



EMORY  
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Georgia  
Tech



School of  
Public Policy

Ivan Allen College of Liberal Arts

# Choosing Our Energy Future

**TOWN HALL DISCUSSION OF GEORGIA'S OPTIONS FOR  
IMPLEMENTING THE CLEAN POWER PLAN**

September 28, 2015

#GaCPP



# Teeing Up the Café Conversations

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## Presentation by topic area experts

- Maximizing Innovation, Economic Development and Jobs
- Exploring Environmental Benefits and Co-Benefits
- Ensuring Equity and Environmental Justice -- What is Known
- Options for Design of a Market-Based System
- Multi-State Approaches: Options, Pros, and Cons

## Topic area discussion groups

## Report out and reflections



**TOPIC 1:**  
**Maximizing  
Innovation,  
Economic  
Development  
and Jobs**



## Expert Presenter:

- **Costas Simoglou**  
Georgia Department of Economic Development,  
Center for Innovation for Energy

## Discussion Leaders:

- **Tim Echols**  
Georgia Public Service Commission
- **John Sibley**  
Southface Energy Institute

## Recorders:

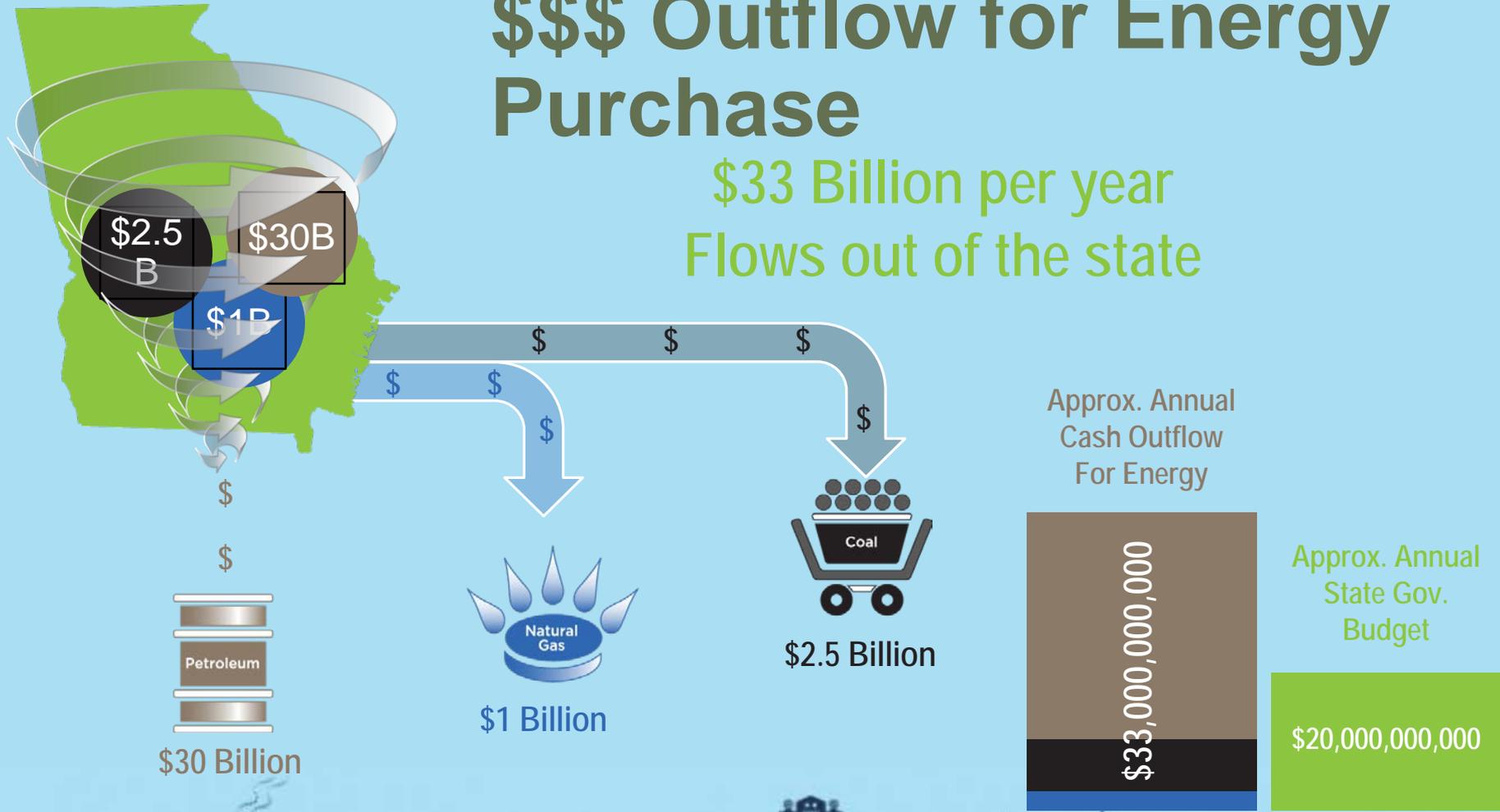
- **Alex Smith**  
Georgia Tech
- **Yeong Jae Kim**  
Georgia Tech



