INTRODUCTION

A regulatory advisory panel (RAP) was established by the Department of Environmental Quality (DEQ) to advise and assist the Commonwealth in the development of a regulation that (i) ensures that Virginia is trading-ready to allow for the use of market-based mechanisms and the trading of carbon dioxide (CO₂) allowances through a multi-state trading program, and (ii) establishes abatement mechanisms that provide for a corresponding level of stringency to CO₂ limits imposed in other states with such limits. A list of group members is included as Enclosure 1.

DEQ coordinated and facilitated the discussions of this group in an effort to find common ground and elements that could be included in a trading program for emissions of CO₂. Meetings of the RAP were held at the DEQ central office, 629 East Main Street, Richmond, Virginia on August 3, August 31, and September 6, from 9:00 a.m. to 3:00 p.m. Meeting minutes are found in Enclosure 2.

In addition to meeting as a group, the RAP was provided with two webinars hosted by the Georgetown Climate Center. On August 21, 2017, "Allocating Allowances in an Emissions Trading Program" provided a survey of the various options for allocating allowances in an emissions trading program and their implications. Among the options discussed were direct allocation on the basis of generation (or output), emissions or other metric, as well as the distinction between historical and updating allocation. The paper, "Mass-Based Trading under the Clean Power Plan: Options for Allowance Allocation" was also provided for discussion. On August 28, the second webinar, "An Allowance Consignment Auction: How Does it Work?" explored allowance consignment
auctions as a mechanism for efficiently distributing allowances and implementing important emissions trading program features such as cost-containment, emissions containment and program floor prices. The paper, "Consignment Auctions of Free Emissions Allowances under EPA’s Clean Power Plan" was also provided for discussion. These additional materials are available at: http://deq.virginia.gov/Programs/Air/GreenhouseGasPlan.aspx.

PROCEDURES

This group is a public body under the Freedom of Information Act (FOIA), and must comply with FOIA requirements for conducting state business in the open and the availability of public records. Members were advised of FOIA requirements, including the need for members to circulate information to the group via staff.

The group was polled from time to time by the facilitator in order to determine if consensus existed on a particular issue, or to better define specific areas of agreement or disagreement. "Consensus" was considered to have been achieved when the group voted unanimously in favor of a specific subject. "General agreement" was the result of the group voting primarily in favor of a subject, with some members expressing reservations or outstanding questions that prevented them reaching consensus. "No consensus" was reached if there were any negative votes, or a mixture of positive/negative/unsure votes.

GENERAL AGREEMENT/UNRESOLVED ISSUES

Below is a summary of the results of the work of the group. The first is a list of issues on which the panel developed general agreement (some reservations or uncertainty); no clear consensus (complete agreement) was reached on any specific issue. The second is a list of the issues on which the panel failed to develop consensus or general agreement. Enclosure 2 provides further details on the group’s discussions.

A. General agreement

1. Allocation goals: There was agreement on a list of allocation goals and their relative strength. The two goals ranked the most important were (i) protect electricity customers, and (ii) promote cost-effectiveness.

2. Allowance allocations approaches: The group reached general agreement that the top ranked approach, output updating, was the recommended approach. Members agreed that updating versus historical was the preferred approach for allocation, but the group was evenly split between output generation, emissions
output and sales as the basis\(^1\)

3. Allowance set-asides: There was general agreement that any allowance set-asides should be targeted to consumers.

B. Unresolved Issues

1. Distribution of allocation allowances: No consensus was reached as to whether allocations should be weighted toward covered sources or all load-serving entities, and the size of any set-asides.\(^2\)

2. Setting the emissions cap.

3. Including biomass electric generators as affected units.

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\(^1\) One RAP member suggested that while output updating did receive the highest tally in the initial round, the top three choices in that tally were generally close in ranking and the group as a whole may not have deemed that option to be the recommended approach.

