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# ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY



Misael Cabrera  
Director

BY EMAIL AND WEB SUBMISSION

January 21, 2018

To: Docket No. EPA-HQ-OAR-2015-0199

Re: Proposed Federal Plan and Model Rule for the Final Emission Guidelines for CO<sub>2</sub> Emissions from Fossil Fuel Fired Power Plants Under Section 111(d) of the Clean Air Act. 80 FR 64966 (October 23, 2015)

To Whom It May Concern:

Attached are the comments of the Arizona Department of Environmental Quality on the above-mentioned proposed rule.

Please contact Steve Burr at 602-616-9210 or [sb5@azdeq.gov](mailto:sb5@azdeq.gov), if you have any questions about these comments.

Sincerely,



Eric C. Massey, Director  
Air Quality Division

# Arizona Department of Environmental Quality Comments on Proposed Federal 111(d) Plan and Model Rules

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January 21, 2016

The following are the comments of the Arizona Department of Environmental Quality (ADEQ) on the proposed federal plan and model rule for the final Emission Guidelines for CO<sub>2</sub> emissions from fossil fuel fired power plants under section 111(d) of the Clean Air Act. 80 FR 64966 (October 23, 2015); Docket No. EPA-HQ-OAR-2015-0199.

ADEQ's comments focus on two elements of the proposal of particular concern to the State of Arizona as it develops its own 111(d) plan: the proposed presumptively approvable set-asides to address leakage (section I) and the Clean Energy Incentive Program (CEIP) (section II). Section III presents comments on a number of other issues.

## **I. EPA's Proposed Presumptively Approvable Set-Asides to Address Leakage**

Under the final Emission Guidelines, a state mass-based plan must include requirements:

that address increased 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.

40 CFR 60.5790(b)(5). EPA refers to these increased emissions as "leakage."

According to the preamble for the final rule, one option for addressing leakage is to:

Use allocation methods in the state plan that counteract incentives to shift generation from affected EGUs to unaffected fossil-fired sources. If a state adopts allowance set-aside provisions exactly as they are outlined in the finalized model rule, this option could be presumptively approvable.

80 FR 64662, 64888 (Oct. 23, 2015); *see* 40 CFR 60.5790(b)(5)(ii).

The proposed model rule includes two types of set-asides to address leakage: a set-aside of five percent of total available allowances for eligible RE projects and an "output based allocation" (OBA) set aside to encourage increased generation at existing NGCC.

As the discussion below demonstrates, the proposed set-asides suffer from two deficiencies.

First, the proposed model rule would require a mass-based plan covering only existing sources to include *both* the RE and OBA set-asides in order to be presumptively approvable. EPA's own analysis, however, shows that *either* set-aside would be

sufficient to counteract the incentive to shift generation from affected EGUs to unaffected fossil-fuel-fired sources.<sup>1</sup> A model rule based on this analysis therefore should allow presumptive approvability for a mass-based plan that includes either set-aside.

Second, the proposed model rule would distribute the RE set-aside on the basis of an RE project's pro-rata share of qualified generation, rather than an allocation rate. This approach could lead to set-aside awards that are disproportionate to the benefits of a particular project and far greater than necessary to counteract the leakage incentive.

ADEQ's comments also address three options for the set-asides on which EPA specifically requested comments. For the reasons given below, ADEQ opposes limiting eligibility for set-asides to "project providers that are also owners or operators of affected EGUs," seeks an exception for tribal lands from the limitation of eligibility to in-state projects, and favors expansion of the scope of projects eligible for set-asides, at least in the model rule, to include energy efficiency measures (EE) and additional forms of RE.

## **A. Requiring Both a Renewable Energy and OBA Set-Aside**

### **1. Leakage Calculation**

In the August 2015 Renewable Energy Set-Aside Technical Support Document (RE Set-Aside TSD) and the accompanying Appendix 1, EPA starts its analysis by calculating "the amount of new NGCC generation associated with emissions leakage under [a] mass-based approach." RE Set-Aside TSD at 2.

EPA states that the projected amount of new NGCC generation under a mass-based approach (264,274,311 MWh) exceeds the projected amount under a rate-based approach (100,073,194 MWh) by approximately 164 TWh. RE Set-Aside TSD at 2, Appendix 1.

