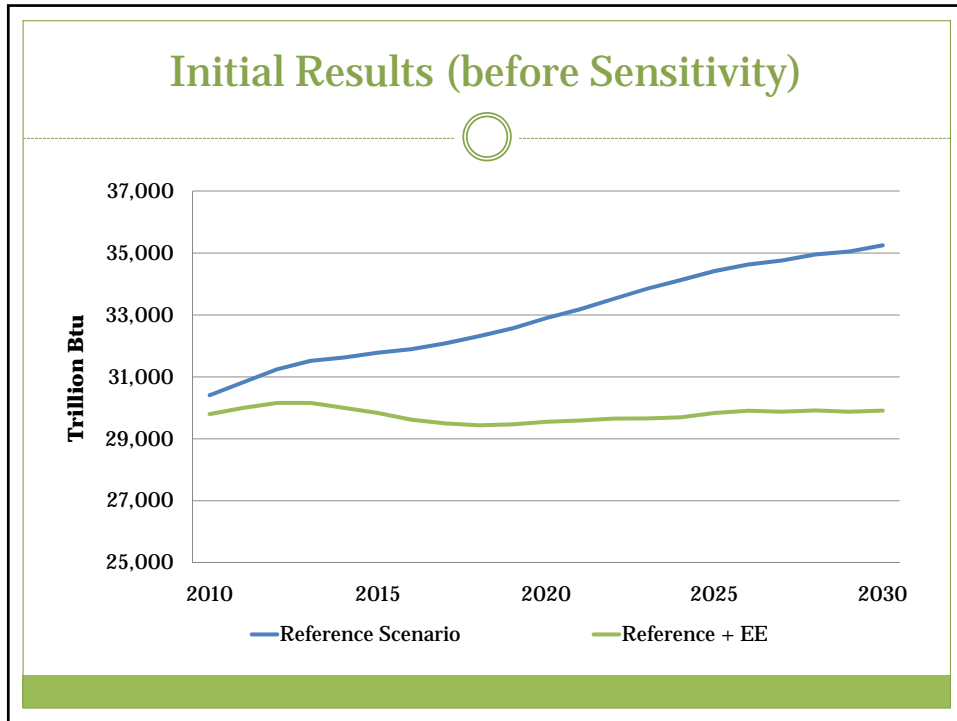
### Economic and Employment Impacts of Energy-Efficiency Policies in the South

