

**Staff Proposal**  
**Addressing Clean Power Plan Compliance Through the  
Cap-and-Trade and Mandatory Greenhouse Gas Emissions Reporting  
Regulations**

**Introduction**

The federal Clean Power Plan (CPP), which requires states to achieve greenhouse gas reductions from many existing power plants by 2030, supports state compliance plans that use emissions trading systems. Many states are exploring this option. California is already implementing an economy-wide Cap-and-Trade Program (Program), which supports emission reductions from the electric power sector, as well as other industrial and fuel supplier sources. California also has a rigorous mandatory greenhouse gas (GHG) emissions reporting program (MRR) that supports the Cap-and-Trade Program. MRR and the Program are well positioned to provide compliance structures for the State's CPP compliance plan.

In developing this proposal, staff evaluated the best way to balance several important objectives. These objectives include continuing to rely on the linked California and Québec cap-and-trade programs to reduce GHG emissions while promoting additional economy-wide program linkages, supporting CPP, and supporting continued integration of grid operations and power markets in the Western Electricity Coordinating Council. There are additional benefits of the proposed approach, such as minimizing the administrative and regulatory burden for entities already covered by the Program and allowing for the possibility of future linkage with other trading systems developed for CPP compliance.

Although CPP generally accommodates California's Program, for the Program to be used in a CPP compliance plan, certain changes would likely be required to both the Cap-and-Trade Regulation (Regulation) and MRR. Principally, these include changes to the Cap-and-Trade Regulation's compliance periods, along with changes to some reporting requirements. Because both the Cap-and-Trade Regulation and MRR will have proposed amendments this year, including in several instances for the post-2020 period, CPP-related changes will be included with those amendment packages. This Air Resources Board (ARB) staff paper outlines these and other potential regulatory changes.

**Requirements of CPP**

CPP allows economy-wide trading systems to be used for CPP compliance if they are submitted as "state measures" plans.<sup>1</sup> This plan type allows for continued operation of the state program with the economy-wide scope, provided that the state includes certain federally enforceable emission standards for CPP-covered electricity generating units (affected EGUs) at the outset, as well as a "backstop" standard that guarantees compliance with federal targets if the broader program underperforms.<sup>2</sup>

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<sup>1</sup> See, e.g., 80 Fed. Reg. 64,662, 64,851-53 (Oct. 23, 2015).

<sup>2</sup> See 40 C.F.R. § 60.5740(a)(2)-(3).

These immediately federally-enforceable standards ensure that affected EGUs remain in compliance with the larger economy-wide program. As the United States Environmental Agency (US EPA) explains:

“Where an emissions budget trading program addresses affected EGUs and other fossil fuel-fired EGUs, the requirements that must be included in the state plan are the federally enforceable emission standards in the state plan that apply specifically to affected EGUs, and the requirements that specifically require [them] to participate in and comply with the requirements of the emission budget trading program.”<sup>3</sup>

Sources are free to use any instruments trading in the existing state program to comply with these emission standards. These instruments may include offsets and linked program compliance instruments, incorporated within the state measure and emission standard.<sup>4</sup>

Within the larger economy-wide program, requirements of the state program on sources not regulated by the CPP (i.e., other industrial sectors) are *not* federally enforceable.

A federally enforceable “backstop” standard is also required. That standard must bring affected EGU smokestack emissions into compliance with the federal standard if the combination of the “state measure” (the economy-wide program) and the emission standard (the requirement that EGUs participate in that market) does not perform as expected when compared to a glide path established by the state that is consistent with the federal targets.<sup>5</sup> Notably, the backstop standard must ensure that smokestack emissions reductions from affected EGUs are achieved.<sup>6</sup> The backstop can be triggered by emissions exceedances above interim targets that the state sets for each compliance period, consistent with the overall federal targets.

In addition to these fundamental structural requirements, state measures plans must comply with several other CPP requirements. These include:

Compliance Periods. Both the emissions standards and state measures must have compliance periods that end no later than the compliance periods defined by the CPP.<sup>7</sup> These CPP periods are:<sup>8</sup>

- January 1, 2022 – December 31, 2024;
- January 1, 2025 – December 31, 2027;
- January 1, 2028 – December 31, 2029; and
- January 1, 2030 – December 31, 2031, and every two years thereafter.

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<sup>3</sup> 80 Fed. Reg. at 64,891.

<sup>4</sup> See also 40 C.F.R. § 60.5880 (defining tradable instruments, for CPP purposes, capaciously).