# Maximizing Innovation, Economic Development and Jobs-- What is Known

## \$\$\$ Outflow for Energy Purchase

\$33 Billion per year  
Flows out of the state



# Maximizing Innovation, Economic Development and Jobs-- What is Known

## The Energy Ecosystem



# Maximizing Innovation, Economic Development and Jobs – Key Questions

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## MAXIMIZING INNOVATION AND ECONOMIC DEVELOPMENT

How can Georgia's compliance plan maximize innovation, economic development, and the clean energy industry in Georgia?

How could it spur innovation and technological development...or not?

## ECONOMIC DEVELOPMENT & JOBS: WINNERS AND LOSERS

What types of jobs are likely to be created or lost?

Is it possible to think about the net economic impact of regulations on job creation?



## TOPIC 2:

# Exploring Environmental Benefits and Co-Benefits



## Expert Presenter:

- Matt Strickland  
Rollins School of Public Health, Emory University

## Discussion Leaders:

- Stephanie Stuckey Benfield  
Mayor's Office of Sustainability - City of Atlanta
- Ted Russell  
Civil and Environmental Engineering, Georgia Tech

## Recorders:

- Dr. Emanuele Massetti  
Georgia Tech
- Nicole Swartwood  
Emory University



# Exploring Environmental Benefits and Co-Benefits -- What is Known

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## Scenario 1: “Inside the fence line” compliance

- 2-3% reductions in CO<sub>2</sub>, NO<sub>x</sub>, Hg; 3% increase in SO<sub>2</sub>
- No improvement in avoidance of premature deaths from PM<sub>2.5</sub> and ozone

## Scenario 2: “Demand-side improvements in energy efficiency”

- 22-27% reductions in CO<sub>2</sub>, NO<sub>x</sub>, Hg, and SO<sub>2</sub>
- 3500 [780 to 6100] annual premature deaths avoided from PM<sub>2.5</sub> and ozone

## Scenario 3: “Social cost of carbon of US\$43 t<sup>-1</sup>”

- Reductions: 40% in CO<sub>2</sub>; 27% in SO<sub>2</sub>, Hg; 16% in NO<sub>x</sub>
- 3200 [720 to 5700] annual premature deaths avoided from PM<sub>2.5</sub> and ozone

Other benefits: Reductions in nitrogen deposition, visibility improvements

Driscoll et al. “US power plant carbon standards and clean air and health co-benefits.”  
*Nature Climate Change* 2015; 5: 535-540.



# GEORGIA: A Health Benefits Hotspot

## AIR QUALITY AND HEALTH BENEFITS OF A POWER PLANT CARBON STANDARD



THESE MAPS SHOW: Reductions in fine particulate matter and peak summer ozone, and the resulting health benefits under Policy Scenario 2 compared to the 2020 reference case. For soot and smog, negative values = lower pollution. The health benefits assume a linear increase from the 2020 annual estimate. By comparison, Scenario 1 resulted in 30 lives saved, and Scenario 3 resulted in 1100 lives saved. Source: *Health Co-benefits of Carbon Standards for Existing Power Plants*. [www.chgeharvard.org/health-co-benefits](http://www.chgeharvard.org/health-co-benefits).

<http://eng-cs.syr.edu/wp-content/uploads/2015/04/Georgia-InfoGraphic.png>



# Exploring Environmental Benefits and Co-Benefits –Key Questions

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## DESIGNING PLANS TO MAXIMIZE ENVIRONMENTAL CO-BENEFITS

What are the implications for local pollution regulation?

- air, water, waste, health

Can we design the plan in a way that helps with future regulatory changes?

