



# EPA's Proposed Federal Clean Power Plan

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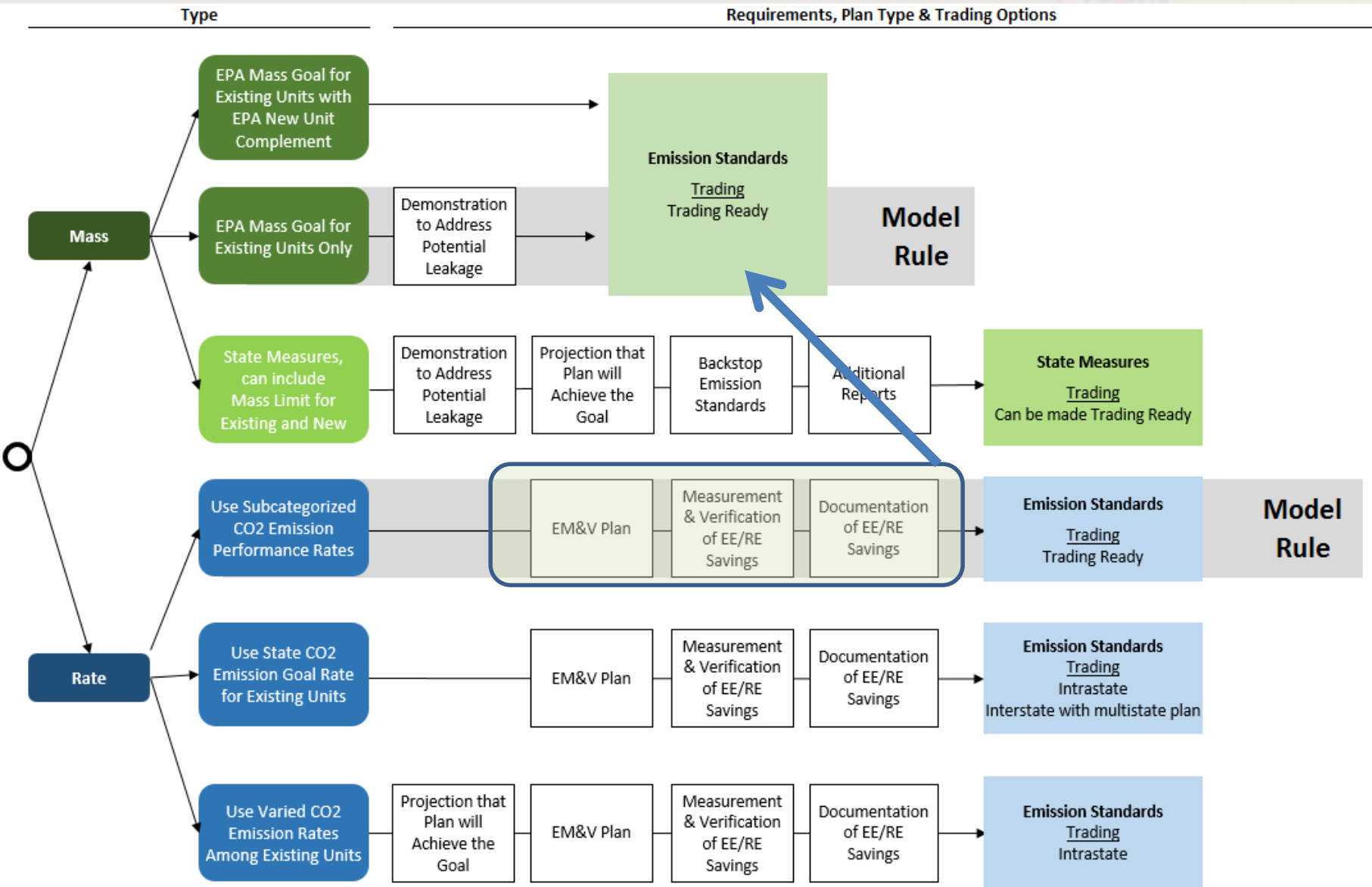
AQD, SIP Section

