



South Carolina Department of Health and Environmental Control

Promoting and Protecting the Health of the Public and the Environment

Biomass & The Clean Power Plan

Presentation to the South Carolina Biomass Council

September 9, 2015

Myra Reece

Henry Porter



Outline

- Changes in the Final Rule
- What the final rule says about biomass
- Areas to comment on the proposed Model Rule & Federal Plan



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DHEC Comment on Biomass

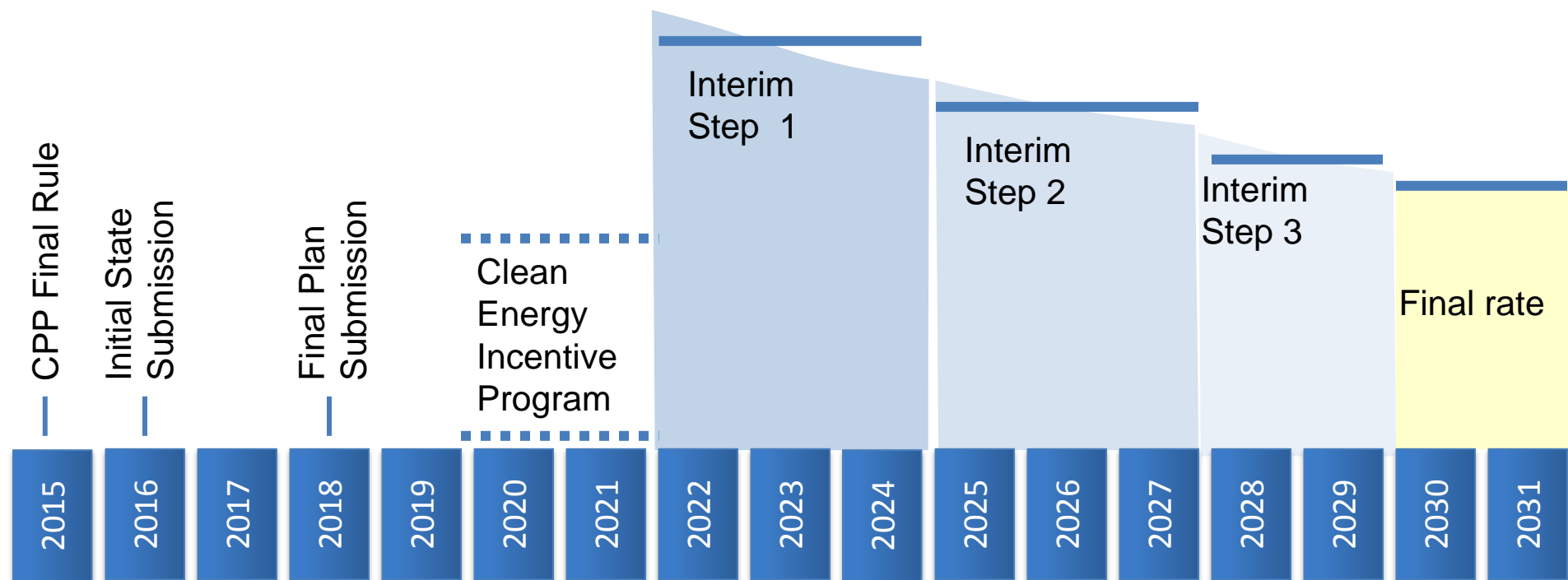
In reference to Building Block 3 and renewable energy, the Department requests that the EPA make a final determination on the status of biogenic CO₂ emissions from bioenergy sources and other biogenic stationary sources. The final rule (FR 76 43490)¹⁶ published on July 20, 2011, deferred for a period of three years the application of the Prevention of Significant Deterioration (PSD) and Title V permitting requirements for these sources. South Carolina has approximately 510 MW from existing generation capacity and a total technical potential for woody biomass of approximately 960 MW. As stated in this rule's preamble, the EPA understands the use of certain types of biomass may be part of the nation's strategy to reduce dependence on foreign sources of fossil fuels. In the proposed rule, the EPA recognizes the use of biomass-derived fuels may be considered in state plans. To assist states, the EPA should expedite its biogenic CO₂ accounting framework to assess the potential impact of the use of biomass fuels in reaching the final reduction goal. Once this issue is determined, the Department recommends that the EPA recalculate the renewable energy numbers used for each state in the goal computation process.