## DESIGNING PLANS TO MAXIMIZE HEALTH CO-BENEFITS

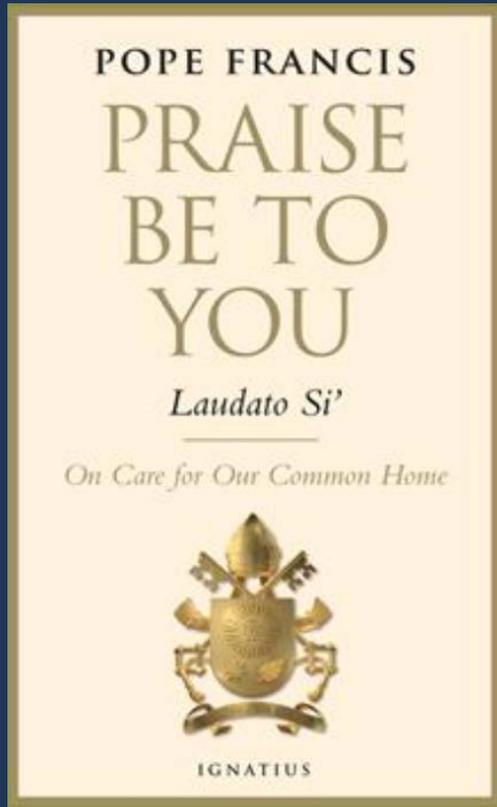
What are the total health benefits of pursuing the Clean Power Plan?

Can we design the plan to maximize health co-benefits?



## TOPIC 3:

# Ensuring Equity and Environmental Justice



## Expert Presenter:

- Makara Rumley  
EPA Region IV

## Discussion Leaders:

- Ian Karra  
Sierra Club
- Christian Braneon  
EPA Region IV

## Recorders:

- Jeff Hubbs  
Georgia Tech
- Evan Mallen  
Georgia Tech





# Where do Vulnerable Communities Fit in the CPP?

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- The EPA put a number of considerations in place to help ensure that the CPP and the proposed federal plan do not disproportionately impact vulnerable communities (low income, communities of color, and indigenous communities); this includes:
  - Conducting a proximity analysis to help states and overburdened communities engage with one another during state plan development process; communities with EPA during comment period of proposed federal plan
  - Requiring that states engage with all stakeholders, including communities
  - EPA conducting an analysis during the implementation phase to determine the impacts of the CPP on communities; EPA encourages states to do the same
  - Encouraging that states employ a multi-pollutant approach, when devising their state plans
  - Providing resources on federal, state, and local available programs that assist communities in accessing EE/RE resources
- Clean Energy Incentive Program (CEIP)



# Community Engagement in State Plan Development

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- The CPP gives states opportunities to ensure communities share in the benefits of a clean energy economy, including energy efficiency and renewable energy
- To help ensure communities – particularly low-income, communities of color, and indigenous communities – have opportunities to participate in decision-making, EPA is requiring that states demonstrate that they meaningfully engage with the public, including communities, in the formulation of their state plans
- This will:
  - Provide an avenue for communities to hear from the state about strategies that might work best to tackle climate pollution, and
  - Allow stakeholders to provide input on where possible impacts to low-income, communities of color, and indigenous communities could occur along with strategies to mitigate those impacts
- EPA will provide additional information to facilitate engagement between communities and states as implementation of the CPP moves forward



# CEIP: Incentives for Early Investments

- The Clean Energy Incentive Program (CEIP) incentivizes early investments that generate wind and solar power or reduce end-use energy demand during 2020 and 2021
- CEIP is an optional, “matching fund” program which states may choose to use to incentivize early investments in wind and solar measures in all settings, and demand-side energy efficiency (EE) measures implemented in low-income communities
  - EPA will provide matching allowances or Emission Rate Credits (ERCs) to states that participate in the CEIP
  - Up to an amount equal to the equivalent of 300 million short tons of CO<sub>2</sub> emissions
  - **Match is double for low-income EE projects**, targeted at removing historic barriers to deployment of these measures
  - States with more challenging emissions reduction targets have access to proportionately larger share of the match





# EPA Region 4 CPP Contacts for Communities

## R4 CPP Lead

Ken Mitchell

Email:

[mitchell.ken@epa.gov](mailto:mitchell.ken@epa.gov)