October 6, 2015



- Mass-Based Components
  - CPP Requirements
  - *Proposed* Federal Plan Implementation
- Rate-Based Components
  - CPP Requirements
  - *Proposed* Federal Plan Implementation
- Federal Plan *and* Model Rule

# Overview



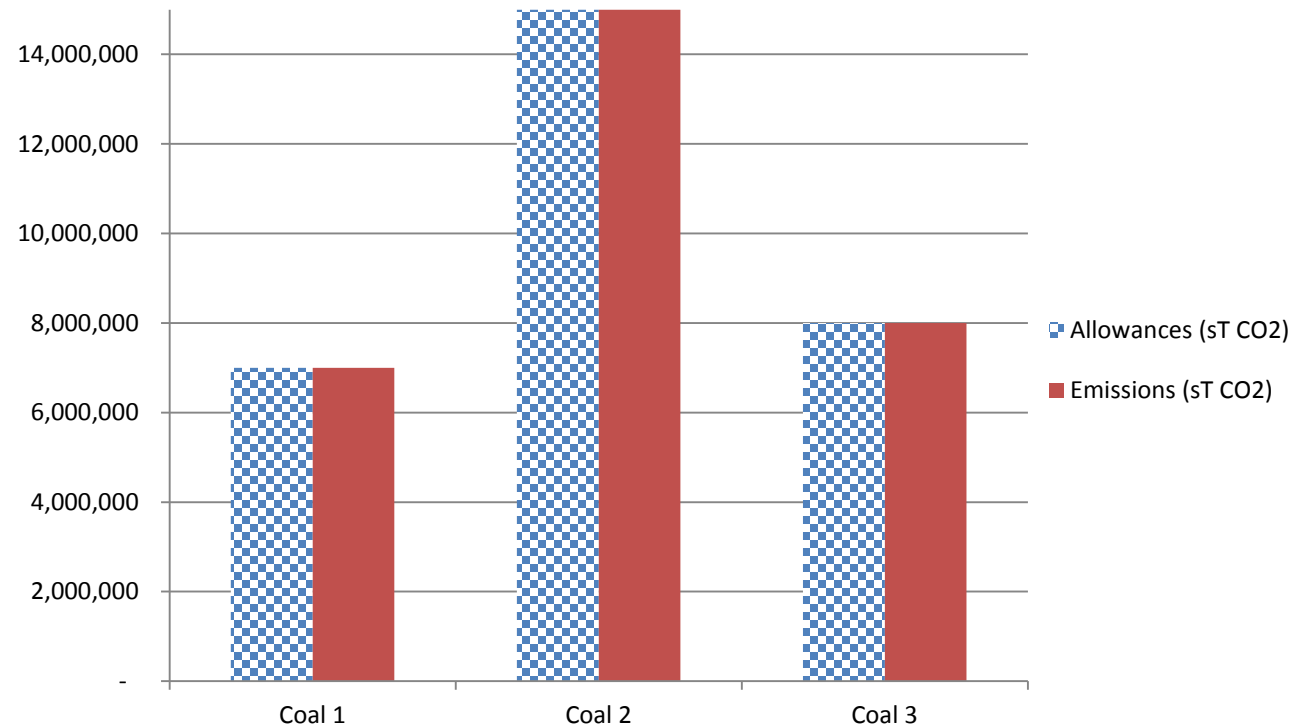
- Emissions Budget
- Allocation of Allowances
- Monitoring, Reporting, and Recordkeeping (MRR) Requirements
- Tracking System
- Process for Demonstrating Compliance
- Requirements to Address Leakage
- CEIP (optional)
- EM&V for RE and EE (depending on plan type)

- Federal Plan: Single-State Goal

Arizona Mass-Based Goals (short tons CO <sub>2</sub> )	
Interim	Final
33,061,997	30,170,150

- EPA lacks authority to adopt “new source complement”

- How allowances work:



- Allowances vs. ERCs

- **CPP: Plan must include “provisions”**
  - For allocation of allowances for each compliance period for each EGU (including set-asides)
  - For adjusting allocations
  - Allowing or restricting banking
  - Prohibiting “borrowing”
- **Federal Plan**
  - Based on EGU’s share of 2010-2012 generation
  - 3 set-asides: 2 to address leakage (below) + CEIP
  - Unlimited banking allowed

