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Meeting #6 Summary
Climate, Energy and Commerce Advisory Committee (CECAC)
Columbia, South Carolina
April 4, 2008

ATTENDEES

CECAC Members

- Representative Ben Hagood—South Carolina House of Representatives, CECAC Vice Chair
- Dana Beach, Executive Director—South Carolina Coastal Conservation League
- Jim Byrd, Deputy Director—Market Services Division, South Carolina Department of Insurance
- Lonnie Carter—President and CEO, Santee Cooper
- John Clark—Director, South Carolina Energy Office
- Barry Falin—Vice President and General Manager of Carolina Operations, Vordian
- Bob Fledderman Manager—Environment and Regulatory Assurance, MeadWestvaco
- John Frampton—Director, South Carolina Department of Natural Resources
- Dr. Paul Gayes—Director, Center for Marine and Wetlands Studies, Coastal Carolina Univ.
- Emerson Gower—Vice President, Southern Region, Progress Energy Carolinas

▼ Bob King—Deputy Commissioner, South Carolina Department of Health and Environmental Control

Deleted: Joe James—CEO, Corporation for Economic Opportunity

▼ Dr. Marcus Newberry—Former Dean, Medical University of South Carolina College of Medicine

Deleted: Kevin Marsh, President, South Carolina Electric and Gas
E. Bruce Morgan—Mayor, City of Union

- Mike Olbrich—Plant Manager, BP Chemical
- Bob Scott—President, South Carolina Forestry Association
- Steve Smith—Executive Director, Southern Alliance for Clean Energy
- John Tiencken—[Electric Cooperatives of South Carolina](#)
- Brad Wyche—Executive Director, Upstate Forever

Deleted: Former CEO, Santee Cooper

Office of the Governor

Justin Evans

South Carolina Department of Health and Environmental Control (DHEC)

Michael Juras, Agency Liaison

Center for Climate Strategies (CCS)

Tom Peterson, Executive Director; Ezra Hausman, Joan O'Callaghan, Steve Roe, Will Schroerer, and Randy Strait; and by telephone, Alice Napoleon and Kenji Takahashi

BACKGROUND DOCUMENTS (all posted at www.scclimatechange.us)

1. Notice and Agenda
2. Draft Summary of CECAC Meeting #5
3. PowerPoint Presentation
4. CCS Memo to CECAC on Preparation for Meeting #6
5. Policy Option Descriptions for Analysis

DISCUSSION AND CONCLUSIONS

1. Welcome and Introductions

Chairman Ben Hagood opened the meeting and welcomed the members of the CECAC and the public. Tom Peterson of CCS then reviewed the agenda for the meeting.

2. Review of CECAC Process and Next Steps

A CECAC member noted that 5 of the 43 recommendations represent 50% of the greenhouse gas (GHG) reductions, and 10 represent 80% of the reductions. They advised the CECAC to make sure to allow time for discussion of the options proportional to their impacts.

The CECAC agreed to hold Meeting #7 on May 9, 2008, from 9:00 a.m. to 6:00 p.m.

3. Approval of Draft Summary of CECAC Meeting #5

The CECAC was asked to approve the draft summary of the February 22, 2008, CECAC Meeting #5. CECAC members agreed to submit comments to CCS by close of business on April 7, 2008 [Note: no additional comments were received after the meeting].

Under the “Summary of Comments and Responses to Questions” for ES-1 (page 13 of the summary), a CECAC member asked that the summary be revised to correctly identify the source of information CCS used to determine the 7,200-MW potential for wind energy within 13 nautical miles of shore at a depth of the ocean floor of 30 feet or less at the location of the wind facility.

Under the “Summary of Comments and Responses to Questions” for ES-4 (page 15 of the summary), a CECAC member asked for clarification on whether the return on investment is in addition to the return on the money spent for improvements in energy efficiency. The language in question concerns the assumptions for ES-4a and ES-4b.

CCS will revise the summary to address these comments and will replace the file posted to the website.

