



M.J. Bradley & Associates

# The Clean Power Plan

## NJ Clean Air Council Meeting

DECEMBER 9, 2015

DRAFT – FOR DISCUSSION PURPOSES ONLY

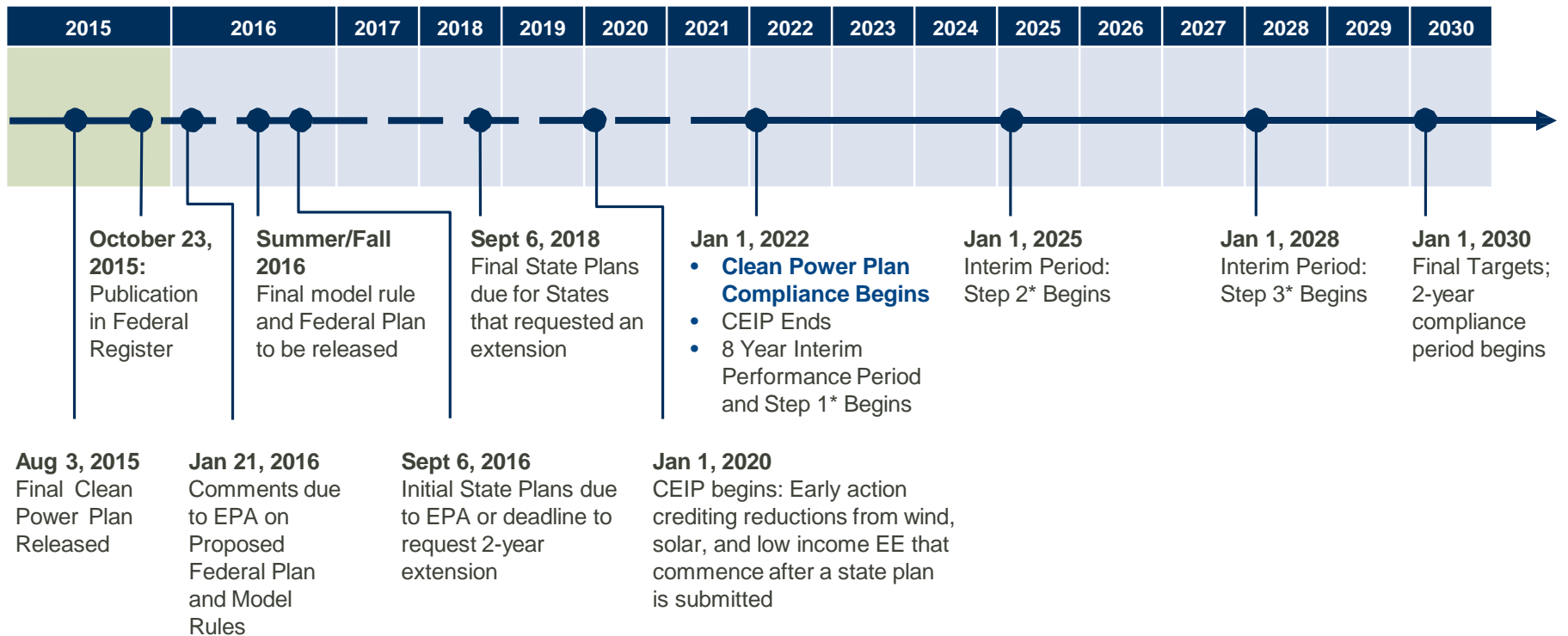
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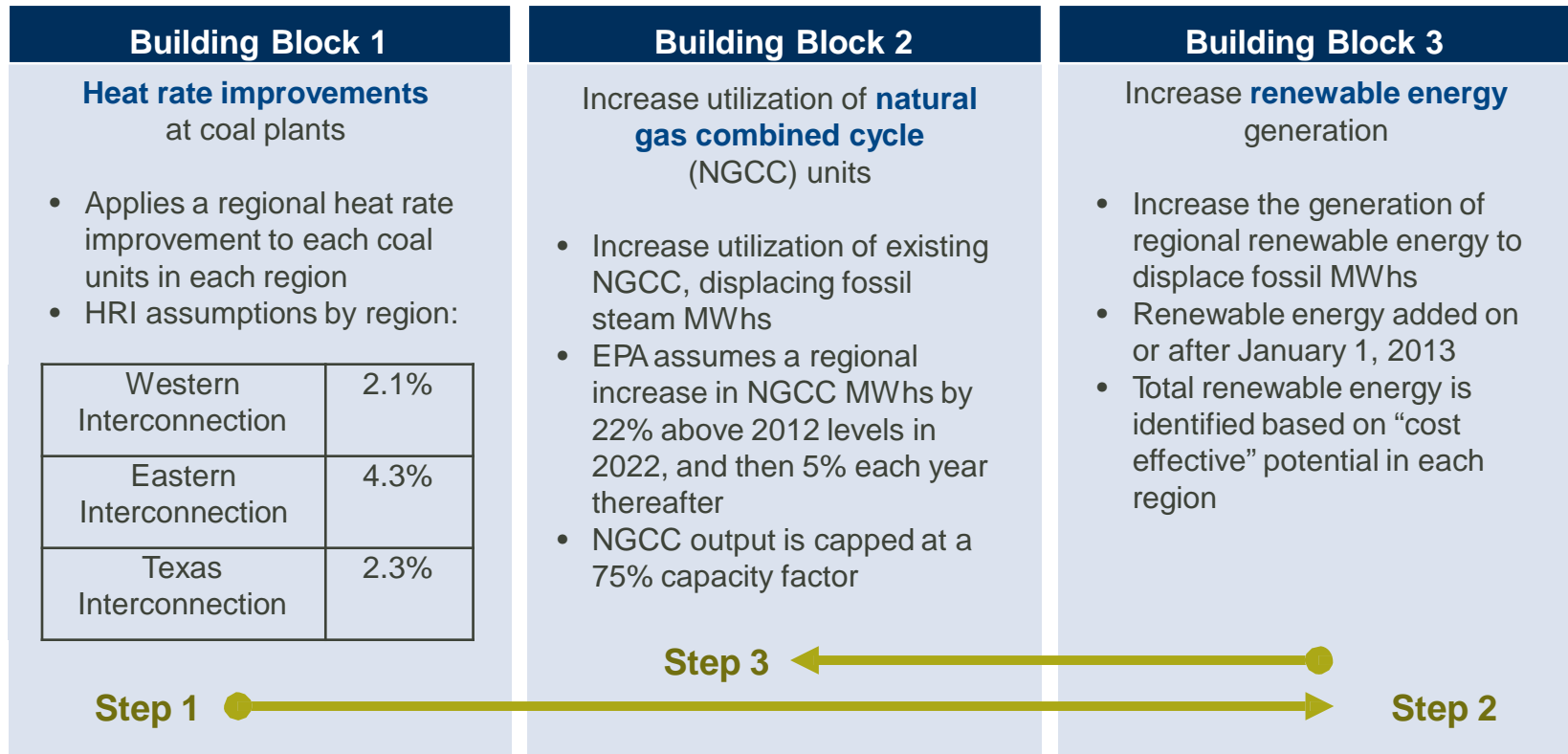
# Clean Power Plan Implementation Timeline