- Federal Plan (cont'd)
  - If EGU does not operate for 2 consecutive calendar years, would only receive allowances for “limited number of years”
    - Specific proposal: after 2 consecutive years without operation, no allowances in next compliance period; EPA seeks comments on alternatives
    - Implications for NGS, Four Corners, AZ EGUs
    - How are retirements before 2022 treated?
  - States may replace EPA determined allocation system with state-developed provisions

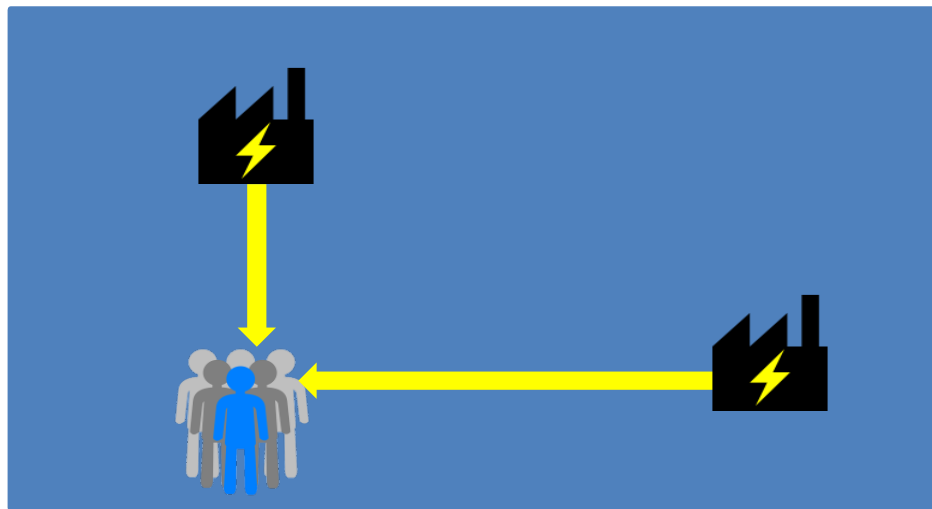


- **CPP**
  - CEMS for hourly CO<sub>2</sub> emissions (with some exceptions)
  - Sum hourly emissions for compliance period
  - Monitoring of net electricity output also required. (Why?)
- **Federal Plan**
  - Same
  - Requires “Designated Representative” to certify all reports

- **CPP**
  - Electronically record
    - Allocation of allowances
    - Transfers of allowances
    - Surrender and retirement of allowances for compliance
  - Provide internet-based, public access to information relating to “eligible resources”
  - May provide for transfers to or from an EPA-approved or –administered system
- **Federal Plan**
  - Designated Representative = Authorized Account Representative

- **CPP**
  - Demonstrate compliance by holding in tracking system allowances  $\geq$  emissions in short tons
- **Federal Plan**
  - Allowances available for deduction for a compliance period
    - Allocated for year in compliance period or prior compliance period (no borrowing)
    - Held in EGU's compliance account as of "allowance transfer deadline" (May 1 after end of compliance period)
  - EPA deducts allowances until
    - Amount deducted = total emissions from facility's EGUs; or
    - No allowances remain (i.e. there are excess emissions)
  - If excess emissions, EPA will deduct 2X shortfall

- What is leakage?
  - “emissions from new sources, beyond the emissions expected from new sources if existing EGUs were given standards of performance in the form of the subcategory-specific emission performance rates” [60.5790(b)(5)]



## ■ CPP Options

- Regulate new EGUs under state-only program together with existing EGUs under a mass-based 111(d) plan (“new source complement”)
- Allocation method that counteracts incentives to shift generation to new EGUs
- Provide demonstration that leakage is unlikely to occur in a particular state

