

FINAL CLEAN POWER PLAN

Before the Virginia Energy Efficiency Council
Virginia Department of Environmental Quality
November 12, 2015

FINAL PLAN BASICS

- ▶ Final Plan released on August 3, 2015
- ▶ Employs different method to develop state targets
- ▶ Uses the proposal's first three building blocks
 - ▶ BB1 - Increased power plant efficiency
 - ▶ BB2 - Shift of generation to NGCC
 - ▶ BB3 - Increase renewable energy
- ▶ Fourth proposed building block (energy efficiency) is not included in developing final rule's state targets

FINAL PLAN BASICS

- ▶ Uses regional generation and emission data to develop standard emission rates for coal and natural gas
 - ▶ 1,305 lbs/MWh for coal plants
 - ▶ 771 lbs/MWh for natural gas combined cycle plants (NGCC)
- ▶ Uses these rates and 2012 generation mix to develop state specific goals
 - ▶ For Virginia: Coal (1,305 lbs/MWh * 31%) + NGCC (771 lbs/MWh * 69%) = 934 lbs/MWh
- ▶ VA's interim goal set at 1,047 lbs/MWh beginning in 2022
- ▶ Final compliance still required by 2030

HOW DOES THE FINAL PLAN ADDRESS VIRGINIA'S COMMENTS?

Equity – the final rule uses national standards that reduces inequity between state goals

State goals – the final rule reduces differences in state goals and any resulting economic disadvantages between Virginia and its neighbors

Zero emitting sources – the final rule dispenses with the arbitrary crediting of some clean power generation and will allow credit for new nuclear investments in the future

Renewable energy – the final plan is based on an updated national assumption of RE potential and VA's higher rate goal will lessen the need for major RE ramp-up in the near term

Interim targets – the final rule delays the interim compliance period to 2022 and raises the previously front loaded VA interim goal to avoid the compliance “cliff”

Mass limits – the final rule provides both rate and mass limits for states to use

Reliability – the final rule provides a reliability safety value to address emergency situations and optional set-asides to assist single source assets.

VIRGINIA GOALS IN DETAIL



Goal Calculation Viewer

State Goal Rates

To calculate state goals in the final CPP, the EPA calculates the affected fleet rate for states assuming that all likely affected baseline sources meet the respective category-specific emission performance rates presented while generating at the same baseline generation total. For each state, EPA calculated an average of the category-specific fossil steam and NGCC rates, weighting by the state's baseline generation levels for each source category. These blended state rates reflect the total emission rate from likely affected units in the state if they operated at baseline generation levels while meeting the category-specific rates.

$$\text{State Goal Rate}_{\text{YEAR}} = (\text{Fossil steam source category rate} * \text{Fossil steam baseline share of affected generation}) + (\text{NGCC source category rate} * \text{NGCC baseline share of affected generation})$$

Select a state/year below to view calculation for that combination

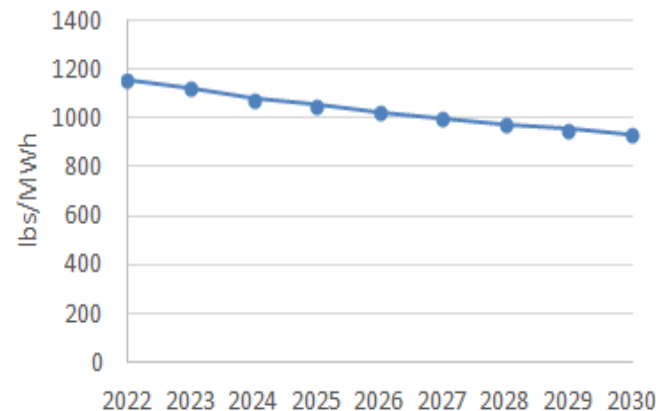
State: Year:

Final (2030)
Virginia Goal Rate = $(1,305 \text{ lbs/MWh} * 31\%) + (771 \text{ lbs/MWh} * 69\%)$
= 934 lbs/MWh

