

# **The Clean Power Plan: Carbon Trading, State Legislation and the Political Economy Issue**

*Market-based solutions and politics collide under proposed trading platforms*

*"[T]he EPA believes that it is reasonable to anticipate that a virtually nationwide emissions trading market for compliance will emerge, and that ERCs will be effectively available to any affected EGU wherever located, as long as its state plan authorizes emissions trading among affected EGUs."*

*- EPA, Clean Power Plan, August 3, 2015*

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## **Executive Summary**

***The notion of headroom available for states in the Western Interconnection and Texas Interconnection assumes the accuracy and feasibility of the inputs to EPA’s BSER formula.*** The BSER formula in the Western Interconnection and Texas Interconnection yielded carbon budgets that no state could reasonably achieve. The notion of “headroom” fails by extension, because the amount of the headroom is predicated on the low emission rates in the Western Interconnection and Texas Interconnection, as compared to the Eastern Interconnection. Therefore, states and entities presented with the headroom argument in favor of the achievability and ease of CO<sub>2</sub> emissions trading schemes should be highly skeptical, if not outright dismissive, of this position as support for viable trading regimes. Nevertheless, the ineluctable logic of the CPP Final Rule still leads states toward trading.

***Rate-based trading regimes appear unlikely given the significant complexities inherent in these schemes.*** Given the concerns raised by states and other stakeholders in comments about the feasibility and complications with rate-based trading, as well as EPA’s implicit promotion of mass-based trading at the expense of rate-based trading in the CPP Final Rule, it is highly unlikely states will pursue rate-based trading on any level.

***Mass-based trading is where the CPP is headed.*** Mass-based trading plans appear to give states the most advantages under the rule. EPA’s final rule points states toward a national ‘cap and trade’ model as the least cost of compliance, and this compliance approach is easier to administer and when combined with “state measures” creates the least dislocation, relatively speaking.

***Historical trends, political economy issues and complexities with existing contractual arrangements will complicate state trading plans.*** The CPP Final Rule and any emissions trading scheme adopted as a compliance pathway will force state regulators and elected officials to confront numerous distributive issues with regard to revenues, allowances, ERCs or other trading currency. States will face pleas to mitigate the effect on specific utilities (e.g., rural cooperatives, municipal utilities, small utilities, and utilities with politically advantageous customer bases) or EGUs, including by redistributing allowances through non-economic means, and creating allowance cross-subsidies between favored and disfavored generators. Calls akin to the telecommunications universal service subsidy system will be made and responded to politically, or not. Utilities lacking scale, but having much coal, will be particularly inclined to the political economy path. Likewise existing power purchase contracts and potential non-performance because of changed implicit carbon costs will ripple through markets.

***States that pursue mass-based trading will face strong inducements to undertake ‘state measures’ through legislation.*** States that persevere with a mass-based trading regime face strong inducements to consider state legislation enacting any such trading regime. Emissions trading enacted through state legislation avoids federal enforceability of requirements within the emissions trading architecture and allows states and trading market participants to develop and implement nascent CO<sub>2</sub> emission trading schemes outside the purview of the citizen suit and penalty provisions of the Clean Air Act. It also allows states to “create” more trading currency through new build, renewable additions and energy efficiency programs.

## I. Introduction

On August 3, 2015, the Environmental Protection Agency (EPA) and President Obama announced the release of its Final Rule under the Clean Power Plan (CPP).<sup>1</sup> The CPP Final Rule (“CPP Final Rule” or “Final Rule”) makes explicit that carbon dioxide (CO<sub>2</sub>) emissions trading is both a compliance option and an expectation of EPA. To the extent states attempt to comply with the emission targets by submitting a state or multi-state plan, trading is the conclusion for how states comply. Indeed, EPA employed trading as an assumption in its construction of the best system of emission reduction (BSER) under the Clean Air Act. The CPP Final Rule provides that:

[S]tates should be expected to allow their affected EGUs to trade rate-based emission credits or mass-based emission allowances (trading) because trading is well-established for this industry and has the effect of focusing costs on the affected EGUs for which reducing emissions is most cost effective. Because trading facilitates implementation of the building blocks and may help to optimize cost-effectiveness, trading is a method of implementing the BSER as well.<sup>2</sup>

EPA further states that significant benefits flow from the implementation of either rate-based or mass-based CO<sub>2</sub> emissions trading because “[t]hese approaches lower overall costs, add flexibility, and make it easier for individual sources to address pollution control objectives.”<sup>3</sup> Given these benefits, the agency believes that “it is entirely feasible for states to establish standards of performance that incorporate emissions trading, and it is reasonable to expect that states will do so.”

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<sup>1</sup> Environmental Protection Agency, *Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units*, Docket EPA-HQ-OAR-2013-0602; FRL-XXXX-XX-OAR (Aug. 3, 2015) (hereinafter “CPP Final Rule”). As of the release date of this white paper, EPA has not published the CPP Final Rule in the Federal Register.

<sup>2</sup> *CPP Final Rule*, at 239-240.

<sup>3</sup> *CPP Final Rule*, at 325-326.

Trading, then, is where state compliance with the Clean Power Plan ends. This White Paper examines how EPA’s rule inexorably leads states to elect carbon allocation trading as the compliance path, and what dynamics will emerge under such an institutional scheme.

EPA ties its optimism about the implementation and ultimate success of CO<sub>2</sub> emission trading to its past implementation of trading programs for other pollutants regulated under the Clean Air Act, as well as measures implemented by the states:

Congress, the EPA, and state regulators have established successful environmental programs for this industry that allow trading of environmental (or similar) attributes, and trading has been widely used by the industry to comply with these programs. Examples include the CAA Title IV Acid Rain Program, the NO<sub>x</sub> SIP Call (currently referred to as the NO<sub>x</sub> Budget Trading Program), the Clean Air Interstate Rule (CAIR), the Cross-State Air Pollution Rule (CSAPR), the Regional Haze trading programs, the Clean Air Mercury Rule, RGGI, the trading program established by California AB32, and the South Coast Air Quality Management District RECLAIM program.<sup>4</sup>

“Trading has worked elsewhere, and will work here too” is a persuasive, but not dispositive, precedent. Simply put, the transformative effect carbon allocation trading must have on the nation’s electric grid and generation fleet is on a scale that has not been tried with more modest trading schemes. The theoretical superiority of trading as a least cost and economically efficient means of compliance cannot be controverted. However, as can be seen with other government-mandated and -run trading, political economy concerns can swamp the theoretical efficiency of trading.

The political economy of trading, coupled with the sizeable transfer payments and sheer amount of capital that will move between entities and states in these

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<sup>4</sup> *CPP Final Rule*, at 373-374.

markets, will force states and EPA to confront issues and complexities seen for instance in spectrum and European carbon markets, but not seen in previous EPA-sanctioned trading regimes.

This paper proceeds as follows: How notional “headroom” in the Final Rule creates state incentives to trade as a means of compliance; why mass-based trading becomes the most attractive (and only reasonable) compliance option to states; how state-level CO<sub>2</sub> emission trading schemes coupled with “state measures” implemented through state legislation sidestep federal sanctions; and, finally, the political economy incentives confronting states as they gravitate toward trading solutions. In the end, the Final Rule ushers all states toward a national cap and trade regime, bolstered by “state measures” that will reflect the political economy tug-and-pull of favored and disfavored constituencies.

## II. The Notion of Headroom

The fundamental underpinning of EPA’s confidence that CO<sub>2</sub> emission trading is feasible and achievable is the notion that all states outside of the Eastern Interconnection have significant “headroom” in any trading regime. EPA asserts:

[I]f emission limits are set at the CO<sub>2</sub> emission performance rates, affected EGUs in two of the three interconnections on average do not need to implement the building blocks to their full available extent in order to achieve their emission limits (because the performance rates for each source category are the emission rates achievable by that source subcategory through application of the building blocks in the interconnection where that achievable emission rate is the highest), providing further opportunities in those interconnections to generate surplus emission reductions that could be used as the basis for issuance of ERCs [emission reduction credits].<sup>5</sup>

A brief recap of the revised BSER in the CPP Final Rule is pertinent background for an analysis of this purported headroom. The revised BSER eliminates Building Block 4, excludes the previous nuclear

components from Building Block 3, and requantifies the amount of renewable energy adoption baked into Building Block 3.<sup>6</sup> EPA divides the country into three regions: the Eastern Interconnection, Western Interconnection, and Texas Interconnection.<sup>7</sup> At the risk of oversimplification, EPA’s calculation for each of the three regions unfolds as follows: (1) quantify generation and emissions from coal-fired EGUs and natural gas combined cycle (NGCC) units in a given region using a 2012 baseline; (2) apply Building Block 1 (heat rate improvement of 4.2% (Eastern Interconnection), 2.1% (Western Interconnection) or 2.3% (Texas Interconnection)) to the appropriate region to reduce total emissions; (3) apply Building Block 3, which is a modeled level of potential renewables added to the system from 2022 to 2030, on a *pro rata* basis to replace emissions from coal-fired EGUs and NGCC facilities to further reduce total emissions;<sup>8</sup> and (4) apply Building Block 2 by taking the summer capacity rating of existing and under construction NGCC facilities and assuming a 75% utilization rate, then subtracting the remaining NGCC figure to reach an assumed level of redispatched NGCC and replacing additional coal-fired EGU emissions.<sup>9</sup> After performing this exercise, EPA was left with the following CO<sub>2</sub> emission rates for each of the three regions<sup>10</sup>:

Region	Coal-Fired EGU Rate	NGCC Rate
Eastern	1305 lbs CO <sub>2</sub> /MWh	771 lbs CO <sub>2</sub> /MWh
Western	360 lbs CO <sub>2</sub> /MWh	690 lbs CO <sub>2</sub> /MWh
Texas	237 lbs CO <sub>2</sub> /MWh	697 lbs CO <sub>2</sub> /MWh

The BSER formula yields extremely low emission rates in the Western Interconnection and Texas Interconnection. Therefore, EPA eliminated these emission rates and established uniform rates for two

<sup>6</sup> See *CPP Final Rule*, at 65.