Final Rule vs. Proposed Rule

- Additional Time to Develop State Plan - 3 years
- Change in compliance timeline, interim begins 2022
- Building blocks have changed
- BSER applied to interconnections to create category specific performance rates for fossil steam units and NGCC
- Alternative blended state rate, mass-based limits for affected EGUs and affected EGUs + new
- Rates and mass limits have changed
- Modified compliance options, embrace of trading-ready
- **Some types of biomass can be used for compliance**

CPP Compliance Timeline



- EPA is encouraging early action in 2020-2021
- Interim compliance period pushed back 2 years to 2022
- Three interim steps
- Two year compliance periods for final goal



BSER Building Blocks

- BB1 – heat rate improvement – based on historical (10yr) optimal performance vs. 2012.
- BB2 – NGCC 75% net summer capacity – phased in
- BB3 – Incremental renewable generation based on historical growth and updated cost and availability (biomass not included)



Goal Development

Applied on an interconnection basis

- Step 1 - BB1 heat rate improvement
- Step 2 - BB3 displacing fossil steam & NGCC
- Step 3 – BB2 increase use of NGCC to offset fossil steam
- Step 4 – Calculate performance rate for fossil steam & NGCC for each interconnect
- Step 5 – Chose the least stringent rate for each year
- Step 6 – Calculate blended goal for each state based on 2012 generation mix



Unit Performance Rates

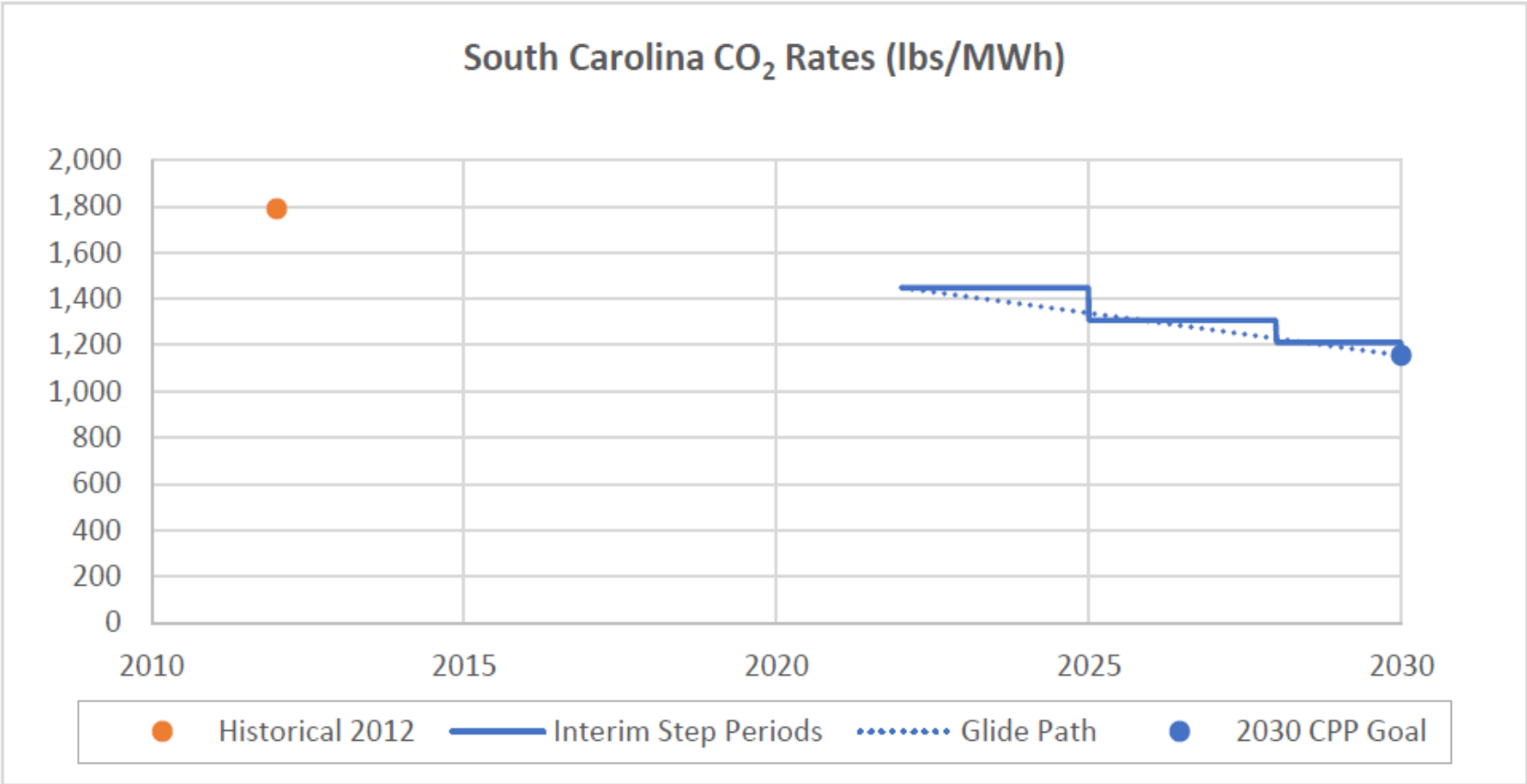
- Fossil Steam - 1,305 lbs CO₂/MWh
- NGCC – 771 lbs CO₂/MWh



