South Carolina's Renewable Energy & Climate Policies & Programs: Lessons for Federal Policies & Actions

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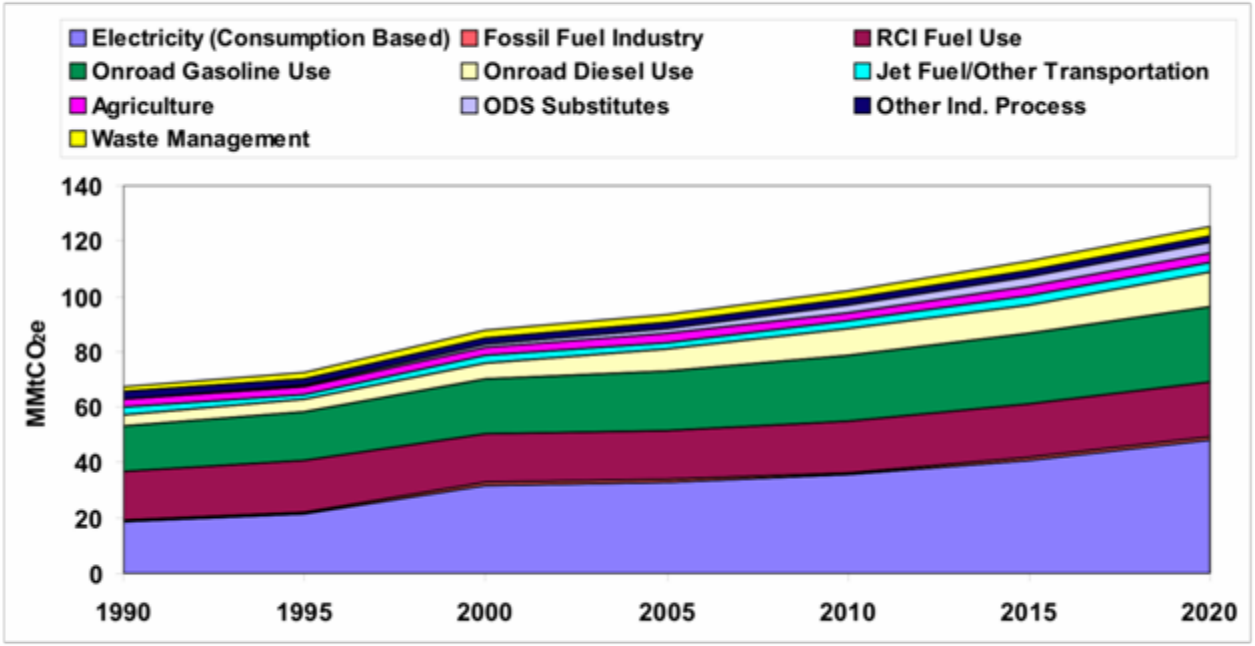
Presented By:
Joseph J. James,
Member, South Carolina Climate, Energy and Commerce Advisory Committee
President, The Corporation for Economic Opportunity
President, Agri-Tech Producers, LLC

SC Emissions By Sector

Figure EX-1. Gross GHG emissions by sector, 1990–2020: historical and projected (consumption-based approach) business-as-usual/base case



$MMtCO_2e$ = million metric tons of carbon dioxide equivalent; RCI = direct fuel use in residential, commercial, and industrial sectors; ODS = ozone depleting substance; Ind. = industrial.

Planning Process,Results & Challenges

- A broad array of stakeholders comprised the Climate, Energy & Commerce Advisory Committee (CECAC), which was broken up into topic Task Forces
- Numerous Task Force and Full Committee meetings
- Reviewed and issued recommendations
- Governor has not yet acted

South Carolina's Renewable Energy Programs

- 2004: Secured a DOE Biomass planning grant
- Created a Biomass Development Program
- 2006: Created broadly representative SC Biomass Council (SCBC)–www.scbiomass.org
- SCBC developed and lobbied for State Biomass and Bio-Energy Programs
- 2007: General Assembly overrode Governor's veto and programs began to be implemented

Lessons Learned

- State-level planning and actions are important & should be encouraged
- State governmental actions and support are critical
- Federal encouragement and support of state planning is helpful
- Feedback about state efforts can help shape federal policies and programs

Case Study: How South Carolina's Renewable Energy Programs & Policies Are Helping ATP Commercialize Torrefaction Technology

By

Joseph J. James, President

Agri-Tech Producers, LLC (ATP)

The Problem

Untreated cellulosic biomass may be as much as 50% water, it's bulky, of low value, fibrous, perishable, costly to transport and it's not the most efficient or useable bio-fuel or bio-feedstock.

Solution: NC State University's Unique Application of Torrefaction Technology

- Untreated Biomass:
  - Bulky
  - Moist
  - Fibrous
  - Perishable
  - Waste
  - Expensive to transport
- Torrefied Biomass:
  - Dense, If Pelletized, Etc.
  - Dry & Water Resistant
  - Easily Crushed
  - Does Not Rot
  - Valuable Fuel
  - Energy Dense

Torrefaction: Process & Benefits

- Heating (300-400º C) wood, in a low-oxygen environment, evaporates water, volatile organic compounds (VOC's), and hemicellulose (HC) from the cellulose and lignin.

- The VOC's and HC are combusted to generate 80% of the torrefaction process heat.

- The resulting and remaining warm lignin acts as a binder when the torrefied wood is compressed.

- Torrefied wood cost-effectively replaces coal, makes superior pellets and is a superior feedstock for further pyrolysis or gasification for combined heat and power or Fischer-Tropsch liquids. Shipping costs/BTU are reduced.

Agri-Tech Producers, LLC

"Meeting Tomorrow's Needs Today"

South Carolina's Programs

- **SCREG:** Provides matching bio-energy grants.
- **SC EPSCoR:** Covers costs of developing SBIR/STTR grant applications.
- **SC Launch:** Provides matching grants for high-growth technology companies.
- **Technical Assistance:** Includes matchmaking and other technical support.
- **One-Stop Shop:** Coordinates the process of state development and regulatory approvals.

Suggested Federal Actions

- **Enact a Comprehensive Climate/Energy Bill:** Will create stimulative market conditions.
- **Small Business Financing:** Quickly un-freeze and expand the availability of debt capital.
- **Regional Differences:** Recognize regional strengths and weaknesses.
- **Regional Cooperation:** Encourage states, universities and companies, within regions of common renewable energy resources, to collaborate.

Suggested Federal Actions Cont...

- **Promote Inter-Agency Collaboration:** Encourage various federal agencies to coordinate and expedite their programs at the national and regional level.
- **Promote Rural Development and Poverty Reduction Opportunities:** Biomass utilization stimulates rural development and poverty reduction.
- **Biomass Zones:** Create multi-state Biomass Zones to achieve multiple benefits.

Thanks!!!

Joseph J. James

(803) 462-0153 or josephjjames@bellsouth.net