<sup>7</sup> *CPP Final Rule*, at 148-149.

<sup>8</sup> Significant calculation and practical issues associated with the Building Block 3 assumptions are addressed in a separate white paper by the authors released in August 2015.

<sup>9</sup> See generally *CPP Final Rule*, at 27.

<sup>10</sup> *CPP Final Rule*, at 409 (“[T] the final rule establishes a performance rate of 1305 lbs. per net MWh for all affected steam EGUs nationwide and a performance rate of 771 lbs. per net MWh for all affected stationary combustion turbines nationwide.”)

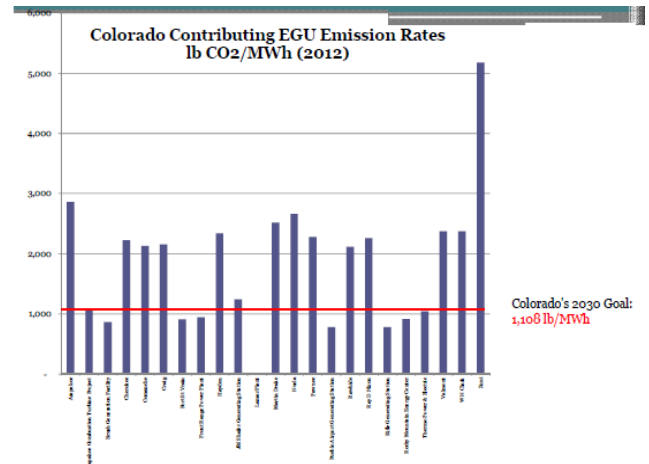
<sup>5</sup> *CPP Final Rule*, at 357.

subcategories of sources (fossil-fuel fired electric steam generating units and stationary combustion turbines (*i.e.*, NGCC units)) using only the Eastern Interconnection emission rates.<sup>11</sup> Accordingly, the performance rate is 1305 lbs CO<sub>2</sub>/MWh for the latter and 771 lbs CO<sub>2</sub>/MWh for the former.

This formula and the accuracy (or inaccuracy) of these assumptions are fundamental to the headroom concept:

[U]sing the least stringent rate provides greater ‘headroom’ – that is, emission reduction opportunities beyond those reflected in the performance rates – to affected EGUs in the interconnections that do not set the nationwide level [*i.e.*, in the Western Interconnection and Texas Interconnection]. This greater ‘headroom’ provides greater nationwide compliance flexibility and assurance that the standards set by the states based on the emission guidelines will be achievable at reasonable cost and without adverse impacts on reliability.<sup>12</sup>

Headroom for states in the Western Interconnection and Texas Interconnection only exists, however, if one accepts that the BSER formula is reasonable and the assumptions used in it are accurate. For example, the chart below<sup>13</sup> shows Colorado’s CO<sub>2</sub> performance goal under the proposed rule as applied to EGUs in the state (a larger version is attached as Appendix A):



The red line in the graph is now slightly raised, as Colorado’s rate-based CO<sub>2</sub> emission performance goal is 1,174 lbs CO<sub>2</sub>/MWh. Nevertheless, it illustrates where a single state’s current EGU fleet is with regard to emissions and how unattainable the Western Interconnection emission rate of 360 lbs CO<sub>2</sub>/MWh is as compared to the fleet. Not a coal-fired single facility comes close to this rate, which illustrates why EPA dismissed the Western Interconnection and Texas Interconnection calculations.<sup>14</sup> EPA asserts that it removed these rates and instead employed only the Eastern Interconnection rates in the interest of uniformity.<sup>15</sup> Just as likely, EPA threw out the BSER calculations for Texas and the Western Interconnect out of necessity given the unfeasible emission rate targets. The Building Block formula in the Western Interconnection and Texas Interconnection yielded carbon budgets that no state could reasonably achieve. The notion of “headroom” fails by extension, because the amount of the headroom is predicated on the low calculated emission rates in the Western Interconnection and Texas Interconnection as compared

<sup>11</sup> *CPP Final Rule*, at 411 (“Having determined that the performance rates computed on a regional basis merit consideration as nationally applicable performance rates, we are also determining that the objectives of achievability and flexibility would best be met by using the least stringent of the regional performance rates for the three interconnections for each technology subcategory as the basis for nationally uniform performance rates for that technology subcategory than by using the most stringent of the regional performance rates.”)

<sup>12</sup> *CPP Final Rule*, at 413.

<sup>13</sup> This chart is sourced from a slide that was part of a presentation by Colorado Air Quality Control Commission Staff at the July 17, 2014 meeting of the Air Quality Control Commission.

<sup>14</sup> The Colorado chart is illustrative, but suffice to say, no states’ fossil-fired generation could meet the Texas Interconnection or Western Interconnection rates.

<sup>15</sup> *CPP Final Rule*, at 410 (“Having determined to adopt regional alternatives for computing the emission reductions achievable under each building block, the EPA has further determined to exercise discretion not to subcategorize based on the regions, and instead to apply a nationally uniform CO<sub>2</sub> emission performance rate for each source subcategory. Evaluating the emission reduction opportunities achievable through application of the BSER on a broad regionalized basis, which is appropriate for the reasons discussed above, makes it possible to express the degree of emission limitation reflecting the BSER as CO<sub>2</sub> emission performance rates that are uniform for all affected EGUs in a technology subcategory within each region.”)

to the Eastern Interconnection.<sup>16</sup> Therefore, states and entities presented with the headroom argument in favor of the achievability and ease of CO<sub>2</sub> emissions trading schemes should be highly skeptical, if not outright dismissive, of this position as support for viable trading regimes. Nevertheless, the ineluctable logic of the CPP Final Rule still leads states toward trading.

### III. Rate-Based Emission Trading

Rate-based trading has received significantly less attention and focus than mass-based trading as affected states, entities, and stakeholders digest and analyze the CPP Final Rule. Advanced Energy Economy (AEE) has performed some of the most detailed design work on a rate-based CO<sub>2</sub> emission trading platform to date.<sup>17</sup> While AEE addresses the rate-based plan as a federal plan under the Clean Air Act, the design principles and issues are equally applicable to any state plan prepared pursuant to the CPP Final Rule.

There are essentially three ways that credits are generated (or credit deficits created) under the AEE construct: (1) credits/deficits for affected EGUs, (2) credits for zero- and low-emitting generation, and (3) credits for energy efficiency and other demand-side resources. The credit formula for the latter two categories is premised upon the calculation of the avoided emission rate, and EPA provided some methodologies for making this calculation in the proposed rule and State Plan Considerations Technical Support Document. The tables below illustrate how the credits and deficits would work for each of these three categories. AEE premises this approach on the establishment of increasingly stringent emission rate milestones for affected EGUs.

For affected coal-fired sources and NGCC units, credits and deficits would be calculated as follows<sup>18</sup>:

State A in Year X	NGCC Facility	Coal Facility
State Target: 1300 lbs/MWh	Prescribed Rate: 1300 lbs/MWh Unit Emission Rate: 900 lbs/MWh  Credits for Each MWh: Prescribed Rate - Unit Emission Rate = (1300 - 900) lbs = 400 credits generated per MWh of Output	Prescribed Rate: 1300 lbs/MWh Unit Emissions Rate: 2100 lbs/MWh  Credits for Each MWh: Prescribed Rate - Unit Emission Rate = (1300 - 2100) lbs = 800 credit deficit per MWh of Output

Zero- and low-emitting sources generate credits, or “emission reduction credits” as they are called in the CPP Final Rule, in the following manner<sup>19</sup>:

Low-Emission Resource	Zero-Emission Resource
[Estimated Avoided Emission Rate]: 1500 lbs/MWh Unit Emission Rate: 200 lbs/MWh  Credits for Each MWh: [Estimated Avoided Emission Rate - Unit Emission Rate] = (1500 - 200) = 1300 credits generated per MWh of Output	[Estimated Avoided Emission Rate]: 1500 lbs/MWh Unit Emission Rate: 0 lbs/MWh  Credits for Each MWh: [Estimated Avoided Emission Rate] - Unit Emission Rate = (1500 - 0) = 1500 credits generated per MWh of Output

Finally, energy efficiency and demand-side resources are treated as follows<sup>20</sup>:

Estimated Avoided Emission Rate: 1500 lbs/MWh  Credits for Each MWh of Savings: 1500 lbs credit generated per MWh of Energy Savings
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Under AEE’s design, all states are not created equal. States with higher emission rates (*e.g.*, Wyoming, North Dakota, Kentucky, etc.) have more valuable zero- and low-emitting resources and energy efficiency and demand-side resources than states with lower emission rates. AEE recommends that the formula apply based upon the state where the resource is located or demand-side reduction occurs as opposed to the state where the credit is ultimately retired for compliance purposes.<sup>21</sup> However, this likely oversimplifies the purported CO<sub>2</sub> emission displacement from renewables and, absent a significant energy storage breakthrough, overestimates the value to the electric grid of these intermittent resources.

Like the CPP Final Rule itself, the AEE approach creates winners and losers among states. The incongruities as between states and the complications that flow from measuring avoided CO<sub>2</sub> emissions may

<sup>16</sup> *CPP Final Rule*, at 357.