EPA notes that not all of that difference is associated with emissions leakage. The IPM projects that coal retirements under a mass-based program will exceed retirements under a rate-based approach by more than 12 GW. EPA acknowledges that the generation associated with the replacement of these incremental coal retirements by lower emitting new NGCC (92,596,743 MWh) would not be considered leakage. RE Set-Aside TSD at 2-3, Appendix 1.

The amount of new NGCC generation associated with emissions leakage under a mass-based approach is therefore:

$$264,274,311 \text{ MWh} - 100,073,194 \text{ MWh} - 92,596,743 \text{ MWh} = 71,604,394$$

Thus, according to EPA's analysis, a set-aside, or combination of set-asides, that reduces the amount of new NGCC projected under a mass-based program by approximately 72 TWh or more is sufficient to counteract the leakage incentive.

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<sup>1</sup> For the sake of brevity, we will refer to this as the "leakage incentive."

## 2. RE Set-Aside

EPA specifically calculated the level of the proposed RE set-aside to reduce the amount of new NGCC under a mass-based program by the required 72 TWh.

First, EPA calculated the total RE generation level that would be consistent with mitigating leakage by adding the 72 TWh reduction in new NGCC required to the RE generation already projected to occur under a mass-based in approach in 2030 (approximately 259 TWh) for a total of 331 TWh.

Second, EPA calculated the incentive in total dollars that would result from issuance of set-aside allowances at a range of allowance prices and a range of percentages of total allowances available nationwide in 2030.

Third, EPA calculated the incentive in \$/MWh at the same range of allowance prices and percentages by dividing each of the results of the second step by the target 2030 RE generation level of 331 TWh.

Finally, based on the allowance price projected by IPM and an analysis of the levelized cost of energy for new RE and NGCC, EPA identified and proposed the percentage of total allowances that would result in an incentive adequate to make new RE projects “more economical than new NGCC projects.” RE Set-Aside TSD at 3.

Thus, according to EPA’s analysis, the proposed RE set-aside should be sufficient by itself to counteract the leakage incentive. There is no need to combine it with any other set-aside to accomplish this purpose.

## 3. OBA Set-Aside

EPA’s analysis of the impact of the OBA set-aside indicates that it too is adequate by itself to counteract the leakage incentive.

In the regulatory impact analysis for the proposed federal plan and model rules<sup>2</sup> (FP RIA), EPA adjusted the dispatch order derived from the IPM run for the mass-based approach to reflect the incentives provided by the OBA set-aside allowances. EPA then used the adjusted dispatch order to calculate the net increase in *existing* NGCC generation expected to result from the set-aside and subtracted that amount from new NGCC generation. EPA concluded:

When applying this algorithm to the results from the mass-based scenario analyzed in this RIA, it forecasts nationally in 2030 a 10 percent increase in generation at existing NGCC EGUs, a 4 percent reduction in generation at existing fossil steam EGUs, and a 29 percent decrease in generation at new NGCC EGUs compared to the modeling scenario results presented above.

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<sup>2</sup> Regulatory Impact Analysis for the Proposed Federal Plan Requirements for Greenhouse Gas Emissions from Electric Utility Generating Units Constructed on or Before January 8, 2014; Model Trading Rules; Amendments to Framework Regulations (October 2015).

FP RIA § 1.5.7, at 1-32 (emphasis added).

As noted above, the total new NGCC predicted by the IPM run for the mass-based approach was 264,274,311 MWh. A 29 percent reduction in this amount would equal 76,639,556 MWh, or approximately 77 TWh.

Thus the reduction in new NGCC predicted for the OBA set-aside is greater than the 72 TWh reduction necessary to counteract the leakage incentive. Once again, there is no basis for requiring an additional set-aside as a condition to presumptive approvability.

This conclusion is corroborated by the predicted impact of the OBA set-aside on emissions. EPA estimates that the reduction in new NGCC generation resulting from the OBA set-aside will produce a corresponding decrease in CO<sub>2</sub> emissions of 23 million short tons. FP RIA at 1-32. This is approximately equal to the 24 million short ton “erosion of emission reductions due to leakage” predicted by the IPM runs for the mass-based program. Regulatory Impact Analysis for the Clean Power Plan Final Rule 3-19, n. 78 (August 2015).