4. Review and Approval of the Draft Policy Options

DRAFT SOUTH CAROLINA GHG INVENTORY & FORECAST

Randy Strait of CCS provided a summary of recommendations by the TWGs and CCS for revisions to the I&F for review and approval by the CECAC. The CECAC approved the following revisions without objection:

- Electricity Supply—The Energy Supply (ES) Technical Work Group (TWG) recommends the use of 2003 baseline generation and fuel mix data, sales forecast data for 2003 through 2020, and line loss data used in the North Carolina GHG I&F supplied by utilities that serve both North Carolina and South Carolina.
- Residential, Commercial, and Industrial (RCI) Direct Fuel Use—Since the draft I&F was prepared, the Energy Information Administration (EIA) of the US Department of Energy (DOE) released State Energy Data (SED) for South Carolina for 2004 and 2005 for natural gas, oil, and coal and 2003 through 2005 data for wood for each of the RCI sectors. The recommendation to the CECAC is to use these new data to replace the emissions in the draft that were grown from the last year for which SED were available.
- Transportation—
 - Revise the fuel economy values used to convert vehicle miles traveled (VMT) to fuel consumption to account for both existing and new vehicles in South Carolina’s fleet over time. The draft forecast was based only on new vehicle fuel economy. This revision will increase emissions associated with a lower overall fleet fuel economy by including older, existing vehicles.
 - Incorporate SED for 2004 and 2005 that the EIA released after the draft I&F was prepared.

The forecast was previously revised in November 2007 to incorporate the South Carolina Department of Transportation VMT forecast data.

- Industrial Processes—For the ozone-depleting substance (ODS) substitutes and electric power transmission and distribution categories, update the forecasts using average annual growth rates developed from more recent national forecasts prepared by the U.S. Environmental Protection Agency (EPA). For electric power transmission and distribution, use the EPA’s national “no-action” scenario as the basis for developing average annual growth rates to forecast emissions.
- Fossil Fuel Production and Distribution: Include emissions associated with the combustion of natural gas consumed by internal combustion engines to operate pipeline systems in South Carolina based on SED data for 1990 through 2005, and projecting 2005 emissions using the growth rate for natural gas transmission and distribution (1.4%/year). This emissions source was inadvertently overlooked in the draft I&F.

Energy Independence and Security Act of 2007

The Energy Independence and Security Act of 2007 created federal requirements for increases in the corporate average fuel economy (CAFE) in the transportation sector and several energy efficiency requirements for the RCI sectors. A CECAC member asked for a recommendation on how to incorporate new requirements into the baseline reference case. Peterson explained that prior to final completion of the CECAC's work, the standard operating procedure would be to incorporate recent legislation and other relevant information so far as possible. The recommendation is to quantify GHG reductions associated with the new CAFE requirements and energy efficiency requirements for appliances and lighting, and show the reductions as wedges relative to the business-as-usual forecast. The CECAC policy options would be adjusted to incorporate these federal requirements into their baseline for quantification. The CECAC did not object to this approach.

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Draft Results of Gross and Net Emissions From CECAC Actions

Peterson discussed the preliminary draft emission reductions that had been compiled to date for all of the policies being considered by the CECAC. These draft results account for overlaps between some but not all of the policies to eliminate potential double-counting of GHG reductions. Further work will be conducted to refine the draft results and “scrub” for overlaps based on the CECAC’s comments on the pending policy options today. The reference case projections presented (in slides 10 and 11) incorporate revisions to the forecast discussed earlier.

Draft gross GHG emission reductions were presented based on four different accounting frameworks (production versus consumption and gross versus net). Production-based emissions reflect emissions from all sources in South Carolina including emissions associated with electricity generated by power plants within South Carolina. Consumption-based emissions are the same as production-based emissions for all sources in South Carolina except for the electricity sector. Consumption-based emissions for the electricity sector account for the electricity consumed in South Carolina regardless of where the electricity is generated (i.e., production emissions minus emissions associated with exported electricity in South Carolina’s case). Net GHG emissions represent gross emissions minus carbon stored by forests and land use practices in South Carolina. It was noted that the production-based gross and net emissions presented in slides 10 and 11 are incorrect as production-based emissions are higher than consumption-based emissions because South Carolina is a net exporter of electricity. These numbers will be corrected for the next CECAC meeting.