<sup>17</sup> Advanced Energy Economy, *Design Principles for a Rate-Based Federal Plan under EPA’s Clean Power Plan* (May 2015), available at <http://info.aee.net/hubfs/PDF/AEE-CPP-Federal-Plan-Design.pdf?t=1443656029720> (hereinafter “AEE White Paper”).

<sup>18</sup> *AEE White Paper*, at 7.

<sup>19</sup> *AEE White Paper*, at 10.

<sup>20</sup> *AEE White Paper*, at 13.

<sup>21</sup> *AEE White Paper*, at 8 (“The most straightforward and predictable estimate of avoided emissions would be based on the prescribed rate for EGUs in the state in which the resource was located for the relevant compliance period .... This approach would be identical to the methodology for calculating emission credits (and obligations) for affected EGUs, as described above.”)

be fatal to rate-based trading systems.<sup>22</sup> Indeed, EPA explicitly notes the limitations and difficulties associated with rate-based trading in the CPP Final Rule. The CPP Final Rule provides in part that “[t]he EPA received significant comment to the effect that mass-based allowance trading was not only highly familiar to states and EGUs, but that it could be more readily applied than rate-based trading for achieving emission reductions in ways that optimize affordability and electric system reliability.”<sup>23</sup> EPA also points to concerns raised about the difficulties with rate-based trading as support for the promulgation of mass-based CO<sub>2</sub> performance goals for each state in the CPP Final Rule: “The inclusion of mass-based goals, along with information provided in the proposed federal plan and model rules that are being issued concurrently with this rule, paves the way for states to implement mass-based trading, as some states have requested, reflecting their view that mass-based trading provides significant advantages over rate-based trading.”<sup>24</sup> Given the concerns raised by states and other stakeholders in comments about the feasibility and complications with rate-based trading, as well as EPA’s implicit promotion of mass-based trading at the expense of rate-based trading in the CPP Final Rule, it appears unlikely states will pursue rate-based trading on a single- or multi-state level. The remainder of this white paper therefore focuses on mass-based trading and relevant issues with this trading approach.

#### IV. Mass-Based Emission Trading

Contrary to the concerns expressed about rate-based trading, EPA asserts in the CPP Final Rule that revisions from the proposed rule make implementation of mass-based trading regimes straightforward and the preferable method of CPP compliance:

One of the key messages conveyed by state and utility commenters was that the final rule should make it easier for states to adopt

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<sup>22</sup> A simple illustration should make this clear: under rate-based trading between states, each state will have a different “currency” value based on its unique rate under the CPP Final Rule. Because state currencies are not commensurate, there is no ready way to trade credits on an interstate basis. Instead, there would need to be an intermediate brokering step to convert each state’s unique currency into a tradable commodity representing the same amount of CO<sub>2</sub> emission reductions or avoided carbon CO<sub>2</sub> emissions.

<sup>23</sup> *CPP Final Rule*, at 12-13.

<sup>24</sup> *CPP Final Rule*, at 29.

mass-based programs and for utilities accustomed to operating across broad multistate grids to be able to avail themselves of more “ready-made” emissions trading regimes. The inclusion of both of these new features – mass-based state goals in addition to rate-based goals, and source-level emission performance rates for the two subcategories of sources – is intended to make it easier for states and utilities to achieve these outcomes. In fact, these additions [in the CPP Final Rule], together with the model rules and federal plan being proposed concurrently with this rule, should demonstrate the relative ease with which states can adopt mass-based trading programs, including interstate mass-based programs that lend themselves to the kind of interstate compliance strategies so well suited for integration with the current interstate operations of the overall utility grid.<sup>25</sup>

A primary goal of EPA in making revisions from the proposed rule to the CPP Final Rule appears to be facilitating the widespread adoption of mass-based CO<sub>2</sub> emission trading programs:

Through a combination of features retained from the proposal and changes made to the proposal, these final guidelines provide states and utilities with a panoply of tools that greatly facilitate their putting in place and participating in emissions trading programs. These include: 1) expressing BSER in uniform emission performance rates that states may rely on in setting emission standards for affected EGUs such that EGUs operating under such standards readily qualify to trade with affected EGUs in states that adopt the same approach, 2) promulgating state mass goals so that states can move quickly to establish mass-based programs such that their affected EGUs readily qualify to trade with affected EGUs in states that adopt the same approach, and 3) providing EPA resources and capacity to create a tracking system to support state emissions trading programs.<sup>26</sup>

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<sup>25</sup> *CPP Final Rule*, at 55-56.

<sup>26</sup> *CPP Final Rule*, at 72.

EPA asserts that history teaches that trading is the most appropriate compliance mechanism, as “Congress and the EPA have selected emissions trading approaches when addressing regional pollution from the utility power sector contributing to problems such as acid precipitation and interstate transport of ozone and particulate matter. Similarly, states have selected market-based approaches for their own programs to address regional and global pollutants.”<sup>27</sup> With the changes in the CPP Final Rule and this regulatory history, EPA concludes “that it is reasonable to anticipate that a virtually nationwide emissions trading market for compliance will emerge ....”<sup>28</sup>

## V. The Political Economy of Emission Trading

The repeated discussions of the ease, simplicity and universal support for mass-based emissions trading and “trading-ready” state plans<sup>29</sup> elides the significant political economy issues that will develop in a trading regime. Indeed, EPA cites the history of trading regimes in support of the use of mass-based emissions trading as a CPP compliance tool, but overlooks or sidesteps other trends that have developed in regulatory trading and auction processes.

### a. Historical analyses of trends in emissions trading and import to the CPP Final Rule

Studies of emission trading markets establish that state public utilities commission (PUC) regulations strongly influence the trading markets. An October 2009 study by Resources for the Future (RFF)<sup>30</sup>

<sup>27</sup> *CPP Final Rule*, at 326.

<sup>28</sup> *CPP Final Rule*, at 359.

<sup>29</sup> *CPP Final Rule*, at 367 (“[E]missions trading is thus an integral part of our BSER analysis. Again, we concluded that this is reasonable given the global nature of the pollutant, the transactional and interconnected nature of this industry, and the long history and numerous examples demonstrating that, in this sector, trading is integral to how regulators have established, and sources have complied with, environmental and similar obligations (such as RE standards) when it was appropriate to do so given the program objective. The reasonableness is further demonstrated by the numerous comments (some of which are noted above) from industry, states, and other stakeholders in this rulemaking that supported allowing states to adopt trading programs to comply with section 111(d) and encouraged EPA to facilitate trading across state lines through the use of trading-ready state plans.”)

<sup>30</sup> Dallas Burtraw and Sarah Jo Szambelan, Resources for the Future, *U.S. Emissions Trading Markets for SO<sub>2</sub> and NO<sub>x</sub>*

regarding trading markets for sulfur dioxide (SO<sub>2</sub>) and nitrous oxide (NO<sub>x</sub>) surveyed several studies that analyzed how PUC regulation and oversight influenced the use of trading markets and attendant cost savings from these markets. RFF summarizes the findings of its review as follows:

Several early studies point to the role played by state public utility regulations and other state laws as influences that have tended to erode some of the cost savings that might have been achieved when viewed from a national perspective (Bohi 1994; Winebrake et al. 1995; Bohi and Burtraw 1997; Fullerton et al. 1997; Ellerman et al. 2000; Hart 2000; Swift 2001). Rose (1997) suggests that public utility commission (PUC) activities discouraged the use of the market in favor of strategies such as fuel switching. Arimura (2002) uses econometric techniques to examine the extent to which PUC regulations have affected the performance of the SO<sub>2</sub> market and finds that generating units facing PUC regulations are more likely to rely on fuel switching for compliance rather than the allowance market. He also finds that in states with high-sulfur coal, where efforts were made to protect local coal producers, allowance purchases were used more than fuel switching for compliance. Using utility data for 1996, Sotkiewicz (2002) obtains a similar result by exercising a simulation production-cost model to evaluate facility performance. He also finds that PUC regulations governing cost recovery for investment in scrubbers led to cost increases ranging from 4.5 to 139 percent above least-cost compliance.<sup>31</sup>

There are several important takeaways from RFF’s review. First, state-specific laws and regulations affect the functions of the emission trading markets and the realized cost savings. This consideration is particularly important with regard to the CPP Final Rule. Previous EPA-driven emission trading schemes involved predetermined blocks of states. For example, the NO<sub>x</sub> Budget Trading Program implemented in 2003 initially

(Oct. 2009), available at

<http://www.rff.org/files/sharepoint/WorkImages/Download/RFF-DP-09-40.pdf> (hereinafter “RFF Study”).

<sup>31</sup> *RFF Study*, at 15.



involved 19 states and was subsequently expanded to 20 states.<sup>32</sup> The Cross-State Air Pollution Rule targeted 23 states for annual SO<sub>2</sub> and NO<sub>x</sub> emissions to attain the 24-hour or annual fine particle (PM<sub>2.5</sub>) National Ambient Air Quality Standards (NAAQS).<sup>33</sup> CSAPR further required 25 states to reduce NO<sub>x</sub> emissions during ozone season to assist with the attainment of the 1997 8-Hour Ozone NAAQS in downwind states.<sup>34</sup> Despite EPA's confidence that "a virtually nationwide emissions trading market for compliance will emerge," it is more likely given the state-centric nature of the regulatory scheme under Section 111(d) and EPA's promotion of "trading-ready" state plans that a diverse assortment of trading platforms and architectures will emerge. As discussed further below, the structures will be heavily influenced by political economy issues in each state. These incongruences may create trading markets that are less simple, and less efficient, than prior EPA trading schemes under rules that predetermined the state participants and used common currency and uniform architecture.