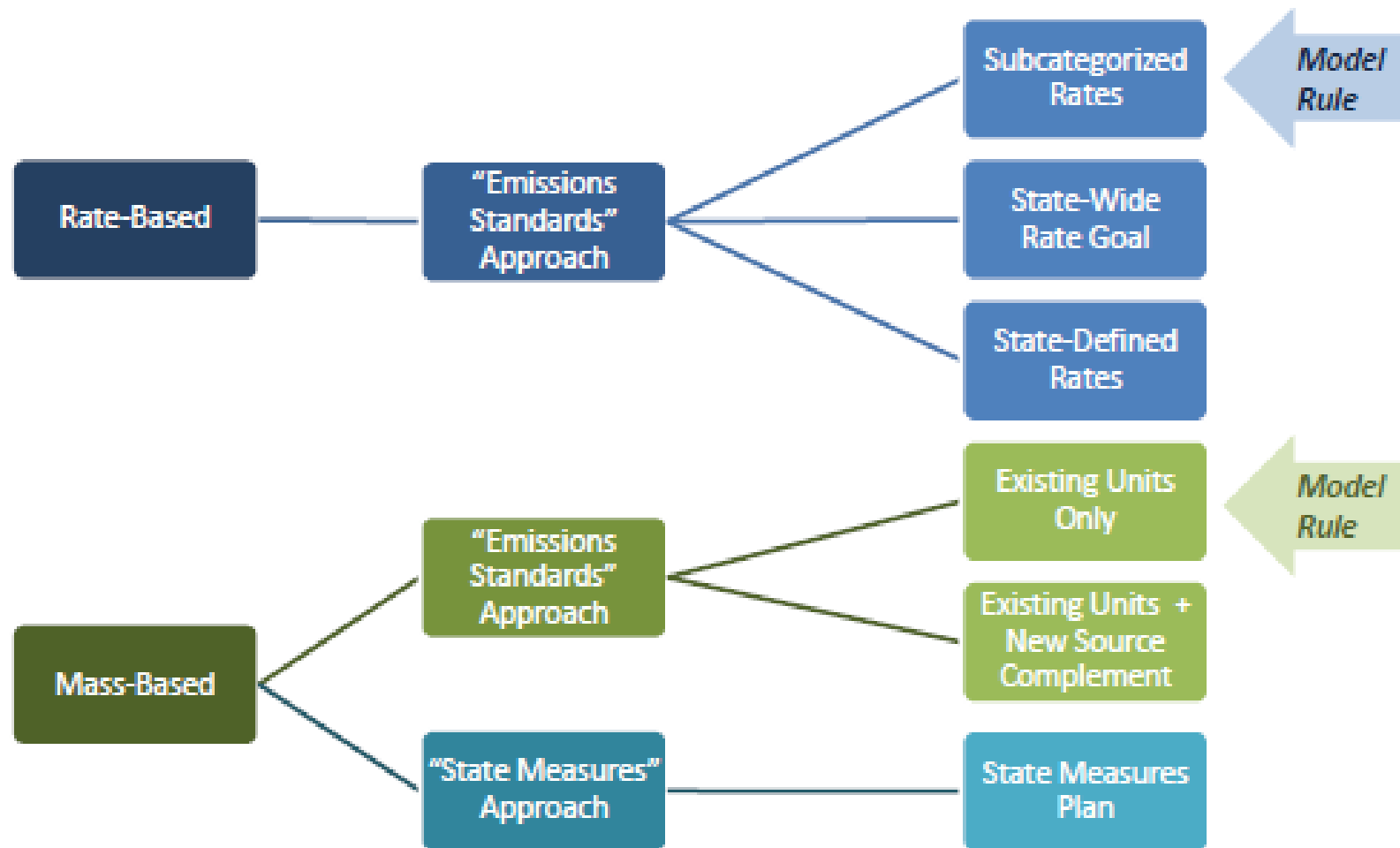
South Carolina Goals

- Proposed (51% reduction)
 - Interim: 840 lbs CO₂/MWh
 - Final 772 lbs CO₂/MWh
- Final (35 % reduction)
 - Interim: 1,338 lbs CO₂/MWh
 - Final 1,156 lbs CO₂/MWh