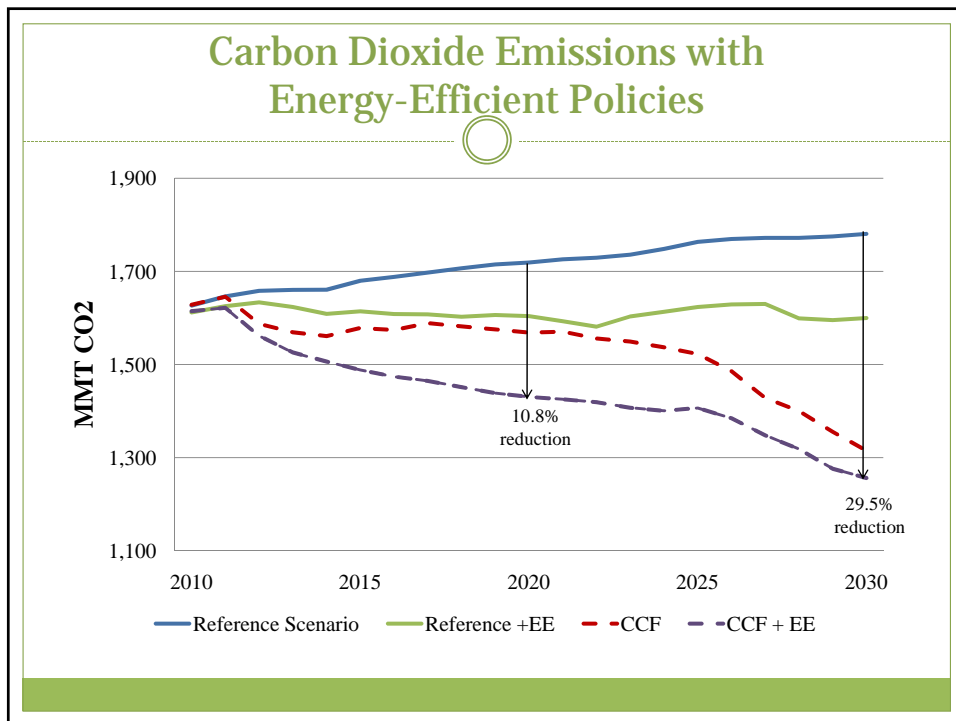
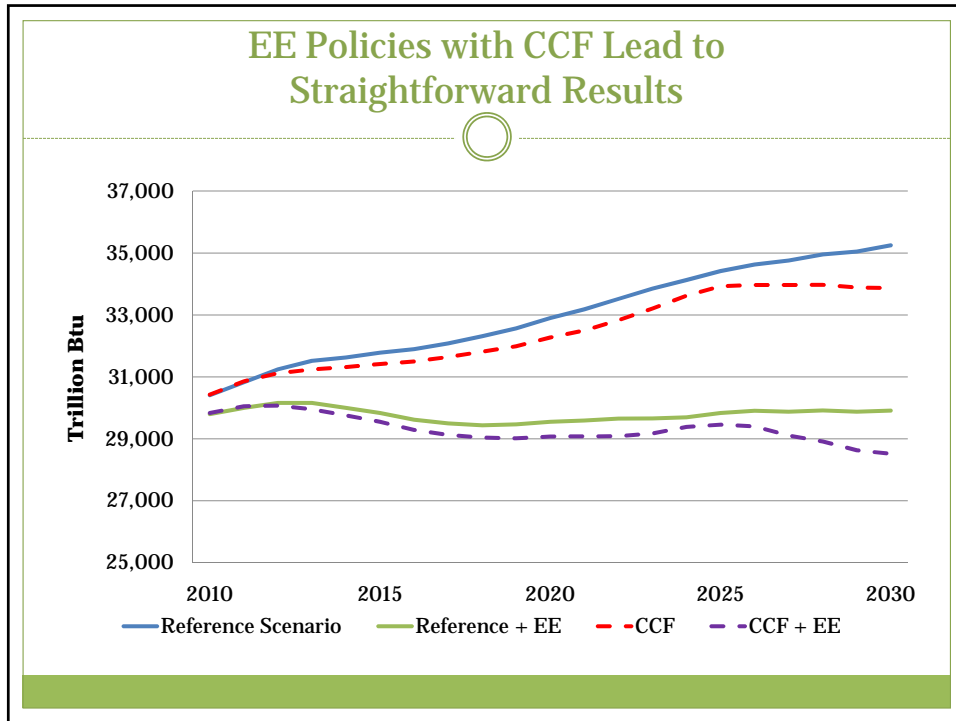
|   | 2020    | 2030    |
|---|---------|---------|
| Annual Energy Savings (billion \$2007)                | \$40.9  | \$71.0  |
| Annual Public and Private Investment (billion \$2007) | \$15.8  | \$22.4  |
| Annual Increased Employment (in FTEs)                 | 380,000 | 520,000 |
| Additional Gross Regional Product (billion \$2007)    | \$1.23  | \$2.12  |