<sup>5</sup> See 40 C.F.R. § 60.5740(a)(3). See also 80 Fed. Reg. at 64,891 n. 922 (discussing the backstop standard, and explaining that it must reduce “stack CO<sub>2</sub> emissions from affected EGUs”).

<sup>6</sup> See *id.*

<sup>7</sup> 40 C.F.R. § 60.5770.

<sup>8</sup> 40 C.F.R. § 60.5880.

Requirements for Allocation, Banking, and Borrowing. CPP contains certain minimum standards for mass-based trading programs.<sup>9</sup> These include requirements that plans:<sup>10</sup>

- Allocate allowances (as appropriate) prior to the beginning of each compliance period, and be able to adjust allocations as necessary
- Allow or restrict banking as necessary
- Prohibit “borrowing” of allowances for compliance purposes from future compliance periods for affected EGUs

Reporting Requirements for EGUs. State plans must include reporting requirements *no less stringent* than those set out in the CPP. These requirements, which are based on the federal Acid Rain Program (40 CFR Part 75) and federal GHG reporting program (40 CFR Part 98), generally require affected EGUs to record hourly carbon dioxide (CO<sub>2</sub>) emissions using either continuous emissions monitors (CEMS) or, for plants combusting exclusively liquid or gaseous fuels, fuel flow rate measurements coupled with gross calorific value measurements.<sup>11</sup> Plants must also record hourly net electric output using watt meters.<sup>12</sup> Owners and operators must submit reports recording CO<sub>2</sub> emissions and net electricity output to the state at the end of each compliance period, and demonstrate compliance with all applicable emission standards.<sup>13</sup> Records supporting compliance must be maintained on site for 2 years, and for 5 years total.<sup>14</sup>

Reporting Requirements for the State. By July 1 of the year following each compliance period, the state must demonstrate to EPA that affected EGUs complied with the federal target levels, and that the EGUs are in compliance with emission standards.<sup>15</sup> The state must also submit an annual report confirming implementation of all state measures.<sup>16</sup>

Permitting Requirements. Although not directly required by the CPP, federally-enforceable requirements of state plans, like all other applicable Clean Air Act-based requirements, must be reflected in Title V operating permits for affected EGUs.<sup>17</sup>

Address Leakage. Because the CPP focuses on existing EGUs, US EPA is concerned that it may create incentives to use EGUs constructed after the CPP was proposed, thereby undermining emissions reductions. States must demonstrate that their plans address this potential “leakage.” US EPA has suggested that adding a complementary limit for emissions from new EGUs may address this problem, though other mechanisms are possible.

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<sup>9</sup> ARB staff understands that U.S. EPA intends these standards to apply to all mass-based trading programs, including those submitted under state measures plans.

<sup>10</sup> See 40 C.F.R. § 60.5815.

<sup>11</sup> 40 C.F.R. § 60.5860.

<sup>12</sup> See *id.*

<sup>13</sup> See *id.*

<sup>14</sup> See *id.*

<sup>15</sup> See 40 C.F.R. § 60.5870. See also 40 C.F.R. § 60.5790 (describing compliance obligations for the CPP).

<sup>16</sup> See *id.*

<sup>17</sup> See 80 Fed. Reg. at 64,920.

Staff notes that other CPP requirements may become relevant if California later considers linkage to a CPP market. In particular, US EPA requires states operating programs that include non-CPP sources to apply certain adjustments to emissions figures to reflect new allowance imports and exports to and from the State with participants in the CPP market from other states.<sup>18</sup> Staff does not intend to include this import/export adjustment in California's compliance plan, or state rules, at this time, because no such linkages are currently under formal consideration. As state plans mature, such linkages may become a possibility. If a linkage is formally considered in the future, staff would hold public workshops to discuss linkage, and amendments to both MRR and the Regulation would be necessary.

It is also important to observe that the CPP contains a market-based "Clean Energy Incentive Program," which is a market-based program intended to encourage early investments in certain renewable energy and energy efficiency projects. Because this program remains under development by US EPA, staff does not anticipate amendments addressing it at this time, though staff plans to express continued interest in the program to US EPA.

In sum, the CPP's structural requirements necessitate some changes to the Cap-and-Trade Regulation and the Mandatory GHG Emissions Reporting Regulation if California uses its carbon market to demonstrate CPP compliance, as we discuss below.