\*Note: Interim step timing is proposed; states are able to set their own interim step schedule

# BSER: Building Blocks

EPA identified the following three demonstrated measures to set emissions standards under BSER: “Building Blocks”



Note: In the final rule, “Building Block 4,” which in the proposed rule reflected savings from energy efficiency, is not included. Additionally, nuclear is no longer included under Building Block 3.

# Rate-Based Standards: Two Options

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## National “Dual” Emission Standards (lb/MWh)

Subcategory	Interim Standards	Final Standards
Fossil Steam Units	1,534	1,305
NGCC	832	771

## New Jersey: State “Blended” Fossil Standards (lb/MWh)

Category	Interim Standards	Final Standards
All Affected EGUs	885	812

**Note:** Blended fossil standards = weighted average based on historic (2012) fossil steam MWhs and NGCC MWhs. In New Jersey, fossil steams MWhs = 8%, NGCC MWhs = 92%.

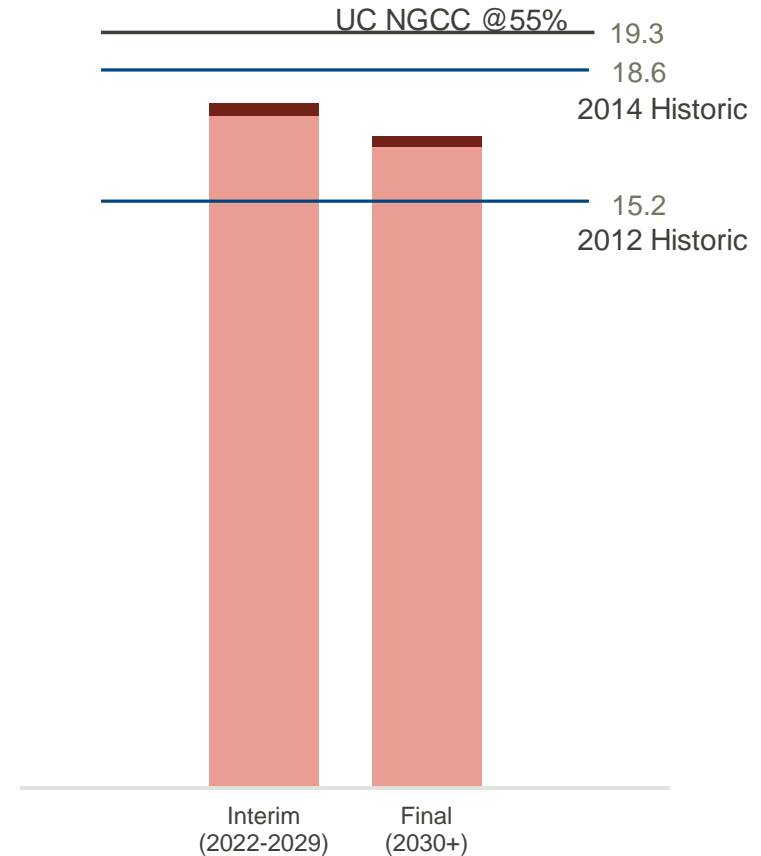
# Mass-Based Standards: Two Options

## New Jersey

### Affected Sources (million short ton)

	2012 Baseline	Interim Targets	Final Targets
Existing Sources	15.2	17.4	16.6
New Source Complement	—	0.3	0.3

Values may not align to chart due to rounding



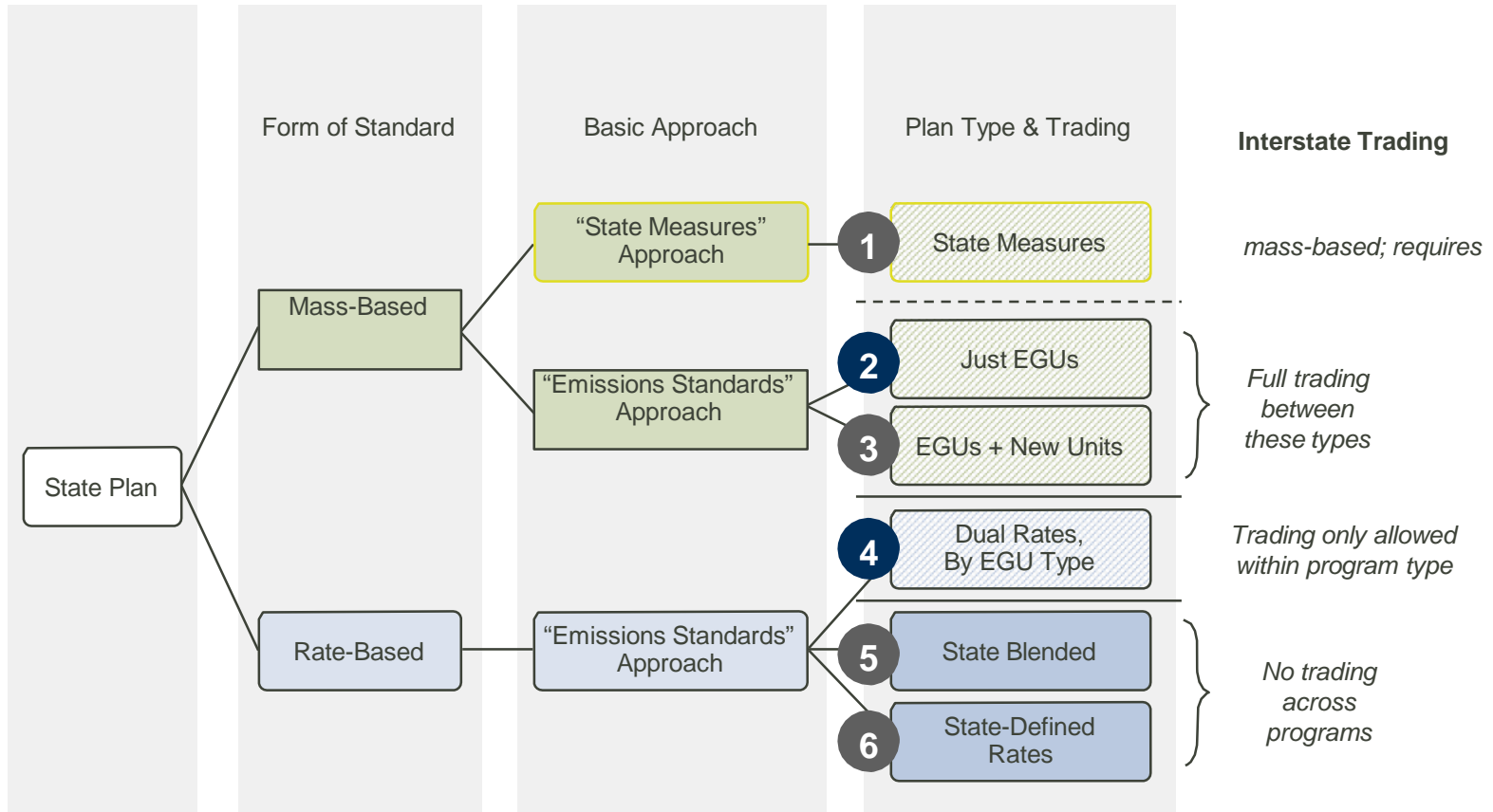
Source: U.S. EPA; MJB&A Analysis

# State Emission Performance Standards (Mass)

**Final (2030+) & Interim (2022-2029) Mass-Based Goals for Affected EGUs and Equivalent 2012 Historic Emissions (million short ton)**




# State Plan Decision Flow Chart and Federal Plan Options for Comment



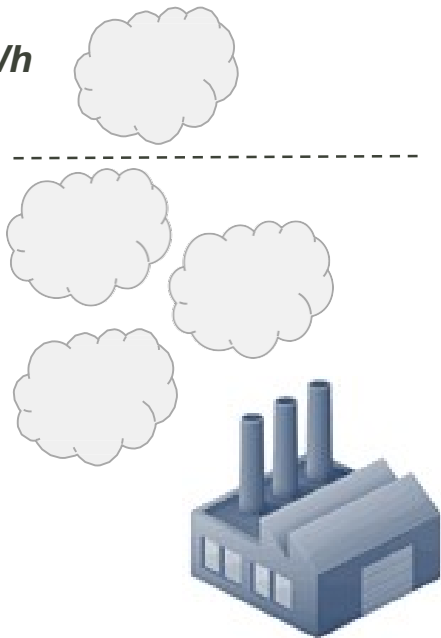