It was noted that two of the pending policy options that the CECAC will be reviewing today have high costs (AFW-6biii and ES-5) and that one of these two options (ES-5) has high reductions. Peterson noted that the cost/ton of GHG reductions provided in the chart (slide 13) represents a supply curve for the range of options and that this supply curve is typical of what has been observed in other states. The cost/ton of reduction varies from those with a net savings (shown with a bar below the \$0/ton line in the chart) to those with costs (shown with a bar above the \$0/ton line in the chart).

TRANSPORTATION AND LAND USE (TLU)

For each of the TLU policy options pending approval by the CECAC, Will Schroeer of CCS provided a brief summary of the draft quantification results and TLU TWG members assisted in responding to the CECAC's questions and comments.

Summary of Comments and Responses to Questions

TLU-1 (Adopt California Clean Car Standards)—Schroeer briefly recapped the CECAC Meeting #5 discussion of this option, noting that though the effects of the new federal CAFE standards on the California clean car (CCC) standards have not yet been quantified, the benefits resulting from the CCC standards are expected to more than offset the costs of the needed technology. The new CAFE standards are focused on fuel economy, while the CCC standards are broader—for example, they include efficiency improvements in leaking air conditioning systems.

The incremental costs between the CCC standards and the new federal CAFE standards have not yet been determined, and no one knows what the CAFE standards will be between now and 2020. The best educated guess is that they will result in savings. In the southeast, Florida has adopted the CCC standards and North Carolina is considering adopting them. Automakers have challenged the CCC standards, and three state supreme courts have ruled in favor of the standards.

The TLU TWG is recommending that the CECAC accept the CCC standards. It is assuming that federal implementation of the CAFE standards will be slow initially, and will accelerate moving forward to 2020. In contrast, the ramp-up of the CCC standards is fast from the start. A CECAC member objected to approving this option without knowing its associated costs. Action on this item was deferred until the TWG presents better cost information.

TLU-2 (Transportation System Management)—This policy option is a set of technological and operations-based improvements. It will result in relatively small benefits by improving traffic flow, saving transportation time, and reducing fuel use and GHG emissions. The TWG doesn't know which technology option to implement, but is 99% sure the option will result in cost savings.

TLU-3 (Tax Credits for Efficient Vehicles)—South Carolina has the lowest per-capita number of alternative-fuel vehicles in the country. To improve the attractiveness of this option, the TWG is proposing to remove the caps related to rebate claims and tax credits, and remove the 20%, 5-year phase-in of the sales tax rebates. Though a \$300 sales tax rebate is a small amount of money, it will make a difference by lowering the up-front cost of alternative-fuel and energy-efficient vehicles, and will result in the greatest transformation of vehicles in South Carolina.

Concern was expressed about offering incentives for taking action that the CAFE or CCC standards would achieve without them. A suggestion was made to increase the criteria for the incentives as the fleet becomes more efficient over time. Another comment was that the intent would be to provide incentives for vehicles that exceed federal and state standards. The tax incentives can be revisited if and when South Carolina adopts

schedules for the CAFE and CCC standards. The TWG will modify this policy option description to reflect these concerns.

TLU-4 (Improve Development Patterns)—This option was not ready for the CECAC's approval. Chairman Hagood has sent the text to the SC Municipal Association, the SC Association of Realtors, and the SC Association of Counties for their comments. Once the TWG reviews the association's comments, it will present this option for approval at the next CECAC meeting.

TLU-5 (Transit & Bike-Pedestrian)—This option will be deferred until the CECAC approves TLU-4.

TLU-6 (Alternative Fuel Infrastructure)—A TWG member objected to quantifying this option as part of TLU-12, because its policy measures are distinct from those of TLU-12. She recommended deferring action on this option and TLU-12 until the TWG determines whether the two options can be quantified separately. Schroeer explained that the cost side of TLU-12 is very difficult to quantify. At the next CECAC meeting, the TWG will explain what can and cannot be quantified.

TLU-7 (Diesel Engine Emission Reductions and Fuel Efficiency Improvements)—This option includes policy options from the former TLU-13 (Commercial Vehicle Technology Improvements). It includes non-fuel-based efficiency improvements. Schroeer explained that the TWG didn't quantify the costs of biodiesel fuel because the costs are changing so rapidly. A TWG member volunteered to produce data to help the TWG forecast these costs.