### **Addressing CPP in the California Program**

Staff proposes to address CPP requirements in the following ways:

#### ***Cap-and-Trade Regulation***

The Cap-and-Trade Regulation could address the CPP as follows:

Compliance Periods. To match the CPP compliance periods, the Regulation would be amended for all covered sectors. This amendment would likely occur in the California, Québec, and other linked Western Climate Initiative partner programs. Because the federal program begins in 2022, and the most recent Cap-and-Trade Regulation compliance period ends in 2020, staff is proposing the following schedule to align the existing state and CPP programs:

- January 1, 2021 – December 31, 2022 ("bridge" period);
- January 1, 2023 – December 31, 2024 (remainder of first CPP period);
- January 1, 2025 – December 31, 2027 (second CPP period);
- January 1, 2028 – December 31, 2029 (third CPP period); and
- January 1, 2030 – December 31, 2031, and every two years thereafter.

Backstop Requirement. Generally, staff believes CPP-covered EGUs in aggregate will be able to comply with the federal limits. Modeling conducted to date projects that the

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<sup>18</sup> See 40 C.F.R. § 60.5740(a)(2)(ii)(H).

State would be several million short tons<sup>19</sup> below the 2030 federal target even under conditions that would be expected to increase GHG emissions (i.e., continued drought, high electricity demand, and low carbon pricing). Scenarios more consistent with existing policies show affected EGU emissions of 10-20 million short tons below federal targets, and policies now being explored (including a tighter 2030 GHG cap, and increased renewable energy and energy efficiency use) will likely reduce emissions even further.<sup>20</sup>

Regardless, the CPP requires states to identify a backstop measure. At this time, staff is proposing to maintain a set-aside pool of allowances available only to affected EGUs from within the post-2020 caps equal to approximately 10 million metric tons CO<sub>2</sub> equivalent. In the unlikely event this initial pool of allowances is depleted, staff is proposing to recharge the pool by redirecting allowances from the Program's Allowance Price Containment Reserve (APCR) proportional to the EGU aggregate share of the Program's reported and verified emissions for the most recent compliance period. As all of these allowances are from within the cap, retiring them would reflect real reductions under the Cap-and-Trade Program.

In the event the backstop is triggered, staff is proposing that all affected EGUs would be required to take action to bring the State back into compliance with the CPP. This would include a requirement that each affected EGU purchase and retire allowances proportional to their share of the aggregate sector's GHG emissions that exceed the federal limit. In order to recognize the potential for annual variability, staff is proposing that each individual EGU's proportion be established as the average of its annual emissions for the most recent three years of reported and verified data. Affected EGUs would need to purchase and retire allowances from the CPP backstop pool to bring the State back into compliance with the CPP, including a revised glide path. Staff is evaluating the CPP to understand if these allowances could be tradable once purchased, but staff does not believe these allowances could be used for general compliance under the state's Cap-and-Trade Program by the affected EGUs or other market participants. This will ensure the backstop mechanism is binding, results in direct emission reductions solely from affected EGUs, and ensures that the State is in compliance with the CPP.

The following equation describes how each affected EGU would calculate the amount of additional allowances they would be required to purchase and retire under this proposal:

$$\text{EGU}_{\text{Backstop}} = (\text{AvgEGU}/\text{AvgSector}) * \text{Gap}$$

Gap = amount of emissions that need to be mitigated to come into compliance with CPP (mitigation to make up for exceedance of the target in the last compliance period and ensure continued CPP compliance)

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<sup>19</sup> Most GHG emissions in this paper are introduced as short tons because that is the unit used by US EPA for CPP.

<sup>20</sup> See <http://www.arb.ca.gov/cc/capandtrade/meetings/20151214/cppmodeling.pdf>

$EGU_{\text{Backstop}}$  = amount of allowances an individual EGU needs to purchase and retire

$AvgSector$  = average of sector emissions for all covered EGUs for the most recent 3 years of reported and verified emissions

$AvgEGU$  = average individual EGU emissions for the most recent 3 years of reported and verified emissions

Stakeholder feedback will be especially important as backstop design decisions move forward, and the proposal is refined.

Glide Path. States must select appropriate targets for each interim period. Because modeling to date suggests that California EGU emissions will generally be below the final federal limit even in early years, staff is considering setting the interim targets at or near the final federal limit for each compliance period. Continued modeling will further inform this process.