\(^2\) One RAP member suggested that while no unanimous consensus was reached on how to allocate allowances, allocation to covered sources or load-serving entities appeared to be the top allocation options; no consensus was reached on the size of any set-asides.
<table>
<thead>
<tr>
<th>Company</th>
<th>Representative</th>
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<tbody>
<tr>
<td>AEE</td>
<td>Malcolm Woolf, Senior Vice President, Policy and Government Affairs, Advanced Energy Economy</td>
</tr>
<tr>
<td></td>
<td>JR Tolbert [alternate], VP, State Policy, Advanced Energy Economy</td>
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<tr>
<td>AEP</td>
<td>Scott Weaver</td>
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<tr>
<td></td>
<td>Frank E. Blake [alternate]</td>
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<tr>
<td>Contura Energy</td>
<td>Donald Ratliff, President of Commonwealth Connections</td>
</tr>
<tr>
<td>Birchwood</td>
<td>Will Poleway, Birchwood Power Partners, L.P.</td>
</tr>
<tr>
<td>Covanta</td>
<td>Michael Van Brunt, Director of Sustainability</td>
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<tr>
<td></td>
<td>Frazier Blaylock [alternate]</td>
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<tr>
<td>Dominion</td>
<td>Lenny Dupuis, Manager of Environmental Policy</td>
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<tr>
<td></td>
<td>Bob Thomas [alternate], Director Energy Market Analysis &amp; IRP</td>
</tr>
<tr>
<td>Doswell/LS Power</td>
<td>Scott Carver, Senior V.P., LS Power Development</td>
</tr>
<tr>
<td></td>
<td>Kathy French [alternate]</td>
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<tr>
<td>NRDC</td>
<td>Walton Shepherd, Energy Staff Attorney, Natural Resources Defense Counsel</td>
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<tr>
<td>ODEC</td>
<td>Laura Rose, Environmental Health and Safety Coordinator, Old Dominion Electric Cooperative</td>
</tr>
<tr>
<td>Tenaska</td>
<td>Larry Carlson</td>
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<td></td>
<td>Greg Kunkel [alternate]</td>
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<tr>
<td>VACO</td>
<td>John Morrill, Energy Manager, Arlington Initiative to Rethink Energy</td>
</tr>
<tr>
<td>WestRock</td>
<td>Rhea Hale, Director of Public Policy</td>
</tr>
<tr>
<td></td>
<td>Nina Butler [alternate], Chief Sustainability Officer</td>
</tr>
</tbody>
</table>
The meeting began at approximately 9:40.

Meeting Purpose: This regulatory advisory panel (RAP) has been established to advise and assist the Commonwealth in the development of a regulation that (i) ensures that Virginia is trading-ready to allow for the use of market-based mechanisms and the trading of carbon dioxide (CO₂) allowances through a multi-state trading program, and (ii) establishes abatement mechanisms that provide for a corresponding level of stringency to CO₂ limits imposed in other states with such limits. The purpose of this meeting is for DEQ to coordinate and facilitate discussions of this group in an effort to find common ground and elements that could be included in the regulation.

Welcome and Introductions: Mr. Paylor introduced Secretary of Natural Resources Molly Ward, who welcomed the group and introduced L. Preston Bryant, VCU Center for Consensus Building, who will be assisting with the process. Mr. Paylor made a number of introductory remarks. Executive Directive 11 (ED 11) is clear on certain components of a carbon trading regulation, and these components are the framework on which the
regulation will be based. The Governor has instructed DEQ to develop a regulation that is based on an established multistate trading program, and at this time, that program is the Regional Greenhouse Gas Initiative (RGGI). There will be different opinions on how to go forward with the rule, and we will consider all viewpoints with respect to the trading program framework. He outlined the primary elements to be considered: (i) the basis for allocations, (ii) consignment auctions, (iii) set-asides, and (iv) other elements such as stringency of the emissions cap and program design elements.

Ms. Regn welcomed the group. Members introduced themselves individually. Ms. Regn then provided general guidelines for discussions, and reviewed Freedom of Information Act (FOIA) requirements (see Attachment A).

**Presentation, RGGI and RGGI Model Rule:** Mr. Dowd introduced Mr. Litz and Ms. Zyla, who are consulting with the department on the details of how RGGI works. Mr. Litz gave an overview of RGGI, including how it was established and how it functions (see Attachment B).

**Presentation, Virginia Emissions Data:** Mr. Ballou provided a presentation on Virginia's power sector profile and trends (see Attachment C).