A CECAC member asked whether South Carolina can produce enough biodiesel fuel for public and private fleets. Another CECAC member explained that the state has more supply than demand, and that 60% of the biodiesel produced in the country is exported to Europe. Several sources are used to produce biodiesel fuel, including oilseed, soybeans, grapeseed, waste vegetable oil, and chicken fat.

Another CECAC member asked whether the TWG looked at diesel fuels used by ships in ports. Chairman Hagood explained that the TWG didn't choose this issue as part of its analysis.

A CECAC member noted that some benefits of this option include sequestering carbon from the air as a result of planting more crops for biofuel and reducing emissions of fine particulate matter. The CECAC asked the TWG to do more work on the potential benefits of this option.

TLU-8 (Stricter Enforcement of Speed Limits)—The TWG recommended not quantifying the costs and benefits of this option, because it's difficult to place a value on people's time. Most of the benefits would come from reduced emissions from trucks, which are slowing down on their own without the stricter enforcement. In other states CCS has studied, highway driving within the speed limit saves money at fuel costs over \$3, and results in smaller incremental savings at fuel costs under \$3.

TLU-9 (Make Full Use of CMAQ Funds)—This is purely a policy option. The TWG can't tell people how they should spend their money.

TLU-10 (Commuter Choice)—Extensive data are available regarding the benefits of commuter choice options, such as the reduced costs of commuting and parking at the workplace. Empirical data from companies implementing a set of options around the country (e.g., telecommuting, transit passes, guaranteed ride home) reveal an average reduction of 11.5% in VMT. The implementation mechanisms are to require employers of 50 or more people to offer commuter benefits programs, and to provide state resources to support these programs. California and Washington, DC, have active, successful programs, and Vermont has a successful program that includes telecommuting, carpooling, and rural commuter choices.

A CECAC member asked why these programs aren't more widespread if the benefits are so significant, and what the penalty would be to employers who don't offer these programs as required. A TWG member suggested changing “require” under the Implementation Mechanisms section to “require where feasible,” and adding “develop an appropriate incentive structure” to encourage the development of Commuter Choice and Commuter Benefits programs throughout the state. These programs will be particularly attractive in areas currently in attainment that will become nonattainment areas with the new federal standards for local air quality (ozone, particulates, etc.).

TLU-11 (Explore Available Resources for Funding Road Maintenance and Mass Transportation)—This policy option would increase the state user fee on conventional fuels, to develop funding for mass transit and reduce GHG emissions. The TWG has quantified a slight decrease in demand resulting from higher gas prices, but not the benefits of using that money for mass transit. The CECAC recommended that the TWG demonstrate how this option reduces GHG emissions. The TWG will expand on, and clarify the link back to, the transit benefits from TLU-4 and TLU-5.

It was recommended that in the event of a gas tax increase to fund maintenance, 1.75¢ of the tax should be added to fund transit. The CECAC recommended rolling TLU-11 into TLU-5, providing an incremental increase for transit purposes, and presenting new wording at the CECAC's 7th meeting.

TLU-12 (Low-GHG Fuel Standard)—See TLU-6, above, for the discussion of this policy option.

TLU-14 (Rail)—The primary mechanism for implementing this option would be passage of an amended version of S. 585 by the current session of the state legislature, with sufficient funding. The CECAC approved the option with the following two revisions: (1) change language in the policy option description about the state legislature's current session to reflect the 2008 session, and (2) change the heading of this option to "Plan for Enhanced Rail."

TLU Voting on Draft Policy Options

TLU-1—No objections to moving forward for further analysis.

TLU-2—Approved without objections.

TLU-3—No objections to modifying this option to reflect the concerns noted above.

TLU-4—Not ready for CECAC approval. No objections to moving forward for further analysis.

TLU-5—Deferred until TLU-4 is approved.

TLU-6—Defer action until the TWG determines whether TLU-6 and TLU-12 can be quantified separately. No objections to moving forward for further analysis.

TLU-7—No objections to moving forward for further analysis.

TLU-8—Approved without objections.