- **Federal Plan Allocation Adjustments**
  - Output-based allocation adjustments
    - Provides existing EGUs incentive to generate more to receive more allowances, aligning incentive with new sources
    - Proposed to be available only to NGCC
    - Eligible NGCC would receive allowances = net generation > 50 % of net summer capacity x allocation rate of 1,030 lb/MWh-net
    - Proposed AZ set-aside = 4,197,813
  - Allowance set-aside for post-2012 RE:
    - 5 % from annual allowances (1,508,538 in 2030 for Arizona)
    - Only utility scale wind, solar, geothermal power or utility scale hydropower qualify
  - Unused set-aside allowances allocated to eligible generation on pro-rata basis

## ■ CPP

### – Eligible Projects

- Located in or benefit a state implementing CEIP
- Commence construction (RE) or operation (EE) after submission of final plan
- During 2020-2021, either (a) generate metered MWh from any wind or solar resource or (b) result in quantified and verified electricity savings through demand side EE *in low-income communities*

### – ERCs

- RE Projects: For every 2 MWh generated, project receives 1 ERC from state and 1 matching ERC from EPA
- EE Projects: For every 2 MWh generated, project receives 2 ERCs from state and 2 matching ERCs from EPA

## ■ Federal Plan

- Includes CEIP
- EPA takes state role of creating RE and EE set-asides

- CPP: Required in mass-based plan, if includes
  - Set-aside for RE to address leakage; *or*
  - CEIP
- Federal Plan
  - Includes both RE set-aside to address leakage and CEIP for RE *and EE*
  - *Therefore includes EM&V for EE*
  - Why doesn't federal plan allow ERCs for EE in Rate-Based rules?



- Rate-Based Emission Standards
- Method for Calculating Adjusted Rate
- Identification of Eligible Resources
- Certification of Eligible Resources
- Issuance of Emission Rate Credits
- MRR (same as for mass-based)
- Evaluation, Measurement & Verification
- Tracking System (same as for mass-based)

- Federal Plan Standards: Subcategory-Specific Performance Rates

National Performance Rates (lbs CO <sub>2</sub> /MWh)		
Subcategory	Interim	Final
Fossil Steam	1,534	1,305
NGCC	832	771

- CPP and Federal Plan:

$$CO_2 \text{ emission rate} = \frac{\sum M_{CO_2}}{\sum MWh_{op} + \sum MWh_{ERC}}$$