**Work Plan/Group Discussion:** Based on discussion, it was determined that the group's concerns centered on 7 specific topics: (i) basis for allocations, (ii) auction approach, (iii) set asides, (iv) offsets, (v) sources other than fossil fuels, (vi) stringency of the cap, and (vii) other issues such as leakage. The group then prioritized these issues, choosing to discuss allocations first. No consensus was reached on any specific issue, although some needs for additional information to be provided by DEQ and the consultants were identified. It has been proposed that some detailed technical issues can be handled via webinar, which will be made publically available, and a schedule announced when organized.

**Next Steps/Future Meetings:** Ms. Regn wrapped up the meeting. Future meetings are scheduled for August 31 and September 6, 2017.

The meeting adjourned at approximately 2:55 p.m.
RAP GUIDELINES

Purpose:

The primary function of the advisory panel is to develop recommendations for DEQ consideration through the collaborative approach or regulatory negotiation and consensus. You may be asked to demonstrate your strength of feeling for or against a particular idea, and may be asked to help set priorities during the course of the process.

The membership of any Regulatory Advisory Panel or RAP is at the discretion of the DEQ Director and the recommended membership must receive prior Director’s approval.

Appointments for membership are person specific. Multiple applications from a single company, organization, group or other entity count as one for purposes of making the decision. For consistency and continuity of deliberations, it is preferred that the same person participates.

The creation of a RAP is the creation of a public body. RAP meetings are open to the public, and are subject to the provisions of the Virginia Freedom of Information Act. Meeting notes are taken and posted on the Virginia Regulatory Townhall website (www.townhall.virginia.gov/). Meetings may be audio by the agency, RAP members, or members of the public as long as the use of the recording equipment does not physically interfere with the meeting.

FOIA Requirements:

Public Body and Meetings: The creation of a Regulatory Advisory Panel (RAP) is the creation of a public body. All meetings of the group are public meetings. In accordance with our Public Participation Guidelines, notice of the meetings of the RAP shall be posted on the Virginia Regulatory Town Hall website at least seven working days prior to the date of the meeting. This notice will also be included on the DEQ’s web page. Posting of the meetings will be handled by the Regulation Writer assigned.

Meeting Minutes: The Freedom of Information Act requires that minutes of each Regulatory Advisory Panel meeting be prepared. In order to meet this requirement, a summary of the meeting shall be prepared and provided to the Regulatory Affairs Director for posting to the Townhall. If the minutes must be approved by the RAP, a draft of the minutes must be posted within 10 days after the meeting with a final posted within 3 days of approval. If the minutes do not need to be approved by the RAP, the final must be posted within 10 days after the meeting. The minutes must include, but are not limited to, (i) the date, time and location of the meeting, (ii) discussion on matters proposed, deliberated or decided, and (iii) a record of any votes taken. Minutes of RAP meetings do not have to be officially approved by the membership unless such approval is required by RAP consensus. Posting of the meetings will be handled by the agency.

E-mail and Meetings: The VA Supreme Court has held that e-mails may constitute a "meeting" under FOIA if there is simultaneous e-mail communication between three or more members of a public body. Therefore, members of an advisory group should avoid "reply to all" as a general rule and should use the DEQ staff contact in order to disseminate information to the group.
Good results depend on everyone sharing their thoughts. A consensus can often be reached by group discussion that considers all viewpoints. This is a cooperative process, not a competition and is usually a learning process for everyone involved.

1. Listen actively with an open mind.

2. Speak from your own experience instead of generalizing.

3. Be respectful and focus on the issue or the idea, not the speaker. Personal attacks are not tolerated.

4. Be concise and speak only once on a particular issue. Weigh in with new or different information to share after everyone else has had an opportunity to speak.

5. Simply note your agreement with what someone else has said if you feel that it is important to do so; it is not necessary to repeat it.

6. Present options or alternatives at the same time you present the problems you see.

7. Be courteous and speak one at a time; interruptions and side conversations are distracting and disrespectful to the speaker. "Caucus" or private conversations may take place during breaks or at lunch, not during the work of the group. No sidebars please!