TLU-9—Approved without objections.

TLU-10—No objections to moving forward for further analysis.

TLU-11—The CECAC recommended rolling TLU-11 into TLU-5.

TLU-12—No objections to moving forward for further analysis.

TLU-14—Approved without objections, with the revisions noted above.

RESIDENTIAL, COMMERCIAL AND INDUSTRIAL (RCI)

For each of the RCI policy options pending approval by the CECAC, Ezra Hausman, (with assistance from Alice Napoleon by phone) of CCS provided a brief summary of the work that the TWG completed on each option and the draft quantification results. RCI TWG members provided additional information and assisted Hausman and Napoleon in responding to the CECAC's questions and comments.

Summary of Comments and Responses to Questions

RCI-1 (Demand-Side Management/Energy Efficiency Programs, Funds, or Goals for Electricity (Including Expansion of Same) [Residential, Commercial, and Industrial])—Hausman noted that the CECAC should keep in mind the interactions among several of the RCI policy options. For example, RCI-9 is an important part of RCI-1, RCI-4 enables RCI-1, and RCI-6 and RCI-7 interact with RCI-1.

The most significant change to RCI-1 is the inclusion of some discussion of the kinds of measures being assumed as sources of savings and relative costs. The TWG chose the Massachusetts portfolio because it has resulted in high performance over a number of years and low costs. The TWG also compared the Massachusetts portfolio with the measures in GDS's electricity energy efficiency potential study (for the Central Electric Power Cooperative), which estimated potential by type of efficiency measure under three different penetration scenarios (20%, 50%, and 80%). The penetration scenario for RCI-1 is between 20% and 50% market penetration.

The cost of saving energy was assumed to be 3¢/kilowatt-hour (kWh), and the benefit of avoided energy costs was assumed to be 5.5¢/kWh. The net savings and GHG emissions avoided are significant. In the short term, the avoided costs make sense, but the avoided costs are different in the long term because of nuclear power. The avoided cost of 5.5¢/kWh was calculated based on the avoided cost filings from utilities. Duke Energy, Progress Energy, and South Carolina Gas & Electric provided the source data.

The 3¢/kWh cost of energy efficiency was consistent with the numbers provided by Duke Energy, as well as with aggressive energy efficiency programs across the U.S. The

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empirical data show that states with more aggressive energy-saving programs have higher cost savings.

Some CECAC members are concerned that the cost of energy efficiency programs goes up as program penetration increases. Some think 5.5¢–6.0¢/kWh cost of energy savings should be used instead of 3¢/kWh if the TWG doesn't have the necessary data.

A member noted that South Carolina is on the down slope of the cost curve for energy efficiency programs because its efforts are relatively new. For a considerable distance along the curve, the state will be distributing fixed costs among more users. They believe the 3¢/kWh cost of saving energy is reasonable for South Carolina, and suggested that the TWG include escalating costs in its analysis.

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A CECAC member noted that demand-side management could be phased in at 7¢–8¢/kWh, which would be a bargain because the cost of nuclear power is 11¢/kWh. Another TWG member said he would welcome having someone from the Massachusetts program explain how they're deriving their numbers.

CECAC members from utilities were asked to provide more data on their experience with the costs of energy efficiency programs. The TWG will try to come up with data as well. It will look at the incremental cost of new energy and be certain that the avoided costs are the costs of new generation and not a blended cost.

RCI-2 (Demand-Side Management/Energy Efficiency Programs, Funds, or Goals for Natural Gas, Propane, and Fuel Oil)—Chairman Hagood asked whether additional information is needed for the analysis of this option. Napoleon replied that natural gas savings per dollar of program investment is 72,700 million cubic feet per year per million dollars. Hausman explained that one reason the savings are so high is that it is assumed that the same appliances are used for propane and fuel oil as for natural gas.

RCI-3 (Incentives and Regulatory Reform To Promote Implementation of Renewable Energy Systems, Including Solar Hot Water [Residential, Commercial, and Industrial])—This policy option was not presented for discussion at CECAC Meeting #6 because the analysis was not yet completed for today's meeting.