Virginia Interim Goal Rate
(2022-2029) = 1,047 lbs/MWh

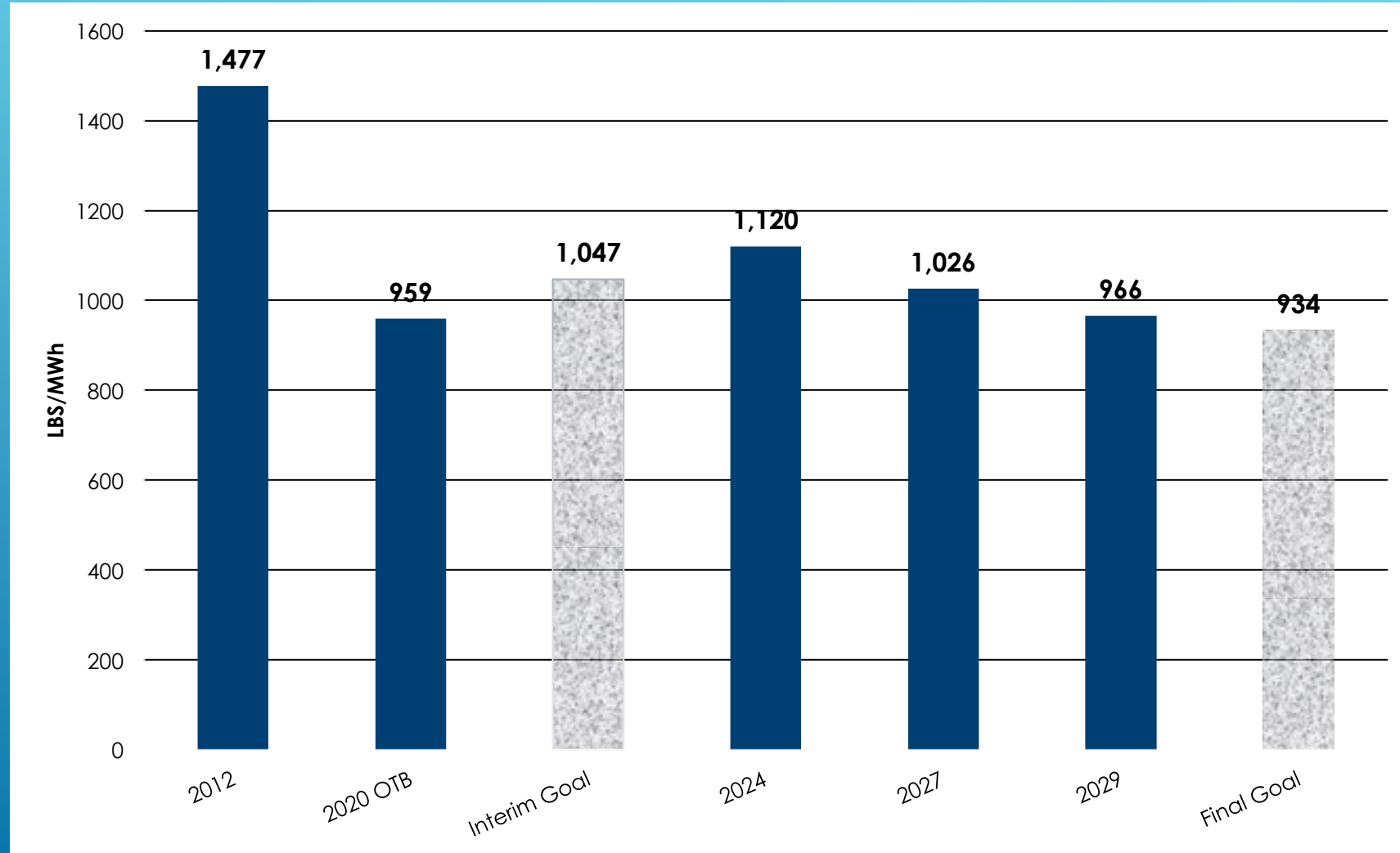
Virginia Final Goal Rate
(2030) = 934 lbs/MWh