8. Come prepared.

9. Turn off all devices.

10. Stay positive; a negative attitude hinders the group's ability to reach agreement.
Regional Greenhouse Gas Initiative

101

Virginia RAP Meeting
August 3, 2017

Franz T. Litz
Litz Energy Strategies LLC
OVERVIEW

- History of RGGI
- Program Design
- Program Review
- Linking Considerations
History

- Governor Letters and Action Plan 2003
- Model Rule 2006
- First Compliance Period Started 2009
- Program Review 2016
- 2005 MOU
- 2008 First Auction
- 2012 Program Review
RGGI in Brief

- 9 States
- Bipartisan ≤ 5 Rs now
- Allowance prices between $2 and $7.50
- Emissions down about 50% from 2005 levels
- NJ?
RGGI’s Prices Have Been in $2 to $7 Range:

First 4 years

Why this?
How is RGGI Designed?
RGGI is modeled after the NOx Trading Programs.

**How RGGI Works**

- **Emissions Budget**
  - The "Cap" ⇒ [Diagram of a cap]
  - B = Allowances

- **Allowances Are Distributed into the Marketplace**

- **Affected Units**
  - These plants measure, monitor, and report emissions and "turn in" allowances to "cover" emissions at the end of each compliance period.
ALLOWANCE ALLOCATION

EMISSIONS BUDGET

The "Cap" ⇒ [Diagram of emissions]

= ALLOWANCES

ALLOWANCES ARE DISTRIBUTED INTO THE MARKETPLACE.

AND EVENTUALLY INTO ALLOWANCE ACCOUNTS OF AFFECTED UNITS WHO NEED THEM.

COVERED POWER PLANTS

THES PLANTS MEASURE, MONITOR, REPORT EMISSIONS AND "TURN IN" ALLOWANCES TO "COVER" EMISSIONS AT THE END OF EACH COMPLIANCE PERIOD.

RGGI Agreed to allocate 25% to "consumer benefit or strategic energy purpose"
The RGGI Model Rule

Key Elements

• What do the states do?
  - set the cap + rate of decline
  - distribute allowances by auction and invest proceeds
  - oversee compliance
  - enforcement
  - program review
The RGGI Model Rule

Key Elements

- Who is covered? “applicability”

- What do covered plants have to do?
  - measure, monitor + report CO₂
  - obtain allowances
  - annual holding requirement of 50% of emissions
  - every 3 years, surrender allowances to cover 100% emissions
More Key Elements

- Flexibility
  - trading
  - banking
  - 3-year compliance periods
  - offsets (up to 3.3% of compliance)

- Cost-containment Reserve (CCR)
Changes Possible out of RGGI Program Review
Possible Changes

- cap & rate of decline - after 2020?
- bank adjustment
- emissions containment reserve (ECR)
- offsets
- CCR changes? size and trigger
- Maybe others
THE RGGI AUCTION DOES MORE THAN DISTRIBUTE ALLOWANCES

- CCR Threshold
- Expected Range of Allowance Price
- ECR Threshold
- Floor Price
Linking Considerations
- RGGI is 9 separate programs that each stands alone
  - RGGI, Inc. is an agent & technical support organization
  - No enforcement, no binding agreement among states
What do we know about linking?

- adopting model rule = linkable
- importantly, allocation is left to each state in RGGI (w/ 25% “consumer benefit or strategic energy purpose”)

What would VA do differently from model rule?
Thank You!
Virginia Power Sector Profile and Trends

CO2 Trading Regulation – Regulatory Advisory Group Meeting

August 3, 2017
Virginia Electricity Generation Profile

- Historically a coal generation state
- This has changed over the last ten years
- Significant decrease in coal generation
- Significant growth in natural gas capacity and generation (now #1 generation source)
- One constant - two nuclear facilities
- Other generation sources – mostly biomass and Hydroelectric
- Renewables – small but growing generation source
- Also has been an importer of power
VA Capacity Trends

VA 2005 Generation Capacity (MW)

- Total Capacity: 22,599 Megawatts
- Coal: 5,783 MW
- Natural Gas: 6,828 MW
- Nuclear: 3,494 MW
- Petroleum: 3,432 MW
- Hydroelectric: 2,390 MW
- Other: 672 MW

Virginia 2015 Generation Capacity (MW)