Phone: 404-562-9065



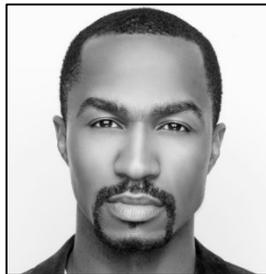
## R4 CPP Community Issues

Christian Braneon

Email:

[braneon.christian@epa.gov](mailto:braneon.christian@epa.gov)

Phone: 404-562-9608



## R4 CPP Community Issues

MaKara Rumley

Email:

[rumley.makara@epa.gov](mailto:rumley.makara@epa.gov)

Phone: 404 562-8357



**Clean Power Plan Community Portal:**

<http://www2.epa.gov/cleanpowerplan/clean-power-plan-community-page>

# Ensuring Equity and Environmental Justice – Key Questions

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## EQUITABLE OUTCOMES

How are these regulations likely to impact environmental justice and equitable outcomes for lower and middle-income residents?

How are the Clean Power Plan regulations likely to impact electricity rates and other indirect market effects?

## PARTICIPATION IN PLAN FORMATION & IMPLEMENTATION

What are the opportunities to shape the Georgia Clean Power Plan to promote more equitable outcomes?

How can we engage a broad participation in the design of Georgia's draft state plan?



## TOPIC 4:

# Options for Design of a Market-Based System



Carbon Emissions  
Exchange

## Expert Presenter:

- Dan Matisoff  
School of Public Policy, Georgia Tech

## Discussion Leaders:

- Charles Rossmann  
Southern Company
- Nick Cooper  
Georgia Public Service Commission

## Recorders:

- Mallory Flowers  
Georgia Tech
- Gyungwon Kim  
Georgia Tech



# Options for Design of a Market Based System -- What is Known

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- Flexibility Mechanisms – Larger is More Efficient!
  - Mass vs. Intensity
    - Intensity distorts market and is complex
  - Tax vs. Cap & Trade
    - Tax is more efficient, simpler, but politically difficult
  - Within State vs. Multi-state compatible
    - Multistate will lower costs
  - Power Sector or Power + Industrial + other?
    - Larger markets are better!
- Allocation methods (auction vs. free allocation) and potential pitfalls
  - Auctioning helps facilitate market
  - Revenue recycling
  - Reduces “windfall profits”
  - Other market “failures”



# Options for Design of a Market Based System – Key Questions

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## DESIGNING THE MARKET MECHANISMS

How does the mass vs. rate choice influence efficiency and market design?

What market-design features need to be in place to create an efficient market system?

- Which flexibility provisions?

## ECONOMIC VALUE CREATION

How can Georgia to create economic value from emission reduction credits and allowances?

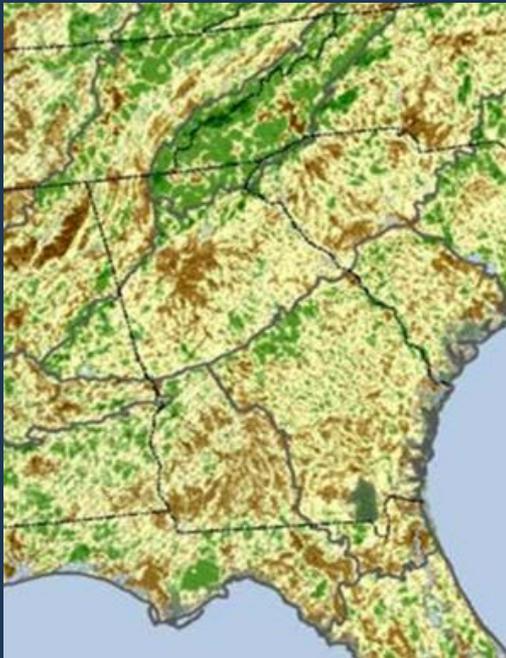
How should permits be allocated?

- Auction vs. free allocation?
- Who decides: How many should be free? How should those be allocated?