All types of plans can be used as the foundation of multi-state plans. However, only those marked with the cross-hatching are eligible for interstate "trading-ready" programs.

Plans 2 and 4 are included in the proposed federal plan.

# Rate-Based Trading Emission Reduction Credits (ERCs)

One  = one CO<sub>2</sub> emissions-free MWh

Actual  
Emission  
Rate:  
**1,000 lb/MWh**



EGU Rate Target:  
**833 lb/MWh**

Generation:  
15 MWh

**Compliance  
Calculation**

$$\begin{aligned}
 &= \frac{\text{Total Emissions}}{\text{Total Generation} + \text{ERC}} \\
 &= \frac{15 \text{ MWh} * 1,000 \text{ lb/MWh}}{15 \text{ MWh} + 3 \text{ ERC "MWh"}} \\
 &= \frac{15,000 \text{ lb}}{18 \text{ "MWh"}} \\
 &= 833 \text{ lb/MWh}
 \end{aligned}$$



# ERC Creation Overview

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Under the dual-rate structure in the proposed state model rule for rate-based trading, ERCs can be created by three categories of activities:

1

## Incremental Zero-Emitting Energy and Energy Efficiency

- Renewable & nuclear capacity installed **post-2012**
- Energy efficiency projects begun post-2012
- Each MWh generated / saved creates one ERC

2

## Affected EGUs

- Any affected EGU that emits at a rate below its compliance target
- Number of ERCs generated per MWh based on difference between EGU rate and compliance rate
- Appears fairly limited in NJ, given level of standards