- Total Capacity: 25,182 Megawatts
- Coal: 4,132 MW
- Natural Gas: 9,893 MW
- Nuclear: 4,379 MW
- Petroleum: 2,343 MW
- Hydroelectric: 866 MW
- Other: 3,568 MW

Source: US Energy Information Administration
VA Generation Trends

VA Generation in 2005

Total Generation 79 Million Megawatt Hours

- Coal: 45%
- Natural Gas: 11%
- Nuclear: 35%
- Petroleum: 5%
- Hydroelectric: 2%
- Other: 2%

Source: US Energy Information Administration

VA Generation in 2015

Total Generation 84 Million Megawatt Hours

- Coal: 20.4%
- Natural Gas: 39.4%
- Nuclear: 33.2%
- Petroleum: 1.4%
- Hydroelectric: 1.3%
- Other: 5.5%
Virginia Power Plant CO2 Emission Trends

Source: EPA Air Markets Program Data (AMPD)
Utility CO2 Emissions Trends in Virginia

Power Plant CO2 Emissions - 2012 vs 2016

Source: EPA Air Markets Program Data (AMPD)
Renewable Energy Progress

Program Status

- Total Notices of intent: 58
  - Withdrawn: 2
- Total Number of PBRs: 11
  - Solar: 10
  - Wind: 1
- Total Approved Capacity: 468 MW
- Projected Capacity: 2,200 MW
Virginia and RGGI – Preliminary Assessment

• Based on initial analysis of source/unit applicability here’s what we have:
  – 36 sources/130 units

• Big change from CPP – Simple cycle facilities & units included
• This represents ~23,000 Megawatts of generation
• CO2 emissions from these units was 31 million tons in 2015
• Emission expected to increase to about 37 million tons in 2019 - new units and increasing utilization
• Some additional non-egu units could be included or exempted
• We currently have about 400 MW of permitted solar projects in the pipeline with potential to over 2000 MW
VA CO2 Projections

Source: ERTAC Utility Sector Projection Tool
The meeting began at approximately 9:35 a.m.

**Meeting Purpose:** This regulatory advisory panel (RAP) has been established to advise and assist the Commonwealth in the development of a regulation that (i) ensures that Virginia is trading-ready to allow for the use of market-based mechanisms and the trading of carbon dioxide (CO₂) allowances through a multi-state trading program, and (ii) establishes abatement mechanisms that provide for a corresponding level of stringency to CO₂ limits imposed in other states with such limits. The purpose of this meeting is for DEQ to coordinate and facilitate discussions of this group in an effort to find common ground and elements that could be included in the regulation.

**Welcome:** Mr. Bryant opened the meeting. He reviewed the agenda and logistics, and reminded the group that the discussion will be based on the assumption that Virginia will join or link to the Regional Greenhouse Gas Initiative (RGGI).
Presentation, RGGI Changes: Ms. Zyla reviewed changes to the program recently proposed by RGGI (see Attachment A). These changes include a new regional cap, adjustments to the cap, modifications to the cost containment reserve (CCR) size and trigger price, and implementation of an emissions containment reserve (ECR).

Presentation, Webinar Followup: Mr. Litz addressed a question remaining from the group’s August 28, 2017 webinar: What is the "limited industrial exemption set-aside?" (see Attachment A).

Presentation, Allocation Scenarios: Mr. Ballou presented a series of scenarios showing various allocation approaches (see attachment B). The scenarios were developed to provide the group with a "snapshot" of how certain approaches would affect certain electric generating facilities.

Work Plan/Group Discussion: Mr. Bryant and Ms. Regn asked the group to rank a list of allocation goals (see Attachment A). The results were tallied and presented to the group (see Attachment C). There was general agreement on the list of goals and their relative strength. The two goals ranked the most important were: protect electricity customers and promote cost-effectiveness. The next topic was allowance allocations approaches, which were discussed and ranked. The group reached general agreement that the top ranked approach, output updating, was the recommended approach. Finally, the group ranked how allocation allowances should be distributed. After discussion among all members, no agreement was reached on a recommended distribution approach.

Next Steps/Future Meetings: Mr. Bryant wrapped up the meeting. The next meeting is scheduled for September 6, 2017. An additional meeting may be scheduled, and the groups’ consultants may offer additional technical webinars.