RCI-5 (Incentives, Resources, and Regulatory Reform To Promote Energy Recycling, Including Combined Heat and Power)—This option provides a mechanism for taking advantage of combined heat and power. It takes the pressure off of utilities to do their own generation and provides incentives for efficient uses of heat that is otherwise wasted. A CECAC member submitted an example of a standard utility offering to the CECAC for the CECAC's consideration after its last meeting. The language inserted into the policy document suggesting that the state consider a standard utility offering was approved.

RCI-6 (Incentives and Policies for Improving Building Efficiency, Including Building Energy Codes)—The TWG assumed South Carolina will skip one International Energy Conservation Code® (IECC) upgrade, and there will be a 3-year time lag between when the IECC code is implemented and when South Carolina adopts it. The TWG also looked at the corresponding Leadership in Energy and Environmental Design (LEED) Green Building Rating System™ because that was the best source of cost data. It was determined that the IECC standards are more stringent than the ENERGY

STAR standards. A CECAC member also recommended changing "municipalities " to "local governments."

RCI-7 (Improved Design and Construction in New and Existing State and Local Government Buildings, “Government Lead by Example”)—This option specifies that a minimum of 20% of electricity consumed by state and local facilities and schools should come from in-state renewable resources. It also calls for audit and efficiency improvements in state and local government buildings. The TWG used the LEED standard to quantify the cost of building retrofits.

RCI-8 (Participation in Voluntary Industry-Government Partnerships [Including Incentives])—This policy option was not presented for discussion at CECAC Meeting #6.

RCI Voting

RCI-1—No objections to moving forward for further analysis.

RCI-2—Approved without objections.

RCI-3—Not presented for discussion at CECAC Meeting #6 (analysis was incomplete).

RCI-5—The CECAC approved this option during Meeting #5 subject to modifications to address its comments. During Meeting #6, the CECAC approved the modifications.

RCI-6— It was determined that the International Energy Conservation Code® (IECC) standards are more stringent than that Energy Star standards. Therefore, this option was approved without objections, provided "municipalities" is changed to "local governments".

RCI-7— Approved without objections, provided the summary of Meeting #6 notes that the Leadership in Energy and Environmental Design (LEED) standard was used to quantify the cost of this option.

RCI-8—Not presented for discussion at CECAC Meeting #6.

ENERGY SUPPLY (ES)

For each of the ES policy options pending approval by the CECAC, Ezra Hausman, (with assistance from Alice Napoleon by phone) of CCS provided a brief summary of the work that the TWG completed on each options and the draft quantification results. ES TWG members provided additional information and assisted Hausman and Napoleon in responding to the CECAC’s questions and comments.

Summary of Comments and Responses to Questions

ES-1 (Study the Energy Options for Portfolio Standards)—This option considers two scenarios:

- 3% energy efficiency, 3% renewable energy, 6% nuclear relative to projected load (called the “3-3-6” scenario); and
- 10% energy efficiency, all practical renewables, zero new nuclear (called the “strong energy efficiency and renewable energy [EE/RE]” scenario).

Feasibility issues and barriers were discussed, such as the difficulty of obtaining permits for onshore and offshore wind energy, the tourism industry's objections to siting offshore wind turbines where homeowners and vacationers can see them, and the need for insurance for offshore wind technologies against hurricane damage.

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A CECAC member noted that the basic difference between the two portfolio standard scenarios is that one is a fairly conservative portfolio, while the other is aggressive. As a compromise alternative, he suggested the CECAC consider a 5-5-6 portfolio standard, reflecting a minimum increase over the 2004 baseline of 5% energy efficiency, 5% renewable energy, and 6% nuclear energy (including any new nuclear plants to come online), relative to total South Carolina electricity demand in 2020.

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There was extensive discussion about including new nuclear energy in the portfolio standard. One CECAC member asked why nuclear power is included, when it already has a strong foothold in the state, and noted that the point of a renewable portfolio standard is to improve market penetration for renewable energy. A CECAC member noted that this option was a clean energy supply portfolio, and not just a renewable portfolio. Others responded that renewable energy is still unproven, which may make state legislators uncomfortable; that nuclear energy provides stability in baseload generation and produces no GHG emissions; and that this option is a clean energy supply portfolio, not just a renewable energy portfolio. Chairman Hagood noted that the Governor charged the CECAC with providing recommendations for reducing GHG emissions and enhancing energy policy in South Carolina. A CECAC member added that if the CECAC can't craft a compromise that the utilities can support, no portfolio standard will be passed by the current legislature.