#### **4. RE and OBA Set-Asides as Alternatives**

The presumptively approvable set-asides should be no larger than necessary to disincentivize leakage to new NGCC. It would be arbitrary and capricious to require larger set-asides, given the rationale for these provisions. Thus, assuming EPA’s analysis is correct, the model rule should establish the RE set-aside or OBA set-aside as presumptively approvable *alternatives* and should not require both in the model rule.

If EPA wishes to establish set-asides that are larger than necessary to counteract the leakage incentive in the federal plan, the agency should distinguish in the final rule between the set-asides necessary for presumptive approvability and the set-asides required in states subject to the federal plan.

#### **B. Pro-Rata Distribution of RE Set-Asides**

EPA proposes to distribute OBA set-aside allowances and CEIP early action allowances based on a set number of allowances per MWh generated or saved. In the case of the OBA set-aside, this number is referred to as the “allocation rate.” 80 FR at 65021; 40 CFR 60.16231(c), 60.16245(b)(3)(i).

With regard to the RE set-aside, on the other hand, EPA proposes to

distribute set-aside allowances to approved RE providers *pro-rata*, with the number of allowances distributed to each provider according to the percentage of total approved RE MWh for that state that the approved MWhs from their project represent.

80 FR at 65024 (emphasis added); *see also* 40 CFR 62.16245(a)(5)(i) (proposed).

This distribution could lead to set-aside awards that are disproportionate to the amount of energy generated by eligible projects. RE generators projected to generate 1,000,000 MWh per year, for example, could end up with all of the 1,759,462 allowances

comprising Arizona’s proposed set-aside pool in the first interim period. 40 CFR 62.16235(c) (proposed). At the allowance price of \$13 predicted by the IPM, RE Set-Aside TSD at 4, this distribution would provide project owners with allowances worth approximately \$23/MWh, more than twice the \$9.80/MWh incentive EPA used in establishing the “reasonable *maximum* RE set-aside level beyond which it is unlikely that the amount of new RE incentivized will be directly responsive to mitigating emissions leakage.” RE Set-Aside TSD at 4, Appendix 1 (emphasis added). In short, EPA’s proposed distribution methodology could result in allowance awards that are not justified by its methodology for calculating the level of the RE set-aside.

According to EPA:

This method is proposed because it treats all eligible RE projects equally in the distribution of set-aside allowance[s]. It also inherently provides a more significant incentive in states with less eligible RE generation, but will become less significant as RE generation increases.

80 FR at 65024.

EPA could satisfy these same objectives with a distribution methodology that is less prone to disproportionate awards.

The RE Set Aside TSD effectively establishes a range of possible incentives from:

- \$2.72/MWh, which represents “a reasonable RE set-aside level that is consistent with mitigating emissions leakage to new NGCC,” to
- \$9.80/MWh, which represents “a reasonable maximum RE set-aside level beyond which it is unlikely that the amount of new RE incentivized will be directly responsive to mitigating emissions leakage.”

RE Set-Aside TSD at 4.

These incentives can be converted<sup>3</sup> into a range of allocation rates from 418 lbs/MWh to 1,508 lbs/MWh.

The rule could establish an allocation rate at or close the high end of this range and then provide for pro-rata distribution once the pool of allowances is no longer adequate to cover eligible generation at the allocation rate. In states with low levels of RE generation, the high allocation rate would provide a relatively strong incentive to build eligible RE generation. As the generation level increased and the state shifted to pro-rata distribution, the incentive would decline.

Thus, this approach also “treats all eligible RE projects equally,” “provides a more significant incentive in states with less eligible RE generation,” and results in incentives

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<sup>3</sup> Using the formula:

$$\text{Allocation Rate (lbs/MWh)} = \frac{\text{Incentive (\$/MWh)}}{\text{Allowance Price (\$/Ton)}} \times \frac{1 \text{ Ton}}{2,000 \text{ lbs}}$$

that “become less significant as RE generation increases.” Unlike EPA’s proposed approach, it does not have the potential to award incentives inconsistent with the analysis supporting the set-aside program.