The meeting adjourned at approximately 2:50 p.m.

Attachments
REG\DEV\C17-RP02-MINUTES
RGGI Proposed Program Changes: Summary

• A regional cap of 75,147,784 tons of CO2 in 2021, which will decline by 2.275 million tons of CO2 per year thereafter, resulting in a total 30% reduction in the regional cap from 2020 to 2030.

• Additional adjustments to the RGGI cap, to account for the full bank of excess allowances at the end of 2020. The amount of this adjustment will be calculated in 2021 according to a formula to be established in the revised Model Rule, and it will be implemented over the period from 2021-2025.

• Modifications to the Cost Containment Reserve (CCR) size and trigger price. The proposed CCR size from 2021 onwards will be 10% of the regional cap. The CCR trigger price will be $13.00 in 2021, and rise at 7% per year.

• Implementation of an Emissions Containment Reserve (ECR) in 2021, wherein states will withhold allowances from circulation to secure additional emission reductions if prices fall below established trigger prices. States will withhold up to 10% of the allowances in their base budgets per year. Allowances withheld in this way will not be reoffered for sale. The ECR trigger price will be $6.00 in 2021, and rise at 7% per year, so that the ECR will only trigger if emission reduction costs are lower than projected.

• Announcement of proposed program changes: http://rggi.org/docs/ProgramReview/2017/08-23-17/Announcement_Proposed_Program_Changes.pdf

• Summary of proposed program elements: http://rggi.org/docs/ProgramReview/2017/08-23-17/Proposed_Program_Changes_Summary_Table.pdf
CO₂ RAP Webinars: Follow Up

- Recordings of the allowance allocation and consignment auction webinars and related materials are available on the DEQ greenhouse gas web page at: http://www.deq.virginia.gov/programs/air/greenhousegasplan.aspx

- **What is the “limited industrial exemption set-aside”?**
  Under the RGGI model rule, states may exempt certain industrial, “behind-the-meter” electric generating units from applicability that would otherwise be covered. Under the exemption, an industrial “behind-the-meter” unit can voluntarily restrict its electrical output to the grid (through a permit condition) to less than or equal to 10% of the unit's annual gross generation. Once exempted, the tons attributable to the exempted sources must be deducted from the state's CO₂ budget. These tons are taken from the **limited industrial exemption set-aside account**. The regulatory agency retires for each subsequent allocation year the number of CO₂ tons equal to the exempt source(s) average annual emissions over the most recent three calendar years. The retired tons shall be taken from the limited industrial exemption set-aside account.

- Any additional questions?
# Allowance Allocation: Goals

<table>
<thead>
<tr>
<th>Goals</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Promote fairness</td>
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<tr>
<td>b) Protect electricity customers</td>
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<tr>
<td>c) Promote cost-effectiveness</td>
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<tr>
<td>d) Address emissions leakage</td>
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<td>e) Address specific circumstances</td>
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<tr>
<td>f) Other allocation goals?</td>
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## Allowance Allocation: Approach

<table>
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<tr>
<th>Approach</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
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<tbody>
<tr>
<td>a) Historical heat input</td>
<td></td>
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<tr>
<td>b) Historical emissions</td>
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<td></td>
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<tr>
<td>c) Historical generation/output</td>
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<td>d) Historical sales</td>
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<tr>
<td>e) Output updating heat input</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f) Output updating emissions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>g) Output updating generation/output</td>
<td></td>
<td></td>
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<tr>
<td>h) Output updating sales</td>
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<td></td>
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<tr>
<td>i) Other allocation approaches?</td>
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</table>
# Allowance Allocation: Distribute to Whom?