3

## Existing NGCC

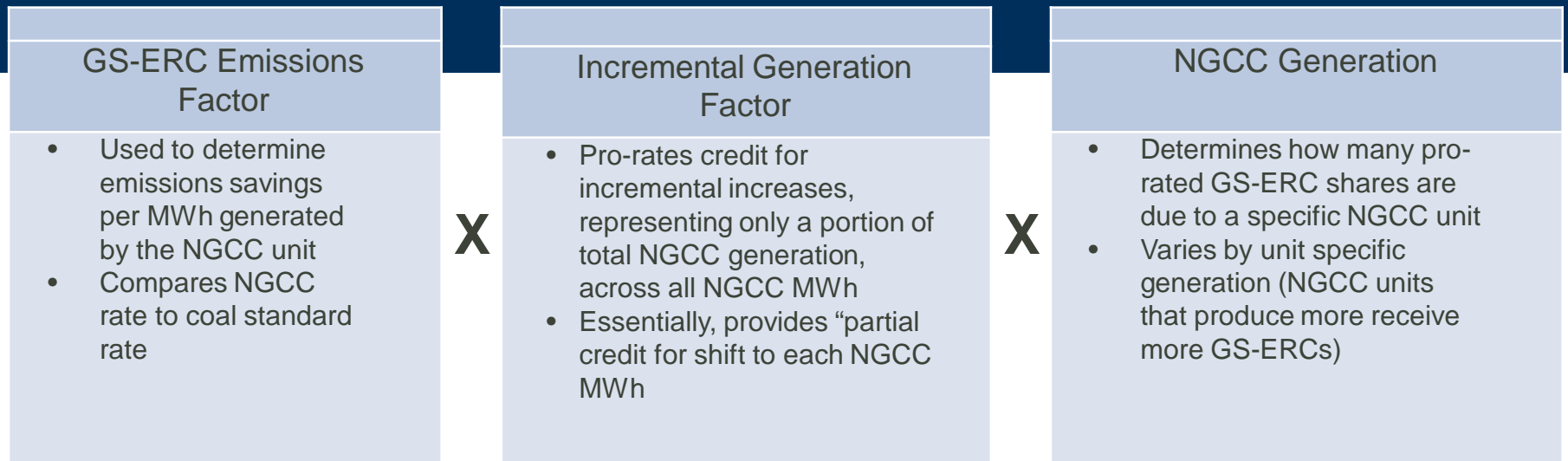
- All NGCCs earn partial “Gas Shift ERCs” for every MWh
- Provide credit for increases in NGCC generation projected to displace coal-fired generation
- GS-ERCs **can only be used by fossil steam** sources for compliance

# ERC Creation

## Gas Shift ERCs

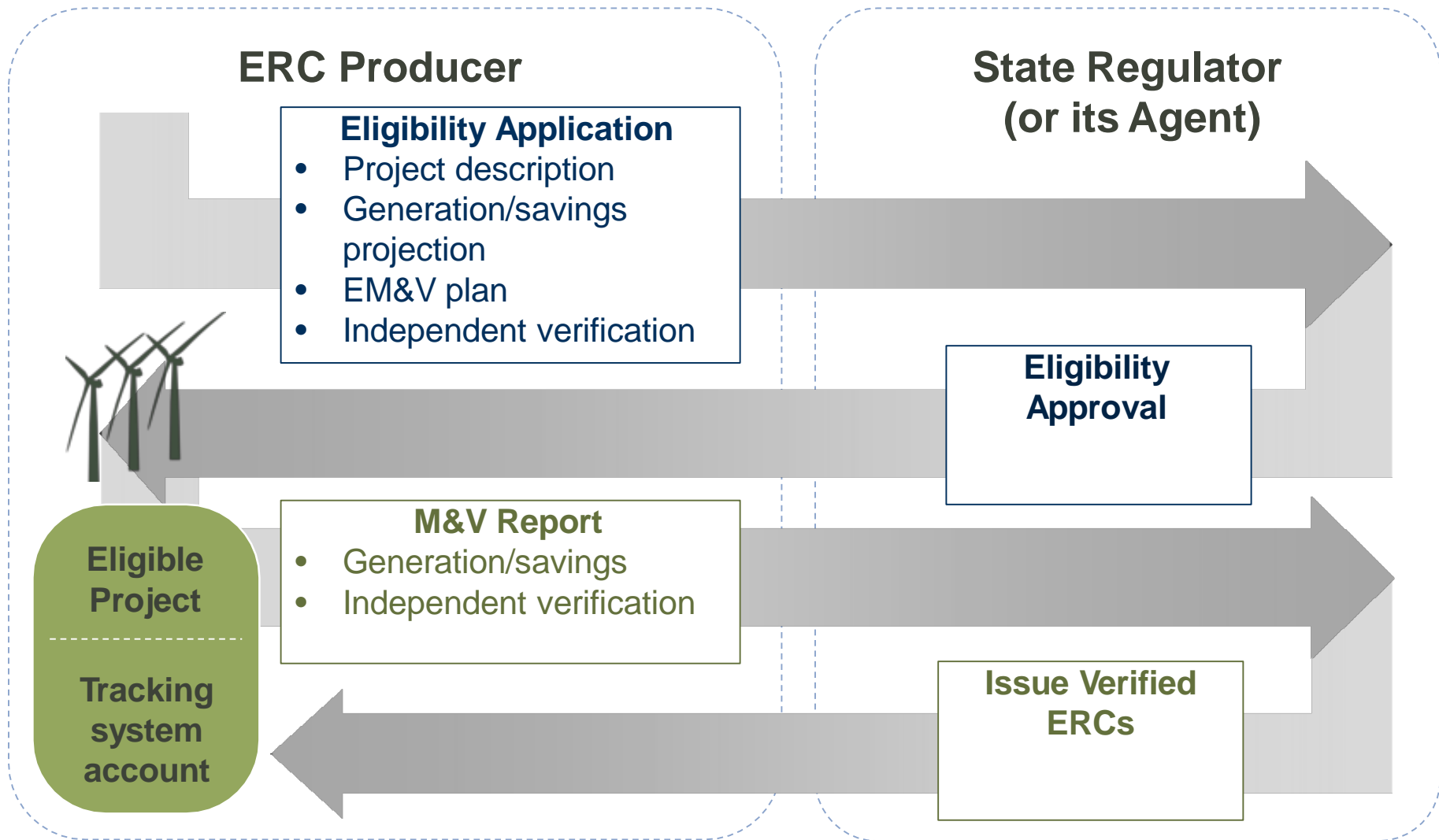
- GS-ERCs are meant to provide credit for increases in NGCC generation that displaces coal-fired generation
- Partial GS-ERCs are provided to all NGCC units for every MWh produced, and provide incentive to continue and increase production