Glide Path



State Plan Options





Biomass in the Final CPP

- “the use of some kinds of biomass has the potential to offer a wide range of environmental benefits, including carbon benefits.”
- “these final guidelines provide that states can include qualified biomass in their plans and include provisions for how qualified biomass feedstocks or feedstock categories will be determined.”



Using Biomass for Compliance

“RE generation capacity installed after 2012 that uses qualified biomass as a fuel source is eligible for use in adjusting a CO₂ emission rate.”



Biomass Definition

- *Biomass* means biologically based material that is living or dead (e.g., trees, crops. Grasses, tree litter, roots) above and below ground, and available on a renewable or recurring basis. Materials that are biologically based include non-fossilized, biodegradable organic material originating from modern or contemporarily grown plants, animals, and microorganisms (including plants, products, byproducts and residues from agriculture, forestry, and related activities and industries, as well as the non-fossilized and biodegradable organic fractions of industrial and municipal wastes, including gasses and liquids recovered from the decomposition of non-fossilized and biodegradable organic materials).



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Qualified Biomass Definition

Qualified biomass means a biomass feedstock that is demonstrated as a method to control increases of CO₂ levels in the atmosphere.



Options

- Biomass co-firing
 - Monitor and report overall CO₂ emissions & biomass CO₂ emissions
- Biomass repowering
 - If fired with at least 90% biomass unit becomes a non-affected EGU
- In rate based plan – MWh of generation from a biomass unit could be used to adjust the rate for an affected EGU



Biomass Requirements for State Plans

- Describe types of biomass and how the proposed feedstock categories should be considered as “qualified biomass”
- Propose valuation of biogenic CO₂ emissions
- Monitor and report biogenic CO₂ emissions
- Evaluation Measurement & Verification (EM&V)
- For sustainably-derived feedstocks - methods to verify feedstock type, origin and associated sustainability practices



State Plan Requirements for Biomass

- Quantifiable
- Verifiable
- Non-duplicative
- Permanent
- Enforceable
- Robust, independent third party verification



State Plan Requirements for Biomass

- Measures to maintain transparency – disclosure of relevant documentation and reports
- Measures for tracking and auditing performance
- Details on how to adjust CO₂ rates

If a state proposes to use the monitoring and reporting requirements for biogenic CO₂ emissions in 40 CFR part 98 (40 CFR 98.3(c), 98.36(b)-(d), 98.43(b), and 98.46) in its plan submission, those requirements are presumptively approvable.



Waste-to-Energy

- Qualified biomass portion of MSW can count.
- Plan must demonstrate efforts to strengthen existing or implement new waste reduction, reuse, recycling, composting and measures to minimize negative impacts of waste-to-energy operations on such programs.
- Only the generation from the biogenic fraction of the MSW added after 2012 is eligible for adjusting the CO₂ rate.



Combined Heat and Power (CHP)

- Grid connected units that are less than 25 MW are exempt.
- The useful thermal output of an affected CHP unit can be added to the MWh of electrical generation to reduce the emissions rate of the unit.
- Electrical generation from a non-affected CHP unit may be used to adjust the emission rate of an affected EGU.



Proposed Model Rule & Federal Plan Areas for Comment

- Should biomass be included in the model state plan and proposed federal plan?
- How should biomass be treated under the rate-based plan?
- How should biomass be treated under the mass-based plan allowance set-aside?
- How should emissions be calculated for affected EGUs that are co-firing biomass?



Proposed Model Rule & Federal Plan Areas for Comment

- EPA will provide a list of pre-approved biomass fuels. (examples landfill gas, black liquor, & biomass from sustainably managed forest lands.) What should be included in the list?
- How should EGUs demonstrate that feedstocks meet the requirements to be accepted as a pre-approved qualified biomass feedstocks?
- What other requirements should be included?



Path Forward

- Continue reviewing the final rule
- Review and comment on the proposed Model Rule & Federal Plan
- Regional stakeholder meeting over the next year
- Extension request in September 2016



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Questions?

Henry Porter

(803) 898-4138

porterhj@dhec.sc.gov



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www.scdhec.gov
(803) 898-DHEC (3432)



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