### **C. Limiting Availability of RE Set-Asides to Affected EGUs**

EPA requests comment “on an additional potential condition [for the RE set-aside] that would limit eligibility to project providers that are also the owners or operators of affected EGUs.” 80 FR at 65023. EPA identifies no advantages to pursuing this option,<sup>4</sup> and ADEQ likewise can identify none.

The disadvantages, on the other hand, are significant. The restriction would artificially limit the incentive to build RE rather than new NGCC and thus impair achievement of the set-aside program’s purpose. It would also discriminate against non-profits, tribal nations and other organizations that might otherwise use proceeds generated by set-aside allowance sales to fund projects for the benefit of vulnerable communities.

ADEQ urges EPA not to include this restriction in the final set-aside rules.

### **D. Limiting Availability of RE Set-Asides to In-State Projects**

EPA proposes for both the model rule and federal plan that eligible RE projects must be located in “the mass-based state for which the set-aside has been designated” but “invites comment on whether capacity outside the state should be recognized, and how that could be implemented.”

ADEQ requests that EPA add an exception from this requirement for tribal lands located in whole or in part within a state’s boundaries. Tribal lands could benefit from the incentive to develop RE generation created by set-asides, but most tribal lands do not have affected EGUs and therefore will not have the opportunity to adopt their own set-aside programs. Tribes should have the opportunity to benefit from the programs developed by neighboring states.

### **E. Expanding the Scope of the Set-Aside in the Model Rule**

In the Preamble, EPA requests “comment on the inclusion of other RE measures” and “demand-side EE” as “eligible measures to receive set-aside allowances.” 80 FR at 65022. ADEQ supports the inclusion of additional presumptively approvable options in the model rule, as long as the rule does not require adoption of an option or combination of options that provides for set-asides exceeding the amount necessary to counteract the leakage incentive.

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<sup>4</sup> EPA notes that this option would be consistent with the set-aside approach in the acid rain program, but in this case consistency does not appear to be of any particular advantage.

## II. The Clean Energy Incentive Program (CEIP)

### A. Creating a Set-Aside Pool for ERCs

In the Preamble, EPA requests comments on mechanisms for issuing early action emission rate credits (ERCs) “in a manner that would have no impact on the aggregate emission performance of sources required to meet rate-based emission standards during the compliance periods.” 80 FR at 65000-01.

ADEQ has identified the four potential options described below. Each option has advantages and disadvantages and none is clearly preferable. ADEQ therefore suggests that EPA allow states to choose the approach they believe will work best for their programs from this list of options and any others EPA may identify.

#### 1. Withholding Early-Action ERCs from All ERC Recipients

##### a. Description

ADEQ believes this is the approach EPA had in mind when it stated that:

during the interim performance period, a number of ERCs could be retired in an amount equivalent to the number of early action ERCs that were awarded for MWh generated or avoided in 2020 and/or 2021.

80 FR at 65001.

Under this approach, a state’s plan would require that a portion of the total early action ERCs earned for 2020-2021 be withheld from ERCs to be issued to all eligible resources and affected EGUs under 40 CFR 60.5805(e). If ERCs were issued annually, the number ERCs to be withheld from a particular EGU or resource ( $ERC_w$ ) could be calculated using the following equation:

$$ERC_w = \frac{ERC_{Res}}{ERC_{Total}} \times \frac{ERC_{EA}}{Y}$$

Where:

- $ERC_{Res}$  = The number of ERCs earned by the resource or EGU for the year in question, i.e. the ERCs that would have been issued to the resource or EGU in the absence of the CEIP.
- $ERC_{Total}$  = The total number of ERCs earned by all resources and EGUs for the year.
- $ERC_{EA}$  = The total number of early action ERCs (MWh) distributed by the state under its CEIP program.
- $Y$  = the number of years during the interim period over which the state will withhold ERCs in order to recover the  $ERC_{EA}$ .

### **b. Advantages**

This approach would spread the cost of the CEIP over a large number of eligible resources and EGUs.

### **c. Disadvantages**

Withholding a portion of ERCs earned will reduce the incentive to generate renewable energy and provide energy efficiency programs during the interim period. In addition, effectively transferring ERCs otherwise earned from one group of eligible resources to another in order to encourage early action may seem unfair to some program participants.

