



North Carolina's Energy Future Electricity, Water, and Transportation Efficiency

Presented to the Energy Policy Council
Raleigh, NC
March 18, 2010
American Council for an Energy-Efficient Economy

The American Council for an Energy- Efficient Economy (ACEEE)

Nonprofit 501(c)(3) dedicated to advancing energy efficiency through research and dissemination.
40 staff in Washington, D.C., Delaware, Michigan, and Wisconsin

Focus on End-Use Efficiency in Industry, Buildings, Utilities, Transportation, & National Policy

Offer Conferences and Publications

Funding:

- Foundation and Federal grants (40%)
- Specific Contract work (20%)
- Conferences and Publications (35%)



Project Overview: ACEEE's State Clean Energy Resource Project

Overall project funding by Energy Foundation, U.S. DOE, & U.S. EPA

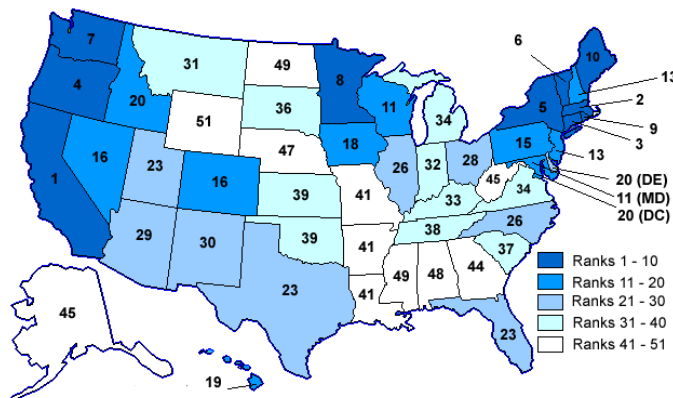
Prepare state energy efficiency potential assessments for 3-4 "transitional states" per year

- Completed studies for Texas, Florida, Maryland, Virginia, Pennsylvania, Ohio, and South Carolina
- Ongoing studies for North Carolina and Arkansas
- Studies co-funded by in-state groups – e.g., Z. Smith Reynolds Foundation in North Carolina
- Analysis targeted to meet state's policy needs – e.g., electricity, transportation, and water in North Carolina

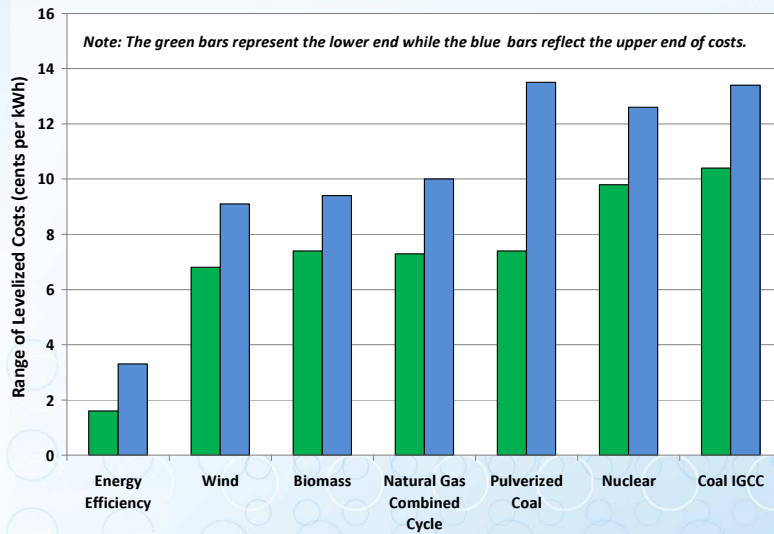
Assist states with ongoing energy policy implementation



Why North Carolina? ACEEE's 2009 State Energy Efficiency Scorecard



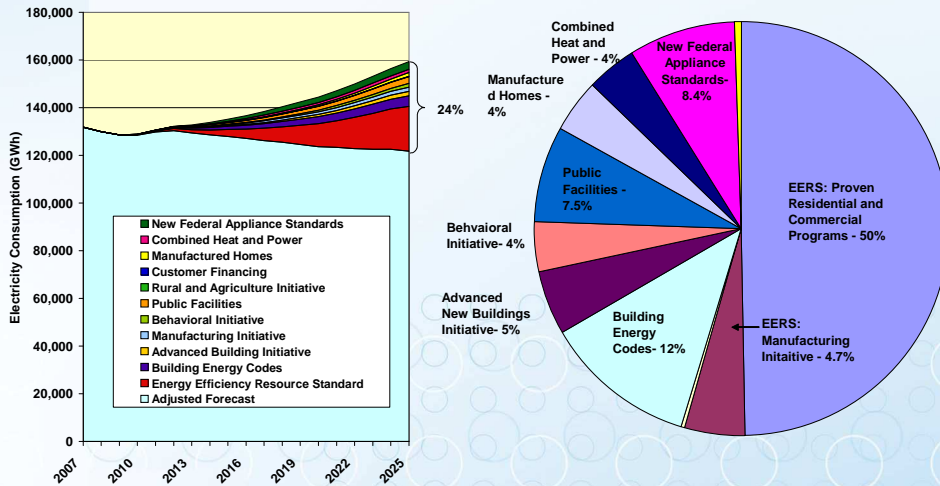
Why Energy Efficiency?