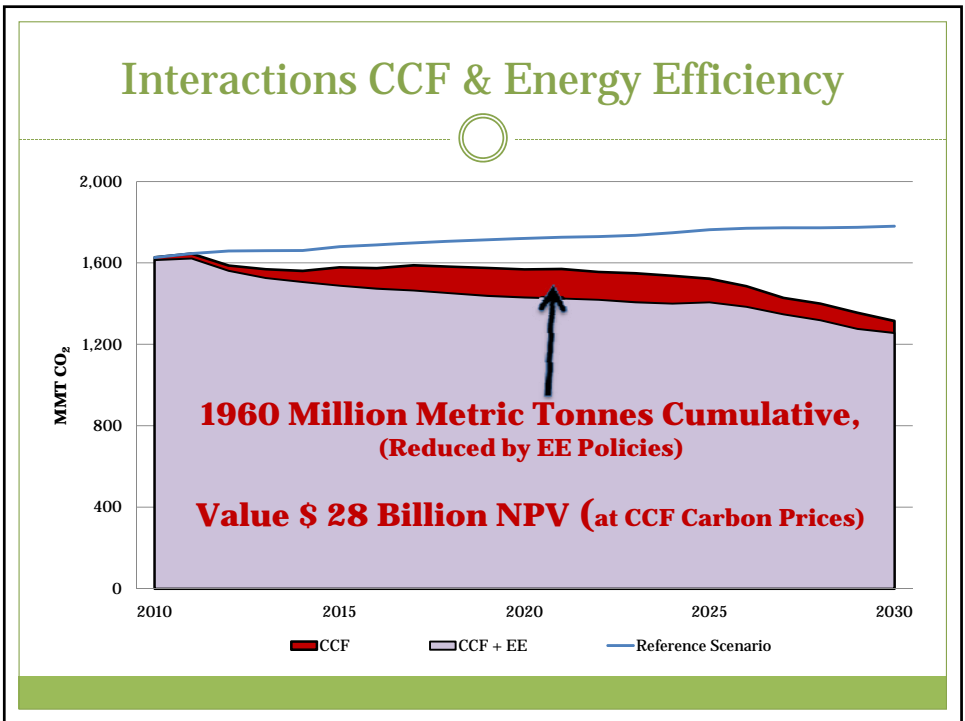
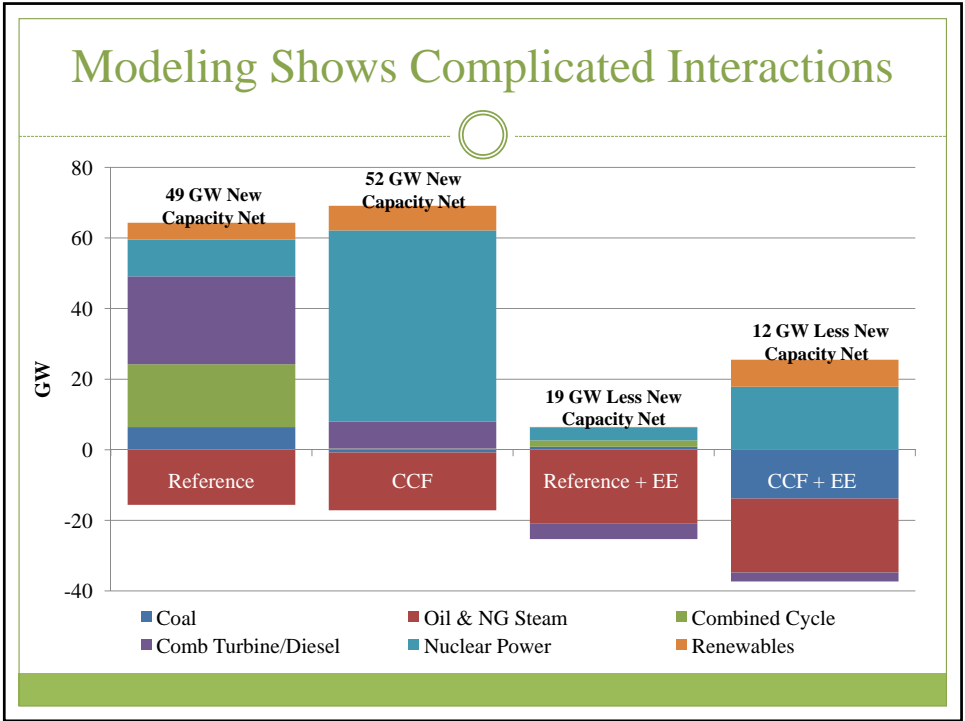