## **2. Withholding Early-Action ERCs from CEIP Participants Only**

### **a. Description**

Rather than withholding a portion of the award of ERCs to *all* eligible resources and affected EGUs, as under the previous approach, a state could withhold ERCs earned during the interim period only from participants in the CEIP.

Under this approach, a particular eligible resource participating in the CEIP would essentially borrow from ERCs to be earned during the interim compliance period to pay for early action ERCs. Thus, this approach would have the same net effect as awarding *only* EPA matching allowances to CEIP participants for the 2020-2021 period.

### **b. Advantages**

Unlike the previous approach, this approach would not require the owners or operators of other eligible resources to fund the CEIP.

### **c. Disadvantages**

This approach would dilute the incentive provided by the CEIP. In particular, RE resources would effectively receive only  $\frac{1}{2}$  MWh in ERCs for every MWh generated during 2020-2021. The other  $\frac{1}{2}$  MWh would come out of the ERCs the resources otherwise would have received for generation during the interim period.

## **3. Adding Early-Action ERCs to EGU Compliance Obligation**

### **a. Description**

Under this approach, a state plan would require an affected EGU's compliance account to hold on the transfer deadline the number of ERCs required by 40 CFR 60.5790(c)(1) plus the affected EGU's pro rata share of the total early action ERCs issued by the state under its CEIP program. The pro rata share could be determined on the basis of generation, emissions or some other metric. To reduce the impact of the additional compliance obligation, it could be spread over multiple interim compliance periods.

**b. Advantages**

This approach, like an allowance set-aside under a mass-based program, would place the burden of funding the CEIP early action ERCs on affected EGUs. This is arguably more appropriate and equitable than requiring other eligible resource providers to fund the program.

**c. Disadvantages**

This approach would increase the total number of ERCs required for compliance. There is considerable uncertainty about the prospective liquidity of the ERC market. Adding to the total compliance obligation will only increase the risk of a shortfall in the supply of ERCs.

**4. Adjusting Performance Rate to Reflect Issuance of Early Action ERCs**

**a. Description**

The performance rate could be adjusted to reflect the issuance of early action ERCs by using something like the following formula for a subcategory-specific performance rate plan:

$$SC_{APR} = \frac{SC_{CO2}}{SC_{Gen} + ERC_{Req} + (ERC_{EA} \times SC\% \times CP\%)}$$

Where:

- SC<sub>APR</sub> = The adjusted performance rate for a subcategory (FFS or CT) for the relevant compliance period.
- SC<sub>CO2</sub> = Total CO<sub>2</sub> emissions (lbs) from a subcategory during the relevant compliance period.
- SC<sub>Gen</sub> = Total generation (MWh) for the subcategory during the relevant compliance period.
- ERC<sub>Req</sub> = Total ERCs (MWh) required for all EGUs in a subcategory (FFS or CT) to comply with the applicable performance rate during the relevant compliance period (see equation below).
- ERC<sub>EA</sub> = Total early action ERCs (MWh) issued by the state under its CEIP program.
- SC% = Percentage of ERC<sub>EA</sub> that a particular subcategory is responsible for funding. This could be based on share of total CO<sub>2</sub> emissions, total generation, total ERC<sub>Req</sub>, or some other metric.
- CP% = Share of set-aside to be recovered during the relevant compliance period (e.g. 37.5 %, or 3/8, during interim period 1 [2022-2024]). This adjustment can be omitted from plans that

elect to recover the entire set-aside during a single compliance period.

$ERC_{Req}$  can be calculated as follows:

$$ERC_{Req} = \frac{(SC_{CO2} - (SC_{PR} \times SC_{Gen}))}{SC_{PR}}$$

Where:

$SC_{PR}$  = Unadjusted performance rate (lbs CO<sub>2</sub>/MWh) applicable to the subcategory during the relevant compliance period

Other variables are defined as above.

This approach, based on EPA's suggestion that states could "adjust their targets to achieve the same stringency," 80 FR at 65001, would have the same effect on the compliance obligation of affected EGUs as the approach in section 3.

### **b. Advantages**

Same as section 3.

### **c. Disadvantages**

Same as section 3.

