

**U.S. EPA
Proposed Carbon
Pollution Emission
Guidelines for Existing
Electric Utility
Generating Units - 111(d)**

Scoping Meeting

September 9, 2014

Outline

- Background
- Proposed U.S. EPA Guidelines
- Estimating California's 2030 Emissions Profile
- California's Perspective: Key Elements of a Compliance Plan
- Discussion Topics
- Next Steps
- Rulemaking Schedule

Background

- June 25, 2013 - President Obama releases Climate Action Plan
- September 20, 2013 - EPA proposes rule for new electric generating units – 111(b)
- June 2, 2014 - EPA proposes rule for existing electric generating units (EGUs) – 111(d)

New Power Plants – 111(b)

- EPA released proposed rule for new electric generating units in September 2013
- Applies to units built/operated after January 8, 2014
- CO₂ limits based solely on fuel type and size

New Power Plants – 111(b)

California's comments:

- EGUs increasingly used to integrate renewable resources
- Subcategorize EGUs by operational type and set appropriate standards
- California to provide data to U.S. EPA to help in setting subcategories and appropriate emission limits
- New EGUs may be used as compliance mechanism for 111(d) rule – emission limits must be stringent
- California agency comments are posted here:
http://www.arb.ca.gov/cc/powerplants/111b_comment_letter.pdf

Modified and Reconstructed Power Plants – 111(b)

- EPA released proposal to regulate modified and reconstructed power plants on June 2, 2014
- Rule applies to EGUs modified or reconstructed on or after January 8, 2014
- Proposed emission limits generally align with those for new EGUs
- EPA does not expect many EGUs will be subject to this regulation

Existing Power Plants – 111(d)

June 2, 2014 - EPA released proposed rule for existing EGUs

- Expected to reduce CO₂ emissions 30% from 2005 levels by 2030
- Limits carbon intensity of a state's electrical grid as a whole
- Credit given for demand-side energy efficiency programs and renewable energy programs

111(d) Building Blocks

Four building blocks to set emissions target:

- Make existing coal-fired EGUs more efficient
- Increase usage of lower-emitting EGUs
- Increase zero and low-emitting power sources
- Increase demand-side energy efficiency

Building blocks are used to set emissions targets, but states have flexibility to comply using any combination of measures

Proposed 111(d) Targets

EPA proposed California's emission baseline was
698 lbs CO₂/MW-hr in 2012

California's targets:

556 lbs CO₂/MW-hr interim target (2020-2029)

537 lbs CO₂/MW-hr final target (2030)

Estimate of GHG Emissions

- Based on 2013 IEPR High Demand Forecast Case
 - Low Prices, plus High Economic and Demographic Forecasts
 - Low AAEE for IOUs, Low EE for POUs
 - In-State Renewables 33⁰% in 2024, Escalated to 2030 Based on CEC RNS Methodology
 - OTC Retirements on 2013 Compliance Schedule
 - Average Hydro Conditions
 - CSI (PV) from High Demand Forecast Case