Virginia Goal Rate

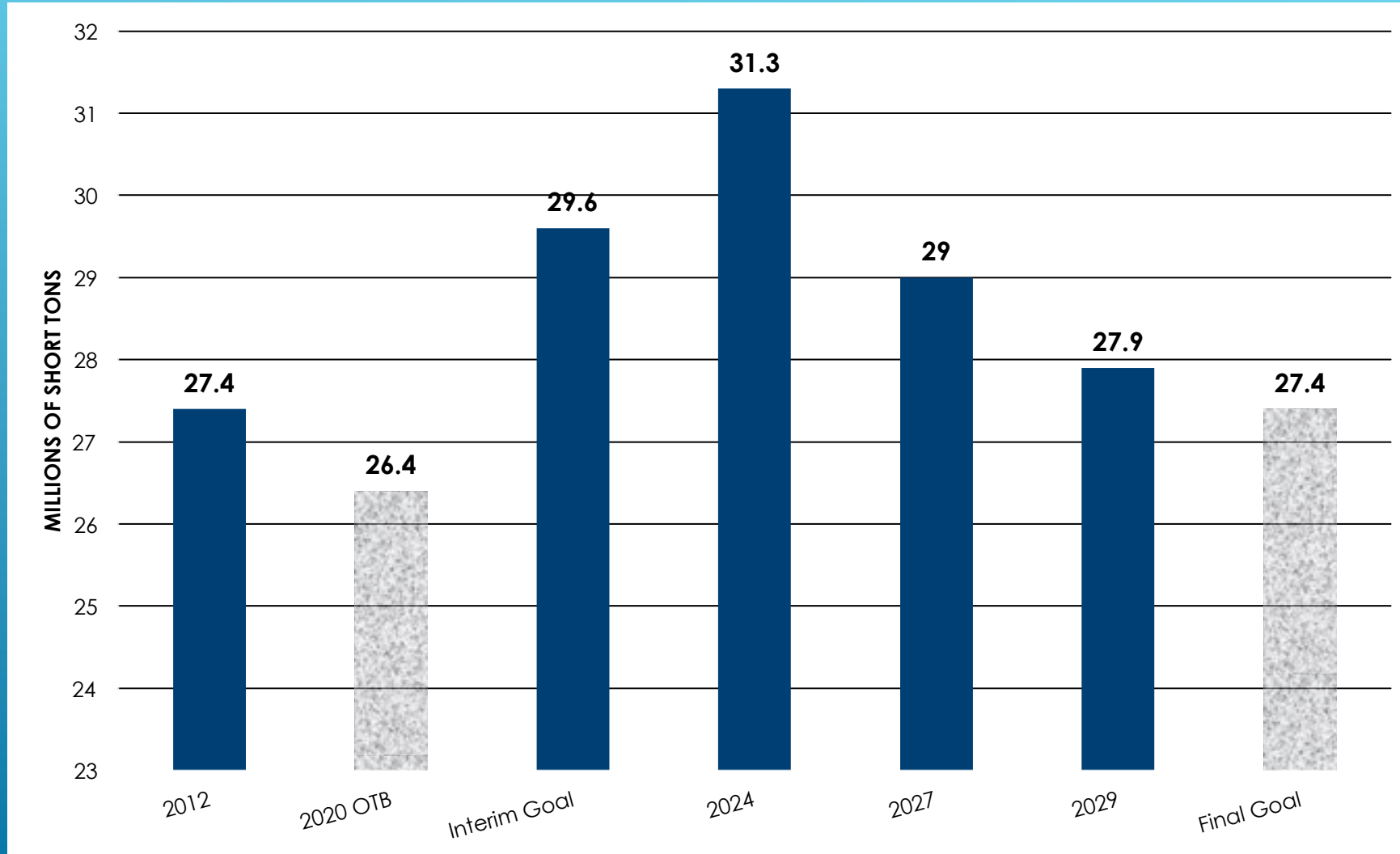


The calculated yearly goal rates are not prescriptive. Rather, they are used to establish the Interim and Final Goal Rates that states

VIRGINIA EMISSION RATE GOALS



VIRGINIA MASS EMISSIONS GOALS



STATE COMPLIANCE PLANS

- ▶ State can develop a compliance plan subject to EPA timetables and approval
 - ▶ Flexibility within CPP guidelines
 - ▶ Myriad issues
 - ▶ Blessing and curse
 - ▶ Can adopt EPA model rule
 - ▶ Presumptively approvable
 - ▶ Proposed by EPA on October 23rd for rate and mass approaches and open to public comment
 - ▶ Final sometime next year
- ▶ States that do not develop and implement an approved EPA compliance plan will have a federal plan imposed on them and implemented by EPA
 - ▶ No flexibility or state control
 - ▶ Proposed by EPA on October 23 and open to public comment
 - ▶ Final sometime next year

STATE COMPLIANCE OPTIONS

- ▶ The two main compliance plan options are:
 - ▶ A state emissions standard plan, or
 - ▶ A state measures plan
- ▶ Under an emissions standard plan:
 - ▶ Use established overall rate or mass goals or specific rate/mass goals for specific sources
 - ▶ Can include only existing (rate) or existing & new sources (mass)
 - ▶ Can participate in intra or interstate trading facilitated by EPA
 - ▶ Compliance is determined at the “stack” through monitoring
 - ▶ Rate based program would require generation and tracking of “emission reduction credits” from RE and EE projects
- ▶ Under a state measures plan:
 - ▶ Include a mixture of measures to be implemented by the state including RE and EE standards and other measures
 - ▶ States choosing this option must also adopt a federally enforceable “backstop”