## Sensitivity Analysis

- Shows Why Modeling Approach very Useful, Captures Uncertainty
- Simple Carbon Constrained Future Scenario (CCF)
- Carbon Price, (\$15/ tonne rising to \$51), no Offsets



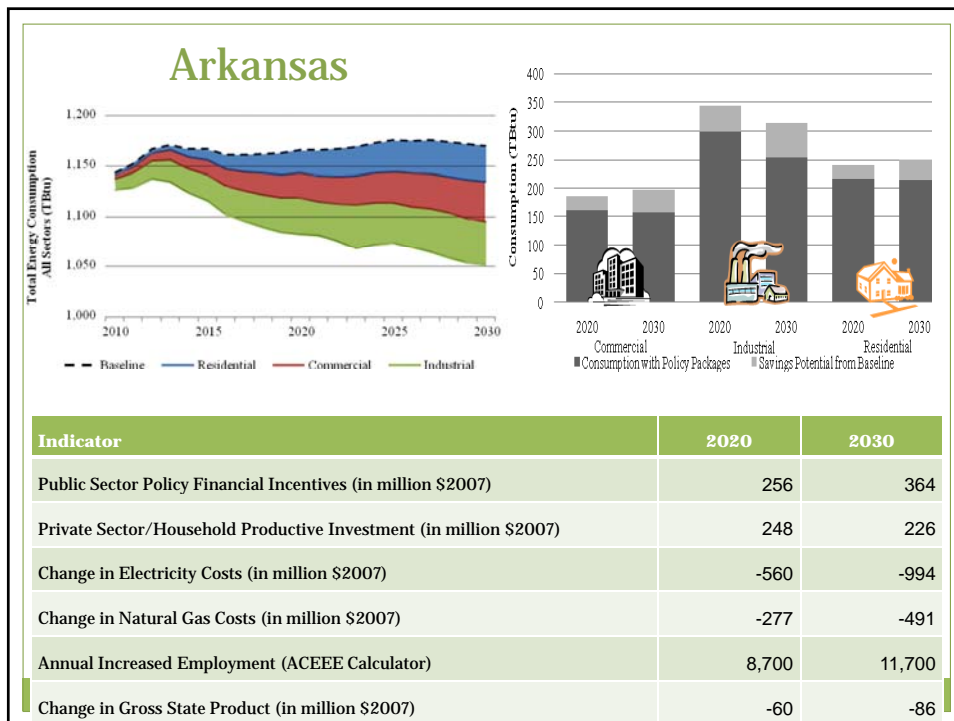
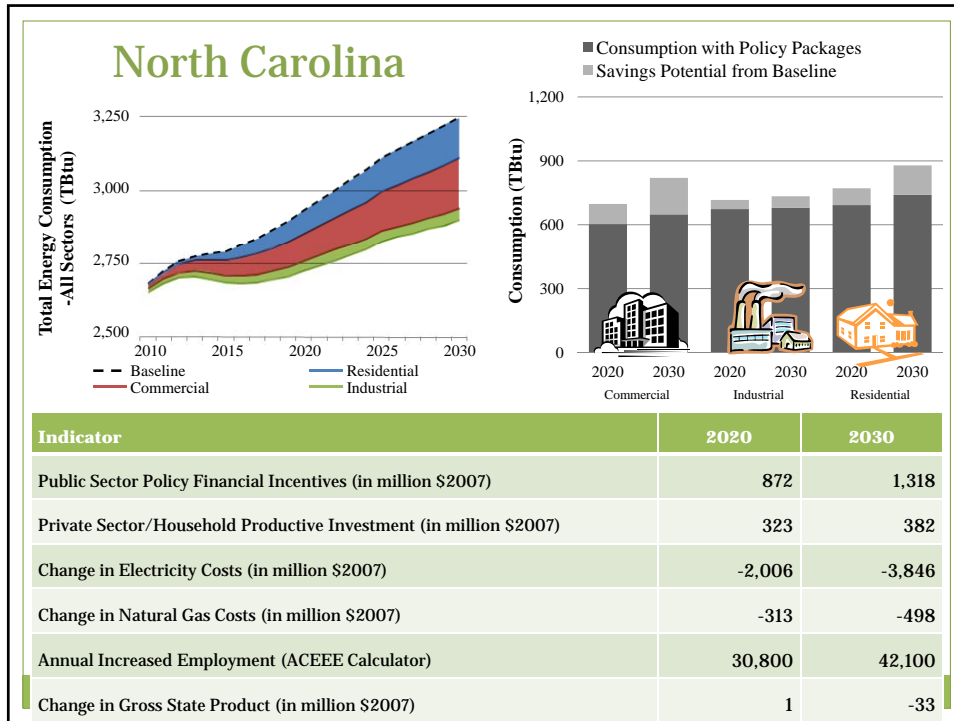