Estimating California's 2030 Emissions Profile

Projections for California		2012	2020	2024	2030	EPA Targets
1	<i>In-State: BAU Electricity Emissions (MMT)</i>	48	53.9	52	49.3	
2	<i>In-State: BAU Cogen UTO Emissions (MMT)</i>	2.5	2.5	2.5	2.5	
3	<i>In-State: Reductions (MMT)</i>	-	-	-	-	
4	Total In-State Emissions (MMT)	50.4	56.4	54.5	51.8	
5	<i>In-State: Natural Gas and Cogeneration (GWh)</i>	101,500	122,000	119,100	114,900	
6	<i>In-State: Cogeneration UTO (as GWh)</i>	5,500	5,500	5,500	5,500	
7	Sub-Total for Emissions Determination (GWh)	107,000	127,500	124,600	120,400	
8	<i>In-State: Nuclear: Diablo Canyon (GWh)</i>	17,700	17,800	19,000	19,000	
9	<i>In-State: Nuclear: SONGS (GWh)</i>	800	-	-	-	
10	<i>In-State: Clean SONGS Replacement (GWh)</i>	-	-	-	-	
11	<i>In-State: Other Generation: Large Hydro (GWh)</i>	23,200	27,900	27,900	27,900	
12	<i>In-State: Other Generation: Small Hydro (GWh)</i>	4,300	3,900	3,900	3,900	
13	<i>In-State: RPS Eligible Renewables Excl. Small Hydro (GWh)</i>	28,300	72,300	76,800	87,300	
14	<i>In-State: Energy Efficiency (GWh)</i>	-	9,500	14,100	14,100	
15	<i>In-State: California Solar Initiative (PV) (GWh)</i>	-	5,500	7,200	10,900	
16	Total In-State Generation (GWh)	181,300	264,400	273,500	283,500	
17	Total GRID EF (lbsCO2e/MWh)	613	470	439	403	Interim 556 Final 537
18	Average Annual Growth Rate for Natural Gas and Cogeneration 2020-2024		-0.61%			
19	Average Annual Growth Rate for RPS Renewables Excl. Small Hydro 2020-2024		1.50%			
20	Average Annual Growth Rate for California Solar Initiative (PV) 2020-2024		7.20%			

Proposed 111(d) Rule

Compliance Plan Requirements

- Each state must develop a “SIP-like” plan demonstrating compliance with emission targets
- Allows flexibility for plan elements (can include Cap-and-Trade, renewable energy, energy efficiency)
- Can be rate based or mass based
- Can be single state or regional plan

California's Perspective: Key Elements of a Compliance Plan

- Avoids disrupting existing programs
- Minimal additional program requirements
- Maintain state policy-making autonomy
- Ensure consistent accounting of renewable energy and energy efficiency programs
- Allow flexibility for multi-state plans
- Consistent metrics to ensure real reductions nationwide

Discussion Topics

- **Balancing Federal Approval Requirements with State Flexibility**
 - Using a “state commitment”-based approach for “portfolio” type plan
 - Existing state programs achieve required reductions without making those programs federally enforceable

Discussion Topics (cont.)

- **Accounting for Renewable Energy and Energy Efficiency in Regional Planning**
 - Multi-state compliance flexibility with modular agreements
 - MOUs account for interstate RE/EE to avoid double counting
 - Incentivizing additional RE/EE investments

Discussion Topics (cont.)

- **Regional Planning**
 - States develop state-specific plan that includes common plan elements between states
 - Further firming of Cap-and-Trade via partial linkages and adjustments to import/export compliance obligations

Discussion Topics (cont.)

- **Rate versus Mass Calculation Metrics**
 - EPA proposes rate metric
 - Increased generation needed as California electrifies transportation and industrial sectors
 - Rate metric provides flexibility to accommodate growth
 - Mass metric considerations
 - Caps emissions consistent with California Cap-and-Trade
 - Aligns with California mass-based programs
 - Easier accounting of program effects
 - Requires consistent calculation methodology to prevent gaming

Discussion Topics (cont.)

- **Stringency of Targets**
 - BSER based on state-by-state analyses instead of as-proposed national/regional analyses
 - Pros and cons of a more stringent CA performance goal
 - Multi-state performance goal considerations

Next Steps

Solicit input from California stakeholders on proposed EPA rules

Continue to evaluate EPA's proposal and prepare joint state agency comments – comments due October 16, 2014

Continue to communicate with other states to evaluate opportunities for regional collaborations

Schedule

EPA must finalize 111(b) rules prior to or concurrently with finalizing 111(d) rule – anticipated in June 2015

States must submit compliance plans by June 2016

States are allowed until June 2018 for multi-state plans

Submit Written Comments

Written comments for state agency consideration
due by 5:00 PM, September 23, 2014

Send comments to:

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by email: cgallens@arb.ca.gov

Contact Information

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