## TOPIC 5:

# Cross-State Coordination: Options, Pros, and Cons



## Expert Presenter:

- Katie Southworth  
Natural Resources Defense Council

## Discussion Leaders:

- Abby Fox  
Southeast Energy Efficiency Alliance
- Claudette Ayanaba  
Georgia Environmental Protection Division

## Recorders:

- Ben Staver  
Georgia Tech
- Xiaojing Sun  
Georgia Tech



# Cross-State Coordination: Options, Pros, and Cons -- What is Known

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## State Plan Options:

- Taking a coordinated approach: Mass v Rate considerations
- Trading-ready plans

## Pros: (potential)

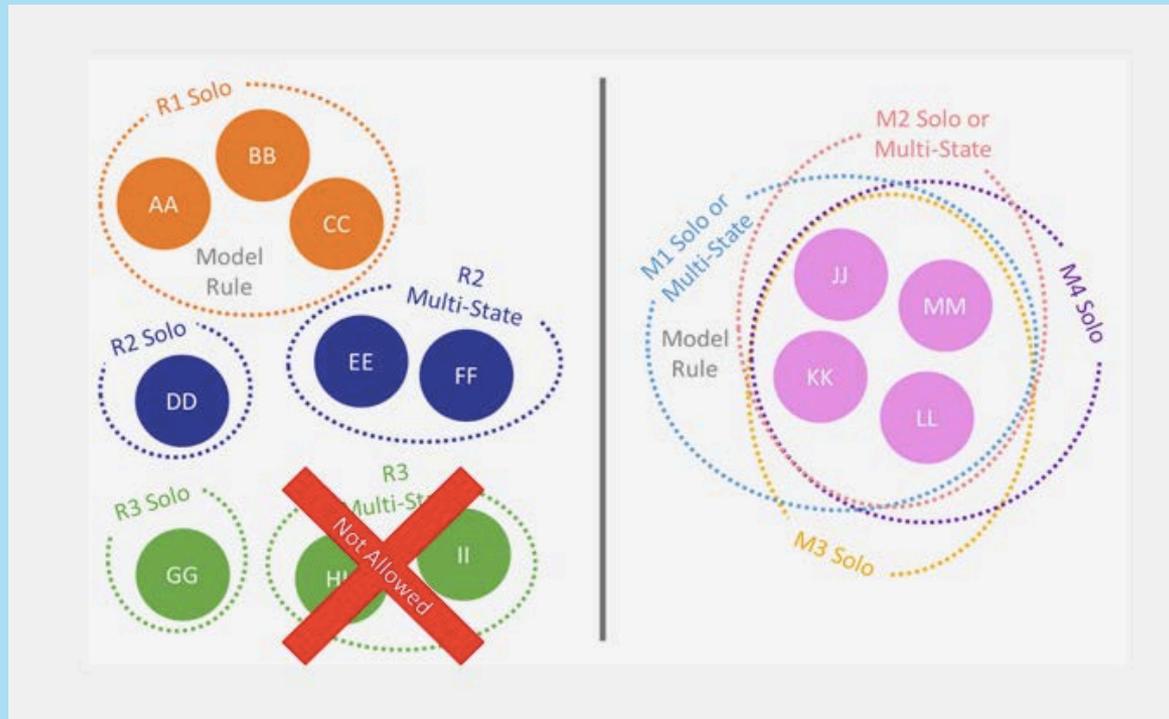
- Regulatory certainty? Trading ready plans can mitigate need for complicated regional plan – may lessen need or urgency.
- Reliability?
- Least Cost? (Share administrative costs (modeling)?)
- Increase compliance options?
- Utility market territory alignment?

## Cons: (potential)

- EM&V and uniformity of crediting?
- Timing/ administrative capacity/ politics?
- “Loss of Sovereignty” issues?



# Who can trade with whom?



Source: Synapse



# Cross-State Coordination: Options, Pros, and Cons – Key Questions

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## POTENTIAL FOR REGIONAL COOPERATION

What are the risks / benefits of regional collaboration?

What are the barriers that need to be overcome to facilitate regional coordination?

## OPTIONS FOR REGIONAL COOPERATION

How can state agencies, utilities, and others coordinate so that state plans reflect the common needs of regions?

How does the mass vs. rate choice influence the prospects for cross-state cooperation?



# Our Process of Dialogue

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## Topic Areas

- Maximizing Innovation, Economic Development and Jobs
- Exploring Environmental Benefits and Co-Benefits
- Ensuring Equity and Environmental Justice -- What is Known
- Options for Design of a Market-Based System
- Multi-State Approaches: Options, Pros, and Cons

## Process

Two tables per discussion topic

Topic area discussion groups

- Discussion leaders
- Participants
- Recorders

Report out and reflections

- Intra-topic exchange and feedback
- Report out to Town Hall