**The number of GS-ERCs provided to each NGCC is the product of three factors:**



**GS-ERC Formula is Up for Comment**

# ERC Issuance Process: Similar to RPS



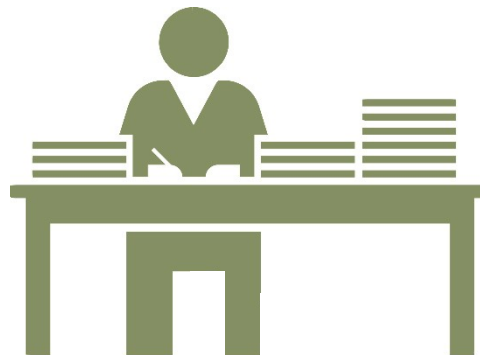
# Rate-Based Trading Considerations

A state considering rate-based trading must consider how ERCs will be created, verified, exchanged, and tracked.

## Project Eligibility



## Administration

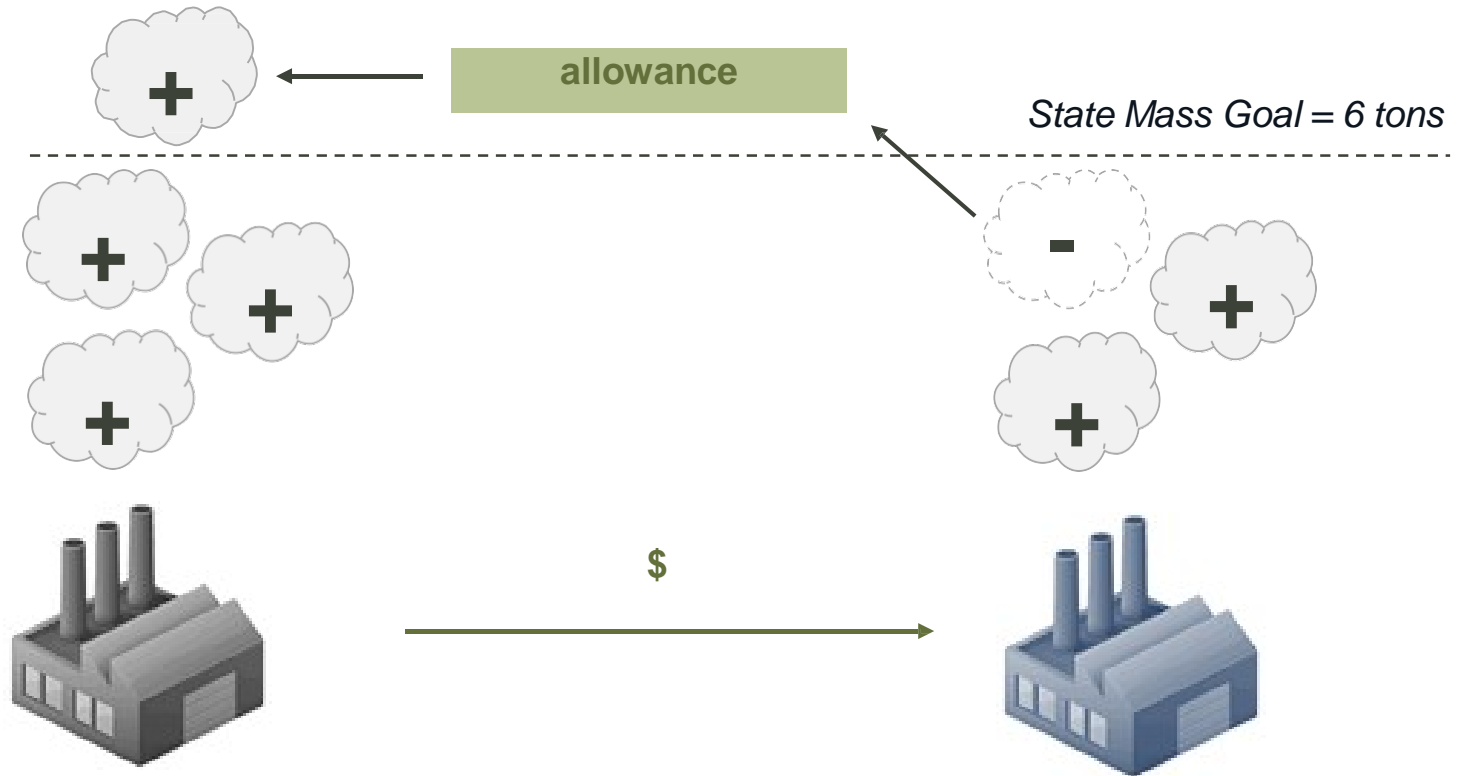


## Market Dynamics



# Mass-Based Approach

One **allowance** = one ton of CO<sub>2</sub> emissions



*A facility that produces more emissions than it has allowances may purchase allowances from another facility that has extra allowances*

# Mass-Based Considerations

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A mass-based program requires a state to establish systems to track emissions and distribute and track allowances, as well as ensure appropriate incentives for existing generation