Second, RFF's survey illustrates that the level of regulation of affected EGU owners and operators will influence their activities, as the applicable regulatory structure drives the incentives for market participants. Indeed, the conclusion that "generating units facing PUC regulations are more likely to rely on fuel switching for compliance rather than the allowance market" supports the notion that rate-regulated utilities may simply shutter coal-fired EGUs with emission rates well above 1305 lbs CO<sub>2</sub>/MWh and build new NGCC capacity, as well as solar and wind, rather than participate robustly in an emissions trading market. These utilities can recover costs and the PUC-sanctioned return on equity for these investments, and this provides an established and familiar path forward.<sup>35</sup> EPA recognizes as much in the CPP Final Rule:

<sup>32</sup> *RFF Study*, at 18; *see generally* NO<sub>x</sub> Budget Trading Program Home Page, available at <http://www.epa.gov/airmarkets/programs/nox/>.

<sup>33</sup> Cross-State Air Pollution Rule Home Page, available at <http://www3.epa.gov/airtransport/CSAPR/basic.html>.

<sup>34</sup> Cross-State Air Pollution Rule Home Page, available at <http://www3.epa.gov/airtransport/CSAPR/basic.html>.

<sup>35</sup> *CPP Final Rule*, at 20 ("Those states committed to Integrated Resource Planning (IRP) will be able to establish their CO<sub>2</sub> reduction plans within that framework ....")

[T]he study of utility IRPs placed in the docket for this rulemaking shows that sources are able to replace coal-fired generation with natural-gas fired generation and add incremental amounts of RE [renewable energy] (as well as take other actions, such as implement demand-side EE [energy efficiency] programs), on a gradual basis, after a several-year lead time, over an extended period, as provided for under the final rule.<sup>36</sup>

Accordingly, market participation from these rate-regulated utilities may not be as extensive as anticipated based on historical analyses. Equally relevant is many utilities (*i.e.*, rural cooperatives and municipal utilities) do not have this option to earn a return on these investments, and/or have fewer customers across which to socialize the costs. This latter issue is discussed in more detail below, as states will face pressure to structure markets to favor these utilities or mitigate the substantial capital costs tied to overhauling the CO<sub>2</sub> intensity of the generation fleet. One avenue to accomplish this outcome is by inducing rate-regulated utilities to engage in more extensive fuel-switching than their cooperative and municipal counterparts.

Finally, RFF's review of relevant analyses highlights that well-established cost recovery mechanisms, as well as any new cost recovery mechanisms enacted as part of legislation or proceedings directed at marrying existing IRP processes and CPP Final Rule compliance, will cause incremental costs above least-cost compliance. This may render emissions trading schemes more expensive than forecasted;<sup>37</sup> furthermore, it could create conflict

<sup>36</sup> *CPP Final Rule*, at 420-421; *see CPP Final Rule*, at 743-744 ("A recent study of IRPs, included in the docket for this rulemaking, shows this trend. 710 For instance, Dominion plans for over 800 megawatts of wind and solar in their 2015 to 2029 planning period. Duke Energy Carolinas' IRP has no plans for new coal, but describes plans for roughly 1,250 megawatts of additional RE by 2021, and approximately 2,150 megawatts by 2029. A significant portion (1,670 megawatts) of the planned RE is solar.")

<sup>37</sup> *CPP Final Rule*, at 370 ("Essentially, trading does nothing more than commoditize compliance, with the following two important results emerging from that: it reduces the overall costs of controls and spreads those costs among the entire category of regulated entities while providing a greater range of options for sources that may not want to make on-site investments for controlling their emissions and may prefer to

between emissions trading regimes and state law or regulations mandating least-cost resource planning.<sup>38</sup>

*b. Political economy incentives in CO<sub>2</sub> emission trading*

Buried in the CPP Final Rule is a discussion of state discretion in formulating mass-based emission platforms, which spawns a significantly broader issue:

(1) Allowance allocation. A key example is state discretion in the CO<sub>2</sub> allowance allocation methods included in the program. This includes the methods used to distribute CO<sub>2</sub> allowances and the parties to which allowances are distributed. For example, if a state chose, it could include CO<sub>2</sub> allowance allocation provisions that provide incentives for certain types of complementary activities, such as RE generation, that help achieve the overall CO<sub>2</sub> emission limit for affected EGUs established under the program. In addition, a state could use its allocation provisions to encourage investments in RE and demand-side EE in low-income communities. States could also use CO<sub>2</sub> allowance allocation provisions to provide incentives for early action, such as RE generation or demand-side EE savings that occur prior to the beginning of the interim plan performance period in 2022. For example, a state could include CO<sub>2</sub> allowance allocation provisions where CO<sub>2</sub> allowances are distributed to RE generators based on MWh of RE generation that occurs prior to 2022. Such provisions might be addressed through a finite set-aside of CO<sub>2</sub> allowances that are available for allocation under these provisions. This set-aside could be additional to a set-aside created by the

state for the CEIP [Clean Energy Incentive Program] discussed in section VIII.B.2.

This discretion on a state-by-state basis highlights the foremost issue with any mass-based trading scheme: the creation and allocation of trading “currency” and the related political economy issues inherent in its process. The creation of interchangeable currency requires state uniformity among “trading-ready” plans, with the congruency of currency (and general trading architecture) between participating states of the Regional Greenhouse Gas Initiative (RGGI) as an example. Further, the currency cannot be so inflated that the trading does not induce real carbon reductions.

RGGI provides the negative example here, as the RGGI cap of allowed emissions from regulated power plants was 165 million tons in 2013, but actual 2012 emissions were only 91 million tons. Emissions were lower than previously anticipated due to low natural gas prices, energy conservation measures, and the economic downturn. Consequently, with a cap set at that level, no real CO<sub>2</sub> emission reductions were achieved through the trading scheme over this period. In February 2013, the RGGI cap was lowered to 91 million tons for 2014 with 2.5% annual reductions until 2020. In sum, loose currency policy cannot be used to avoid real CO<sub>2</sub> emission reductions and the political consequences that follow.

The allocation of the currency also becomes challenging to a state determined to plot its own destiny through an emissions trading scheme in a state plan. Coal-centric utilities, particularly those without scale or a broad customer base, will be faced with large trading credit costs. Indeed, those costs must be large enough for the given utility as a whole or specific EGU to prefer alternate generation source(s) to its current CO<sub>2</sub> intensive generation mix. However, in turn, this creates a political demand to mitigate the rate impacts from this shift. Hence, regulators and politicians will be faced with claims that allowances or emission reduction credits be given freely, or at a much reduced cost, to plaintive and/or politically attractive constituencies. Examples of these constituencies include (1) rural cooperatives or municipal utilities without the significant customer base needed to socialize significant CPP costs and (2) low-income customers. One can imagine a “universal service” policy for carbon credits emerging under state law, where favored constituencies seek free or reduced-cost trading credits,

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make the same investment, via the purchase of the tradable compliance instrument, at another generating source.”)

<sup>38</sup> See, e.g., 807 Ky. Admin. Regs. § 5:058(8)(1) (“The plan shall include the utility’s resource assessment and acquisition plan for providing an adequate and reliable supply of electricity to meet forecasted electricity requirements *at the lowest possible cost*. The plan shall consider the potential impacts of selected, key uncertainties and shall include assessment of potentially cost-effective resource options available to the utility.”) (emphasis added)

and in turn disfavored constituencies will bear the increased cost for credits underpriced to others.<sup>39</sup>

Government-run spectrum markets provide an illustrative example. When Ronald Coase suggested the Federal Communications Commission (FCC) auction off spectrum as opposed to allocating spectrum on a command-and-control basis, he touched off a revolution in economic thinking about how to allocate resources.<sup>40</sup> Indeed, Coase is credited with inspiring emission trading markets as well.<sup>41</sup> However, these trading markets – particularly when the costs or benefits are large enough – inspire a market for rentseekers acting within those markets. In other words, certain constituencies will bargain with the state or federal government for “free” or reduced cost emission trading allocations to mitigate the burden on industries or customers or other relevant constituencies.

The development of spectrum auctions shows how politics drive the function and outcomes within these

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<sup>39</sup> Of course, each state will have unique circumstances and ability to allocate credits through a non-market-based pricing mechanism. A largely rural state with a stringent target and no large scale utility to absorb increased credit prices – say, a North Dakota, Wyoming or Montana – lacks the ability to insulate its most affected utilities from the full economic cost of credits – the utilities will have to buy credits, fuel switch, or both. By contrast, one would expect states with smaller, poorer utilities without scale or with poorer customers will be entreated by those affected utilities to mitigate the effects with credit set-asides. In restructured markets, where the EGU stands outside of a vertically-integrated utility, the political economy may play out at the customer-level for creating programs to mitigate the carbon trading costs away from a given customer class, for instance.

<sup>40</sup> See R.H. Coase, *The Federal Communications*

*Commission*, 2 *Journal of Law and Economics* 1 (Oct. 1959)

<sup>41</sup> Tom Tietenberg, *The Evolution of Emissions Trading*, at 2 (2008), available at

[https://www.aeaweb.org/annual\\_mtg\\_papers/2008/2008\\_90.pdf](https://www.aeaweb.org/annual_mtg_papers/2008/2008_90.pdf) (“In 1960 Ronald Coase published a remarkable article in which he sowed the seeds for rather different mind set.