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Hausman presented a graph of the avoided emissions and cost of a 5-5-6 energy portfolio standard. The CECAC agreed to incorporate the new nuclear power discussion in ES-5 into this policy option, and to rename ES-1 "Energy Portfolio Standard." The TWG will work to achieve 100% approval within the group before the next CECAC meeting.

ES-3 (Renewable Energy Financing)—This policy option was not presented for discussion at CECAC Meeting #6.

ES-4 (Return on Investments in Energy Efficiency)—This policy option was not presented for discussion at CECAC Meeting #6.

ES-5 (New Nuclear Power)—The new nuclear power elements in this option have been moved to ES-1. This option is now an unquantified recommendation to consider in-state reprocessing of spent nuclear fuel.

ES-8 (Distributed Renewable Energy)—This policy option was not presented for discussion at CECAC Meeting #6.

ES Voting

ES-1— The CECAC agreed to consider and requested an analysis of a “5-5-6 energy portfolio” reflecting 5% energy efficiency, 5% renewable energy, and 6% new nuclear energy relative to total South Carolina electricity demand in 2020. Incorporate new nuclear discussion from ES-5 into this policy option. Rename ES-1 "Energy Portfolio Standard."

ES-3— Not presented for discussion at CECAC Meeting #6 (analysis was incomplete.)

ES-4—Not presented for discussion at CECAC Meeting #6.

ES-5—No objections to moving forward to redefine this policy option as an unquantified recommendation to consider reprocessing in South Carolina, renamed to “Nuclear Fuel Reprocessing.”

ES-8— Not presented for discussion at CECAC Meeting #6 (analysis was incomplete.)

AGRICULTURE, FORESTRY & WASTE MANAGEMENT (AFW)

For each of the AFW policy options pending approval by the CECAC, Steve Roe of CCS provided a brief summary of the work that the TWG completed on each options and the draft quantification results. AFW TWG members provided additional information and assisted Hausman and Napoleon in responding to the CECAC’s questions and comments.

Summary of Comments and Responses to Questions

AFW-3 (Expanded Use of Local Agricultural Products)—Roe briefly summarized this policy option. The CECAC approved it without objections.

AFW-5 (Expanded Production of In-State Biomass for Electricity, Heat, or Steam Production)—Roe explained that this option was approved at CECAC Meeting #5. Since then, the cost of biomass [was revised downward from a range of \\$3.20 to \\$4.00 per million British thermal units \(MMBtu\) delivered to \\$2.89/MMBtu delivered, and the cost of coal was revised upward from \\$1.53/MMBtu to \\$2.25/MMBtu.](#)

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AFW-6 (Terrestrial Carbon Sequestration)

AFW-6a (Soil Carbon Management [Agriculture])—This option was approved without objections.

AFW-6(b)(i) (Forest Management)—This option was approved without objections.

AFW-6(b)(ii) (Reforestation)—This option was approved without objections.

AFW-6(b)(iii) (Urban Forestry)—This option was not ready for the CECAC's approval. The TWG found significant GHG emission reductions, but the cost of planting and maintaining a substantial number of trees was as much as \$520 million per year. The cost-effectiveness of this option improves after 2020, because more trees will have been planted and will be sequestering carbon emissions. The TWG is continuing to evaluate the emission reductions and costs of this option and will report its findings at the next CECAC meeting. [The CECAC requested that a statement be added to this option to emphasize that new development should ensure the maintenance and/or expansion of urban/suburban cover and reduction of loss of existing cover.](#)

AFW-7 (Conservation and Restoration of Forest and Agriculture Lands for Enhanced Carbon Sequestration)—A CECAC member questioned the assumed cost of conservation easements, given that over half of South Carolina easements are donated. Roe explained the TWG felt it needed to be conservative regarding this cost. This option was approved, with the note that brackets will be inserted around the easement cost to indicate that the CECAC reserves the right to modify this number.