<table>
<thead>
<tr>
<th>Allowance Distribution</th>
<th>Strengths</th>
<th>Weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Covered electric generators</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) All electric generators</td>
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<td></td>
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<tr>
<td>c) Load serving entities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d) Entities other than electric generators</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e) Set-asides for specific parties or projects</td>
<td></td>
<td></td>
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<tr>
<td>f) Other</td>
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</tbody>
</table>
Allocation by Facility (Emissions)
Allocation by Company
(Emissions)

- Dominion Generation: 72%
- Doswell Limited Partnership: 8%
- Tenaska Virginia Partners, LP: 7%
- Spruance Genco LLC: 3%
- Hopewell Cogeneration Facility: 3%
- Old Dominion Electric Cooperative: 2%
- Buchanan Generation, LLC: 2%
- Appalachian Power Company: 2%
- James River Cogeneration Company: 3%
- Wolf Hills Energy, LLC: 2%
- Tasley: 0%
Allocation by Company (Heat Input)

- Dominion Generation
- Doswell Limited Partnership
- Tenaska Virginia Partners, LP
- Spruance Genco LLC
- Hopewell Cogeneration Facility
- Old Dominion Electric Cooperative
- Birchwood Power Facility
- James River Cogeneration Company
- Appalachian Power Company
- Buchanan Generation, LLC
- Commonwealth Chesapeake Company
- Wolf Hills Energy, LLC
- Tasley
Allocation by Provider

- Virginia Electric & Power Co
- Appalachian Power Co
- Rappahannock Electric Coop
- Northern Virginia Elec Coop
- Shenandoah Valley Elec Coop
- City of Danville - (VA)
- Southside Electric Coop, Inc
- Kentucky Utilities Co
- City of Harrisonburg - (VA)
- A & N Electric Coop
- Central Virginia Electric Coop
- Mecklenburg Electric Cooperative
- Bristol Virginia Utilities
- City of Manassas - (VA)
- City of Salem - (VA)
- Virginia Tech Electric Service
- Prince George Electric Coop
- Northern Neck Elec Coop, Inc
- Town of Bedford - (VA)
- Community Electric Coop
- All Others
# Allowance Allocation: Goals

<table>
<thead>
<tr>
<th>Goals</th>
<th>Totals</th>
<th>AVG</th>
</tr>
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<tbody>
<tr>
<td><strong>B - Protect electricity customers</strong></td>
<td>25</td>
<td>2.23</td>
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<tr>
<td><strong>C - Promote cost-effectiveness</strong></td>
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<td>2.27</td>
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<tr>
<td><strong>A - Promote fairness</strong></td>
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<tr>
<td><strong>G - Incentivize investment, tech, efficiency</strong></td>
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<tr>
<td><strong>E - Address specific circumstances</strong></td>
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<td>4.73</td>
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<td><strong>D - Address emissions leakage</strong></td>
<td>50</td>
<td>5.00</td>
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<tr>
<td><strong>F - Jobs: create new or keep</strong></td>
<td>10</td>
<td>5.00</td>
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<tr>
<td><strong>H - Maximize emission reductions</strong></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td><strong>I - Other generators</strong></td>
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</table>

# Allowance Allocation: Approach

<table>
<thead>
<tr>
<th>Approach</th>
<th>Totals</th>
<th>Average</th>
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</thead>
<tbody>
<tr>
<td><strong>G - Output updating generation/output</strong></td>
<td>33</td>
<td>3.0</td>
</tr>
<tr>
<td><strong>F - Output updating emissions</strong></td>
<td>37</td>
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</tr>
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<td><strong>H - Output updating sales</strong></td>
<td>40</td>
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<tr>
<td><strong>B - Historical emissions</strong></td>
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<tr>
<td><strong>C - Historical generation/output</strong></td>
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<tr>
<td><strong>E - Output updating heat input</strong></td>
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<td>62</td>
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<td><strong>A - Historic heat input</strong></td>
<td>68</td>
<td>6.2</td>
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<tr>
<td>Allowance Allocation: Distribute to Whom?</td>
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<td>----------------------------------------</td>
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<tr>
<td>A - Covered electric generators</td>
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</tr>
<tr>
<td>E - Set-asides for specific parties or projects</td>
<td>2</td>
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<td>C - Load serving entities</td>
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<tr>
<td>B - All electric generators</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>D - Entities other than electric generators</td>
<td>5</td>
<td>2</td>
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<tr>
<td>F - Other</td>
<td>6</td>
<td>4</td>
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</table>
The meeting began at approximately 9:35 a.m.

