Georgia Climate Project

Marilyn A. Brown
Brook Byers Professor of Sustainable Systems
School of Public Policy
Georgia Institute of Technology

Georgia Environmental Conference
Jekyll Island, Georgia
August 25, 2017

A multi-year effort by a state-wide consortium to support effective, science-based climate action in Georgia.
Choosing our Energy Future: 2015 & 2016 Town Halls

Café-style conversations:
- Maximizing innovation, economic development and jobs
- Exploring environmental benefits and co-benefits
- Ensuring equity and environmental justice
- Options for design of a market-based system
- Multi-state coordination options, pros, and cons

https://cepl.gatech.edu/workshops/COEF/choosing-our-energy-future
Georgia Leadership Initiatives & Challenges

• Electric vehicles
• Utility-scale solar
• Atlanta’s 100% clean energy goal
• Next new nuclear plant (?)
• Energy benchmarking in Atlanta
• Energy burdens
Georgia is the Only State in the Southeast with >2 EVs per 1,000 People

But the market for EVs in Georgia has stalled with the termination of the state tax rebate (despite Georgia Power’s new support for EV re-charging stations).
Georgia was #3 in New Solar in 2016

Source: https://www.seia.org/research-resources/top-10-solar-states

Atlanta’s 100% Clean Energy Goal

GA grew from 22 MW of solar in 2012 to 1,432 MW in 2016
The 100% Clean Energy Goal for Atlanta Targets 2035, b/c there’s a way to go

Source: U.S. Energy Information Administration, Electric Power Monthly, Table 1.1A, 1.2C-E, 6.2B. State level data is also available at https://www.eia.gov/electricity/data/state/

Note: Distributed generations are estimated. Utility-scale generations are based on reported generation data.
Georgia is Home to the Only U.S. New Nuclear Under Construction

- The total cost of the Vogtle nuclear plant expansion is likely to exceed $25 billion.
Energy Benchmarking of Commercial Buildings in Atlanta

• Atlanta’s skyline has long been a symbol of prosperity. What you can’t see is that these same buildings are some of the city’s largest energy consumers and polluters.

• The city has adopted an energy benchmarking ordinance that will help redraw this energy and environmental profile.

• As a result, high performance buildings will be worth more, and tenants will be empowered.
But What about Households? The Energy Burden in the South is High

- Atlanta has the fourth highest median energy burden of any city in the U.S. at 5.0%, just less than Memphis at 6.2%, Birmingham at 5.3%, and New Orleans at 5.3%.
- Versus 3.5% average for all U.S. households.
- Low-income households in Atlanta have an average energy burden of 10.2%, the third highest of any urban area in the U.S.
- Low-income Atlanta residents in multi-family housing have particularly high energy burdens, averaging 15.7%.
- This data illustrates a stark contrast with the U.S. Department of Health and Human Services classification of energy burdens above 6% as “unaffordable”.


It’s Hard to Compete with Natural Gas (Solar is Already Cheaper than Nuclear): But Where is Energy Efficiency?

The U.S. has about 75,000 jobs in coal mining. Automation has had a major impact on this workforce: autonomous trucks work the Powder River Basin....

See: 30-minute CNN discussion: 175,000 live “hits”

https://www.facebook.com/cnn/videos/10156318782866509/?hc_ref=NEWSFEED
Energy Efficiency Jobs

Nearly 1 million U.S. workers spend a majority of their time installing energy-efficient equipment and services.

~66,200 Georgians work in energy efficiency related businesses.

Technologies include:
• Advanced windows & insulation
• High efficiency HVAC
• Smart thermostats
• Efficient lighting and controls
• Energy Star appliances, etc.

The U.S. has about 260,000 workers in the solar industry (3,900 in Georgia in 2016).

One out of every 50 new jobs added in the U.S. in 2016 was created by the solar industry.

Climate policies can cut CO\textsubscript{2} & reduce energy burdens

Types of Policies studied:

– Carbon caps: “Clean Power Plan”
– Carbon taxes: “Carbon Dividends Plan”
  – redistribute taxes on a per capita basis vs
  – redistribute per source of CO\textsubscript{2}.

Supply & Demand Policies can Work Well Together:

<table>
<thead>
<tr>
<th>Climate Policy</th>
<th>Cost per ton of CO\textsubscript{2} Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon Cap</td>
<td>$39.13</td>
</tr>
<tr>
<td>Carbon Cap + EE</td>
<td>-$26.30</td>
</tr>
<tr>
<td>$10 Carbon Tax</td>
<td>$8.11</td>
</tr>
<tr>
<td>$10 Carbon Tax + EE</td>
<td>-$28.63</td>
</tr>
</tbody>
</table>

Cost of climate policy = utility resource costs + EE costs + administrative costs – carbon tax recycling (in $2013)
Climate policy will have winners and losers, so policy design really matters.

Climate policy costs per capita across regions in 2030.

Estimated impacts in Georgia-Alabama range from a cost of ~$25 per capita to a benefit of ~$250 per capita.
For More Information

Dr. Marilyn A. Brown
Brook Byers Professor of Sustainable Systems
Georgia Institute of Technology
School of Public Policy
Atlanta, GA 30332-0345
Marilyn.Brown@pubpolicy.gatech.edu
Climate and Energy Policy Lab:
www.cepl.gatech.edu