-
- The flowchart is organized into two main columns: **Type** and **Requirements, Plan Type & Trading Options**.
- Mass Path:**
- Mass** (Type) branches into:
 - EPA Mass Goal for Existing Units with EPA New Unit Complement** (Requirements, Plan Type & Trading Options) → **Emission Standards** (Trading, Trading Ready, Single-state or Multi-state) → **Model Rule**.
 - EPA Mass Goal for Existing Units Only** (Requirements, Plan Type & Trading Options) → **Demonstration to Address Potential Leakage** (Requirements, Plan Type & Trading Options) → **Emission Standards** (Trading, Trading Ready, Single-state or Multi-state) → **Model Rule**.
 - State Measures, can include Mass Limit for Existing and New** (Requirements, Plan Type & Trading Options) → **Demonstration to Address Potential Leakage** (Requirements, Plan Type & Trading Options) → **Projection that Plan will Achieve the Goal** (Requirements, Plan Type & Trading Options) → **Backstop Emission Standards** (Requirements, Plan Type & Trading Options) → **Additional Reports** (Requirements, Plan Type & Trading Options) → **State Measures** (Trading, Can be made Trading Ready, Single-state or Multi-state).
- Rate Path:**
- Rate** (Type) branches into:
 - Subcategorized CO2 Emission Performance Rates** (Requirements, Plan Type & Trading Options) → **EM&V Plan** (Requirements, Plan Type & Trading Options) → **Measurement & Verification of EE/RE Savings** (Requirements, Plan Type & Trading Options) → **Documentation of EE/RE Savings** (Requirements, Plan Type & Trading Options) → **Emission Standards** (Trading, Trading Ready, Single-state or Multi-state) → **Model Rule**.
 - State CO2 Emission Goal Rate for Existing Units** (Requirements, Plan Type & Trading Options) → **EM&V Plan** (Requirements, Plan Type & Trading Options) → **Measurement & Verification of EE/RE Savings** (Requirements, Plan Type & Trading Options) → **Documentation of EE/RE Savings** (Requirements, Plan Type & Trading Options) → **Emission Standards** (Trading, Not Trading Ready, Single-state or Multi-state).
 - Different CO2 Emission Rates for Existing Units** (Requirements, Plan Type & Trading Options) → **Projection that Plan will Achieve the Goal** (Requirements, Plan Type & Trading Options) → **EM&V Plan** (Requirements, Plan Type & Trading Options) → **Measurement & Verification of EE/RE Savings** (Requirements, Plan Type & Trading Options) → **Documentation of EE/RE Savings** (Requirements, Plan Type & Trading Options) → **Emission Standards** (Trading, Not Trading Ready, Intra-state Only).

STATE COMPLIANCE TIMELINE

- ▶ September 6 , 2016 – initial submittal with optional extension request
- ▶ September 6, 2017 – Progress report for states with extensions
- ▶ September 6, 2018 – Final state plans
- ▶ July 1, 2021 – Milestone status report
- ▶ January 1, 2022 to December 31, 2024 – first interim compliance period
- ▶ January 1, 2025 to December 31, 2027 – second interim compliance period
- ▶ January 1, 2028 to December 31, 2029 – third interim compliance period
- ▶ July 1, 2030 – Interim period compliance demonstration
- ▶ July 1, 2032 and every three years forward – Final compliance demonstration

VIRGINIA'S PUBLIC PARTICIPATION APPROACH

- ▶ Informal 60-day public comment period (August 13 – October 13)
- ▶ Listening sessions in all 6 Regions (September – October)
- ▶ Greenhouse gas web page (ongoing)
- ▶ RSS feeds (ongoing)
- ▶ Meet with stakeholders (ongoing)
- ▶ Facilitated stakeholder process

PLANS AND PLAN COMPONENTS

- ▶ Initial Plan or Extension Request due September 2016
 - ▶ Identify final plan approaches under consideration and describe progress made to date
 - ▶ Explain why additional time is needed to submit a final plan
 - ▶ Demonstrate opportunity for public comment, including “meaningful engagement” with “vulnerable communities”
 - ▶ Include a non-binding statement of intent to participate in the Clean Energy Incentive Program

PLANS AND PLAN COMPONENTS

- ▶ Progress report due September 2017
 - ▶ Summarize status of each component of the final plan
 - ▶ Commit to a plan approach, including draft or proposed legislation and regulations
 - ▶ Provide updated roadmap with a schedule and milestones for completing the final plan, including updates to community engagement undertaken and planned

PLANS AND PLAN COMPONENTS

- ▶ Final plan due September 2018
 - ▶ Identification of affected EGUs
 - ▶ Emission standards
 - ▶ A federally enforceable backstop that will be put into place if there is a triggering event
 - ▶ Identification of monitoring, reporting, and recordkeeping requirements for each affected EGU
 - ▶ Process, contents, and schedule for state reporting
 - ▶ Subject to formal 30-day public comment period and mandatory hearing