Arguing that Pigou's analysis had an excessively narrow focus, Coase argued that by making property rights explicit and transferable, the market could play a substantial role not only in valuing these rights, but also in assuring that they gravitated to their best use. To his fellow economists Coase pointed out that a property rights approach allowed the market to value the property rights (as opposed to the government in the Pigouvian approach.) To policy-makers Coase pointed out that the then existing legal regimes provided no incentives for the rights to flow to their highest valued use. It remained for this key insight to become imbedded in a practical program for controlling pollution.”)

markets. In fact, commentators point to the use of set asides, bidding credits and spectrum caps as tools used to subsidize entry or otherwise assist certain constituencies in spectrum auctions.<sup>42</sup> Canada provides an example, where a 2008 auction set aside 44 percent of available spectrum for new market entrants.<sup>43</sup> In more recent Canadian auctions for AWS-3 spectrum, rules were put in place “that effectively prevented successful companies (those with market shares in excess of 20 [percent]) from bidding on many of the available blocks. As a result, three carriers — Eastlink, Videotron and Wind — were able to purchase spectrum for tens of millions of dollars while incumbents Bell Canada and TELUS — paying effective prices about 30 times higher — had to spend more than \$2 billion.”<sup>44</sup>

It can be expected that similar behavior will occur with CO<sub>2</sub> emission trading markets. Indeed, EPA's discussion of state discretion in allowance allocation almost assures it. A discussion from a June 2011 paper from the Centre for Climate Change Economics and Policy housed by the London School of Economics and Political Science and University of Leeds in the United Kingdom offers telling commentary to this end:

As with markets generally, environmental markets should not necessarily be expected to promote distributive justice or reduce inequality. Other things being equal, one might therefore expect the move to emissions trading to generate more unequal outcomes. However, the distributional consequences of an individual ETS [emissions trading scheme] are a function of the specific rules for allocating permits. Indeed, there is no reason in principle for an ETS to lead to more unequal distribution of wealth. It will depend on how the scheme is designed. The key point is this: whatever account of distributive justice one favours, the ETS can be designed to deliver a just outcome, either by specifying the allocation of permits in line with this favoured principle or by auctioning the permits and

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<sup>42</sup> See, e.g., Jeffrey A. Eisenach, American Enterprise Institute, *Spectrum Favoritism is Bad Economics*, *Forbes* (Apr. 28, 2015), available at

<http://www.forbes.com/sites/realspin/2015/04/28/spectrum-favoritism-is-bad-economics/>.

<sup>43</sup> *Id.*

<sup>44</sup> *Id.*

then distributing the revenues in line with this favoured principle.

In practice, two considerations will determine whether an ETS exacerbates or reduces inequality: first, the impact of increasing the cost of emitting pollution on different segments of the population and second, the transfers of wealth involved in the sale or free allocation of emissions allowances.

Controlling pollution directly or indirectly leads to an increase in the cost of pollution so that individuals and firms produce less of it. The evidence available strongly suggests that controlling carbon dioxide emissions is regressive, which is to say that the impacts are worse for low-income households (as a proportion of their income) than high-income households. This effect can be neutralised or reversed if the policy (whether emissions trading or taxes or otherwise) raises government revenue which is recycled to compensate poorer households. In Australia, for instance, the Garnaut Review notes that roughly 10 per cent of income is spent on transport fuel, gas and electricity by low-income households, while high-income households spend only 5 [percent] on these goods. Pricing pollution thus hits poorer people relatively harder. Further, poorer households often rent, rather than own, their accommodation, which further constrains their ability to respond by adopting low-emissions substitutes, such as insulation, efficient space heating, hot water systems and cooking appliances. Similar effects are found in other countries.

For emissions trading to avoid regressive impacts, allowances must be sold to firms with a portion of the revenues directed to provide compensation to poorer households. This compensation could be a function of the costs required to adjust to a low-carbon economy, or could simply be given to low-income households through the tax system.<sup>45</sup>

<sup>45</sup> Simon Caney and Cameron Hepburn, *Carbon Trading: Unethical, Unjust and Ineffective?*, at 25-26 (June 2011), available at [http://www.cccep.ac.uk/Publications/Working-papers/Papers/50-59/WP59\\_carbon-trading-caney-hepburn.pdf](http://www.cccep.ac.uk/Publications/Working-papers/Papers/50-59/WP59_carbon-trading-caney-hepburn.pdf).

The CPP Final Rule and any emissions trading scheme adopted as a compliance pathway will force state regulators and elected officials to confront numerous “favoured principles” and pressure to distribute revenues, allowances, ERCs or other trading currency “in line with [the applicable] favoured principle.” States will face pleas to mitigate the effect on specific utilities (e.g., rural cooperatives, municipal utilities, small utilities, and utilities with politically advantageous customer bases) or EGUs, including by incenting the larger utilities to bear more significant CO<sub>2</sub> emission reductions and associated costs through fuel-switching and other activities. In particular, states with coal-centric utilities will be confronted with programs to allocate trading currency not according to market principles, but political principles. In turn, responding to these incentives will create cross-subsidy flows between utilities. It will look something like the universal service system in telecommunications, where urban customers subsidize telephony and increasingly broadband for rural customers.<sup>46</sup> In the electricity context in many (if not all) states, this amounts to customers of large investor-owned utilities or significant municipal utilities covering the CPP compliance costs of rural cooperatives and small municipal utilities, as well as rural generation and transmission providers.<sup>47</sup>

<sup>46</sup> See, e.g., Federal Communications Commission Universal Service Home page, available at <https://www.fcc.gov/encyclopedia/universal-service> (“Universal service is the principle that all Americans should have access to communications services. Universal service is also the name of a fund and the category of FCC programs and policies to implement this principle. Universal service is a cornerstone of the law that established the FCC, the Communications Act of 1934. Since that time, universal service policies have helped make telephone service ubiquitous, even in remote rural areas. Today, the FCC recognizes high-speed Internet as the 21st Century’s essential communications technology, and is working to make broadband as ubiquitous as voice, while continuing to support voice service.”)

<sup>47</sup> The other alternative is that negatively affected utilities or EGU owners and operators lacking scale sell to larger players to achieve more scale and socialize compliance costs across a larger customer base. This will be resisted because of traditional attachments, particularly to the municipal or cooperative model. By the same token, PUCs or PSCs might look askance at an IOU roll-up of carbon-unattractive utilities because it would require IOU customers to pay for compliance costs properly belonging on the acquired utility’s customers.

*c. Complications with existing bilateral arrangements*

An additional and complex distortion flows from the overlay of a CO<sub>2</sub> emission trading regime on existing contractual arrangements. Specifically, a trading scheme that requires EGU owners and operators to possess allowances creates issues with preexisting bilateral power purchase agreements (PPAs) or tolling agreements, which may have varied payment terms regarding who and when payments are made as between the parties.

An example is useful to illustrate the complications. In a state with a trading regime in place, an independent combustion turbine (CT) power plant has a tolling agreement with a utility executed prior to the existence of the trading platform. Given the timing of execution, the tolling agreement does not contemplate CO<sub>2</sub> costs and any costs not specified in the agreement are borne by the power plant owner and operator. However, the tolling agreement does provide for a capacity payment and two additional payments depending on operations of the power plant: (1) a megawatt-hour payment (*i.e.*, a fuel pass-through) and (2) a start-up payment for each time the plant cycles on from zero. Meanwhile, the purchaser utility is given exclusive control of this plant pursuant to the tolling agreement and decides when to bid into the independent system operator (ISO) and the amount of the bid. The utility's bidding behavior presumably represents the amount of variable costs that it is responsible for under the arrangement. However, with the trading regime in place, an additional variable cost in the form of the CO<sub>2</sub> price or CO<sub>2</sub> emission allowance cost is in play that was not contemplated at the time the tolling agreement was executed between the parties. The tolling agreement does not anticipate or otherwise provide for this new variable cost, and therefore the utility does not have to pay it. Rather, the EGU owner or operator (*e.g.*, an independent power producer) is responsible for the cost. Now insert an additional plant into the equation such as a utility-owned plant or a plant that is a more efficient combined cycle combustion turbine (CCCT) power plant. The CCCT has a better heat rate and also a more prescient contractual arrangement that includes the CO<sub>2</sub> price or CO<sub>2</sub> emission allowance cost as a cost for which the *bidder is responsible*. Therefore, the bidder incorporates this variable cost into its bid price.

The circumstances described above create a situation where, though the CO<sub>2</sub> price or CO<sub>2</sub> emission allowance cost is paid in the end, economically efficient behavior is reduced. Because of the bidding-actor problem, preference is given to the less-efficient, more CO<sub>2</sub>-intensive CT peaker facility rather than the more efficient CCCT power plant with a better heat rate. Dismissing this scenario as a contracting issue (*i.e.*, one agreement contemplated the future regulation of CO<sub>2</sub> and one did not) is a natural impulse but ignores the broader issue. This type of scenario creates a dispatch curve that is not consistent with the most efficient scenario where plants are dispatched based on the actual variable costs of running one power plant as compared to another power plant. We arrive at this result because the notion of environmental dispatch stimulated by the CO<sub>2</sub> price or CO<sub>2</sub> emission allowance cost is draped upon a preexisting and complex regime of bilateral contracts and agreements between EGU owners and operators and utilities that ultimately bid into ISOs.

The situation described above serves as a reminder and a worthwhile consideration as trading schemes are implemented on a state or multi-state basis knitted over the top of contractual agreements already in place in states and organized markets.