**Meeting Purpose:** This regulatory advisory panel (RAP) has been established to advise and assist the Commonwealth in the development of a regulation that (i) ensures that Virginia is trading-ready to allow for the use of market-based mechanisms and the trading of carbon dioxide (CO$_2$) allowances through a multi-state trading program, and (ii) establishes abatement mechanisms that provide for a corresponding level of stringency to CO$_2$ limits imposed in other states with such limits. The purpose of this meeting is for DEQ to coordinate and facilitate discussions of this group in an effort to find common ground and elements that could be included in the regulation.

**Welcome:** Mr. Bryant welcomed the group and reviewed the agenda.

**Group discussion, allowance distribution.** Because there was no general agreement at the previous meeting on the distribution of allocations, the group revisited the issue. No consensus was reached as to whether allocations should be weighted toward covered sources or all load-serving entities, and the size of any set-asides, however, it
was generally agreed that any set-asides should be targeted toward protecting consumers.

**Presentation, modeling update:** Mr. Ballou summarized modeling activities to date (see Attachment A). It is anticipated that more detailed modeling information will be available by the end of the month, and a webinar will be arranged to discuss modeling results.

**Presentation, stringency of the cap:** Mr. Ballou described a number of approaches to be considered when determining the stringency of the cap (see Attachment B).

**Group discussion, cap stringency and biomass:** Based on Mr. Ballou's presentation, the group discussed options for setting the emissions cap. No consensus was reached, although it was observed that it is difficult to make definitive decisions based on several unknown elements (e.g., modeling results and future actions to be taken by RGGI).

The group then discussed the pros and cons of including biomass electric generators as affected units under the draft proposed regulation; no consensus was reached.

Finally, Mr. Bryant and Ms. Regn reviewed the group's prioritization and weighing exercise (see Attachment C); no changes or need for additional discussion were identified.

**Next Steps/Future Meetings:** Mr. Bryant wrapped up the meeting and summarized future steps in the regulation development process. The group agreed that no additional meeting beyond the modeling webinar is needed. Therefore, this meeting concludes the RAP's work, although the group may be reconvened after completion of the proposed regulation stage. A final meeting report will be circulated for the group's review prior to submittal to the State Air Pollution Control Board in advance of its December meeting.

The meeting adjourned at approximately 2:25 p.m.
Modeling Status

• Modeling being performed by ICF through the Georgetown Climate Center
• Four scenarios using the Integrated Planning Model (IPM)
• Two reference cases – BAU for Virginia
  – RGGI reference case (for consistent comparison)
  – Virginia reference case (demand, renewables)
• Two policy cases using RGGI reduction targets applied to VA starting in 2020
XX-1.4 Applicability.

(a) Units. Any unit that, at any time on or after January 1, 2005, serves an electricity generator with a nameplate capacity equal to or greater than 25 MWe shall be a CO2 budget unit, and any source that includes one or more such units shall be a CO2 budget source, subject to the requirements of this Part.

(bu) Unit. A fossil fuel-fired stationary boiler, combustion turbine, or combined cycle system.
Limited exemption for units with electrical output to the electric grid restricted by permit conditions.

(1) Applicability. Notwithstanding subdivision (a) of this section, a unit under subdivision (a) of this section that has a permit containing a condition restricting the supply of the unit’s annual electrical output to the electric grid to less than or equal to 10 percent of the annual gross generation of the unit, and which complies with the provisions in paragraph (b)(3) of this section, shall be exempt from the requirements of this Part...
Stringency of the Cap

• Basis for the initial cap:
  – Historic or current CO2 emissions
  – Future projected CO2 emissions
    • ERTAC
    • IPM
    • Other

• Reduction requirement
  – Same as RGGI review (same reduction over time)
  – Phased in reductions (increasing reduction over time)
  – Other
Virginia Power Plant CO2 Emission Trends

Source: EPA Air Markets Program Data (AMPD)
VA Power Sector CO2 Projections

[Bar chart showing projected CO2 emissions from 2017 to 2031 for different scenarios: ERTAC2.6, ERTAC2.7, and RGGI Ref. The bars indicate the millions of tons of CO2 emissions for each year, with a clear upward trend over time.]
<table>
<thead>
<tr>
<th>Allowance Allocation: Goals</th>
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<th>Totals</th>
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- WTE
- EITE, CHP, industrial gen
- set aside for renewables
# Allocation Allowance: Approach

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