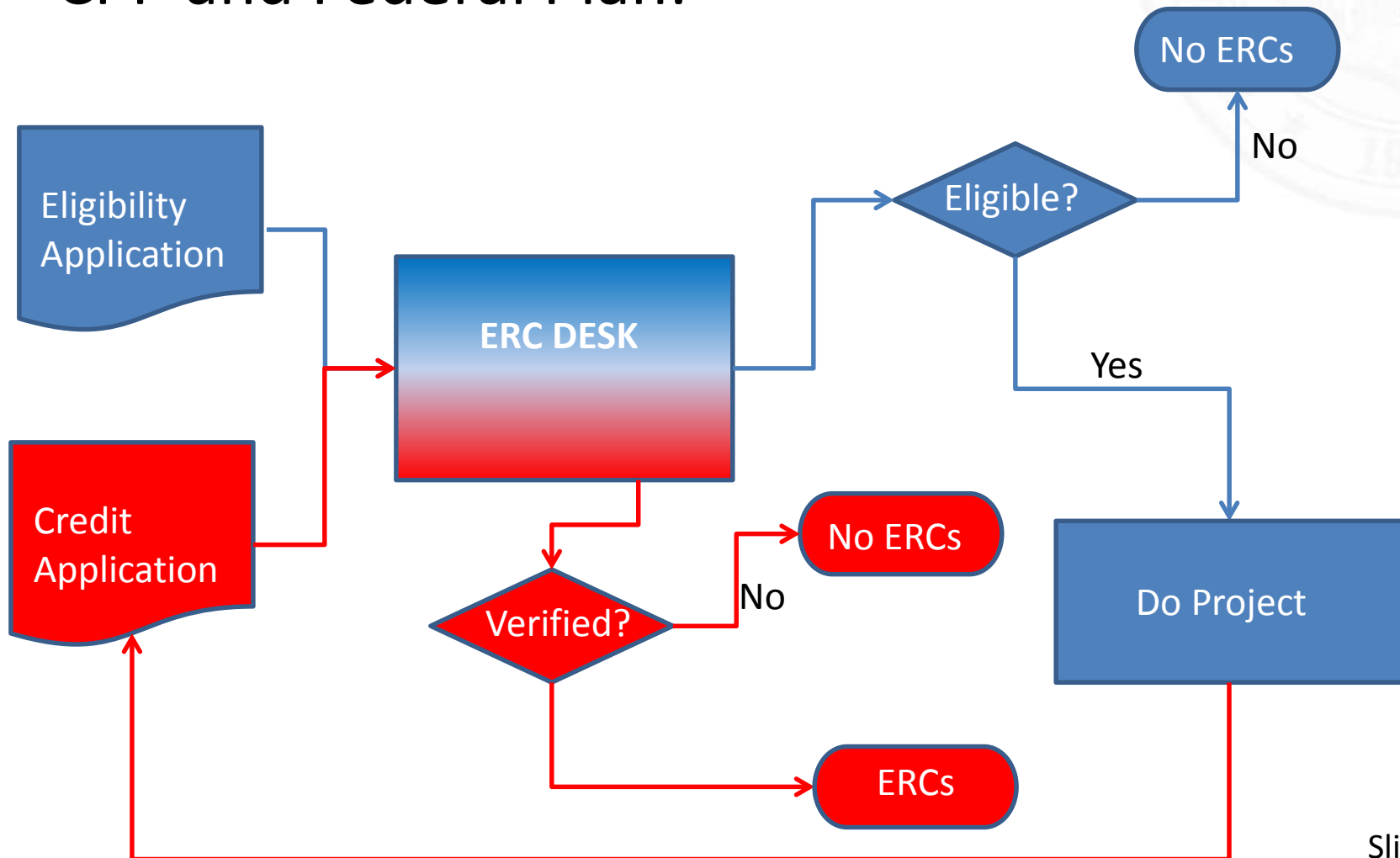
- ERCs may come from
  - Affected EGUs with rate below performance standard and
  - “Eligible resources”

## ■ CPP

- Installed or implemented after 1/1/2013
- Connected to and delivers energy or saves electricity on grid
- Located in:
  - Rate-based state
  - For RE only, in mass based state and delivered with intention to meet load in rate-based state
- Categories
  - RE: wind, solar, geothermal, hydro, wave, tidal
  - Qualified biomass
  - Waste-to-energy
  - Nuclear
  - CHP
  - Demand-side EE
  - Other included in state plan and approved by EPA

- Federal Plan Limited to
  - On-shore utility scale wind
  - Utility scale solar photovoltaics
  - Concentrated solar power
  - Geothermal power
  - Nuclear energy
  - Utility scale hydropower

## ■ CPP and Federal Plan:



- Zero-Based Generation and EE
  - 1 ERC per MWh generated or saved
  
- Affected EGU:

$$ERCs = EGU \text{ Gen} \times \frac{\text{Rate Limit} - EGU \text{ Rate}}{\text{Rate Limit}}$$

## ■ NGCC in Performance Rate State

### – Problem:

- Actual NGCC rate unlikely to be lower than performance rate, especially 771 lb/MWh in final compliance periods
- Contrast state-wide rate in AZ: 1,031 lb/MWh
- Performance rate provides no incentive for BB2

### – Solution

- Award “Gas-Shift ERCs” (GS\_ERCs)

$$GS\_ERCs = EGU\ Gen \times Incr\ Gen\ Factor \times \left(1 - \frac{EGU\ Rate}{FFS\ Rate\ Limit}\right)$$

- Included in Federal Plan



- **CPP**
  - Eligibility Application
    - EM&V Plan
    - Verification report from independent verifier
  - Credit Application
    - M&V Report
    - Verification report from independent verifier
- **Federal Plan**
  - 30 pages of detail in both Mass-Based and Rate-Based rules
  - Accreditation process for independent verifiers

# Overview

Type

Requirements, Plan Type & Trading Options