## **VI. The Attraction of State Legislation**

Notwithstanding the political economy and implementation difficulties described above, states that persevere with a mass-based trading regime would be wise to consider state legislation enacting any such trading regime. To be sure, this will run contrary to the advocacy of many groups that states should administratively adopt EPA's model trading rule whole cloth to expedite the approval process. However, this approach overlooks key benefits of emissions trading enacted through state legislation. Specifically, it avoids federal enforceability of requirements within the emissions trading architecture and allows states and trading market participants to develop and implement nascent CO<sub>2</sub> emission trading schemes outside the purview of the citizen suit<sup>48</sup> and penalty<sup>49</sup> provisions of the Clean Air Act.

Notwithstanding these benefits, and before moving forward with this analysis, it is important to note that state legislation may be required to enact any emissions

<sup>48</sup> 42 U.S.C. § 7604.

<sup>49</sup> 42 U.S.C. § 7413.

trading regime, even where EPA's model rate-based or mass-based trading rule is adopted in its entirety. This is a state-by-state question based upon state-specific constitutional provisions and administrative law constructs. It turns on the extent of the statutory delegation to air regulators (or the state agency charged with implementation) and whether that delegation satisfies EPA's requirement that CO<sub>2</sub> emission reductions measures be "enforceable."<sup>50</sup> In some, if not many, instances will be resolved by the state courts through litigation over what state law does, or does not, allow.

*a. CPP plan types and CO<sub>2</sub> emission trading*

The CPP Final Rule contemplates two types of state plan approaches: (1) an "emissions standard" approach and (2) a "state measures" approach.<sup>51</sup> Under the emissions standard approach, states "establish emission standards for its affected EGUs sufficient to meet the requisite performance rates or state goal, thus placing all of the requirements directly on its affected EGUs ...."<sup>52</sup> These emissions standards are federally enforceable.<sup>53</sup> The state measures approach, on the other hand, grows out of the portfolio approach<sup>54</sup> and state commitment approach<sup>55</sup> set forth in the proposed rule. This approach allows states to rely on *state-enforceable* measures to meet a statewide mass-based CO<sub>2</sub> emission goal (a state may only use a mass-based CO<sub>2</sub> emission goal if it chooses to proceed

under the state measures approach).<sup>56</sup> The state measures relied upon in the state plan are not federally enforceable,<sup>57</sup> but must be "measures that the state adopts and implements as a matter of state law."<sup>58</sup> States have the option of coupling state measures with federally enforceable emission standards for affected EGUs or proceeding with a state plan that relies only on state measures.<sup>59</sup> The state measures must result in achievement of the mass-based CO<sub>2</sub> emission goal for the state or the mass-based CO<sub>2</sub> emission goal with new source complement to be approved by EPA.<sup>60</sup> In addition, the state plan must include "a demonstration of adequate legal authority and funding to implement the state plan and any associated measures."<sup>61</sup> Finally, any state measures plan must have a federal backstop, which would be "composed of federally enforceable emission standards for the affected EGUs that are sufficient to achieve the state CO<sub>2</sub> emission goal or the

<sup>56</sup> *CPP Final Rule*, at 33 ("A state that adopts a state measures approach must use its mass CO<sub>2</sub> emission goal as the metric for demonstrating plan performance.")

<sup>57</sup> *CPP Final Rule*, at 899 ("This plan type would allow the state to implement a suite of state measures that are adopted, implemented, and enforceable only under state law, and rely upon such measures in achieving the required level of CO<sub>2</sub> emission performance from affected EGUs.")

<sup>58</sup> *CPP Final Rule*, at n. 795 ("State measures" refer to measures that the state adopts and implements as a matter of state law. Such measures are enforceable only per applicable state law, and are not included in the federally enforceable state plan.")

<sup>59</sup> *CPP Final Rule*, at 901 ("For a state measures plan to be approvable, it must include a demonstration of how the measures, *whether state measures alone or state measures in conjunction with any federally enforceable emission standards for affected EGUs*, will achieve the state mass-based CO<sub>2</sub> emission goal for affected EGUs (or mass-based CO<sub>2</sub> goal plus new source complement)." (emphasis added))

<sup>60</sup> *CPP Final Rule*, at 901; *see CPP Final Rule*, at 1178 (Table 14 setting forth mass-based goals plus the new source complement for each state). The CPP Final Rule discusses the "new source complement" in part as follows: "[t]he EPA is providing a mass budget for each state that account for the state's mass CO<sub>2</sub> goal for affected EGUs and a complementary emission budget for new sources, referred to as the new source CO<sub>2</sub> emission complement. States that both adopt the EPA-provided mass budget, based on the state mass-based CO<sub>2</sub> goal for affected EGUs plus the new source CO<sub>2</sub> emission complement, and regulate new sources under this emission budget as a matter of state law, in conjunction with federally enforceable emission standards for affected EGUs as part of the mass-based state plan may be able to submit a presumptively approvable plan." *CPP Final Rule*, at 1177.

<sup>61</sup> *CPP Final Rule*, at 901.

<sup>50</sup> *CPP Final Rule*, at 37.

<sup>51</sup> *CPP Final Rule*, at 32-33.

<sup>52</sup> *CPP Final Rule*, at 32.

<sup>53</sup> *CPP Final Rule*, at 897.

<sup>54</sup> *See* EPA Office of Air and Radiation, *State Plan Considerations – Technical Support Document for Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units*, Docket ID No. EPA-HQ-OAR-2013-0602 (June 2014), available at <http://www2.epa.gov/sites/production/files/2014-06/documents/20140602tsd-state-plan-considerations.pdf>.

<sup>55</sup> 79 Fed. Reg. 34,902 (June 18, 2014) ("[U]nder the state commitment approach, the state requirements for entities other than affected EGUs would not be components of the state plan and therefore would not be federally enforceable. Instead, the state plan would include an enforceable commitment by the state itself to implement state-enforceable (but not federally enforceable) measures that would achieve a specified portion of the required emission performance level on behalf of affected EGUs.")

CO<sub>2</sub> emission performance rates in the event that state measures do not result in the required CO<sub>2</sub> emission performance ....<sup>62</sup> States may choose to have the model trading rule promulgated by EPA as the federal backstop.<sup>63</sup>

State measures may take many forms, from existing IRP or similar resource planning processes to renewable portfolio standards to energy efficiency standards to even a carbon tax implemented through state legislation.<sup>64</sup> Importantly for purposes of this analysis, however, EPA states as follows in the CPP Final Rule:

The EPA believes the state measures plan type will provide states with additional latitude in accommodating existing or planned programs that involve measures implemented by the state, or by entities other than affected EGUs, that result in avoided generation and CO<sub>2</sub> emission reductions at affected EGUs. This includes market-based emission budget trading programs that apply, in part, to affected EGUs, such as the programs implemented by California and the RGGI participating states in the Northeast and Mid-Atlantic ....<sup>65</sup>

Accordingly, a mass-based CO<sub>2</sub> emission trading program is an eligible state measure *so long as* it is adopted and implemented according to state law. Under this scenario, which is the case in California pursuant to Assembly Bill 32 (AB 32)<sup>66</sup> and in all of the RGGI states save New York,<sup>67</sup> states may pass

<sup>62</sup> *CPP Final Rule*, at 902-903.

<sup>63</sup> *CPP Final Rule*, at 904.

<sup>64</sup> *CPP Final Rule*, at 898-899 (stating in part “that the state measures plan type could accommodate imposition by a state of a fee for CO<sub>2</sub> emissions from affected EGUs, an approach suggested by a number of commenters.”)

<sup>65</sup> *CPP Final Rule*, at 898.

<sup>66</sup> Cal. Assembly Bill No. 32, *California Global Warming Solutions Act of 2006* (Sept. 27, 2006), available at [http://www.leginfo.ca.gov/pub/05-06/bill/asm/ab\\_0001-0050/ab\\_32\\_bill\\_20060927\\_chaptered.pdf](http://www.leginfo.ca.gov/pub/05-06/bill/asm/ab_0001-0050/ab_32_bill_20060927_chaptered.pdf).

<sup>67</sup> See Connecticut (R.C.S.A 22a-174-31; Conn. Gen. Stat. Section 22a-200c); Delaware (7 DE Admin Code 1147; Title 7 Chapter 60 of the Delaware Code, Subchapter IIA, §6043); Maine (DEP Chapter 156-158; Maine Rev. Stat., Title 38, Chapter 3-B); Maryland (Department of Environment, Title 26, Subtitle 9; Environment Article, §§1-101, 1-404, 2-103, and 2-1002(g), Annotated Code of Maryland); Massachusetts

legislation implementing emissions trading regimes and sidestep the federal enforcement overlay.<sup>68</sup> This has distinct advantages over emissions trading schemes that are adopted through administrative processes at state agencies.

*b. Setting aside the Clean Air Act citizen suit provision*

Any trading program developed through an administrative process cannot satisfy the state measures standard because the program components are not “measures that the state adopts and implements as a matter of state law.”<sup>69</sup> This leaves the trading scheme federally enforceable as part of the approved state plan. A trading program implemented through state law,

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(DEP Regulations 310 CMR 7.70; 225 CMR 13.00; M.G.L. c. 21A, §22); New Hampshire (NH Code of Admin. Rules, Chapter Env-A 4600; Chapter Env-A 4700; Chapter Env-A 4800; RSA 125-O:19-28p; RSA 125-O:8, I(c)-(g)); Rhode Island (Dept. of Environmental Management Office of Air Resources, Air Pollution Control Regulation No. 46 and 47; R.I. Gen. Laws §42-17.1-2(19), §23-23 and §23-82); Vermont (30 V.S.A. § 255; 30 V.S.A. § 209(d)(3)); Agency of Natural Resources, Vermont CO<sub>2</sub> Budget Trading Program 23-101 – 23-1007). New York did not pass legislation, which resulted in subsequent litigation. However, the court did not consider the merits of the claims because they were time-barred. See *Thrun v. Cuomo*, 112 A.D.3d 1038 (N.Y. App. Div. Dec. 5, 2013).