## Addressing Leakage



## Administration

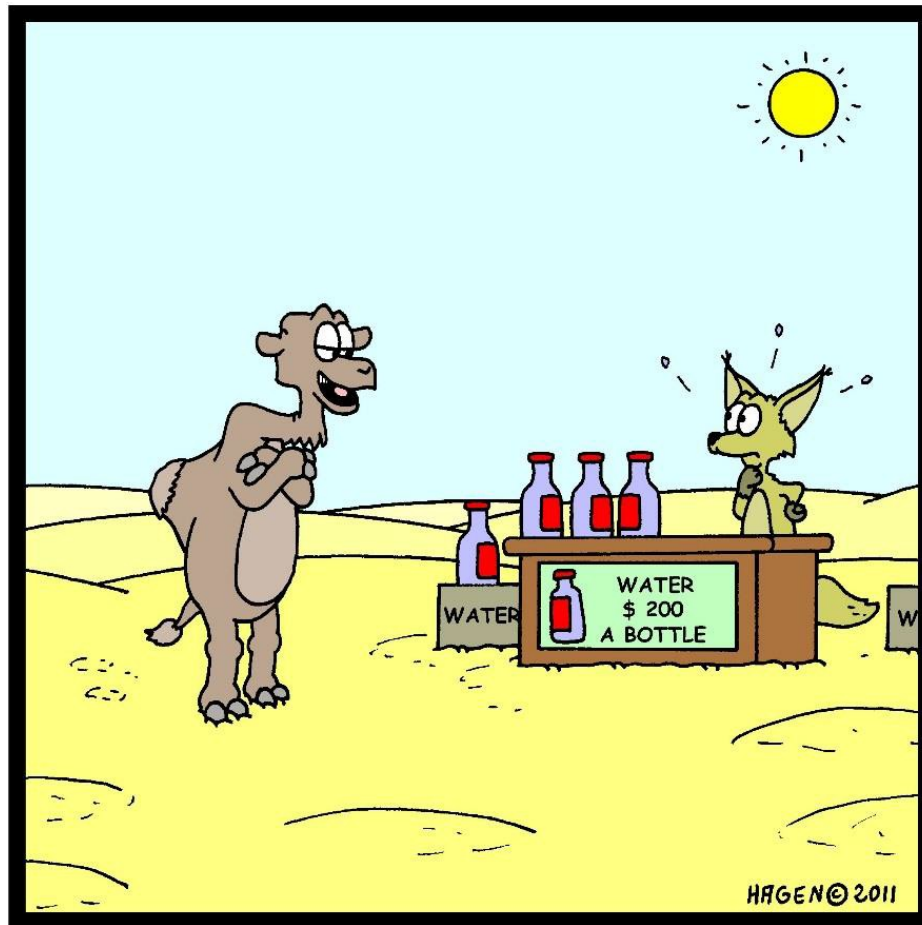


## Allowance Distribution



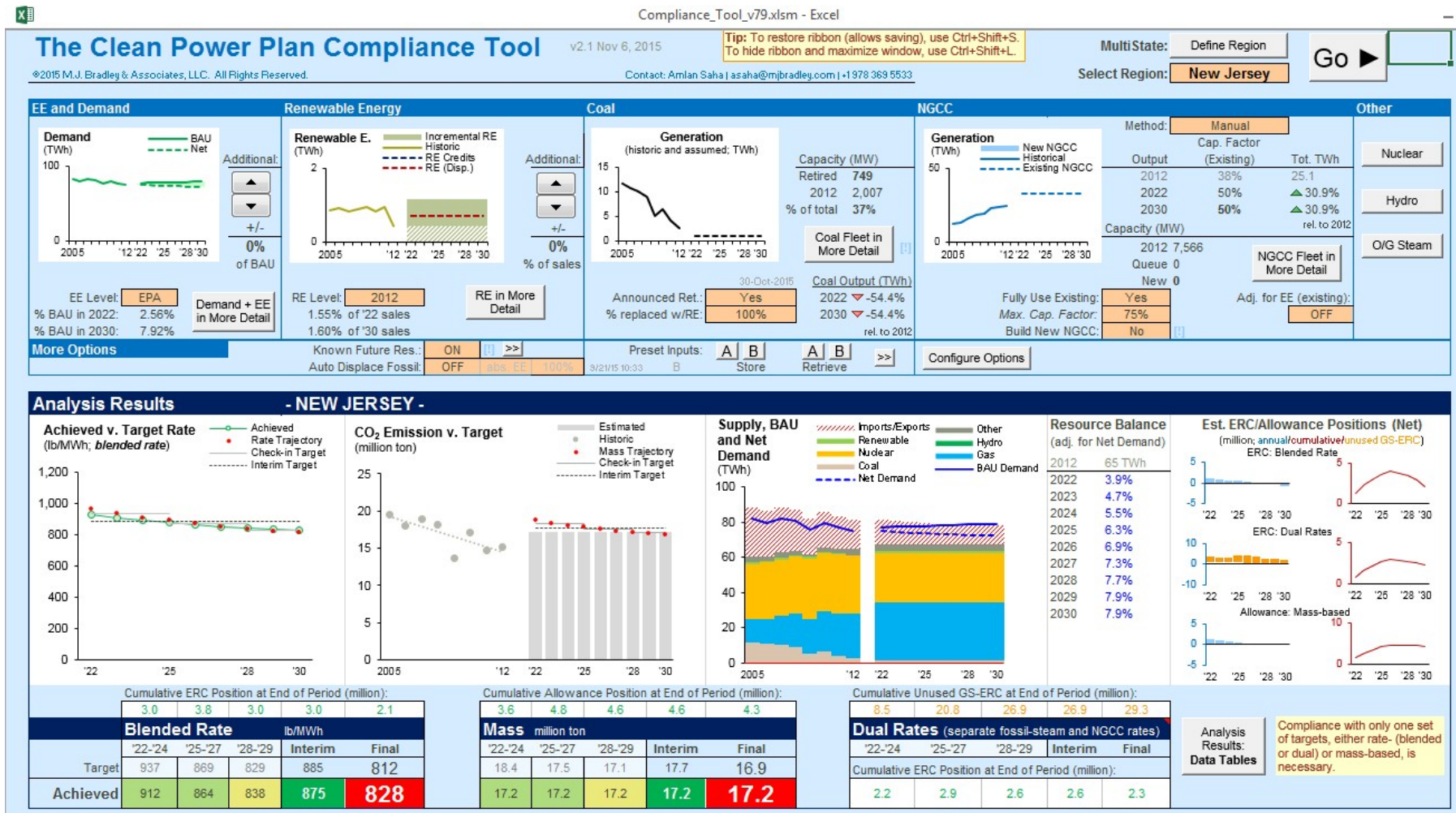
# Markets

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**Yes, I understand your pricing strategy,  
but since I'm likely to be your only customer today,  
what about a big discount?**

# CPP Compliance Tool







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