Requirements for Allocation, Banking, and Borrowing. At this time, staff anticipates no changes as a result of these CPP requirements. Allocation would not be altered in response to CPP, and banking requirements now in effect would not be altered either. Although CPP does prohibit “borrowing” from future periods, staff believes that this prohibition does not affect the limited instances (i.e., true-up allocation, vintage-less allowances used for APCR, and allowances used in untimely surrender contexts) in which future vintage or vintage-less allowances may be used in the Cap-and-Trade Regulation. Specifically, staff believes this CPP provision is intended to prevent deferring compliance obligations to future periods, which the Cap-and-Trade Regulation also does not allow, and which is one of the design principles already included in the Design Recommendations for the Western Climate Initiative Regional Cap-and-Trade Program.<sup>21</sup>

Reporting Requirements for EGUs and for the State. The CPP requires allowance surrender reports after each compliance period, and requires a state report to US EPA on compliance on July 1 after the compliance period. ARB will be able to report complete emissions compliance information relative to federal emission targets, as well as compliance information on emission standards to date, by July 1 after the compliance period. Staff is examining the July 1 CPP reporting requirements relative to the current program. Staff will also explore the potential need to provide any supplemental information based on verified data, and relating to final surrender events, to US EPA after the November surrender deadlines, but prior to the end of the calendar year.

Coverage and Cessation. Nearly all CPP-affected EGUs already participate in the Cap-and-Trade Program. Staff proposes to incorporate the CPP applicability requirements

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<sup>21</sup> <http://www.westernclimateinitiative.org/component/remository/general/design-recommendations/Design-Recommendations-for-the-WCI-Regional-Cap-and-Trade-Program/>

into the Regulation, and require these affected EGUs to continue this participation as long as they remain affected EGUs under the CPP. For the very few units not currently covered under the Regulation, staff is considering whether it is appropriate to require them to participate, or whether other options are available, given their limited impact on overall sector and statewide GHG emissions. One option under consideration is to make clear that these EGUs are required (as a federally enforceable matter) to participate in the program if their emissions rise above current program thresholds.

Leakage Demonstration. Because California's Cap-and-Trade Regulation covers both new and existing EGUs, and because state-reduction requirements are likely to be significantly more stringent than those of the CPP, staff does not believe that there is any incentive to shift emissions from existing to new EGUs in California as a result of the CPP. In essence, all EGUs covered by the Cap-and-Trade Regulation experience the same compliance costs, and these costs are above those that the CPP alone would impose. Therefore, staff does not intend to formally add a new source complement, since these sources are already covered in California's economy-wide program.

### ***Mandatory Reporting Regulation***

MRR could address the CPP as follows:

Coverage and Cessation. All affected EGUs must record and report information relevant to the CPP. Staff believes that all California affected EGUs are already reporting under MRR. Under the CPP, EGUs may only cease reporting if they cease all operations and shut down. This CPP provision requires minor applicability and cessation changes to MRR. There are also a few EGUs subject to MRR and CPP with emissions below the verification threshold. Staff is considering whether to extend verification requirements to these sources, which would be required if they are included in the Cap-and-Trade Program as a result of the CPP.

Disaggregation of Affected EGUs. Most generating facilities reporting under MRR currently disaggregate their individual generating units, although aggregation is allowed. Under CPP, reporting must be performed at the generating unit level (with some exceptions for units using common stacks). Therefore, MRR would need to be amended to require disaggregated reporting for affected EGUs within a facility, and to clarify that affected EGUs must continue reporting, regardless of unit emissions level.

Data Collection Changes. MRR reporting for EGUs is based on the federal GHG reporting program, with modifications that typically increase the stringency and rigor for State purposes. Staff believes that this reporting is at least as stringent as CPP reporting. However, to be consistent with CPP requirements, an amendment could be required to MRR that would disallow use of the federal GHG stationary combustion methods (Subpart C of Part 98) for units that are subject to the Acid Rain Program or Part 75 (Subpart D). This change could affect nearly half of the California CPP units that are already subject to Part 75 but used a non-Part 75 method for estimating their emissions for MRR.

Recordkeeping. MRR already requires records to be retained for ten years for entities with Cap-and-Trade Regulation compliance obligations, and for five years for all other entities. These requirements meet the CPP's requirements, but because they do not require onsite recordkeeping, as the CPP does, MRR would need to be amended to require onsite recordkeeping for CPP-relevant records for affected EGUs for two years, consistent with the CPP requirement.

Calibration. Meter calibration is currently generally required once per three-year compliance period. To avoid complicating this requirement during a transition to new post-2020 compliance period timing, staff is considering simply requiring calibration of covered meters once every thirty-six months.

### ***Permitting Issues***

Staff recognizes that state compliance plan elements that create emission standards for affected EGUs are federally enforceable, and so must be reflected in Clean Air Act Title V operating permits. Staff will work with the Air Districts to develop appropriate permitting conditions that ensure enforceability while avoiding any unwarranted disruptions to the economy-wide cap and trade program and reporting program.

### **Conclusion and Next Steps**

Staff looks forward to stakeholder feedback on these topics, and requests feedback by Friday, March 11, 2016.