<sup>67</sup> *State Plan Considerations* at n.19. For this reason, the RGGI trading platform in New York does not meet the state measure requirements in the CPP Final Rule.

<sup>67</sup> 2007 RGGI By-Laws, at Art. I, available at [http://www.rggi.org/old/docs/rggi\\_bylaws\\_12\\_12\\_07.pdf](http://www.rggi.org/old/docs/rggi_bylaws_12_12_07.pdf).

<sup>68</sup> It is also noteworthy that on October 8, 2015, New York Governor Andrew Cuomo announced it planned to work with other RGGI states to link the RGGI program with the AB 32 market in California. Press Release, *Governor Cuomo, Joined By Vice President Gore, Announces New Actions to Reduce Greenhouse Gas Emissions and Lead Nation on Climate Change* (Oct. 8, 2015) (“New York and the other northeast regional greenhouse gas cap and trade states have demonstrated that carbon markets are a powerful tool for reducing the pollution that is contributing to climate change. Therefore, in order to maximize impact of proven strategies, New York State will engage its partners in the Regional Greenhouse Gas Initiative (RGGI) and California, Quebec and Ontario to explore the possibility of linking the successful carbon markets.”)

<sup>69</sup> *CPP Final Rule*, at n. 795 (““State measures’ refer to measures that the state adopts and implements as a matter of state law. Such measures are enforceable only per applicable state law, and are not included in the federally enforceable state plan.”)

however, would be a state measure – no different than RGGI and AB 32 in California – and avoid federal enforcement.

Status as a state measure “adopted, implemented and enforceable only under state law”<sup>70</sup> would put the emissions trading scheme outside the scope of the citizen suit provision of the Clean Air Act. 42 U.S.C. § 7604(a)(1) allows “any person ... on his own behalf” to enforce compliance with emission standards or limitations or orders issued by EPA or a state with regard to the emission standards or limitations under the Clean Air Act.<sup>71</sup> Emission standards or limitations are defined in detail under this provision and include “a schedule or timetable of compliance, emission limitation, standard of performance or emission standard ...”<sup>72</sup> However, the statute further provides that any emission standard or limitation must be “in effect under this Act ... or under a particular implementation plan.”<sup>73</sup>

Section 111 of the Clean Air Act defines “standard of performance” as “a standard for emissions of air pollutants which reflects the degree of emission limitation achievable through the application of the best system of emission reduction which (taking into account the cost of achieving such reduction and any nonair quality health and environmental impact and energy requirements) the Administrator determines has been adequately demonstrated.”<sup>74</sup> This term is incorporated into Section 111(d) requiring the establishment of standards of performance for existing sources:

[E]ach State shall submit to the Administrator a plan which (A) establishes standards of performance for any existing source for any air pollutant (i) for which air quality criteria have not been issued or which is not included on a list published under section 7408(a) of this title or emitted from a source category which is regulated under section 7412 of this title but (ii) to which a standard of performance under this section would apply if such existing source were a new source, and (B)

<sup>70</sup> *CPP Final Rule*, at 899.

<sup>71</sup> 42 U.S.C. § 7604(a)(1).

<sup>72</sup> 42 U.S.C. § 7604(f)(1).

<sup>73</sup> 42 U.S.C. § 7604(f).

<sup>74</sup> 42 U.S.C. § 7411(a).

provides for the implementation and enforcement of such standards of performance.<sup>75</sup>

Any standards of performance established pursuant to Section 111(d) is therefore as “emission standard or limitation” under the citizen suit provision of the Clean Air Act and subject to enforcement through this section of the statute. By establishing an emissions standard approach and a state measures approach, however, EPA has created two compliance pathways. The emissions standard approach comports with the express language of Section 111(d) and creates federally enforceable standards of performance applied to affected EGUs. The state measures approach, and in turn any emissions trading regime established pursuant to state law, operates outside of this statutory paradigm and is enforceable “only under state law.”<sup>76</sup> Therefore, any state measure is not an “emission standard or limitation” under the citizen suit provision because it would not constitute “a schedule or timetable of compliance, emission limitation, standard of performance or emission standard ... which is in effect under this Act ... or under an applicable implementation plan.”<sup>77</sup> Rather, it is a state measure referenced in a state plan submitted under the CPP but enforceable only by the state – not through any federal avenue including the citizen suit provision of the Clean Air Act.

This legal jargon leads to a simple conclusion. Emissions trading regimes established pursuant to state law operate as state measures and not as federally enforceable components of a state plan. Without this federal enforcement hook, the oft-utilized citizen suit provision of the Clean Air Act is inapplicable. This immunity provides significant benefits to states, EGU owners and operators, and any other participant with potential liability under a state plan. Without the constant threat of litigation that exists in other Clean Air Act contexts through the citizen suit provision, entities can work to develop and refine complicated CO<sub>2</sub> emissions trading markets if that is the desired path of a particular state. To do so, however, the emissions trading regime must be established under state law.

<sup>75</sup> 42 U.S.C. § 7411(d).

<sup>76</sup> *CPP Final Rule*, at 899.

<sup>77</sup> 42 U.S.C. § 7604(f).



c. *Setting aside Clean Air Act penalties*

An emissions trading program implemented through state law also may operate (assuming the federal backstop is not triggered) outside of the Clean Air Act penalty regime. This regime is set forth at 42 U.S.C. § 7413 and allows for the issuance of administrative penalties of up to \$37,500 per day<sup>78</sup> and instituting criminal proceedings against “[a]ny person who knowingly” violates relevant provisions of an approved state or federal plan.<sup>79</sup>

Again, however, the state measures approach puts any state measure relied upon as part of a CPP compliance strategy outside the scope of these penalty provisions. Administrative penalties, for example, may be sought in several instances, including where “any person ... has violated or is violating any requirement or prohibition of an applicable implementation plan ....”<sup>80</sup> EPA can and does issue severe penalties under this provision, and the agency lists all civil settlements and fines on its website.<sup>81</sup> With state measures being enforceable under state law only, these measures are not a federally enforceable component of a state plan under the CPP and therefore not subject to administrative penalties or any other sanction under this section of the statute.

To be sure, the exemption of state measures from the Clean Air Act penalty regime does not give participants in an emissions trading scheme established by state law the ability not to meet targets under the scheme. However, it gives state legislatures and agencies the ability to design a less onerous compliance and penalty scheme. This may have significant benefits as states that chose to comply with the CPP through mass-based emission trading work through market design and compliance issues as trading schemes are implemented on a single- or multi-state basis.

<sup>78</sup> 42 U.S.C. § 7413(d). In late 2013, EPA made the default penalty up to \$37,500 per day of violation. 78 Fed. Reg. 66,643 (Nov. 6, 2013).

<sup>79</sup> 42 U.S.C. § 7413(c)(1).

<sup>80</sup> 42 U.S.C. § 7413(d)(1)(A).

<sup>81</sup> Civil Cases and Settlements by Statute, Clean Air Act Home Page, available at <http://cfpub.epa.gov/enforcement/cases/index.cfm?templatePage=12&ID=1>.

d. *Controlling the proceeds from any mass-based trading system auction*

In the proposed model federal plan (Model Federal Plan)<sup>82</sup> issued contemporaneously with the CPP Final Rule, EPA discusses potential uses for auction proceeds from mass-based CO<sub>2</sub> emission trading programs. This is a key issue because the use of auction proceeds has been a significant public policy issue in the context of CO<sub>2</sub> emission trading. As discussed in a previous white paper by the authors,<sup>83</sup> Washington Governor Jay Inslee’s Carbon Accountability Act of 2015<sup>84</sup> sought to direct the projected \$1 billion in annual revenues from the trading program towards transportation, education and disadvantaged communities. In addition, the state of New York has and is diverting RGGI revenues to the general fund.<sup>85</sup> EPA tackles this issue in the Model Federal Plan:

Many ascribe benefits, in terms of economic

<sup>82</sup> Environmental Protection Agency, *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*, Docket EPA-HQ-OAR-2015-0199; FRL\_XXXX-X (Aug. 3, 2015) (hereinafter “Model Federal Rule”). As of the release date of this white paper, EPA has not published the Model Federal Rule in the Federal Register.

<sup>83</sup> Raymond L. Gifford, Gregory E. Sopkin and Matthew S. Larson, *EPA’s CO<sub>2</sub> Rules and the Common Elements Approach: Legal and Practical Issues with the Compliance Avenue* (Apr. 2015), available at [http://www.wbklaw.com/uploads/file/Articles-%20News/2015%20articles%20publications/White%20Paper%20-%20EPAs%20CO2%20Rules%20and%20the%20Common%20Elements%20Approach%20April%202015\(1\).pdf](http://www.wbklaw.com/uploads/file/Articles-%20News/2015%20articles%20publications/White%20Paper%20-%20EPAs%20CO2%20Rules%20and%20the%20Common%20Elements%20Approach%20April%202015(1).pdf).

<sup>84</sup> Washington Senate Bill 5283, available at <http://app.leg.wa.gov/billinfo/summary.aspx?bill=5283&year=2015>; Washington House Bill 1314, available at <http://app.leg.wa.gov/billinfo/summary.aspx?bill=1314&year=2015> (companion bills).