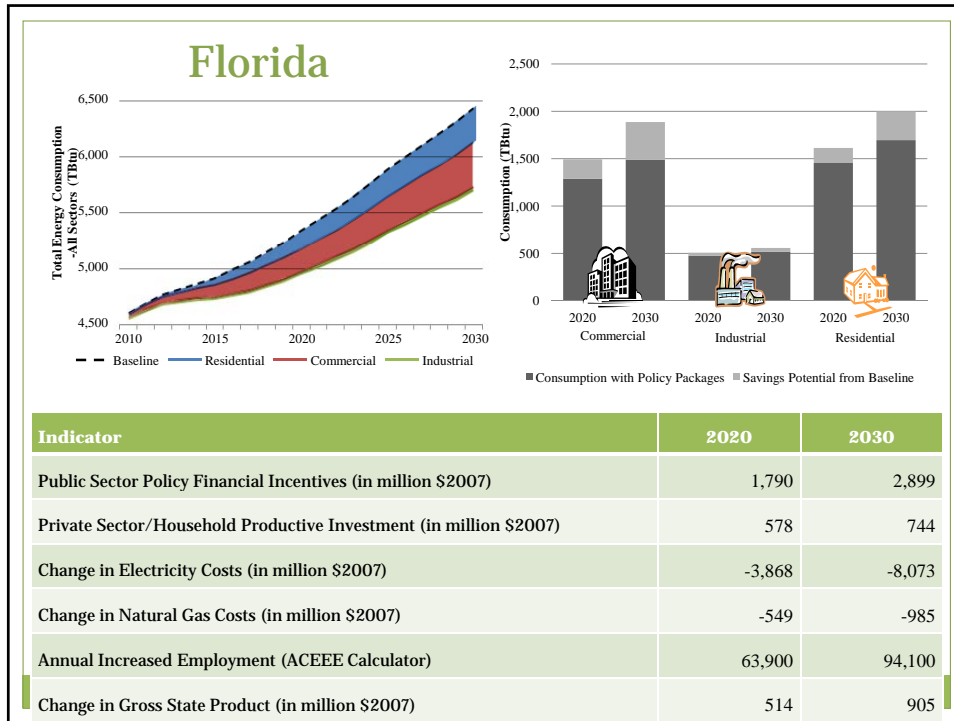


## Significant Water Savings

| EE Comparison             | In 2020 | In 2030 |
|---------------------------|---------|---------|
| Billions of Gallons Saved | 8.6     | 20.1    |
| CCF & EE                  | In 2020 | In 2030 |
| Billions of Gallons Saved | 18.8    | 90.0    |

## State Examples





## Conclusions

- Aggressive energy-efficiency initiatives in the South could prevent energy consumption in the RCI sectors from growing over the next twenty years.
- Fewer new power plants would be needed with a commitment to energy efficiency.
- Many Energy-Efficiency Policies are Cost Effective
- Increased investments in energy efficiency would generate jobs and cut utility bills.
- Energy efficiency would result in significant water savings.

## For More Information



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