AFW Voting

AFW-3—Approved without objections.

AFW-6(a)—Approved without objections.

AFW-6(b)(i)—Approved without objections.

AFW-6(b)(ii)—Approved without objections.

AFW-6(b)(iii)— Briefly presented at CECAC Meeting #6. Issues with high costs were discussed (large capital costs associated with tree planting and maintenance for the large number of trees in the initial policy design; need to focus on tree plantings that achieve energy benefits via shading in addition to carbon sequestration). CECAC requests that TWG re-assess policy design to reduce the costs associated with this option.

AFW-7(a) and 7(b)— Approved without objections, provided brackets be inserted around the cost of easements, indicating the CECAC is reserving the right to revise that number.

CROSS-CUTTING ISSUES (CC)

Tom Peterson and Randy Strait of CCS noted that the pending policy options for the CC TWG are not ready for consideration by the CECAC. The TWG will be meeting after today's meeting to discuss developing recommendations for statewide GHG reduction goals and targets for CC-3 (Statewide GHG Reduction Goals and Targets) and GHG reduction goals and targets for state government operations CC-4 (State Government GHG Emissions [Lead by Example]).

Summary of Comments and Responses to Questions

CC-3 (Statewide GHG Reduction Goals and Targets) and CC-4 (State Government GHG Emissions [Lead by Example])—These policy options were briefly discussed together, and were not ready for presentation for the CECAC's approval.

Peterson clarified that GHG reduction goals or targets represent percentage reductions below an index year. Though a few states have mandated targets, most of the targets are not mandatory and are used to support the implementation of the policy options. The earlier targets are interim benchmarks in terms of achieving GHG emission reduction goals. High-growth states lean more heavily on energy efficiency as part of their portfolios.

Strait explained that the TWG will next compare the revised reference case emissions and the cumulative reductions for the CECAC options to get a sense as to the amount of reductions the options may achieve. The production-based numbers need to be corrected, but the consumption numbers are sound. In the examples of goals that states have adopted provided in the slides today, several of the states did not specify the accounting framework upon which their goals are based (i.e., production vs. consumption, gross vs. net). Other states have been explicit on the accounting framework used as the basis for their goals. For example, Montana has a high percentage of exported electricity that is generated from coal so they prepared recommendations for goals on a gross emissions production and gross emissions consumption basis.

CC Voting

CC-3 and CC-4—No objections to moving forward for further analysis.

5. Public Input and Announcements

PUBLIC COMMENT #1

Tom Clements of Friends of the Earth observed that South Carolina is looking at four new nuclear reactors to meet the future growth in energy demand in the state. Duke Energy and South Carolina Gas and Electricity (SCG&E) want to build new nuclear plants, but aren't revealing the cost of the plants. Building two reactors in the 1980s in Georgia cost \$9 billion, and building a single reactor more recently in Florida cost \$5–\$8 billion. The federal loan guarantee is only \$18.5 billion, which will basically cover two new nuclear plants nationally. Without the federal loan guarantee, Clements asked how the new South Carolina plants will be funded. He recommended that the CECAC ask Duke Energy and SCG&E what the costs of the reactors will be and who will pay for them.

Clements added that on the front end, a mega-ton storage facility will need to be built, along with a facility to separate the stream for special fuel. On the back end, the nuclear waste will most likely stay in the state, because South Carolina will be at the bottom of the pecking order for sending nuclear waste for storage at Yucca Mountain. He warned that South Carolina could become a dumping ground for high-level nuclear waste. Clements asked where the private funding will come from for reprocessing spent nuclear fuel. He concluded that if South Carolina implements a reprocessing program, it should be laid out in detail in the policy option description for ES-5.

PUBLIC COMMENT #2

Tom Powell, a private citizen, urged the CECAC to promote distributed renewable energy generation and to provide opportunities for small businesses to enter the field. He noted that money spend on supporting small businesses tends to stay in the state and benefit low-income communities, and added that an American Solar Energy Society study has found that renewable energy projects employ up to 40 million Americans and generate up to \$40 trillion a year nationwide.

ANNOUNCEMENTS

There were no announcements. The meeting was adjourned.