<sup>85</sup> Scott Waldman, *Sources: Lawmakers agree to sweep clean energy funds*, Capital New York (Mar. 26, 2015) (“State lawmakers have reached a tentative deal to move \$41 million from a clean energy fund and put it in the state’s general fund. Under a deal reached Wednesday, lawmakers will put \$18 million of the revenue earned by the Regional Greenhouse Gas Initiative in to the Environmental Protection Fund, according to sources close to the talks. An additional \$23 million will go toward other programs, sources said .... RGGI has raised \$760 million since it started in 2008. Counting the additional amount this year, about \$130 million has been diverted from the fund since then.”)

efficiency, to the use of auctioning as a means of allocating allowances. The EPA notes that some states (e.g., RGGI participating states) have used auctions to distribute allowances and have used auction revenues for a variety of purposes, including the implementation of demand-side EE measures intended to help reduce electricity rate impacts and overall program costs, as well as targeted investments in low-income income communities. The EPA believes that if it conducted allowance auctions, any revenue from such auctions received by the agency must be deposited in the U.S. Treasury under federal law. As a result, the EPA notes that states implementing state plans may have greater flexibility than the federal government would to direct auction funds for particular activities.<sup>86</sup>

This discussion raises two issues. First, EPA purports to have no choice but to funnel auction proceeds under a federally-imposed emission trading scheme to the U.S. Treasury. Assuming that proposition is accurate, and further assuming a state wishes to move forward with an emissions trading scheme to effectuate CPP compliance to avoid this result, it creates a question of state authority to direct proceeds from trading to specific ends. First, as discussed in the previous white paper, it is an open question whether any trading revenue distribution results in a new tax, which could trigger constraints imposed by state law such as a requirement for legislative or voter approval.<sup>87</sup> Second, it is highly questionable whether a state air regulator or other agency has existing authority (*i.e.*, absent new legislation) to develop regulations directing trading proceeds to address low-income energy issues, facilitate deployment of renewable energy, subsidize demand-side management efforts or supplement the state's general fund. Moreover, some states may want to use trading proceeds to pay down the costs of

stranded assets under the CPP and mitigate rate impacts to customers. A state agency that administratively implements a trading scheme that directs proceeds in any of these manners runs the risk of engaging in *ultra vires* action and becoming embroiled in litigation. It is not happenstance that Governor Inslee in Washington, by way of example, sought legislative approval to direct trading proceeds to transportation, education and disadvantaged communities.

Finally, from a public policy standpoint, many states may deem it appropriate to have *elected* state legislators weigh in and direct the use of trading proceeds consistent with the wishes of constituents. These elected officials are in the most appropriate position to evaluate the wisdom and subsequent distribution of any intra-governmental cross-subsidy or subsidy of another form. Therefore, legal and public policy reasons surrounding the collection and distribution of CO<sub>2</sub> emission trading proceeds support the notion that emissions trading schemes implemented through state legislation are superior to an administratively-derived emissions trading compliance approach.

## VII. Conclusion

In a not unanticipated move, EPA is pushing CO<sub>2</sub> emission trading schemes as the most appropriate, efficient, cheapest and easiest form of CPP compliance for states. EPA further promotes mass-based trading and implicitly dissuades states from pursuing complicated and difficult rate-based emission trading programs. EPA oversimplifies the implementation issues associated with mass-based CO<sub>2</sub> emission trading, however, by simply pointing to the historical use of these platforms within other Clean Air Act constructs. The size and scale of trading that would effectuate nationwide carbon resource planning for the entire U.S. electric sector is unprecedented. To be effective, carbon trading must contemplate extremely large transfer payments among states and utilities, as well creating incentives for new capital projects to effectuate fuel switching. Political economy issues will loom large within these trading schemes whether they are implemented on a single- or multi-state basis. To be effective, the design of a carbon trading market must create winners and losers. The winners will be states with credits to sell – the relatively coal-free Northeast and Pacific Coast. The losers will be states that presently have lower electric rates and have coal-

<sup>86</sup> Model Federal Rule, at 260-261.

<sup>87</sup> The Colorado Constitution, for example, requires a vote of the people before the State or any local government may create new debt, levy new taxes, increase tax rates or institute tax policy changes directly causing a net tax revenue gain. Colo. Const. Art. X, § 20. According to a 2010 National Conference of State Legislatures study, 30 states have some kind of tax or expenditure limitation. Bert Waisanen, *State Tax and Expenditure Limits – 2010* (2010), available at <http://www.ncsl.org/research/fiscal-policy/state-tax-and-expenditure-limits-2010.aspx>.

centric generation fleets – the interior West, Midwest and Southeast.<sup>88</sup>

To the extent states remain undeterred and seek to implement mass-based CO<sub>2</sub> emission trading programs, states and affected entities would be astute to disregard the advocacy seeking to implement these schemes through administrative processes. CO<sub>2</sub> emission trading programs implemented by state legislation give states control over proceeds and allows the program and its components to qualify as state measures. The state measures approach also allows states to ‘manufacture’ more tradable currency. More importantly, by rendering the citizen suit and penalty scheme of the Clean Air Act inapplicable, states avoid a huge entanglement in litigation and EPA enforcement.

All that said, while the design of the rule drives states both toward mass-based trading accompanied by state measures, it does not mean that trading will be easy. While the trading market will operate impersonally as utilities or EGU owners and operators make the “buy credits or retire units” calculus, beneath that calculus will of necessity be large distributive effects that the political markets in the states and at the federal level will be asked to mitigate. Depending on its status in the courts, expect this CPP Final Rule to let the trading, and lobbying, begin.

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<sup>88</sup> Explaining to a Wyoming rancher, Texas technology worker or Indiana manufacturer why her state just bought hundreds of millions or billions of dollars’ worth of Clean Power Plan compliance credits from coastal states might create some interesting political dynamics.

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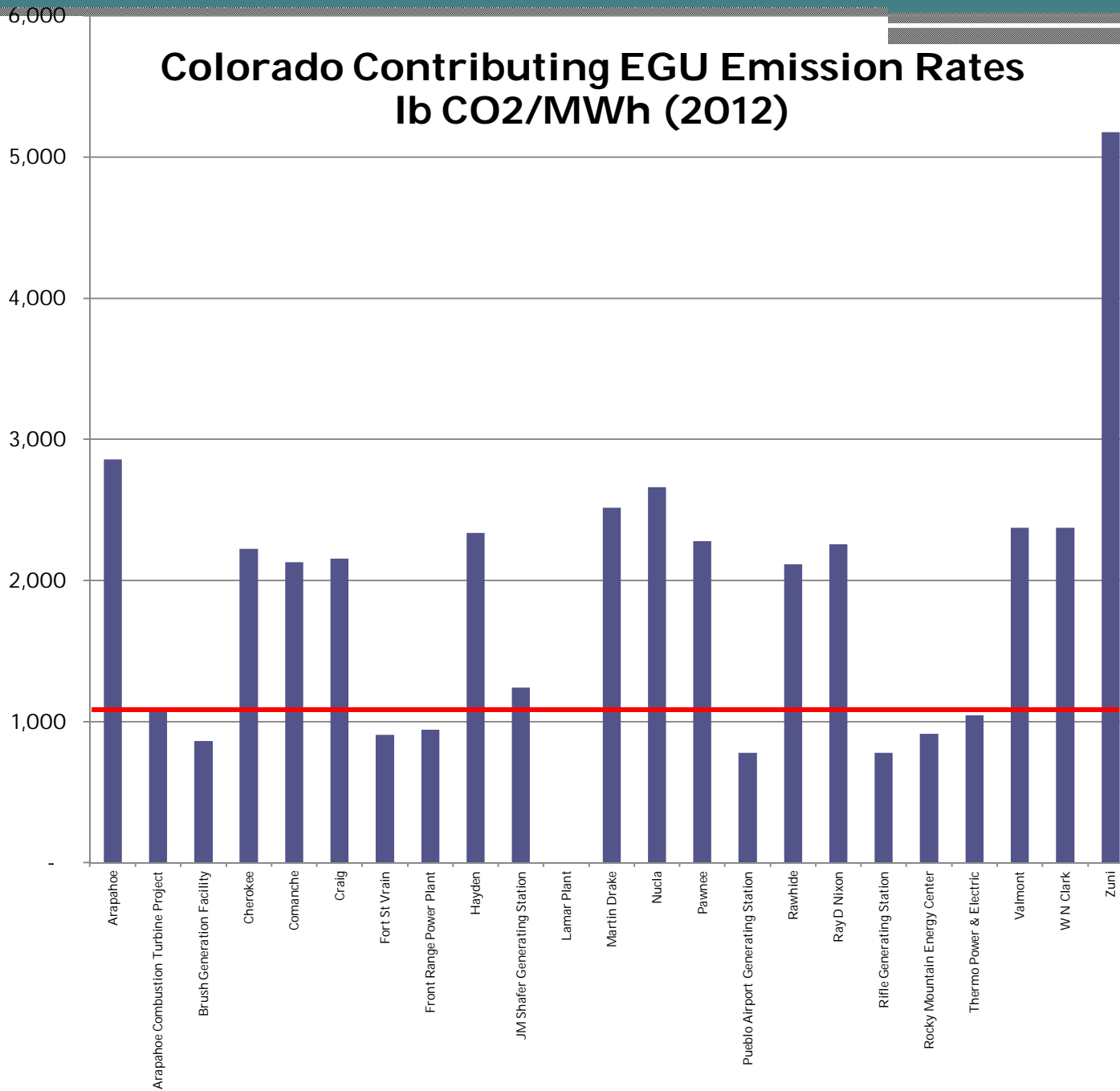
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## Colorado Contributing EGU Emission Rates Ib CO2/MWh (2012)



Colorado's 2030 Goal:  
1,108 Ib/MWh