ACEEE:30
30 Years of Energizing Efficiency

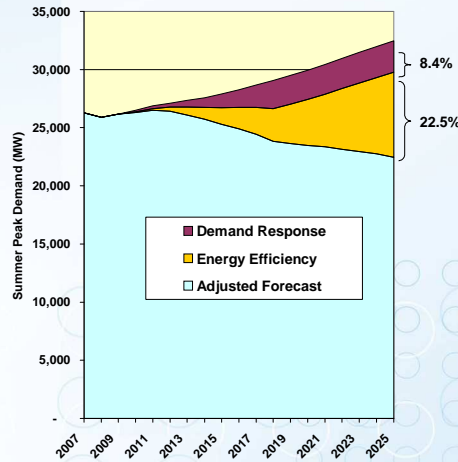
Source: Lazard 2008 except efficiency Friedrich et al. 2009

Electricity Savings from Policies



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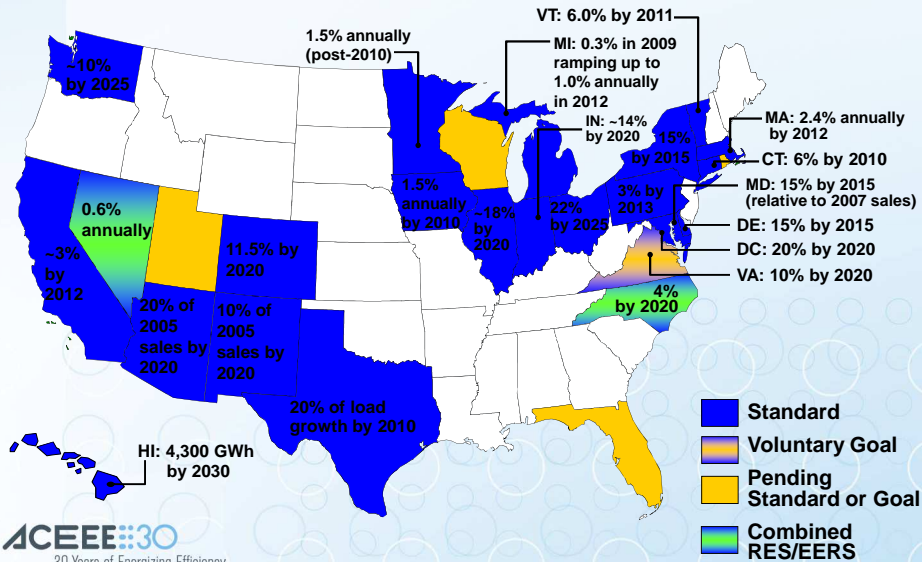
Demand Response Initiatives and Summer Peak Demand Impacts



- Load-curtailment activities
- Price-based incentives
- Integrate/Cross-market EE and DR programs
 - Building Energy management systems

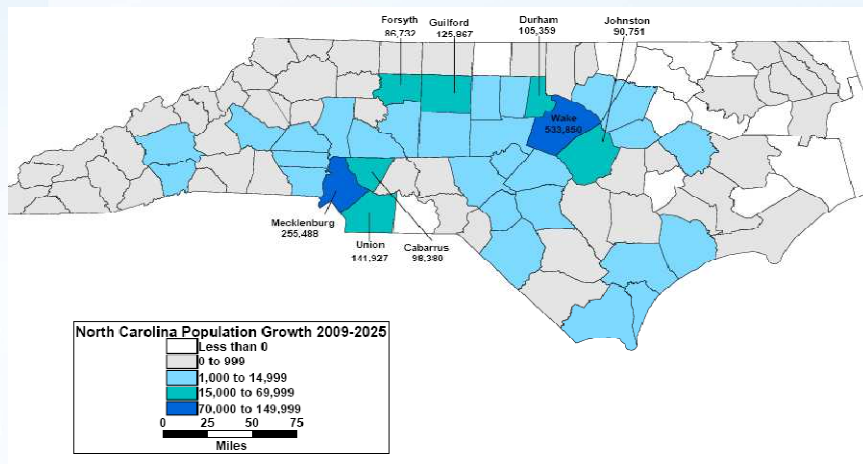
ACEEE:30
30 Years of Energizing Efficiency