In addition, because this approach provides for the imposition of a custom rate different from the subcategory-specific performance rates and the uniform state goals, it would appear to foreclose interstate trading under 40 CFR 60.5750(a)(1) and (d)(2).

## **B. Defining "Commence Construction"**

The final Emission Guidelines provide that in order to be eligible for the CEIP, RE projects must "commence construction" after submission of the final state plan to EPA. 40 CFR 60.5737. Under the proposed federal plan, RE projects would have to commence construction on or after September 6, 2018. 40 CFR 60.16231(a)(2). Realistically, most states will submit their final plans on or not long before this date. However commence construction is defined, this condition therefore establishes a very narrow window (September 6, 2018 to December 31, 2019) for RE projects to commence *and complete* construction, if they want to participate fully in the CEIP program.

ADEQ commented in the non-regulatory CEIP docket (ID Number EPA-HQ-OAR-2015-0734) in favor of amending the final Emission Guidelines to allow an earlier commence construction date. If EPA does not accept that suggestion, it should at least define commence construction in such a way that construction is deemed to commence as late as possible in order to facilitate participation in the CEIP. ADEQ suggests the following definition as one possibility:

"Commence construction" means initiation of physical on-site construction activities for an RE generator that are of a permanent

nature. The following activities do not qualify as commencing construction:

- i. Clearing and grading, including demolition and removal of existing structures and equipment, stripping and stockpiling of topsoil and earthwork cut and fill for foundations.
- ii. Installation of access roads, parking lots, driveways and storage areas.
- iii. Installation of ancillary structures, including fences, warehouses, storerooms and office buildings.
- iv. Ordering and onsite storage of materials and equipment.
- v. Installation of underground pipework, including water, sewer, electric and telecommunications utilities.
- vi. Installation of building and equipment supports, including concrete forms, footers, pilings, foundations, pads and platforms.<sup>5</sup>

### **III. Other Issues**

#### **A. Scope of Model Rules**

ADEQ encourages EPA to adopt final model rules for rate-based and mass-based plans, regardless of whether the agency decides, as it has proposed, to impose only one or the other on states that do not submit, or fail to secure approval of, 111(d) plans. EPA's publication of model rules for both types of plans will significantly reduce the burden of plan development and promote consistency among states that adopt the same type of plan.

#### **B. Including Energy Efficiency in a Federal Rate-Based Plan**

EPA has proposed not to include EE as a measure eligible for ERCs under a federal rate-based plan. 80 Fed. Reg. at 64994. ADEQ strongly urges EPA to reconsider its position and include EE as an eligible measure in any federal rate-based plan imposed on a state.

It is widely accepted that EE is by far the least-cost option for reducing utility sector CO<sub>2</sub> emissions. Omitting it as an eligible measure would significantly reduce the cost-effectiveness of a federal rate-based plan, wherever it is imposed.

In addition, EPA's apparent reason for the proposal does not bear scrutiny. The basis for excluding EE appears to be EPA's concern about the feasibility of implementing an evaluation, measurement and verification (EM&V) program for EE across numerous jurisdictions:

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<sup>5</sup> This definition is derived from Ariz. Rev. Stat. § 49-401.01(7)(b). That provision is a modification of the EPA major new source review definition of "begin actual construction" designed to allow sources subject to state-only permits to engage in certain pre-construction activities before obtaining a permit.

A concern unique to federal plan implementation is the need for an ERC issuance process that can be implemented in a streamlined manner across many jurisdictions in the time frame allowed by the federal plan while still assuring a rigorous EM&V process. By limiting eligibility to measures that can be directly metered, a feasible federal plan process for ERC issuance across a potentially large number of jurisdictions is ensured.

80 Fed. Reg. at 64994.

EPA, however, has proposed to implement the CEIP in either a rate-based or a mass-based federal plan. Projects eligible for early-action ERCs under the CEIP include EE for low-income communities. 80 Fed. Reg. at 65000, 65025. If EPA finalizes this element of the proposal, and it is hard to imagine the agency will not, then EPA will be required to adopt and implement a federal EM&V program for EE covering 2020-2021. The additional burden of continuing a program that has already been adopted, staffed and implemented should be minimal.

### **C. Treatment of Biomass**

ADEQ supports the comments of the Arizona State Forestry Division on the treatment of biomass under the model rules and federal plan.