Energy Efficiency Resource Standards 22 States – February 2010



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Population Growth in North Carolina—2009-2025



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Building Energy Codes & Advanced New Buildings Initiatives

- 1.6%/year increase in homes by 2025, or 1.2 mil. units
- Residential and Commercial Codes
 - Pending update to state building code; Codes Council approved amendments to 2012 code (30% savings beyond 2006 IECC)
 - National effort to reach 50% savings by 2018
- Voluntary advanced new buildings initiatives could enable these target
 - Tax deductions available for commercial building owners: \$1.80/sq. ft. with 50% savings

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30 Years of Energizing Efficiency

Water—Electricity Nexus

Growth competes for water:

- Treating water electric intensive
- Electricity generation requires cooling water

Efficiency manages growth:

- Water efficiency frees up water—76 mgd in 2025 & save 176 GWh electricity
- Electric efficiency frees up cooling water—saves 3,000 mgd in 2025



Water Efficiency Policies

- Statewide plumbing efficiency standards
 - Effective 2012
 - Federal standards nearly two decades old
 - Tank-type toilets, showerheads, lavatory faucets
- Replacement of inefficient plumbing
 - Pre-1995 housing only
- Clothes washer incentives
 - electric utility programs
- Efficient landscape ordinance
 - New residences and buildings
- Conservation Pricing of water and sewer

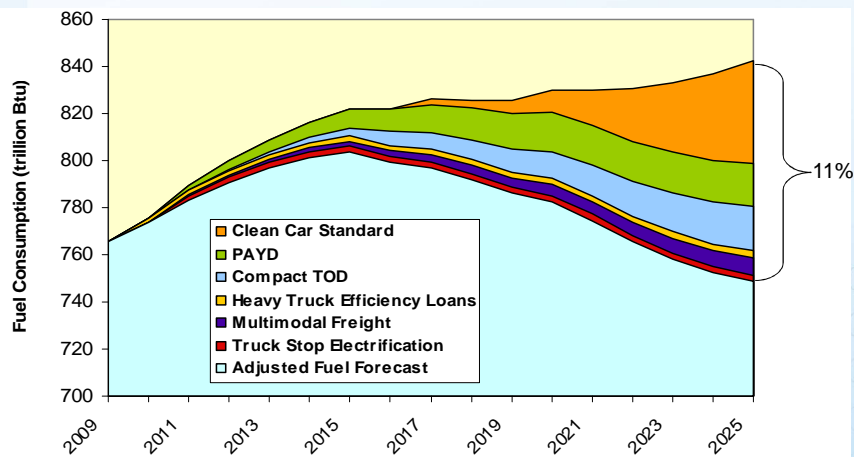


Transportation Policy Matrix: Results from Medium Case Energy Efficiency Scenario

	2015		2020		2025		Cost
	Barrels (1000s)	%	Barrels (1000s)	%	Barrels (1000s)	%	
Gasoline							
Clean Car Standard	0	0%	1,814	1.4%	8,417	6.7%	\$1.80
Pay-as-you-drive insurance	1,567	1.2%	3,228	2.6%	3,412	2.7%	\$0.38
Transit Expansion/Concentration of Urban Development	609	0.5%	2,140	1.7%	3,693	2.9%	-
Total -- Gasoline	2,217	1.7%	7,051	5.6%	14,954	11.9%	
Diesel							
Heavy Truck Efficiency Package	396	1.4%	444	1.5%	485	1.5%	\$1.15
Truck Stop Electrification	486	1.8%	545	1.8%	595	1.9%	\$0.34
Freight Intermodal Investments	366	1.3%	790	2.7%	1,278	4.0%	-
Total -- Diesel	1,229	4.5%	1,744	5.9%	2,307	7.2%	



Total Gasoline and Diesel Savings from Transportation Efficiency Policies: Mid-Case Scenario



North Carolina as Clean Energy Innovation Hub

- State has history as innovation hub—e.g. RTP, SAS
 - Research centers and universities
 - Skilled workforce
 - Progressive business environment
- Already attracting clean energy companies:
 - Established: GE, IBM, Ingersol Rand, Bosch, ABB, Eaton, Rockwell Automation, Siemens, Johnson Controls
 - Startups: CREE, Consert, Breeze Play, Southern Energy Management
- Potential to be leader in “smart efficiency” and clean energy resources
 - Create jobs with clean energy in NC
 - Create more jobs with national clean energy policy



Conclusions

- Energy efficiency is North Carolina’s lowest-cost, first energy resource
- Rapid grow will strain electric, water & transportation infrastructure
- EE can meet most of the states growing demand, while expanding the economy & creating jobs
- EE can represent the next innovation growth opportunity for the state



Contact Information

Download the Report: www.aceee.org/pubs102.htm

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